Microsoft Outlook

From: Sheryan Epperly [Sheryan.Epperly@noaa.gov]
Sent: Wednesday, April 28, 2010 8:50 AM
To: Chris Sasso; Wendy Teas; Lisa Belskis; Lesley Stokes; Paul Richards; Kate L. Mansfield
Subject: Fwd: [Fwd: OIL SPILL]

-------- Original Message --------
Subject:[Fwd: OIL SPILL]
Date: Wed, 28 Apr 2010 08:37:13 -0400
From: Jim Bohnsack <Jim.Bohnsack@noaa.gov>
To: Lance Garrison <Lance.Garrison@noaa.gov>, Sheryan Epperly <Sheryan.Epperly@noaa.gov>, Blair Mase <Blair.Mase@noaa.gov>

FYI

-------- Original Message --------
Subject: OIL SPILL
Date: Wed, 28 Apr 2010 07:53:34 -0400
From: Bonnie Ponwith <Bonnie.Ponwith@noaa.gov>
To: _NMFS SEC Division Chiefs <nmfs.sec.division.chiefs@noaa.gov>

All -

I know this will be the center piece of our manager's call this morning. I've called on many of you for information, points of contact and other support in the early days of the oil spill event. It is now clear that this will be a persistent and large-scale event here in the Gulf of Mexico. Here is an update on some of our activities and some guidance on our participation in supporting the oil spill response.

John Foret has agreed to serve as our representative at the Command Center in Houma and Karen Mitchell will be his backup.

Gregg Gitschlag and his colleagues are doing overflights of the spill as spotters for protected species. These observations will guide decisions on the use of in-situ burning and dispersants.

A team of our folks will be conducting a synoptic survey in the northern Gulf of Mexico area to gather data on numbers and distributions of protected species throughout the area.

Blair Mase has been working closely with HQ and the stranding network to prepare for potential impacts.

Tasker Management and Recording Participation

Several of you have provided data, maps and other information to address questions coming from the command center and throughout and beyond NOAA. I anticipate the volume of requests for rapid turn around input to grow. Here is some info and guidelines to ensure we are addressing incoming taskers as efficiently as possible:

Brian Pawlak has been named as the NMFS liaison to the NOAA's senior leadership for the oil spill response and information.

If you receive a spill-related tasker directly, rather than through Theo, Peter or me, please forward it to the three of us immediately so we're aware of the request and can coordinate with our HQ points of contact, Jenni Wallace and CAPT Gallagher and Brian Pawlak.

All responses that we submit will go through Peter, Theo and me to Jenni Wallace and CAPT Gallagher with a cc: to Brian Pawlak.

Peter will provide you with a special task code to use for expenses supporting the oil spill response effort. Base salaries are covered by us. Any overtime, travel, materials, etc. above should be charged against the special code for oil spill activities. I know you'll be responsible with this record keeping.

Communication Guidance
1) All media inquiries (within Fisheries) should be directed to Kim Amendola (727)551-5707 or anyone in Connie Barclay's shop (301)713-2370. They will manage these through the NOAA response plan and joint information center.
2) Also you can reference the web page NOAA/NOS developed for emergency responses. The Deepwater Horizon oil spill incident is listed on this page and will be updated nightly. This web page will be a key communication tool and repository for information as it develops.
http://response.restoration.noaa.gov

Finally, keeping pace with this event will require good communication and some strategic decision making. We need to know when a new demand on you will impinge on your ability to carry out a regularly scheduled component of your mission. This will enable us to make decisions on what gets done and to mitigate impacts on our mission by bringing in additional assistance.

Thanks to all of you for your leadership in the face of this disaster.

Bonnie

Microsoft Outlook

From: Sheryan Epperly [Sheryan.Epperly@noaa.gov]
Sent: Wednesday, April 28, 2010 8:59 AM
To: Larisa Avens; Joanne B Mcneill; Aleta Hohn
Cc: Chris Sasso; Wendy Teas; Lisa Belskis; Lesley Stokes; Paul Richards; Kate L. Mansfield
Subject: Fwd: [Fwd: OIL SPILL]

As you probably know, the oil spill in the Gulf is consuming a lot of our time. Oil could come ashore by the weekend - most likely in eastern Louisiana. We could be in a situation comparable to the cold stun event when suddenly we will need to deal with many sea turtles and cetaceans. OSHA requires training to be in the oiled environment (24 hr training) and even requires 8 hr training to handle oiled animals at a facility. We are in the process of getting training arranged for the stranding network personnel and our staff.

I don't know what human resources the response will require. I wanted to give you heads up that you could be asked to assist, either in the field, at a response center, or worst-case, conducting more necropsies. I don't know if you've had the HAZWOPER training yet or not. If not, or not current (within 1 year), then you probably should be looking at how to get it.

There has been a specific project code identified to charge against for all related expenses (travel, supplies, etc.). I'll let you know as soon as the training is scheduled. Likely the first round will be in New Orleans or Gulfport, MS. If you can't make it this time, I'm sure there will be more opportunities following soon!

Sherry

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Subject:[Fwd: OIL SPILL]
Date: Wed, 28 Apr 2010 08:37:13 -0400
From: Jim Bohnsack <Jim.Bohnsack@noaa.gov>
To: Lance Garrison <Lance.Garrison@noaa.gov>, Sheryan Epperly <Sheryan.Epperly@noaa.gov>, Blair Mase <Blair.Mase@noaa.gov>

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Subject: OIL SPILL
Date: Wed, 28 Apr 2010 07:53:34 -0400
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To: _NMFS SEC Division Chiefs <nmfs.sec.division.chiefs@noaa.gov>

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Thanks to all of you for your leadership in the face of this disaster.

Bonnie

Microsoft Outlook

From: Eric Schwaab [Eric.Schwaab@noaa.gov]
Sent: Thursday, April 29, 2010 6:31 PM
To: _NMFS All Employees
Subject: Oil Spill Update
Attachments: Eric_Schwaab.vcf

We are all watching with concern the unfolding oil spill incident occurring in the Gulf of Mexico. I wanted to let you know the activities to-date and the critical role that all NOAA line offices are playing, and the process we've established to ensure consistent and up-to-date communications.

As you know, on April 20th, there was an explosion that resulted in a massive fire on the Deepwater Horizon, a mobile offshore drilling unit in the Gulf of Mexico 50 miles offshore Louisiana. The rig burned for hours and then sank. Eleven out of 126 people remain unaccounted for. It was recently discovered that there are multiple leaks at a depth of 5,000 feet.

So far, attempts to use remotely operated vehicles to close valves and stop the leaks have been unsuccessful. Construction has begun on a collection dome that will be deployed to the sea floor to collect and funnel oil as it escapes, a method never tried at this depth before. The first rig to be used for drilling a relief or cut-off well has arrived and more are planned. A relief well would take several months to complete.

I want to acknowledge the tremendous amount of work being accomplished by our leadership and staff in the Southeast Region, Southeast Fisheries Science Center and within Headquarters. Dozens of your colleagues are working long hours, gathering and processing information, anticipating and planning for needed baseline information, on-going monitoring, and long-term response to both marine life and the coastal communities that will be impacted when this spill begins to come ashore.

All parts of NOAA are fully engaged providing scientific support to the U.S. Coast Guard and the Unified Command that is coordinating response operations. The overall coordination for the oil spill within NOAA is through the National Ocean Service and its Office of Response and Restoration. Support from National Marine Fisheries Service includes addressing impact and response issues related to marine mammals, sea turtles, shrimp and fisheries. National Weather Service is providing marine and aviation forecasts. The Office of Oceanic and Atmospheric Research is advising on airborne dispersion modeling and the National Data Buoy Center data is being used in oil trajectory forecasting. The National Environmental Satellite, Data, and Information Service is providing analysis of the oil spill using experimental methods with satellite imagery. Yesterday, NOAA's Assessment and Restoration Division (ARD) brought together more than 20 federal and state natural resource trustees to discuss natural resource assessments. Through ARD, Fisheries is helping to evaluate concerns about potential injuries of oil and dispersants to fishes, human use of fisheries, marine mammals, turtles and sensitive resources.

Yesterday, Roy Crabtree (Southeast Regional Administrator) and I were in New Orleans and met with the five Gulf States Fisheries Directors and the Gulf States Marine Fisheries Commission. We discussed potential impacts and set up our communication protocol.

Communication Guidance
NOAA and each of its line offices have established oil spill response teams to support the larger Unified Command effort and its Joint Information Center (JIC), as well as the Incident Command Center (ICC). Brian Pawlak (Deputy, Office of Habitat Conservation) is our Oil Spill Coordinator. Two of the most critical roles of this process are to ensure efficient use of our staff resources and provide consistent and accurate information.

To accomplish this, all oil spill "taskers" to Fisheries must be directed through the NOAA ICC. The ICC exists to track taskers, prioritize and deconflict multiple requests for resources, etc. Deputy Under Secretary Mary Glackin has asked everyone to use the ICC for all oil spill taskings. The NMFS desk at the ICC can be reached by email at icc.nmfs@noaa.gov. The telephone number at the ICC is 301-713-0136. Should you receive any oil spill taskers from anyone else, please forward them to icc.nmfs@noaa.gov for further guidance.

Understandably, we are receiving a great deal of inquiries and expressions of concern from our stakeholders in the Gulf and around the country about the anticipated harm to marine life and the economic impacts. To facilitate consistent and factual information, all press inquiries to Fisheries are to be routed to Connie Barclay (Connie.Barclay@nooa.gov) or Kim Amendola (Kim.Amendola@noaa.gov).

For all other public inquiries, please guide them to the informational web pages that are being updated daily with information on the spill and NOAA's ongoing response (links below), or direct them to Laurel Bryant for further guidance (Laurel.Bryant@noaa.gov)

http://response.restoration.noaa.gov/deepwaterhorizon
http://www.incidentnews.gov/incident/8220

I appreciate everyone's patience and team support during this critical time. Throughout the months ahead, many of you will be called upon to contribute and assist with this effort. Thanks.

Eric C. Schwaab

Eric Schwaab

Assistant Administrator for Fisheries

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301/713-1940

Version
2.1

Microsoft Outlook

From: Sheryan Epperly [Sheryan.Epperly@noaa.gov]

Sent: Thursday, April 29, 2010 2:44 PM

To: Bonnie Ponwith; Theo Brainerd; Peter Thompson; Jim Bohnsack

Cc: Chris Sasso; Wendy Teas; Lisa Belskis; Lesley Stokes; Paul Richards; Kate L. Mansfield; Lisa Desfosse; Guy Davenport; Roger Zimmerman

Subject: Fwd: Some current documents

Attachments: Marine Mammal Oil Spill Response Guidelines-2006.pdf; Impact of Oil on Marine Mammals and Sea Turtles-FINAL.pdf; Talking Points on Marine Animal Health Response for GOM Oil Spill-042910-FINAL.pdf

We contributed to the Fact Sheet and the Talking Points over the past couple of days. Looks like they are now final.

-------- Original Message --------
Subject: Some current documents
Date: Thu, 29 Apr 2010 14:17:27 -0400
From: Trevor Spradlin <Trevor.Spradlin@noaa.gov>
To:GOMMMST2010@noaa.gov

Hi All -- Attached are three (3) documents for your reference that we have provided to NOAA leadership and others as background for the Marine Animal Health and Stranding Response Program:

1. Marine Mammal Oil Spill Response Guidelines (2006)
2. Fact sheet on the Impacts of Oil on Marine Mammals and Sea Turtles
3. Talking Points on the Marine Animal Health and Stranding Response Program's action plan for the current response efforts in the Gulf of Mexico

Mike Ziccardi will be working with the Marine Animal Health and Stranding Response Program to adapt the Oil Spill Response Guidelines for the specific needs of this event, and he will provide them this group soon.

Thanks -- Trevor et al.

April 29, 2010

NOAA's Marine Animal Health and Stranding Response Program's Plan of Action for the Gulf of Mexico Deepwater Oil Spill

- The NOAA Fisheries' Office of Protected Resources is responsible for administering the Marine Animal Health and Stranding Response Program to assist marine mammals (whales, dolphin, porpoises, seals and sea lions) and sea turtles (when at sea) that are sick, injured or otherwise in distress and in need of care. NOAA's efforts are coordinated closely with the U.S. Fish and Wildlife Service, which is responsible for manatees and sea turtles (when on land). All marine mammals are protected under the Marine Mammal Protection Act and some species are also listed as endangered or threatened under the Endangered Species Act (ESA). All species of sea turtles are listed as endangered or threatened under ESA.

- NOAA's Marine Animal Health and Stranding Response Program oversees a national network of over 100 organizations around the coastal U.S. that are dedicated to responding to marine animal emergencies. These organizations are comprised of experts from federal and state wildlife agencies along with private wildlife rehabilitation and response groups, academic institutions, and zoo/aquarium facilities.

- As part of the standard operating procedures for oil spill response in the marine environment, the Unified Command requested NOAA's assistance with addressing marine mammal and sea turtle needs. NOAA's Marine Animal Health and Stranding Response Program is assisting the Wildlife Operations Branch of the Unified Command to provide expertise and support for the response efforts to the Deepwater Oil Spill. Established protocols and procedures for treating marine wildlife impacted by oil have been developed by NOAA and its partners and are being adapted to address the particular needs of this event.

- The Wildlife Operations Branch of the Unified Command has been divided into two parts: (1) marine bird response, which is being overseen by a contractor for BP, and (2) marine mammal and sea turtle response, which is being overseen by the chief veterinarian for the Oiled Wildlife Care Network who is a member of NOAA's stranding program.

- The marine mammal and sea turtle stranding network organizations have been placed on high alert to prepare for locating, recovering, and treating animals impacted by the oil spill. There are a limited number of rehabilitation facilities available along the Gulf of Mexico coast that can accommodate a high number of animals (or large species such as whales); however, arrangements are being made to set up temporary triage facilities in strategic locations where oiled animals can be brought for cleaning or for necropsy in the event an animal dies from the effects of the spill. Highly trained and qualified veterinarians and biologists will be on site to assist with both live animal care as well as collecting samples from dead animals that need to be sent to the approved diagnostic laboratories for analysis.

- The potential impacts to marine mammals and sea turtles from the oil spill could be severe depending on the chemical composition of the oil and how it degrades. The chemicals in oil, as well as the chemicals and procedures used to treat oil spills, can have serious health consequences for the

animals. Marine mammals and sea turtles may be exposed to chemicals in oil or the dispersants used to treat oil spills in two ways, particularly species that spend prolonged periods near the surface:

- Internally by eating or swallowing oil or tar balls that are formed from the spill, consuming prey containing oil based chemicals, or inhaling of volatile oil related compounds; and
- Externally by swimming in oil or dispersants, or having oil or dispersants on skin and body.

- Sea turtles and their eggs are at additional high risk from oiling impacts on nesting beaches through direct contact with oil on beaches when nesting turtles emerge from the sea and through chemical exposure of developing eggs that can result in developmental defects and/or decreased survival of hatchings. Juvenile sea turtles that live at sea and within a few meters of the surface are at very high risk of exposure and mortality and may not be detected by survey efforts since they are small and difficult to detect.

Science, Service, Stewardship

NOAA FISHERIES SERVICE

The Marine Mammal and Sea Turtle Health and Stranding Response Programs are dedicated to conserving and protecting marine animals by investigating health trends in wild populations and coordinating rescue and rehabilitation efforts for animals that are stranded, entangled or otherwise in need of assistance.

Impacts of Oil on Marine Mammals and Sea Turtles

Key Points

Oil is a mixture of chemicals, all of which may have different effects on marine animals and the combination may be even more hazardous. In addition, some of the chemicals and methods used to clean up oil spills may also have effects on marine animals. Toxicity or harmful effects are dependent upon:

- the mixture and types of chemicals that make up the oil or are used to clean up the oil,
- the amount of exposure (dose for internal exposures or time for external exposures),
- the route of exposure (inhaled, ingested, absorbed, or external), and
- the biomedical risk factors of the animal (age, sex, reproductive stage, and health status). For turtles this will include differing impacts and vulnerabilities at the different life stages such as eggs, post-hatchlings, juveniles and adults. For cetaceans this will include neonates, calves, juveniles and adults.

Research on dolphins in human care has shown that the animals avoid oil on the surface of the water, however observations of wild dolphins have documented the animals swimming in, feeding in and socializing in oiled water during previous oil spills in the Gulf of Mexico.

Several aspects of sea turtles put them at risk including the lack of avoidance behavior of oiled waters and indiscriminate feeding in convergence zones.

Whales, dolphins, manatees and sea turtles are air breathers and all must come to the surface frequently to take a breath of air. In a large oil spill, these animals may be exposed to volatile chemicals during inhalation.

Depending on the size of a particular spill, marine mammals and sea turtles could be exposed to these chemicals for a fairly long time.

Generalized Types of Impacts for Marine Mammals and Sea Turtles

The following are generalities and would need to be specifically applied to the situation or event.

Cetaceans, manatees and sea turtles may be exposed to chemicals in oil (or used to treat oil spills like dispersants) in two ways: internally (eating or swallowing oil, consuming prey containing oil based chemicals, or inhaling of volatile oil related compounds) and externally (swimming in oil or dispersants, or oil or dispersants on skin and body).

Additionally sea turtles may experience oiling impacts on nesting beaches and eggs through chemical exposures resulting in decreased survival to hatching and developmental defects in hatchlings.

External Effects:

- Cetaceans and manatees have no fur which can be oiled and do not depend on fur for insulation. Therefore they are not susceptible to the insulation effects (hypothermia) that often puts haired marine mammals (such as fur seals or sea otters) at risk.

- Oil and other chemicals on skin and body may result in skin and eye irritation, burns to mucous membranes of eyes and mouth, and increased susceptibility to infection. For large whales, oil can foul the baleen they use to filter-feed, thereby potentially decreasing their ability to eat.

Internal Effects:

- Inhalation of volatile organics from oil or dispersants may result in respiratory irritation, inflammation, emphysema, or pneumonia.

- Ingestion of oil or dispersants may result in gastrointestinal inflammation, ulcers, bleeding, diarrhea, and maldigestion.

- Absorption of inhaled and ingested chemicals may damage organs such as the liver or kidney, result in anemia and immune suppression, or lead to reproductive failure or death.

Summary:

- Direct contact with of petroleum compounds or dispersants with skin may cause skin irritation, chemical burns, and infections.

- Inhalation of volatile petroleum compounds or dispersants may irritate or injure the respiratory tract which may lead to inflammation or pneumonia.

- Ingestion of petroleum compounds may cause injury to the gastrointestinal tract, which may affect the animals' ability to absorb or digest foods.

- Absorption of petroleum compounds or dispersants may damage liver, kidney, and brain function as well as causing anemia and immune suppression.

- Long term chronic effects such as decreased survival and lowered reproductive success may occur.

- The Marine Mammal and Sea Turtle Stranding Networks have protocols and procedures in place for responding to live animals that are exposed to oil spills, and animals brought into rehabilitation facilities are provided veterinary care to remove oil and treat any related health effects.

MARINE MAMMAL HEALTH AND STRANDING RESPONSE PROGRAM

Marine Mammal Oil Spill Response Guidelines

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Office of Protected Resources
Marine Mammal Health and Stranding Response Program

NOAA Fisheries Guidance Document - Draft **4/10/2006**
For Information Only

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MARINE MAMMAL HEALTH AND STRANDING RESPONSE PROGRAM

Marine Mammal Oil Spill Response Guidelines

Shawn Johnson, Michael Ziccardi

Wildlife Health Center, School of Veterinary Medicine, University of California, One Shields Ave., Davis, CA 95616

U.S. DEPARTMENT OF COMMERCE
Carlos M. Gutierrez, Secretary
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NATIONAL MARINE FISHERIES SERVICE
William T. Hogarth, Assistant Administrator for Fisheries

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Correct citation of this report is:

Johnson, S., and M. Ziccardi. 2006. Marine Mammal Oil Spill Response Guidelines. NOAA Technical Memorandum..

Acknowledgements

Development and publication of the *Marine Mammal Oil Spill Guidelines* was made possible with the financial support from NOAA Fisheries, National Marine Mammal Health and Stranding Response Program and the combined effort of many different interested and willing parties and organizations. The bulk of these procedures are based on protocols developed by participant organizations within California's Oiled Wildlife Care Network (OWCN) from years of marine mammal rehabilitation and oil spill response experience. These guidelines could not have been written without the previous contribution to the field of marine mammal oil spill response by Pamela Yochem (Hubbs-SeaWorld Research Institute, San Diego, CA) and Marty Haulena (The Marine Mammal Center, Sausalito, CA). Additions and modifications to this document should be made regularly as advances in oil spill response techniques are made. Any suggestions for additional material or comments on methods included in this document are welcome.

Many individuals and organizations helped make this publication possible through the generous contributions of their time and effort and we offer our sincere thanks to everyone involved.

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2. LIVE Marine Mammal Data Log Form

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3. DEAD Marine Mammal Data Log Form

3b. DEAD Marine Mammal Data Log Form, page 2

4. Oiled Marine Mammal Intake Form
5. Oiled Marine Mammal Daily Progress Form
6. Oiled Marine Mammal Evidence Collection Protocol
7. Petroleum Hydrocarbon Tissue Sampling Protocol
8. Oil Spill Response Laboratories and Supplies
9. Oiled Marine Mammal Necropsy Form
10. Chain of Custody Form

10b. Chain of Custody Form, page 2

Document ID: 0.7.57.208.3

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Internet Resources

NOAA Fisheries, Marine Mammal Health and Stranding Response Program
http://www.nmfs.noaa.gov/pr/health/

NOAA, Damage Assessment and Restoration Program (DARP):
http://www.darp.noaa.gov/

U.S. Coast Guard Oil Spill Response: http://www.uscg.mil/hq/g-m/nmc/response/index.htm

U.S. Coast Guard Area Contingency Plans: http://www.uscg.mil/vrp/acp/acp.shtml

U.S. National Response Team: http://www.nrt.org/

Wildlife Health Center, UC Davis: http://www.vetmed.ucdavis.edu/whc/

Oiled Wildlife Care Network: http://www.vetmed.ucdavis.edu/owcn/

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Introduction

Marine Mammals and Oil: A Brief Overview

In comparison to marine birds, marine mammals are infrequently affected by oil spill incidents. The number of individuals and species affected, as well as the degree of pathological impact of such exposure, will depend on many variables, such as the location and size of the spill, the characteristics of the oil, weather and water conditions, types of habitats affected, the time of year the spill occurs, as well as the behavior and physiology of the marine mammal. Information on the effects of oil on marine mammals is sparse, and is mostly a result of the *Exon Valdez* oil spill in Alaska in 1989 and a limited number of exposure experiments on a narrow range of species exposed to relatively low doses of oil (Geraci and St. Aubin, 1990).

The sensitivity of marine mammals to spilled oil is highly variable and appears to be most directly related to the relative importance of fur and blubber to thermoregulation. In those species with relatively sparse fat stores, direct contact with oil impairs the thermal insulative value of fur thus resulting in hypothermia. External exposure can also result in dermal injury and conjunctivitis. Internal exposure of oil by ingestion (either by direct ingestion or indirect through food and water sources) can result in gastrointestinal ulcers and liver and kidney damage. Inhalation of volatile hydrocarbons can result in central nervous system and pulmonary damage and behavioral abnormalities. Depending upon the extent of external exposure, the toxicity of the petroleum product, the volume ingested or inhaled, the presenting clinical signs, and the species affected, some marine mammals exposed to oil may not need rehabilitation. Oil spill responders must consider that such procedures involving capturing, holding, treating, and releasing the wild animals places stress on the animal, and the consequences of capture and captivity may be a greater risk to its well being than contacting oil. Exceptions may include abandoned or moribund young pups of any species and species that rely on fur for thermal insulation. These animals will most likely require rehabilitation when oiled due to the physical and toxicological effects of petroleum exposure.

Pathological Effects of Petroleum Exposure

Documented clinical and histopathological effects of oil in pinnipeds and sea otters include ambulatory restrictions, thermoregulatory imbalance, central nervous system depression, interstitial pulmonary emphysema, aspiration pneumonia, anemia, conjunctivitis and corneal edema, gastrointestinal irritation, and hepatic and renal tubular necrosis/lipiosis, and adrenal gland dysfunction (Davis and Anderson, 1976; Geraci and Smith, 1976; Engelhardt et al., 1977; Engelhardt, 1985; Geraci and St. Aubin, 1988; Geraci and Williams, 1990; St. Aubin, 1990; Lipscomb et al., 1993). Small laboratory studies on the effects of oil have been conducted on ringed and harp seals (Smith and Geraci, 1975; Geraci and Smith, 1976); however most studies have been unable to correlate the degree of oiling with the type of effect and many of these lesions may be related to captivity stress or other underlying factors. Changes in acute phase proteins and cytokines (e.g. elevated IL-6, haptoglobin and creatine kinase) have been correlated with probable petroleum exposure in river otters (Duffy et al., 1993; Duffy et al., 1994). Oiled sea otters displayed evidence of hepatic and renal dysfunction as well as anemia in their blood parameters (Williams et al., 1995).

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Heavy oiling did not appear to interfere with seal locomotion during the *Exxon Valdez* oil spill (Lowry et al., 1994), but in previous spills seal pups encased in oil have drowned due to their inability to swim (Davis and Anderson, 1976). During *Exxon Valdez*, harbor seals were observed exhibiting abnormally tame or lethargic behavior. These observations are most likely explained by midbrain nerve damage found in oiled harbor seals and Steller sea lions (Spraker et al., 1994). In addition to the acute mortalities associated with the loss of thermoregulation and buoyancy, many physiological and behavioral problems have been attributed to internal exposure to petroleum and polycyclic aromatic hydrocarbon (PAH) compounds in sea otters. However, many of these conditions have been difficult to differentiate from lesions attributed to, or compounded by, shock and chronic stress associated with capture and the rehabilitation process (Williams and Davis, 1995). It has become clear that animals captured during oil spill responses undergo additional stressors that may or may not be offset by the medical care they receive.

Background

The purpose of the Marine Mammal Oil Spill Response Guidelines (Guidelines) is to provide a foundation for coordination and communication between the National Marine Mammal Health and Stranding Response Program participants and other state and federal governmental agencies involved in oil spill response and marine mammal conservation and protection. The National Oceanic and Atmospheric Administration (NOAA) Fisheries, Office of Protected Resources, Marine Mammal Health and Stranding Response Program (MMHSRP) enlisted the University of California (UC) Davis, Wildlife Health Center to assist in the development of these Guidelines with input and assistance from NOAA's National Ocean Service, Office of Protected Resources, Damage Assessment and Restoration Program (DARP) and NOAA Fisheries, Office of Law Enforcement (OLE). The UC Davis, Wildlife Health Center, through its Oiled Wildlife Care Network (OWCN) program is among the world's leading experts on oiled wildlife response methods and standards. The primary purpose of the document is to: outline appropriate standardized data collection techniques for response activities and damage assessment; define chain-of-custody protocols for animal collection, necropsy and sampling; provide recommendations for protection of human health and oil spill safety training for responders; and present guidelines for best achievable care of oiled marine mammals. Standardization of this information between and among oiled marine mammal responders should allow for more accurate collection of data for analysis, which then may yield better information on the effects of oil on marine mammals and further improvements in oil spill response involving marine mammals. These Guidelines by their design do not address overall marine mammal husbandry methods in detail, but are intended to provide basic information on oil spill specific issues (such as search and collection, transport, emergency care and stabilization), and procedures specific to oil spill response. For more information on general marine mammal rescue and rehabilitation, the reader should consult references such as Marine Mammals Ashore (Geraci and Lounsbury, 1993) and the CRC Handbook of Marine Mammal Medicine (Dierauf and Gulland, 2001).

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Intended Uses

These Guidelines are intended for use by the NOAA Fisheries MMHSRP, other natural resource management agencies, marine mammal stranding networks and rehabilitators, On-Site Coordinators, and Potentially Responsible Parties (PRPs) as a guide in:

- Developing appropriate sections of Area Contingency Plans (ACPs)
- Stimulating communication and documentation coordination between interested parties
- Caring for oiled marine mammals
- Evaluating marine mammal rehabilitation center capabilities for oil spill response
- Collecting evidence for assessment of impacts on marine mammals
- Making informed choices during spill responses

Responses to spills impacting marine mammal will depend upon factors including the size of the spill, species involved, type of product spilled, time of year, and location. It is important that spill responders and pre-spill planners recognize that the variability in degree of effort and complexity in marine mammal response can be significant when comparing small and large events.

This document is not intended for use as a training manual. Nor is this document an exhaustive list of techniques in this field, in which practical knowledge is being continuously refined and developed. It is to serve as guidance for acquiring the best achievable care and data collection during an oil spill response and should be periodically reviewed and updated.

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Organizational Structure

Organizational Structure of Wildlife Response

Actions taken to protect wildlife resources follow an organized and agreed-upon cascade of agency notifications and activities. All activities of the oil spill response are coordinated through the Unified Command (UC) and follow an Incident Command System (ICS) structure as standardized by the National Interagency Incident Management System (NIIMS) and modified for oil and hazardous substance spill response by the National Response Team (Figure 1., NRT 2004). The UC is the governing body ultimately responsible for all decision making processes during the spill response, and is made up of a Federal On-Scene Coordinator (FOSC) (usually a Coast Guard Captain of the Port for the affected area), a State Incident Commander (IC) or On-Scene Coordinator (SOSC), and a qualified individual from the Responsible Party (RP), if known. When appropriate, local government representatives can be included in the UC. The FOSC has the ultimate responsibility for directing the oil spill response if a consensus cannot be reached among the members of the UC. Wildlife response activities usually exist within the Operations Section of the ICS, though some wildlife actions (primarily baseline assessment and planning) also occur with the Environmental Unit of the Planning Section. The Wildlife Branch within the Operations Section coordinates and initiates wildlife response activities. Guidance for dealing with oiled wildlife is not specifically provided in the National Contingency Plan, therefore the Wildlife Branch operational plan is developed uniquely within each Regional and Area Contingency Plan based on the specific resources and agency involvement.

Early but prudent initiation of a wildlife response plan and the previous development of the Wildlife Branch ensure timely mobilization of dedicated staff, equipment, and volunteers. This structure allows for effective lines of communication, making the response effort much more efficient. The degree of the wildlife response effort is designed to be flexible and scalable to the size of the oil spill - only those positions necessary and appropriate for a specific spill incident are filled.

Trustee Organizations

Under federal statutes, NOAA Fisheries, National Marine Fisheries Service (NMFS) has responsibility for managing and protecting all cetaceans and pinnipeds in U.S. waters, except walruses; U.S. Fish and Wildlife Service (FWS) has responsibility for managing and protecting manatees, walruses, sea otters, and polar bears. NOAA Fisheries is responsible for the administration of the Endangered Species Act (ESA) as it applies to certain cetaceans and pinnipeds and the FWS is responsible for the administration of the ESA as it applies to remaining marine mammals and terrestrial mammal and bird species. Following an oil spill, specific information on wildlife resources at risk and appropriate wildlife response actions are made available to the Federal On-Site Coordinator (FOSC) and other members of the Unified Command (UC) through representatives of appropriate wildlife resource managers. Therefore, the UC must immediately consult with FWS or NMFS whenever a response may affect these resources. The Marine Mammal Protection Act (MMPA) prohibits the "take" of sea otters, seals, sea lions, walruses, whales, dolphins, and porpoises, which includes harassing or disturbing these animals as well as actual harming or killing; however, Section 109(h) of the MMPA allows take by

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Federal, State, or local governmental officials, during their official duties, provided the take is for the welfare and protection of the animal or public health. Accordingly, the FOSC/UC is authorized to take marine mammals during an oil-spill response if to protect the welfare of the animal. Section 12(c) of the MMPA allows NMFS to enter into cooperative agreements (e.g. Stranding Agreements) that allow stranding network participants marine mammal take in order to carry out the purposes of the MMPA. The ESA and its implementing regulations provide special provisions for consultations during emergencies (such as oil spills) with FWS and/or NMFS for making recommendations to the FOSC to avoid the taking of listed species or to otherwise reduce response-related impacts. In some State statutes, management and protection of wildlife resources are joint responsibilities between NMFS, FWS and the State. Because of these shared trust responsibilities, both federal and state agencies are required to respond to spills, or potential spills, that may impact marine mammals. To facilitate efficient and effective coordination during an oil spill response, federal and state agencies may consider developing Memorandums of Agreement (MOA's) or Memorandums of Understanding (MOU's) that pre-designate regional primary points of contact, establish lead representatives, and define roles for natural resource emergency situations.

In the wake of the *Exxon Valdez* spill, Congress passed the Oil Pollution Act of 1990 (OPA 90). OPA 90 sets forth an extensive liability scheme that is designed to ensure that, in the event of a spill or release of oil or other hazardous substance, the responsible parties are liable for the removal costs and damages that result from the incident. A responsible party may be liable for removal costs and damages to natural resources, real or personal property, subsistence use, revenues, profits and earning capacity, and public services. OPA 90 also set aside a significant trust fund that can be utilized quickly to implement a spill response prior to establishment of liability.

OPA 90 directs the appointed trustees to conduct natural resource damage assessments (NRDAs) and develop and implement plans to restore, rehabilitate, or replace damaged natural resources. Authority to claim damages to natural resources also stems from Clean Water Act (CWA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Under the CWA, federal and state agencies with diverse jurisdictions and missions are directed to combine their response and planning efforts in the event of an oil spill or release of another hazardous substance under the aegis of a National Contingency Plan (NPC) or an Area Contingency Plan (ACP). An Area Contingency Plan must provide for efficient, coordinated, and effective action to minimize damage from oil and hazardous substance discharges. In so doing, an ACP assigns duties and responsibilities to various federal and state agencies, provides for maintenance of necessary equipment and supplies, and establishes Coast Guard strike teams with specialized training in oil and hazardous substance control. In addition, an ACP is designed to provide for surveillance and notification systems to detect oil spills as early as possible. Further, an Area Contingency Plan is to provide for a specific fish and wildlife response plan, developed with the advice of expert agencies, to minimize disruptions to fish and wildlife and their habitat. Regional and Area Contingency Plans can be located at the U.S. National Response Team website (www.nrt.org) and the USCG website: (http://www.uscg.mil/vrp/acp/acp.shtml).

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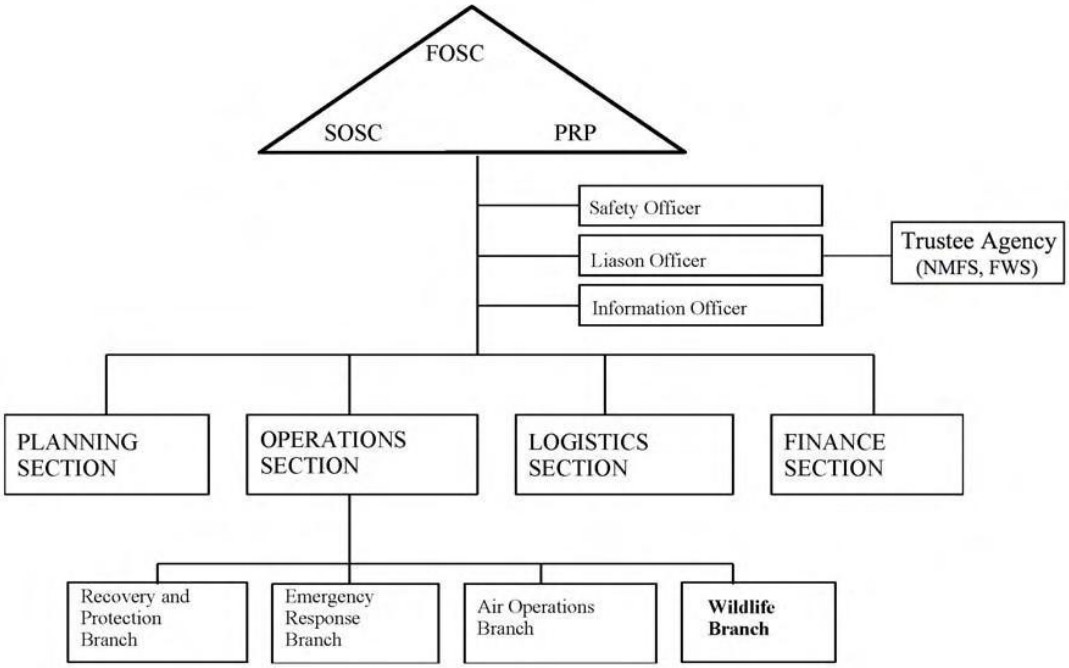
Figure 1: Incident Command Structure for Oil Spill Response (NRT 2004)



Once the FOSC activates the Wildlife Branch, several components of oiled wildlife response can be initiated, including reconnaissance to determine species and areas to focus operations, hazing of animals to prevent oiling, search and collection for live and dead animals in the spill area, treatment and rehabilitation of oiled animals, and release and monitoring of recovered animals. The agencies, organizations, and individuals responsible for these functions should be outlined in the Area Contingency Plan. An example of Wildlife Branch organization is shown in Figure 2.

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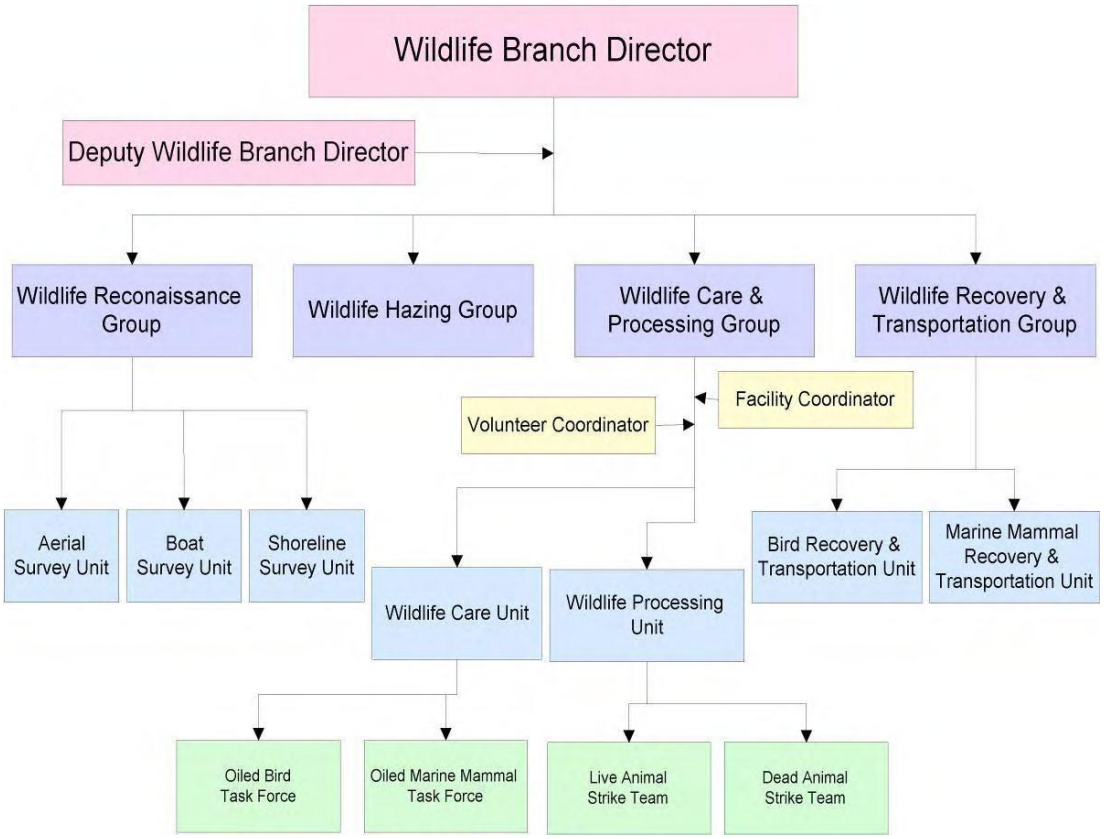
Figure 2: Wildlife Branch Organization (State of California, Wildlife Response Plan, 2004)



Under the direction of the Wildlife Branch Director (WBD), the principal objectives of Wildlife Operations during spill response and cleanup are to:

- Provide the best achievable care to impacted and/or threatened wildlife
- Document for the Unified Command the immediate impacts of the oil spill to wildlife
- Minimize injuries to wildlife
- Protect wildlife and habitats from adverse effects of wildlife recovery

To ensure these objectives are achieved with maximum efficiency, the WBD (in coordination with the Environmental Unit) manages the activities of the federal, state, and local agencies along with commercial and non-profit organizations responsible for wildlife protection and management who fall under the authority of the Unified Command during spill response

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Stranding Network and Facility Requirements

Wildlife Operation plans should include (where available and appropriate) properly trained regional Stranding Network Participants because of their experience with live animal stranding response and rehabilitation for the local area. In order for Stranding Network Participants to contribute during wildlife response, they must hold a Stranding Agreement or Letter of Authorization (MMPA, Section 112(c)) with NMFS/FWS and have received specific oil spill training and meet facility requirements for oiled marine mammal rehabilitation. NOAA Fisheries, Office of Protected Resources, may include oil spill response authorization in the Stranding Agreement with the Participant when it is determined that the Stranding Network Participant meets these criteria. Authorized marine mammal rehabilitation organizations should make efforts to become engaged in the development of their Area Contingency Plans to ensure their involvement during oil spill response.

Criteria for Evaluating Marine Mammal Rehabilitation Groups

The following criteria can be used when considering and evaluating marine mammal rehabilitators for conducting oil spill response.

- Holds all necessary permits, Stranding Agreements (NMFS) and Letter of Authorizations (FWS) for marine mammal stranding and response activities.
- Experience in the capture, treatment, and care of oiled marine mammals
- Knowledge of conducting marine mammal response activities within an Incident Command System structure including appropriate communication and notification procedures
- Sufficiently trained (health/safety and animal care), equipped, and experienced supervisory staff
- Ability to train and equip personnel and volunteers for marine mammal response during an emergency oil spill response
- Ability to quickly mobilize to perform marine mammal capture, field evaluation, stabilization and transport (including to remote locations if necessary)
- Access to appropriate facilities for treating and housing oiled marine mammals (including adequate animal care, hazardous waste, and personnel infrastructure)
    - Ability to establish and operate marine mammal intake, holding, and isolation areas within 12-24 hours of wildlife response activation.

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  - Ability to establish and operate marine mammal cleaning and pre-release areas within 72 hours of wildlife response activation.

- Agreement with a licensed veterinarian experienced in the treatment of oiled marine mammals to provide necessary medical care

- Use of best practices as outlined in the remainder of this document

Facility Requirements for Marine Mammal Oil Spill Rehabilitation

General Considerations

The size of the spill, its location, and the number and species of animals oiled will help determine the type and location of a facility that can meet the required need. Not all spill responses will be in the vicinity of a permanent rehabilitation facility. Temporary facilities that can care for oiled marine mammals in the short or long-term can be established in local, fixed structures, or mobile units can be brought to a spill location to set up as a temporary facility. However, it is critical that spill responders and pre-spill planners recognize the degree of effort, the unique requirements of oiled wildlife care and the complexity required to implement and establish an adequate facility. Pre-spill planning is strongly encouraged to achieve wildlife response systems that will adequately address the needs of small as well as large rescue efforts as rapidly as possible during a spill.

There are published standards for the design of facilities housing marine mammals in captivity. In the United States, these standards are published by the Department of Agriculture, Animal and Plant Health Inspection Service (APHIS, www.aphis.usda.gov/ac/cfr/9cfr3.html) and are a requirement for facilities that wish to display animals to the public. They include such items as haul-out requirements, pool size and depth, water quality, number of animals to be kept in a particular environment, and strict standards for food preparation areas and medications. The USDA standards are useful guidelines but may not be appropriate for animals that require constant medical attention and handling, or for facilities that only keep animals for a short period of time. NMFS is in the process of developing specific marine mammal rehabilitation facility guidelines (NMFS/FWS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release: Pinniped and Cetacean Rehabilitation Facility Guidelines).

Facility design for rehabilitation centers is an ongoing area of study and no perfect facilities exist to suit all needs for each species and age class of marine mammal. Notwithstanding, certain principles should be kept in mind when designing an oil spill response facility or when attempting to house oiled marine mammals in an existing facility (Davis and Davis, 1995). An ideal facility should include: intake/physical exam/evidence processing area; a veterinary hospital with isolation capabilities; indoor wildlife housing/caging areas; food storage and preparation facilities; animal washing and rinsing areas; drying areas; outdoor pool and pen areas; pathology facilities; volunteer training and eating areas (with restrooms); administrative offices with multiple phone/fax lines and conference space; storage; and access to a large parking area.
Minimizing stressors is an important aspect of creating a good rehabilitation environment. Specific animal needs must be taken into account when trying to provide adequate housing for animals during an oil spill. These needs may be affected by such factors as the animal's species, age, physical condition, degree of oiling, and nature of the product with which it was oiled.

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Housing Requirements and Considerations

Indoor and outdoor housing should maximize safety to humans and the animals, provide an escape-proof enclosure, and minimize visual stress and human traffic. Within an oil spill response facility, housing should be set up so that there are appropriate areas for holding animals prior to intake, pre-wash assessment and stabilization, post-wash, quarantine, and longer term housing. These areas will differ in the amount of access to the animals that is required, the space that each animal requires, the degree to which the environmental temperature can be controlled, and type (if any) of water requirements (fresh versus salt). Ideally, all of these areas should have separate filtration systems. Separate systems are required for pre- and post-wash animals to prevent oil contamination of animals that have already been washed.

Environmental Control: A finer degree of environmental temperature control is required for newly admitted animals, neonates, and animals that are more compromised due to poor nutritional state, greater extent of secondary effects, or underlying disease. Animals that are compromised require easy or limited access to water, haul-out areas, and heat sources such as heating pads and lamps, but may need frequent observation to ensure that severely debilitated animals are able to move away from heat sources to prevent hyperthermia and burns. Some animals may require more frequent handling for monitoring, sample collection, feeding or medicating. Housing should minimize stress but maximize accessibility and ease of monitoring (Tuomi et al., 1995)

Ventilation: Adequate ventilation is an extremely important factor for maintaining marine mammals in captivity and is more important in oil spill situations to protect against the toxic effects of volatile agents and prevent the spread of infectious agents between animals. Ten to fifteen air changes per hour has been recommended as adequate for inside animal holding (NIH, 1985) and these standards should be adhered to if at all possible. Outdoor housing is ideal for maintaining ventilation but drawbacks include lack of environmental control, discomfort for personnel working with the animals, and more challenging access control by staff.

Quarantine: The potential for the spread of disease is an important issue to consider for marine mammals in captivity. Captured animals, staff and volunteers may carry infectious agents without showing signs of disease and could pose a threat to oiled animals. Staff should use effective quarantine protocols including foot baths containing appropriate antimicrobial solutions between housing areas, cleaning/disinfecting or changing protective clothing between animals, designating separate feeding and cleaning equipment for different areas, and minimizing movement of animals and personnel between areas. Extra care must be taken in areas where animals with infectious diseases are kept and when handling immunocompromised animals.

Water Supply: Oiled wildlife care facilities require large quantities of water to provide all areas simultaneously (e.g., wash/rinse area, pool area, laundry). The quantity should be sufficient to provide at a minimum a continuous flow of 4 gallons/minute to all indoor valves and additional supply to fill, operate filtration and ozonation equipment, and provide overflows for pools. Washing and rinsing areas require temperature-controlled hot water (98-108°F) with water hardness of 2-5 grains per gallon at pressure of 40-60 psi.

Waste Water: Facilities must dispose of all oil and animal wastewater in accordance with appropriate Federal, State, and municipal regulations. Oil contaminated water often must be contained in separate holding tanks and not released in normal sewer system.

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Data Collection

Data Collection and Chain-of-Custody Procedures

Systematic search and recovery, transportation, processing, and treatment of all oil-affected wildlife are critical for guiding response actions and gaining an understanding of the short-term and long-term consequences of oil spills to wildlife populations. In addition, these data can be used after the emergency response for natural resource damage assessment activities. In order to track the samples and collect data during oiled wildlife response, the trustee agencies and response organizations must adhere to pre-established chain-of-custody and animal identification procedures. For tracking purposes, data on oiled animals are compiled on standard data log forms (Appendix 2-3). During large-scale responses, pre-identified wildlife agency personnel or their agents will complete log forms; however, field and rehabilitation responders should be familiar with the forms and their completion for smaller-scale responses and for individual oiled animals that present to participating facilities independent of a spill response. In addition to the tracking of live animal data, all samples (carcasses, samples, photos, records) that may be used in legal cases must be tracked and secured at all times.

Quality assurance (QA) procedures are necessary to ensure that data are collected in a scientifically valid manner. It is important throughout any sampling and analysis program to maintain integrity of the sample from the time of collection, through the point of data reporting, to the final sample disposition. Proper chain-of-custody procedures allow the possession and handling of samples traced from collection to final disposition. Documents needed to maintain proper chain-of-custody include:

Field Logbook: All pertinent information on field activities and sampling efforts should be recorded in a field logbook. The logbook should enable someone else to completely reconstruct the field activity without relying on the memory of the field crew. All entries should be made in indelible ink (preferably ballpoint), with each page signed and dated by the author, and a line drawn through the remainder of any page. All corrections should consist of permanent line-out deletions that are initialed. An example of a Search Effort Log is presented in Appendix 1. For tracking and chain-of-custody purposes, all live and dead animals recovered should be identified (tagged/marked) in the field and the identification noted on the Search Effort Log. Permanent tags will then be applied and logged at the processing facility.

Animal Logs: At admittance to a wildlife care and processing facility, the animal must be logged into the Live Marine Mammal Data Log or Dead Marine Mammal Data Log (Appendix 2-3) and all of the boxes on these forms must be completed. All animals collected dead or alive should be given a unique log number and identifier (e.g. tag), as well as a Level A data field number, in order to track the individual animals through the capture/collection, processing, and for live animals the rehabilitation and release process.

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Sample Collection and Label: It is necessary to collect an oil sample from each individual animal. A detailed protocol for the collection of evidence is provided in Appendix 6. Each sample must be identified with a waterproof label that is securely attached to the outside of each sample container. Labels must contain the oil spill name, date, species, intake log number and Level A data field number of that animal, animal capture location, and flipper tag color and number and then sealed with evidence tape or custody seals. Custody seals are used to detect unauthorized tampering with the samples. Samples and photo must be properly stored in a secure location that has limited and controlled access.

Intake Form: For live animals, the Oiled Marine Mammal Intake Form (Appendix 4) must be completed for each animal. This form contains important questions about the extent of oiling, location and depth of oiling, as well as a place for documenting physical examination findings. For evidence documentation, a photo of the animal and oil sample must be taken during intake and admission into the wildlife care and processing centers (see Intake and Admission Procedures). During rehabilitation, each animal must have individual records documenting the treatment and care of that animal. Authorization for cleaning and later release must be documented on the Oiled Marine Mammal Intake Form and signed by the authorizing authority (i.e. attending veterinarian). For resource damage assessment purposes, a photo of the animal with identification (i.e. card with animal log number and date) must be taken prior to release.

Chain-of-Custody Forms: A chain-of-custody record must accompany every sample that is removed from the secured location in the wildlife processing and care facilities. The chain-of-custody form should be supplied by the managing agency (NMFS, USFWS) representative that is acquiring the sample. Both the person relinquishing custody of the sample(s) and the person receiving the sample(s) must sign the form and ensure that the samples and records are not left unattended unless secured properly. An example chain of custody form can be found in Appendix 10.

Tissue Sampling: Tissue samples are collected for either chemical or histological analysis. Only after authority is given by the appropriate trustee agency and the Unified Command can necropsies be performed by qualified veterinarians and pathologists to collect tissue samples and determine cause of death on collected carcasses and mortalities that occurred during rehabilitation. Each animal should be photographed prior to sampling and samples collected following the sample collection protocols described in Appendix 6.

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Safety and Human Health

Worker health and safety are of primary importance in any oiled marine mammal rescue and rehabilitation effort. The earliest phases of an oil spill are generally the most hazardous to human health and safety. Thus, safe practices during field collection of marine mammals must be a priority. Rescue programs should not be initiated unless personnel can conduct activities safely.

As with all spill response activities, the marine mammal rescue and rehabilitation effort needs to be coordinated and monitored by the spill response command center operations, safety, and medical staffs. A written Site Safety Plan (SSP) must be developed and approved by the spill's Safety Officer for the rehabilitation facility. If field activities are on-going for marine mammal response, the site safety plan needs to be expanded to include these activities including any specialized equipment that will be used. All staff and volunteers working on the spill must be familiar with and sign the SSP prior to work.

Training for Marine Mammal Rescue/Rehabilitation Personnel

In addition to mastering specific marine mammal rescue and rehabilitation tasks, personnel must be trained to recognize and minimize risk of injuries from oil-related and physical hazards associated with oil spill response operations prior to being allowed to participate in on-site activities. Elements of required and recommended training will vary depending on the tasks of the individuals involved in the response. Training-hour requirements and specific courses vary with level of involvement, agency policy, and OSHA and state regulations.

Required Training

Personnel involved in oil spill response activities must comply with all applicable worker health and safety laws and regulations. The primary Federal regulations are the Occupational Safety and Health Administration (OSHA) standards for Hazardous Waste Operations and Emergency Response (HAZWOPER) published by the U.S. Department of Labor in Title 29 of the Code of Federal Regulations (CFR), section 1910.120 (www.osha.gov). Oiled marine mammal responders and rehabilitation centers are not specifically addressed by HAZWOPER and training to address risks associated with marine mammal stranding and oil spill response personnel may fall within the scope and application of the Hazard Communication Standard ("HAZCOM", 29 CFR 1910.1200(h)). The OSHA field compliance or Safety Officer should be contacted to ascertain the worker training requirements and develop an implementation plan to minimize the hazards of exposure to workers involved in cleanup operations. For maximum protection of the environment, OSHA has recognized the need to quickly clean-up spilled oil and has empowered the OSHA Regional Response Team representative to reduce the training requirements for responders engaged in post-emergency response operations as directed by OSHA Instructions CPL 2-2.51 (www.osha.gov). State requirements which are more restrictive will preempt Federal requirements. Marine mammal stranding network participants are responsible for training and certifying their employees and volunteers.

Recommended Training

In addition to the training required by Federal regulations, further training is highly recommended for safe and efficient operations during a spill response. This guidance is considered a minimum

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essential training for marine mammal rehabilitators in accordance with the goal of establishing best practices.

Search and collection and transport personnel

- General oil spill response training
- HAZWOPER 24hr training
- Aircraft/boating/ all-terrain vehicle safety
- First aid/CPR
- Local geographical knowledge
- Marine mammal identification and capture techniques

Rehabilitation Facility Management

- Marine mammal oil spill response training
- Incident Command System
- HAZWOPER 24hr training
- Crisis management
- First aid / CPR
- Media relations

Rehabilitation/Stranding Network Facility Workers and Volunteers (Live and Dead Animal Handling)

- General oiled marine mammal training
- HAZCOM - Hazardous Communication training
- First aid / CPR

Personal Protective Equipment

Personal protective equipment (PPE) must be used to protect wildlife response personnel from exposure to hazardous substances and dangers associated with animal care activities. To guard against injury from marine mammals, all workers should wear approved personal protective equipment appropriate to their task.

Recommended PPE

Full eye protection, i.e., goggles, safety glasses, or face shield
Oil resistant rain gear or oil protective clothing (coated Tyvek, Saranex, etc.)
Gloves (neoprene or nitrile) that are oil resistant and waterproof
Non-skid shoes/boots that are oil resistant and waterproof
Ear protection (muff or ear plug type) when using pyrotechnic devices or operating machinery
Personal flotation device when working on or near water

Respiratory protection from organic vapor hazards may also be required for some operations. If respirators are used, training and fit testing are required. All workers must be trained on the proper use and limitations of all personal protective equipment prior to using the equipment.

Hazardous Substances

Rescue and rehabilitation workers may be exposed to spilled oil, and must be so informed. Prior to handling a contaminated marine mammal, the Material Safety Data Sheet (MSDS) for the

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spilled material should be reviewed and all recommended precautions followed. Workers and the rehabilitation facility shall be periodically monitored, using calibrated instruments and devices to determine exposure. Ventilation in all work areas should prevent the buildup of airborne contaminants.

A portion of the rehabilitation facility should be designated for the storage of contaminated clothing, equipment, and medical waste until the items can be decontaminated or disposed of properly in accordance with the site safety plan.

Volunteers

Wildlife response programs regularly use volunteers, particularly at the rehabilitation facility. Wildlife response managers need to ensure that volunteers are appropriately trained, supervised, and informed of all hazards. A comprehensive volunteer management program is an essential component of an efficient wildlife response. This management program needs to address, at a minimum, volunteer safety, training, supervision, scheduling, and liability.

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Wildlife Recovery and Transportation

Agency Oversight

Wildlife Recovery and Transportation involves the collection/capture of dead and live oiled wildlife and their transport to processing centers. Under the proposed ICS Wildlife Operation structure presented in Figure 2, these activities are performed by the Wildlife Recovery and Transportation Group, in close coordination with the UC and the state and federal trustee agencies. Marine mammal collection by any agency or organization must be done under the direction of the UC and under the agreements/permits from the appropriate management agencies (i.e., NMFS, FWS). Recovery and Transportation usually include personnel from state and federal trustee agencies, approved contractors, and marine mammal stranding network and rehabilitation organizations. Trained, qualified volunteers can be used utilized as long as OSHA and other training requirements are met and adhered to.

Search and Collection Guidelines

Rescue Team: Teamwork is essential to safe, efficient collection of oiled marine mammals. Each team should consist of at least two people, and should be outfitted with the resources and equipment necessary to complete its assignment. A plan of action should be developed and discussed among all search and collection personnel and approved by the Wildlife Branch Director prior to entering the search area. Each capture site should be evaluated and strategies developed to suit the terrain and species involved. Capture of affected animals should not be attempted if adverse weather, sea conditions, cliffs, or other physical and chemical hazards in the "hot zone" are present. Communication between the Rescue and Transportation Group and the reconnaissance personnel (within the Operation Section or the Environmental Unit) is important to maximize the success of search effort.

Equipment: Prior to a response, ensure that all equipment is ready and in working condition. Capture materials should include communication equipment (portable phone or radio), specialized vehicles (4-wheel drive with lifting tailgate or crane, adequate floor space, easily cleaned, and good ventilation), boats (capture vessel and support vessel), aircraft (fixed wing or helicopter), SCUBA gear, nets (type varies by species and location of capture), cages and transport boxes (type varies by species), herding boards, personal protection equipment (PPE) and a first aid kit for humans. Any injuries to staff or volunteers should be treated immediately and reported to the site safety officer. In addition to PPE required by the Safety Officer to protect personnel from oil exposure, appropriate attire for capture teams includes closed-toed shoes or boots, long-sleeve shirts, long pants, rain gear, coveralls, and organizational identification (e.g., clothing labeled with insignia or logo).

Procedures: Record the details of the beach search effort on the appropriate Form (Search Effort Log, Appendix 1) and include data on the start and end of a search segment, observations of oiled animals, and detailed info on the stranding and/or collection (location of capture, GPS decimal degree coordinates, reason for capture). If oil or medical samples are collected from the animal prior to reaching the intake facility, make sure they are labeled properly with a unique field

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identification number for each animal. For further details on oil sample collection consult Appendix 6, Evidence Collection Protocol.

Domestic animals should not be permitted near the capture location nor should they come into contact with marine mammals. Domestic animals should not be allowed in the transport vehicle, and if the vehicle has previously been used to transport domestic animals, it should be disinfected and cleaned prior to transporting marine mammals.

Capture: The potential benefits of capture must outweigh potential negative consequences. In general, no rescue should be initiated on free-swimming or beached pinnipeds in the vicinity of an oil spill unless the animal in question is in obvious distress. Also, no rescue should ever be initiated on free-swimming cetaceans in the vicinity of an oil spill, but a rescue should be attempted on a beached cetacean. A decision to capture should consider such factors as sex, age, reproductive state, and size of individual animal, and their location with respect to other marine mammals. Additionally, all captures must be approved by the appropriate trustee agency (NMFS, FWS) prior to initiation.

Capture and transportation of oiled mammals should be performed only by qualified personnel who have received the appropriate safety training as well as marine mammal handling and restraint training. Because recovery and transportation duties vary with each response and may involve more risk than other duties, the Safety Officer will communicate to the Wildlife Branch Director what level of training is appropriate for field response personnel; this training may include a 24-hour HAZWOPER training (Hazardous Waste Operations and Emergency Response), first aid/CPR, water safety, or boat safety courses (see Safety and Human Health).

The method of capture may vary according to species and situation. Captures should generally be considered for isolated individuals on beaches, spits, tide flats or other relatively flat surfaces, using herding boards and nets (brail, breakaway or steel frame pole). Less often, captures may be attempted from rock jetties, piers, docks or even in the water for severely debilitated animals. Long-handled dip nets, floating bag nets, and a net gun have all been used with some success. Depending on the species involved, aquatic captures may use tangle nets, float nets, or Wilson traps.

Unless specifically authorized by appropriate trustee agencies, no non-oiled animals will be collected during spill incidents. Preemptive captures to prevent the oiling of sensitive species may be considered only under dire circumstances at the direction of the UC and trustee agencies and when adequate transport and holding facilities exist. Beached cetaceans should not be pushed back out to sea without first being examined by a NMFS-approved marine mammal veterinarian and the action approved by the NMFS. Prior to being returned to the open ocean, cetaceans should be affixed with a NMFS approved tag or brand.

All wildlife captured during spill responses should if at all possible be retrieved and transported to the wildlife processing and care center(s), regardless of the status and condition (i.e. degree of decomposition, degree of oiling). In addition, all capture-related information (i.e. location, name of captor, GPS decimal degree coordinates, date, and time) must accompany the animal to the facility. The presence of such documentation must be verified when processing centers receive wildlife from the Wildlife Recovery and Transportation Group. All information necessary to

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complete either the live or dead mammal log should be collected prior to the animal entering the rehabilitation process or storage respectively.

Transport Procedures

Prior to transport, field stabilization techniques may be used if it will be more than one or two hours until the animal reaches the rehabilitation facility. These techniques may involve assessing the animal for hypo- or hyperthermia and treating accordingly; administering oral electrolyte solution and subcutaneous fluids; removing large amounts of oil from the eyes and nares; and administering emergency medications (under the guidance of a veterinarian).

After capture and field stabilization, the oiled animal should be placed in a well-ventilated area on a stretcher or foam (for small cetaceans) or in a transport box, airline kennel, or cage (depending on pinniped species) for transport. Animals should be staged in a quiet, sheltered area or moved directly into the transport vehicle. The cage should be large enough to allow the animal to lie down in a comfortable position. Only one animal per transport cage is recommended for the safety of the animals and to prevent cross-contamination of oil. Females and their pups are most safely transported in separate cages, although they should be positioned so that they can hear, see, and smell each other. Pinnipeds less than 70 kg (145 lbs) can be transported in large airline sky kennels. Aluminum or other lightweight material is recommended to minimize weight of cages designed for larger animals. Each cage must be firmly tied or otherwise secured in the vehicle.

Sea otter transport kennels should be fitted with a raised bottom grate to avoid additional fur fouling. Shaved ice or any other form of fresh water ice (to combat dehydration) and chew toys (to combat tooth damage, e.g. plastic/rubber dental chews manufactured for large breed dogs) are usually provided for sea otters in transport kennels, but food should be offered if transport time is greater than four or five hours.

Animals must be monitored periodically on transports greater than one hour, as directed by a response veterinarian. In most cases, sedation during transport is not recommended. Critical cases (e.g., unstable, hypo- or hyperthermic animals) may require more frequent monitoring. Personnel transporting animals between the field and the rehabilitation center must maintain contact with their supervisor at all times so that departure and arrival times may be anticipated.

Hyperthermic animals may be sprayed gently with water, or ice cubes may be added to the top of the cage and allowed to drip onto the animal as it melts. In order to prevent inhalation and subsequent drowning by unconscious animals, do not allow water to accumulate in the bottom of transport cages. Hypothermic animals should be placed in a sheltered location out of the wind, although good ventilation must be maintained to prevent animals and humans from inhaling petroleum fumes. Keep in mind that oiled, stressed, or injured seals are not able to regulate their body temperature effectively, and their conditions can change within minutes. Animals are generally transported in either a pick-up truck or an enclosed van-type vehicle. Adequate ventilation must be maintained to protect both humans and animals from inhaling fumes emitted by freshly oiled animals. Unless hypothermia is observed or suspected, keep animals damp and cool. The preferred air temperature for pinniped transport is 50-68°F (10-20°C) but should not exceed 59°F (15°C) for sea otters (Geraci and Lounsbury, 1993; Benz and Britton, 1995). Fur seals or sea otters whose coats are oiled or saturated, neonates of all species, and animals with extensive wounds or severe emaciation may require higher temperatures compared to minimally oiled animals or non-oiled, stranded animals. Keep in mind that human comfort during transport

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may not be synonymous with or sufficient for the temperature and ventilation needs of the transported marine mammals.

Beached Carcass Removal

Measures must be taken to ensure that dead animals are appropriately collected, identified, documented, and not disposed of until approved by the trustees. In addition, the prompt removal of disabled and dead oiled and unoiled animals from the environment can be critical to minimize the occurrence of secondary oiling, poisoning of predators and scavengers, and decreasing re-identification of carcasses on subsequent days. Since it is not feasible, reliable, or practical to attempt to discriminate between spill-related and non-spill-related casualties while conducting beach surveys, all carcasses must be collected. For example, scavenged carcasses, animals with dark plumage, wet carcasses, or carcasses with oil sheen or small amounts of oil that may be spill related are not always identifiable in the field as such. Because all carcasses found within a spill area are evidence, they must be handled according to established chain of custody protocols in accordance with spill incident-specific instructions (refer to the Data Collection section of this document). Each carcass must be labeled with the date, time, location, species (if known), and collector's name; taken to a designated morgue location; logged into the Dead Marine Mammal Log form and placed in a refrigerated unit until further processing can be accomplished. If a necropsy cannot be performed within 24hrs the carcass should be frozen (see Disposition Section for necropsy details).

Carcass removal, storage, and disposal expenses are considered a response activity cost that should be reimbursed to the Stranding Network Participant. It is the responsibility of the Participant to notify the Unified Command of current and future carcass storage and disposal expenses during the initial cost assessment of the response activity.

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Intake Procedures

Initial Intake Procedures

While completing intake procedures, it is important to perform a thorough evaluation, collect all samples and data, be safe, and minimize the animal handling time. All personnel performing intake procedures should wear appropriate PPE including safety goggles, protective clothing, and nitrile gloves (or nitrile gloves inside leather gloves). It is best to work in teams of at least two (handler, examiner) or three (handler, examiner, recorder) in order to perform the intake in an efficient manner. For larger animals, more than one handler may be required. Physical restraint devices such as squeeze cages, otter restraint boxes, and stuff bags may be needed for larger pinnipeds and sea otters (Geraci and Lounsbury, 1993; Williams and Sawyer, 1995). Some animals (e.g., sea otters, adult sea lions) may require chemical restraint for safe handling and examination (Williams and Sawyer, 1995; Haulena and Heath, 2001).

Several different forms must be completed for every animal captured for rehabilitation during an oil spill. The animal must first be logged into a **Live Marine Mammal Data Log** (example in Appendix 2) and all of the boxes on that form must be completed**.** In addition, an **Oiled Marine Mammal Intake Form** (example in Appendix 4) must be completed for each animal. This form contains important questions about the extent of oiling, location and depth of oiling, as well as a place for documenting physical examination findings. In addition to the intake form, the rehabilitation facility's standard forms for stranded marine mammals can be used to record physical exam findings, laboratory values, treatments, and feedings, provided that all information is clearly documented and assigned to the specific animal.

A brief physical examination is performed upon admission of each individual oiled animal (see below). A veterinarian or animal care specialist should conduct the examination and treat any conditions that are considered to be life threatening. The capture, transport, and intake process is extremely stressful and an oiled animal's condition may be very unstable. The intake area should be as dark and quiet as is practical and animals must be monitored closely during the examination and intake process. If an animal's condition deteriorates and a veterinarian is not participating in the examination, seek veterinary advice immediately.

General Intake Procedure for Oiled Marine Mammals

1. Obtain and Complete Intake Forms
    - Live Mammal Data Log
    - Oiled Marine Mammal Intake Form
2. Physical Examination
3. Flipper tag application
4. Oil sample collection
5. Photograph

Animals need to be identified to species and, when possible, age class (pup, yearling, subadult, adult) and sex should be determined. Consult charts on age estimation for pinnipeds and sea

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otters from marine mammal guides such as Geraci and Lounsbury (1993), Reeves et al., (1992) and Ainley et al., (1980) for species and sex identification. All animals should be tagged or marked for individual identification. This can be done with plastic livestock ear tags (e.g., Rototag, Temptag), by applying hair dye, colored livestock markers, and bleach marks to the pelage, or by clipping a small patch of pelage on the flank in a recognizable pattern (phocids and sea lions only). Dye marking and clipping is not advisable for fur seals or sea otters and may be difficult in other species depending on the location and extent of oiling. Sea otters and possibly other species may be identified using a commercially available pet microchip inserted subcutaneously at the inguinal region.

For legal purposes, it is necessary to collect an oil sample from each individual animal. A detailed protocol for the collection of evidence is provided in Appendix 6. Briefly, visible oil should be scraped from the fur with a clean wooden spatula and placed into a chemically cleaned glass jar. For animals with no visible gross oiling, an affected area is rubbed with a 4x4 piece of fiberglass cloth or cotton gauze with forceps or hemostats that have been cleaned with isopropyl alcohol. Precautions must be taken to collect the sample without allowing nitrile gloves to touch the oil sample or the cloth it is collected on. The oil sample should be placed in a glass container and labeled appropriately with the following information: the oil spill name, date, species, intake log number of that animal, animal capture location, and flipper tag color and number and then sealed with evidence tape and placed in secure freezer. Sampling supplies (glass jars and cloth) can be obtained through the trustee agencies.

It is also necessary to take a Polaroid photograph of the oiled animal. The photograph should include the entire animal, the oiled region, and if possible, show the flipper tag numbers. After the photograph develops, it should be labeled with the same information as the oil sample; the oil spill name, date, species, intake log number of that animal, animal capture location, and flipper tag color and number. The photograph and oil sample are both pieces of evidence and should be securely stored. If samples are to be sent for analysis, a completed Chain of Custody form is required and will be provided by the lead trustee agency.

Physical Examination

Animals are to be weighed and measured (standard length and axillary girth, xiphoid girth in sea otters) and their temperature measured with an electronic thermometer with a flexible thermister probe (e.g., Physitemp Model BAT-12 Digital Laboratory Thermometer) inserted 15 cm into the rectum. Standard thermometers can be used in sea otters, but do not accurately measure core temperatures in pinnipeds. Normal core temperature for sea otters is 99.5-100.6 °F (37.5-38.1 °C) and most pinnipeds range from 98-102 °F (Dierauf and Gulland, 2001). If the use of a thermometer is not possible, feel the flippers (e.g., icy cold or dry and hot) and observe the animal's behavior (e.g., shivering, agitation) in order to evaluate abnormally high or low body temperature. If an animal is dry and alert/active prior to the exam, assume it will overheat with handling.

A complete whole body examination should be conducted, making note of the degree and nature of oil contamination. Assess behavior, activity level and alertness; if possible, observe the animal in the transport cage prior to handling to evaluate locomotion and central nervous system status. Evaluate overall body condition and estimate the percent dehydration. Most stranded animals are at least slightly dehydrated (<5%, demonstrated by decreased tear production and subdued behavior). More severely dehydrated animals (5-10%, demonstrated by lack of tear production,

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thick ocular mucus, "sunken" or crusty eyes, dry mucous membranes, skin tenting in otariids, curling of the vibrissae in harbor seals, and lethargic or depressed behavior) may need to be treated with fluids prior to continuing the examination and intake procedures; however, it is preferable to obtain blood samples prior to hydration treatments.

Due to the risk of being bitten, a thorough oral exam is possible only in anesthetized, dead, comatose, and young animals, but a visual inspection of the oral cavity is often possible during vocalization in alert animals. Palpate the neck and thorax for evidence of subcutaneous emphysema and the musculoskeletal system for fractures, wounds, or swellings. Subcutaneous emphysema is often found in the neck and axillary area in oiled sea otters and is an indicator of severe pulmonary damage. Palpate the abdomen gently to detect masses, pregnancy, or fluid accumulation and observe the urogenital area for urine, feces, or abnormal discharges.

Routine Blood Sampling

Following the general examination, blood samples should be drawn for hematology (collected in an EDTA anticoagulant, lavender-top tube, LTT) and chemistry panels (collected in a serum separator tube, SST, or red-top tube, RTT) and serum banking. In phocids, blood is generally drawn from the epidural sinus or ventral (plantar) interdigital veins (at the apex of the web between the inner digits) of the hind flippers (e.g., harbor seals, elephant seals). In otariids, the caudal gluteal vein and plantar network (dorsal or ventral surface of the hind flipper just medial to the lateral digit or just lateral to the medial digit) are used for blood collection (sea lions and fur seals). In sea otters, blood may be drawn from the popliteal (saphenous) or femoral vein on a non-anesthetized animal using a restraint box and/or stuff bag. Alternatively, the jugular vein can be used on an anesthetized otariid or sea otter.

Blood samples should be collected at least three times during the rehabilitation process: on admission/intake, immediately prior to washing, and prior to release. Repeat sampling may not be necessary for wash or release procedures, if preformed within 48hrs of previous blood sampling or at the discretion of the response veterinarian. At these times, baseline blood work should include a complete blood count and standard serum chemistry tests. Normal blood values for marine mammal species can be found in Bossart et al. (2001).

Standard Blood Tests

Complete Blood Cell counts (CBC): White cell blood count, red cell blood count, hemoglobin, hematocrit, mean corpuscular volume (MCV), mean corpuscular hemoglobin concentration (MCHC), mean corpuscular hemoglobin (MCH), a differential cell count, platelet and reticulocyte counts. One full lavender-top tube (EDTA) (1 or 3 ml) should be taken and refrigerated until analysis.

Chemistry Profile: Albumin, alkaline phosphatase, bicarbonate, bilirubin (total and direct), BUN, calcium, chloride, cholesterol, CK, creatinine, globulin, glucose, phosphorus, potassium, total protein, sodium, AST (SGOT), ALT (SGPT), GGT, and ratios of albumin:globulin, BUN:creatinine, and sodium:potassium. Blood should be placed in a serum separator tube or red top tube, allowed to clot, centrifuged, and refrigerated prior to analysis. Excess serum should be saved and banked (frozen) at the rehabilitation facility.

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Special Biomedical Sampling Protocols

At times, additional protocols may be used that require additional blood samples for other tests (e.g., PAH estimation, immune function assays, serum protein electrophoresis, plasma chemistries, serological tests for infectious diseases). Other biomedical samples (e.g., urine sample, fecal sample, microbiological swab, blubber biopsy) may also be collected at the discretion of the response veterinarian.

Post-examination Intake Procedures

Initial Treatment

- Fluid therapy: oral, subcutaneous, intravenous
- Activated charcoal (ToxiBan) tubing if oil ingestion suspected

All animals are assumed to be at least 5% dehydrated. Administer isotonic fluids to animals that appear to have not ingested oil orally at a rate of 10-20 ml/kg once either orally (e.g., Pedialyte) or subcutaneously (lactated Ringer's solution, LRS). If the animal is alert and is likely to have ingested oil (e.g., fur seals during grooming, neonates during nursing), administer activated charcoal slurry (ToxiBan, 6 ml/kg) orally.

Animals that are chemically immobilized for intake procedures or are weak and obtunded should not be given oral fluids. Subcutaneous fluids (e.g., lactated Ringer's solution), may be administered instead at 20-40 ml/kg. If ingestion of oil is suspected, ToxiBan slurry (6ml/kg) can be administered via a stomach tube just prior to anesthetic reversal (Williams and Sawyer, 1995). Extreme care must be taken to prevent gastric reflux and aspiration during this procedure. The risks associated with passing a stomach tube must be weighed against the risks associated with continued exposure to ingested petroleum.

Severely depressed animals may require intravenous fluid administration and other medication in addition to isotonic fluids. Additional fluid therapy (maintenance fluids plus correction of fluid deficits) should be determined by the attending veterinarian, based on an evaluation of blood work, concurrent fluid losses, and continuing assessment of the animal's condition. The fluid deficit is calculated by multiplying an animal's mass in kg x 1000 ml fluid/kg x the percent dehydration (e.g., 5% = .05). This should be added to the animal's daily maintenance fluid requirement (at least 40 ml/kg/day) and administered within the first 24 hr if possible.

Monitoring

Animals should be regularly monitored during the rehabilitation process. Clinical observations, feeding observations (food consumption and/or preferences), and behavior should be written on the medical records. Body weight should also be monitored repeatedly during rehabilitation and recorded, at a minimum, upon admission, pre-washing, and prior to release. More extensive body weight monitoring may be required in critical cases. Physical examinations should be performed upon admission, prior to washing, and prior to release with all information recorded on individual medical records. Whenever medications are administered, the name of the drug, dose and route (oral, SQ, IM, IV) should be recorded as well as the initials of the person who administered the medication. Medical records are viewed as potential evidence by the law and should be carefully and completely filled out by animal caretakers.

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Animal Washing and Continued Care

General Topics Associated With Cleaning

The facility where oiled animals will be cleaned should be designed to accommodate the variety of species that might be cared for at that facility. Each wash station must have adequate space for the animals, animal handlers, and restraint equipment that might be necessary. Water hardness should be tested before washing animals and adjusted to 3-5 grains of hardness (Clumpner, 1991). Dawn dishwashing liquid is the preferred washing product and has been shown to be safe and effective for removing oil from the coats of sea otters and harbor seals (Rash et al., 1990). Wastewater storage, containment, and removal must meet the requirements of the municipality, city, and county. A minimum team of two or three persons usually wash animals. Fur seals and sea otters may require teams of four or five persons because the density of their fur requires much greater effort. Large animals such as elephant seals may require a washing team with three or four persons to properly restrain the animal. Large animals, aggressive animals, fur seals and sea otters may require sedation and veterinary assistance for washing and cleaning.

General Washing Needs

- Softened water (3-5 gr)
- Temperature controlled warm water (80-98°F, 27-37°C)
- Pressured spray nozzles (30-40 psi)
- Dawn detergent
- Wastewater storage and removal

Pre-Wash Evaluation

Oiled marine mammals will require at least 24 hours of supportive care prior to being washed. Initial care is focused on addressing thermoregulatory problems, rehydration, and providing nutritional sustenance so animals are no longer in a negative metabolic balance. The washing procedure is very stressful; therefore, prior to the procedure, the animal needs to have regained strength. In the case of sea otters, they also need to be able to tolerate anesthesia and start to groom once recovered. A veterinarian should conduct a pre-wash evaluation that includes a physical examination, evaluation of alertness, strength and body condition, and blood parameters. If the animal passes the pre-wash evaluation, it is referred to the washing team.

Removing Tar Patches from Animals

If the oil present on an animal is a tar patch or very weathered, pretreatment may be necessary. This is accomplished by applying warmed (95-98°F or 35°C) olive oil, canola oil, or methyl oleate to the affected region. The pretreatment solution should be manually worked into the tarred areas for up to 30 minutes or until the tar loosens and can be wiped off using an absorptive pad or towel. While pretreating the animal, it is important to monitor the animal's body temperature and be prepared to treat the animal for hyperthermia or hypothermia. Tar removal is necessary for furred marine mammals and non-furred marine mammals if the patch(es) are large, potentially interfering with thermoregulation, or contribute to toxicity and result in clinical symptoms. Clipping away tar patches (with accompanying fur) is recommended unless molt is imminent

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because the animal will have a bald patch that could cause reduction of heat retention. This procedure could have serious or life-threatening implications for fur seals, sea otters, or debilitated animals.

Washing Harbor Seals, Elephant Seals, Sea Lions

Sea lions, harbor seals and elephant seals rely on their thick blubber layer for insulation, making them less susceptible to hypothermia when they become externally oiled. These species are washed with Dawn detergent in thermal-neutral (~ 98°F or 37°C) water. Soap is applied and rubbed on the fur until the oil is visibly removed. The detergent can be made into a uniform solution by mixing it with water at a 1:1 ratio prior to applying thus making it easier to work into the hair and oil. Washing pinnipeds takes between 10-30 minutes depending on the extent and type of oil, species and health of the animal, and the proficiency of the staff. An initial quick rinse can be done at the wash station and then completed with the animal unrestrained in its pen using a pressure nozzle. This modified rinse procedure decreases the duration of manual restraint. In general, rinsing should be continued until there is no evidence of oil or detergent in the rinse water. Most pinnipeds are placed directly into their outdoor pens to dry.

General Guidelines for Washing Pinnipeds

1. Thermal neutral water (~ 98°F or 37°C)
2. Dawn detergent rubbed onto fur until oil is removed
3. Pressurized rinse in pen until oil and detergent removed
4. Air dry in pen

Washing Fur Seals

In contrast, fur seals possess a thin subcutaneous fat layer and a thick pelage that thermally insulates these animals (Reidman, 1990). Since they rely more heavily on their fur, fur seals are washed in a similar fashion to otters. Oiling 30% of a fur seal's coat will result in a 50% increase in heat loss (Geraci and St. Aubin, 1990), emphasizing the need for these animals to be closely monitored during the washing procedure. Fur seals are washed using a thermal-neutral (~98°F or 37°C), 5% diluted Dawn dish washing detergent solution. The diluted detergent solution is gently massaged into the fur and, as with other species, the washing duration depends on the extent and type of oil, the strength of the animal, and the proficiency of the staff. Fur seals are rinsed with fresh, soft (3-5 gr) water under moderate pressure (30-40 psi) with a spray nozzle. This process can require up to 40-60 minutes and animals are rinsed until no oil is visible in the rinse water and no petroleum odor is detectable on the fur (Davis and Hunter, 1995). For all pinnipeds, animals may become hyperthermic during washing in which case they may need to be washed and rinsed in cold water.

Fur seals, which depend on their coat for thermoregulation, may need to be placed in a drying enclosure that is warmed with an industrial pet dryer that blows room temperature air (68°F or 20°C). Animals in drying pens must be monitored for dehydration, hyperthermia, hypothermia, and alertness. Once dry and alert, fur seals can be returned to their outdoor pens.

Washing Sea Otters

Sea otters have the densest fur of any mammal, and, unlike most other marine mammals, replace their fur throughout the year instead of undergoing a seasonal molt (Tarasoff, 1974; Williams et al., 1992). Otters have guard hairs and many fine under-hairs that are microscopically interlocked to trap air, thus providing waterproofing, thermal insulation, and buoyancy. Oil contamination

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causes fur clumping which leads to a loss of insulation and predisposes otters to hypothermia from the cold ocean water.

General Guidelines for Washing Sea Otters

1. Anesthesia/sedation
2. Diluted Dawn solution
3. Temperature controlled warm water
4. Pressurized rinse (40-60 minutes)
5. Dry with towels and blow dryers
6. Anesthesia reversal

Anesthesia

Due to their aggressive temperament, sea otters generally require sedation or anesthesia to be washed. A variety of anesthetics have been used, however, the current preferred drug combination in adult sea otters for nonsurgical procedures is fentanyl (0.22 mg/kg) and diazepam (0.07 mg/kg) used together intramuscularly. The opioid antagonist naltrexone at 0.44 mg/kg is recommended for reversal, but often 3 - 4 times the total dose of fentanyl administered is needed for complete reversal (Monson et al., 2001). While sedated, supplemental oxygen is routinely provided either via facemask, or, if the sea otter is immobilized enough to tolerate it, via endotracheal tube. During sedation and cleaning, the core temperature of the sea otter must be monitored continuously because otters can become hypothermic or hyperthermic very quickly. Whenever a sea otter is sedated, bags of crushed ice should be readily available and placed under the animal's neck and flippers if hyperthermia occurs.

Washing and Rinsing

Sea otters are washed with multiple applications of diluted (5%) Dawn dishwashing detergent. Ideally, washing tables are equipped with three or four well aerated nozzles dispensing temperature controlled (28-37 °C, 80-98 °F), softened (3-5 gr.) fresh water. The water temperature affects the body temperature and needs to be adjusted according to the otter's body temperature to prevent hyper or hypothermia (Davis and Hunter, 1995; Stoskopf et al., 1997). Four to six people are required per washing table, one (with heavy gloves) specifically to hold the head and forearms. The detergent is gently massaged into the oiled fur and then rinsed off under moderate pressure (30-40 psi) with a spray nozzle. Washing should consist of a wash, rinse, wash, rinse cycle until there is no indication of oil in the rinse water and no petroleum odor on the fur. Depending on the degree of oiling, washing will usually take from 40-60 minutes. A final rinse with a spray nozzle lasting an additional 40 minutes to one hour is essential to thoroughly remove the detergent and restore the furs' water repellency. Otters are initially hand dried with dry, clean, cotton terry cloth towels. Once the bulk of the water has been absorbed, the fur is dried with commercial pet dryers that deliver a high volume of temperature controlled air (Davis and Hunter, 1995). Sea otters become increasingly prone to hyperthermia as their hair is drying and cool (room temperature) air may be necessary for drying as the sea otter's body temperature increases.

Drying

Following drying, each animal is reversed from the anesthetic and placed in a large, slat-floor kennel with a sliding top or other easily accessible dry pen for intensive care monitoring. Animals in dry holding should be closely monitored for hyperthermia and fecal, urine, or food debris must be rinsed away immediately. When fully recovered from anesthesia, otters should be offered small blocks of ice to chew on and food (Davis and Hunter, 1995). Once the animal is stable and medical conditions allow, each otter should be moved to a pool with haulout(s) serviced by

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abundant, clean, chlorine-free salt water (if available). Pools must have high seawater flow rates (e.g. 5 gallons per minute for 150 gallon pool) and drain skimmers at water level to collect debris from the pool. Fecal and food contamination of the pool water can cause fur fouling and prevent restoration of water repellency. Sea otters are not waterproof after washing and drying and must reintroduce trapped air into their fur by grooming.

Post-wash monitoring and care

During rehabilitation, sea otters need to be monitored around-the-clock by qualified personnel familiar with normal sea otter behavior and who are able to recognize clinical signs of distress. Sea otters often develop hypothermia post-wash due to lack of air insulation in washed fur and inadequate grooming. Otters that appear hypothermic, having difficulty hauling out, or experiencing seizures should be immediately removed from the water and evaluated by a veterinarian. As health and fur condition improve, otters may be moved to larger pools and/or floating holding pens. All pools should have abundant haul-out space. It will generally take a minimum of seven to ten days for the fur to recover its water repellency (Tuomi et al., 1995).

Common Problems Encountered While Washing Animals

1. Oil is not coming off with Dawn

- Pretreatment with canola oil, olive oil, or methyl oleate is required.

2. The animal's coat is not clean

- The animal may not have been washed or rinsed adequately. In either case, the animal may need to be re-washed or re-rinsed.
- The wash or rinse water is too hard and mineral deposits are forming on the fur. Water hardness should be rechecked to make sure it is 3-5 grains.
- The holding pool is not clean. Check whether the water is turbid or if there is fish oil or debris floating on the pool surface. Water flow may need to be increased or pool cleaned.

Nutritional Guidelines

The dietary requirements of stranded marine mammals are generally grouped into two categories according to age and nutritional needs: unweaned pups and weaned animals. Pups need special dietary formulas and feeding regimes based on species and age while free-feeding animals are generally fed a diet of good quality fish such as herring. Adult sea otters are usually fed a variety of fish and shellfish depending on their preference. Marine mammals also usually need to receive a supplemental multivitamin, vitamin E, and salt tablets (if housed in fresh water) with amounts based on species and weight. Monitoring fecal production and hydration status is especially important when beginning any formula, switching diets, or weaning animals. Recommended diets change with continued research and experience and stranding network participants should play an important role in the development of dietary protocols for each species and facility. More information can be obtained on marine mammal nutrition and energetics from Worthy (2001), and hand-rearing and artificial milk formulas from Williams and Davis (1995) for sea otters, and Townsend and Gage (2001) and Gage (2002) for pinnipeds.

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Disposition

Release

The goal in rehabilitating oiled marine mammals is to release healthy animals back into their natural environment. Rehabilitators, in consultation with designated trustee representatives (NMFS/FWS) must prepare a release plan that is communicated to and authorized by the Unified Command through the Liaison Officer. Certain criteria must be met prior to releasing marine mammals back into wild populations. For those animals that do not meet release criteria, several options are available including additional rehabilitation, euthanasia, or placement in a long-term holding facility.

While little is known about optimal oiled marine mammal release criteria, current recommendations are based on information derived from the *Exxon Valdez* spill and husbandry practices at aquaria and rehabilitation centers in the United States. NMFS and FWS have developed guidance and criteria for release based on optimizing the chances for survival and minimizing the risk to wild populations (Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release, http://www.nmfs.noaa.gov/pr/health). The Standards for Release document describes how to characterize and assess animals using several parameters.

Standards for Release

1. Historical Assessment
2. Developmental and Life History Assessment
3. Behavior Assessment and Clearance
4. Medical Assessment and Clearance
5. Release Logistics
6. Post Release Monitoring

Current criteria require that animals show normal species-specific behavior (feeding, swimming, and diving), adequate body weight for age class and species, pelage proven to be in good condition, hematological and serum chemistry values within the normal range, no evidence of infectious diseases, and physical exam findings should be unremarkable. Other ancillary tests (e.g. *Leptospira* titer, morbillivirus titer, microbiological cultures, urinalysis, fecal examinations, etc.) may also be performed on a case-by-case basis depending on individual animal and population level concerns. The Unified Command will decide upon the location of the release with guidance from the trustee agencies

Upon approval for release by UC, an exit photo of each marine mammal must be taken and specifics of the release (location, time, personnel) recorded for Natural Resource Damage Assessment purposes.

Post-release monitoring, if at all possible, should be undertaken during marine mammal releases following oil exposure using radio or satellite telemetry. This effort should focus on survival rates, behavior, and reproductive success following oil contamination and rehabilitation, thus enabling

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oiled marine mammal responders to evaluate the efficacy of oiled marine mammal care. Post-release monitoring is not usually considered a response activity expense and must be funded by the stranding network participate, trustee agency or NRDA.

Mortalities

All oiled dead marine mammals should be collected from beaches and taken to a designated morgue. Dead animals should be logged in at the morgue using a Dead Marine Mammal Data Log (example in Appendix 3). Under certain circumstances, an oiled animal may need to be humanely euthanized in order to alleviate suffering. Animals that die during an oil spill response must have this disposition information recorded on their individual animal record as well as on the Live Marine Mammal Data Log (Appendix 2). The carcass should be identified with a written tag including the species name, date of stranding and/or admission, date of death, and the flipper tag (if a tag was affixed prior to death). If a flipper tag is present, it should remain with the carcass until final disposition of the carcass. The carcass should be refrigerated or kept on ice until a necropsy is performed. If a necropsy cannot be performed within 24 hours of death, the carcass needs to be frozen.

Euthanasia

During an oil spill response, there are circumstances under which it may be necessary to humanely euthanize animals. For each spill where marine mammal rehabilitation is undertaken, the rehabilitator must prepare a written euthanasia plan in consultation with the trustee representative. Euthanasia is appropriate for oiled animals with injuries that will render it unable to survive in the wild or unsuitable for use in captivity. If animals are euthanized in the field, they are collected following the procedures outlined in the Recovery and Transportation section of this document. To prevent secondary contamination or poisoning, euthanized carcasses are never left in the field.

Necropsy

Necropsies may be performed concurrent with response activities to identify cause of death in order to differentiate between a natural versus pollution related mortality. Fatalities to apparently un-oiled wildlife may necessitate necropsies to determine if death was caused by human interactions or if sub-apparent oil exposure or ingested petroleum contributed to the mortality. Additionally, captivity-related diseases may necessitate necropsies be performed on animals that die during rehabilitation to identify potential pathogens or husbandry techniques that are detrimental to recovery.

Prior to performing a necropsy on an oiled marine mammal, specific permission must be obtained from Unified Command and the appropriate NMFS/FWS enforcement officer. The spill response veterinarian-of-record should conduct or supervise all necropsies, in consultation with the designated representative FWS or NMFS enforcement officer. In most cases, a veterinary pathologist with specialized training on marine mammals will be asked to perform the necropsy. Necropsy methods and techniques are diverse, but general procedures for marine mammal necropsies can be found in Rowles et al. (2001), Galloway and Ahlquist (1997), and Geraci and Loundsbury (1993). Specific protocols have also been developed for some marine mammals including phocids (Winchell, 1990), Killer whales (Raverty and Gaydos, 2004), Right whales (McLellan et al., 2004), and Hawaiian Monk seals (Yochem et al., 2004). These species specific procedures should be followed whenever possible in order to maintain consistency with previous data. Prior to conducting a necropsy, the trustee agency and veterinarian should agree on which forms to use; which samples to collect; how those samples will be prepared (e.g., formalin or

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frozen), stored, and shipped; and where samples will be analyzed. Specific oil spill necropsy information and forms are detailed in Appendix 7-9. Tissue samples for standard histopathology, disease profiling, and petroleum hydrocarbon analysis should be collected. Sampling for oil exposure, must be performed under specific conditions detailed in Appendix 7, in order to prevent contamination of the sample. Necropsy reports are filed and all samples handled and stored using appropriate chain-of-custody protocols, as discussed previously (Data Collection) and provided by the trustee representative.

Laboratories performing the petroleum analysis must be contacted as soon as possible in order to verify that sampling protocols and sample sizes are consistent with that specific laboratory requirement. Considerations in choosing the lab should include details of forensic capabilities (ability to produce legally defensible results), quality assurance and quality control (QA/QC), and consistency with the analysis of other materials from the spill. Results can vary between labs and data should be comparable between the environmental and tissues of the different species sampled. Appendix 8 lists laboratories (not an exhaustive list), with expertise in petroleum hydrocarbon chemistry that can be contacted for oil spill sample collection and analysis information. Petroleum hydrocarbon analysis is a reimbursable response expenses if pre-approved by the UC. However, often the RP (responsible party) assumes ownership of the oil and analysis may not be preformed.

Petroleum and Polycyclic Aromatic Hydrocarbons (PAH) Analysis

In general, all crude oils are mixtures of the same hydrocarbon and non-hydrocarbon compounds, but vary in the percent composition of these compounds. Natural weathering of oil in the environment also results in highly variable compositions. Because of the continual dynamic changes in spilled oil, it can be difficult to identify and quantify all PAHs potentially present in or on an animal in the aftermath of an oil spill. Oil and tissue samples collected from marine mammals can be analyzed to determine the total amount of PAHs in tissues and identify and quantify dangerous PAHs that may have caused clinical and pathological effects. Samples can also be tested to characterize and fingerprint petroleum hydrocarbons to determine their source.

Determining source-dependent petroleum exposure during an oil spill using GC/MS or HPLC techniques on marine mammal tissues requires baseline knowledge of petroleum hydrocarbon levels and composition in the spill area and of the spilled oil. At present there are few data available on PAH levels in marine mammals inhabiting North American coastal waters. Studies have only measured PAH levels in seals and whales from the Eastern Canada (Hellou et al., 1990, Zitko et al., 1998) and Northeastern United States (Lake et al., 1995). Overall, the low concentrations of bioaccumulated PAHs in tissues from these marine mammals are fairly similar to those reported in atmospheric fallout PAHs from combustion sources (Zitko et al., 1998). Alkylated and heterocyclic PAHs are the predominant forms of PAHs in oil and coal products, and can be missed if tissues are tested only for the 16 traditionally-studied, parent PAHs listed as priority pollutants by the Environmental Protection Agency (EPA) and World Health Organization (WHO) (Means 1998). Different members of the isomeric alkylated PAHs exhibit differential toxicity, diffusion, and degradation rates, further emphasizing the importance of compound-specific analysis. With the lack of baseline PAH levels from marine mammals, control samples for comparisons were harvested at the time of *Exxon Valdez* oil spill from animals inhabiting nearby non-oiled areas (Mulcahy and Ballachey, 1994; Frost et al., 1994).

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In experimental exposure studies (both immersion and ingestion) involving ringed seals (*Phoca hispida*), differences in detectability of PAHs in various tissues were noted (Engelhardt et al., 1977). In the immersion experiment, PAHs were highest in urine and bile, less elevated in blood and plasma, and lower in tissues (lowest in lung) at 2 days post-immersion. Tissue sampling in the ingestion study was limited with PAHs highest in blood, and higher in liver and blubber compared to muscle. These studies illuminate the importance of selecting appropriate tissues for PAH analysis. Specific tissue collection techniques are provided in Appendix 7.

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Records

The importance of recording information cannot be over-emphasized. Record collection enhances individual animal care, response evaluations, and the ability to accurately characterize the best practices for appropriate care. In-house records are maintained at the rehabilitation facility and copies provided to the trustee agency. Final reports, including chain-of-custody and sample collection records, must be delivered to the trustee agency within 30 days of the date the Federal OSC declares the response closed.

Scientific Records

The following types of records are necessary to preserve vital information for scientific study, natural resource damage assessment, and improved rehabilitation practices and techniques:

- Oiled mammal sighting: records and maps for all reports of oiled mammals
- Search Effort Log
- Live Mammal Log
- Dead Mammal Log
- Marine Mammal Intake Form
- Rehabilitation Records: documents care for each animal, including feedings, treatments, medications, normal/abnormal activities.
- Lab Analyses Report: identifies all samples sent to labs, requested analyses, lab results.
- Marine Mammal Stranding Report - Level A Data (NOAA 89-864, OMB #0648-0178)
- Marine Mammal Rehabilitation Disposition Report (NOAA 89-878, OMB #0648-0178)
- Human Interactions Form
- Necropsy Report

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Appendices

1. Search Effort Log
2. LIVE Marine Mammal Data Log Form

2b. LIVE Marine Mammal Data Log Form, page 2

3. DEAD Marine Mammal Data Log Form

3b. DEAD Marine Mammal Data Log Form, page 2

4. Oiled Marine Mammal Intake Form
5. Oiled Marine Mammal Daily Progress Form
6. Oiled Marine Mammal Evidence Collection Protocol
7. Petroleum Hydrocarbon Tissue Sampling Protocol
8. Oil Spill Response Laboratories and Supplies
9. Oiled Marine Mammal Necropsy Form
10. Chain of Custody Form

10b. Chain of Custody Form, page 2

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Appendix 1. Search Effort Log

Search Effort Log

Please record all beaches searched *even if no animals are found*.

Spill Name: _____ **Date:** _____
Searchers: _____

Note: Time should include all time spent on the beach, even when backtracking. North and south endpoints should be GPS pts. If not, please provide a good description of the area covered. For collected animals, put GPS location here.

	Beach Name	Start Time	End Time	North/West Extreme (Lat/Long)	South/East Extreme (Lat/Long)	Total Distance Searched	Method (foot, ATV, scan)	Mammals Collected Note: (live/ dead, GPS, ID #)
A								
B								
C								
D								
E								
F								
G								
H								
I								
J								
K								

Appendix 2. Live Marine Mammal Data Log

Oiled Marine Mammal Data Log: LIVE Animals

Oil Spill Name:				Facility:					
Intake Log Number (L-xxxx)	Date Collected (m/d/y)	Time Coll'ted (24 hr)	First Initial & Last Name of Collector	Beach Search Number	Collection Location (Beach Name)	GPS Coordinates (N) GPS Coordinates (W)	Field Tag #	Date Arrived (m/d/y)	Time Arrived (24 hr)

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Appendix 2b. Live Marine Mammal Data Log, page 2

Oiled Marine Mammal Data Log: LIVE Animals (continued from front side)

Oil Spill Name:				Facility:								
Intake Log Number	Date Processed (m/d/y)	Time Processed (24 hr)	First Initial & Last Name of Examiner	Species	Level A Field #	Tag Color/#	% Oiled	Sample/ Photo Taken? (Y/N)	Disposition Date (m/d/y)	Disposition Status (R,D,E,T)	Release Tag #	Morgue ID

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Appendix 3. Dead Marine Mammal Data Log

Oiled Marine Mammal Data Log: DEAD Animals

Oil Spill Name:					Facility:								
Intake Log Number (D-xxxx)	Date Collected (m/d/y)	Time Coll'ted (24 hr)	First Initial & Last Name of Collector	Beach Search #	Collection Location (Beach Name)	GPS Coordinates (N) / (W)	Tag # (Field or Temp w/ Color)	Date Arrived (m/d/y)	Time Arrived (24 hr)	Date Proc'ed (m/d/y)	Time Proc'ed (24 hr)	Name of Processor	Species

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Appendix 3b. Dead Marine Mammal Data Log, page 2

Oiled Marine Mammal Data Log: DEAD Animals (continued from front side)

Oil Spill Name:							Facility:									
Intake Log Number (D-xxxx)	Condition	Scavenging	Oiling Signs	% Oiled	Depth Oiled	Sample/ Photo Taken? (Y/N)	Level A Field #	Tag #	Age	Sex	SL (cm)	AG (cm)	Morgue ID	Necropsy (Y/N)	Notes (any other observations, contamination by petroleum products such as plastic or another specimen)

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Appendix 4. Oiled Marine Mammal Intake Form

Oiled Marine Mammal Intake Form

Spill Name:		Level A Field #:	Log Number:
CAPTURE	Capture Date/Time:	Capture Location:	
	Field Band:	Collector:	
PROCESSING	Intake Date/Time:	Species:	
	Tag Color/#:	Examiner's Signature:	
EXT. OIL ID	Signs of Oiling	Oil Visible Skin Burns Smell	Area Oiled: Head Body Multiple Entire
	Oil Color	Black Brown Clear Other	Depth of Oiling: Deep Moderate Surface
	% Oiled	<2% 2-25% 26-50% 51-75% 76-100%	Samples: Hair Swab Photo
PHYSICAL EXAM	Weight/Temp.	grams °F	Age: Pup Sub-adult Adult Unknown
	Std Length/Girth	cm cm	Sex: Male Female
	Heart Rate	WNL beats/min.	Body Condition: Normal Thin Emaciated
	Resp. Rate	WNL breaths/min.	Attitude: BAR QAR Nonresponsive Seizing
	Dehydration	None Mild Moderate Severe	CRT/mm color: Sec. / Pink Pale White Purple
	Human Interaction	☐ Yes ☐ No Type: Boat Collision, Shot, Fisheries, Other:	
	Neurologic	NSF Other:	
	Head/Mouth	NSF Other:	
	Eyes/Ears	NSF Other:	
	Heart/Lungs	NSF Other:	
	Gastrointestinal	NSF Other:	
	Musculo-skeletal	NSF Other:	
	Integument	NSF Other:	
	Comments		
TX-DX	Blood taken? HCT LTT RTT GTT	Toxiban: yes no time:	
	Pre-wash Exam: _____ (Veterinarian Signature)	Date Washed : Weight:	Bloodwork Attached ☐
DISPOSITION	Disposition Exam: _____ (Veterinarian Signature)	Exam Date: Weight:	Bloodwork Attached ☐
	Disposition Date:	Disposition Location:	
	Disposition Status: RELEASED DIED EUTHANIZED TRANSFERRED RETAINED	Necropsied by:	
	Flipper Tag No.:	Location: RF LF RH LH	

TAG #: _____ SPECIES: _____

Appendix 5. Oiled Marine Mammal Daily Progress Form

OILED MARINE MAMMAL DAILY PROGRESS FORM

SpillName_____ Log# _____ Tag Color/# _____ Species_____

Date	Treatment and Progress Notes	Init.

Page ___ of ___

Appendix 6. Oiled Marine Mammal Evidence Collection Protocol

The photograph and oil sample are both considered to be legal evidence therefore it is important that the following procedures are followed closely.

Photograph Evidence

1. Use a Polaroid camera (if possible).
2. Photograph should include the entire animal, highlighting the oiled region, and if possible, the tag number.
3. Label the photograph with Spill Name, Date, Species, Log #, Capture Location, and Tag # and Color.

Sample Collection Techniques for Visible Oiling

1. Scrape visible oil from fur/skin with wooden spatula (tongue depressor).
2. Place oil covered spatula in solvent-rinsed glass jar with a Teflon-lined lid (e.g. I-Chem) and break off the remaining un-oiled portion, allowing the lid to close. If jar is not available, wrap sample in aluminum foil (dull side to sample).
   Note: Avoid touching /contaminating oil sample with your nitrile gloves.
3. Label the glass jar (use waterproof labels).
   Label must include: Spill Name, Log #, Species, Tag #, Arrival Date, Sampling Date, and Capture Location.
4. Fill out Custody Seal and apply it across the lid of the jar and onto the sides of the glass.
5. Keep sample refrigerated or on ice until it can be stored.
6. Lock sample in a -20°C (or colder) freezer.

Sample Collection Techniques for No Visible Oiling

1. Rub an affected area with a 4x4 fiberglass or cotton cloth (or gauze) with sterile forceps or hemostats that have been cleaned with isopropyl alcohol.
   Note: Do not allow the nitrile gloves to touch the oiled area or the cloth.
2. Place the oiled covered cloth into a solvent-rinsed glass jar with a Teflon-lined lid.
3. Seal and fill out the information on the waterproof label (as above).
4. Fill out the Custody Seal and apply it across the lid of the jar and onto the sides of the glass.
5. Keep sample refrigerated or on ice until it can be stored
6. Lock sample in a -20°C (or colder) freezer.

All evidence should be securely stored and refrigerated/frozen until the Wildlife Branch Director provides further instructions. If samples are to be sent for analysis, a Chain of Custody Form is required.

Appendix 7. Petroleum Hydrocarbon Tissue Sampling Protocol

Supplies for sampling

All instruments used in handling (e.g. scalpels and forceps, cutting boards) or storing (e.g. jars, foil, sheets) samples must be made of a non-contaminating material consisting of stainless steel, glass, Teflon, or aluminum.

- Solvent-rinsed glass containers with Teflon-lined lids for tissues
- Solvent-rinsed Teflon sheets for tissues
- Aluminum foil (if Teflon sheets are not available) sample to the dull side
- Sterile syringes and needles
- Amber glass vials or glass vials covered with foil with Teflon lids (for bile, urine)
- Teflon screw top vials (for blood storage and urine)
- Stainless steel scalpels, knifes, forceps
- Isopropyl alcohol (99.9% pesticide free IPA) to rinse instrument
- Wooden tongue depressors (can be used to handle tissues if necessary)
- Whirl-pak bags or Zip-lock freezer bags
- 10% buffered formalin and appropriate containers for histopathology samples
- Permanent marker or pen
- Evidence/Custody tape and labels
- Sample Log/Chain of Custody forms

Sampling Protocol

Tissues to collect for petroleum hydrocarbon analysis in order of preference:

a. bile
b. urine
c. whole blood
d. stomach and intestinal contents
e. blubber/fat
f. liver
g. kidney
h. lung
i. intestine
j. brain
k. muscle

i. Samples taken for analysis should only be collected from **alive** or **freshly dead animals**. If a necropsy cannot be performed within 24 hrs after death, the carcass should be frozen for later examination.

ii. Recommended **minimum sample size** is **10-20 g of tissues** (approx. 1-2 tablespoons) and **5 ml for fluids** (blood, urine, bile, feces, stomach contents). However, analysis can be performed on as little as 100 µL of bile; therefore collect whatever amount is present.

Appendix 7. Petroleum Hydrocarbon Tissue Sampling Protocol, page 2

iii. Fluids such as blood, urine, and bile should be collected using sterile syringes or pipettes and transferred to Teflon vials (blood) or amber glass vials (bile, urine).

iv. Use powder-free nitrile gloves. Vinyl gloves are an acceptable alternative. Avoid contact of gloves with samples.

v. Scalpels, knifes, and cutting tools used for tissue collection should be cleaned and rinsed with isopropyl alcohol between tissues. If heavily contaminated with oil, instruments can be cleaned with detergent (e.g. Dawn), rinsed with water, and then rinsed with alcohol.

vi. Samples are stored preferably in solvent-rinsed Teflon-lined glass jars, labeled, and secured with evidence tape/custody seal. If glass jars are not available, samples can be placed in Teflon sheets or aluminum foil (dull side to sample) and stored in whirl-paks/freezer bags.

vii. If samples/tissues have come in contact with a contaminating material (e.g. plastic bag), collect and store a representative example of that material (e.g. plastic bag) using the same method as for collecting tissues.

viii. Collect a representative sample of each tissue (< 1 cm thick) preserved in 10% buffered formalin for histopathology. Duplicate hydrocarbon and histology samples whenever possible.

ix. Each sample must be labeled with **Spill Name, Log #, Level A Field #, Species, Tag#, Arrival Date, Sampling Date, and Capture Location** and securely stored.

x. Samples for PAH analysis should be chilled immediately on ice/refrigeration and then frozen as soon as possible to -20ºC or colder in a locked freezer. Histopathology samples are stored at room temperature.

All evidence should be securely stored and refrigerated/frozen until the Wildlife Branch Director provides further instructions. If samples are transferred to a different location or sent for analysis, a Chain of Custody form is required. A Chain of Custody form can be found in this document, but are often provided by the laboratory.

Shipping:
Ship samples frozen on blue ice or with ~5 lbs dry ice according to laboratory specification using Federal Express (FedEx). FedEx follows IATA regulations for shipping hazardous materials and maintains chain of custody record by tracking packages.
Sampling supplies such as jars, label, and custody seals are often supplied by the analytical laboratory and are produced by:

I-Chem™ Brand, Certified 300 Series jars
Order: 1-800-451-4351, www.ichembrand.com

Appendix 8. Oil Spill Response Laboratories

Laboratories with tissue petroleum hydrocarbon analysis expertise

Northwest Fisheries Science Center 2725 Montlake Boulevard East Seattle, WA 98112-2097 Jon Buzitis, (206) 860-3309 Gina Ylitalo, (206) 860-3325	**Alaska Fisheries Science Center** Auke Bay Laboratory 11305 Glacier Highway Juneau, Alaska 99801-8626 Jeep Rice, (907) 789-6020
Petroleum Chemistry Laboratory Office of Spill Prevention and Response California Department of Fish and Game 1995 Nimbus Rd Rancho Cordova, CA 95670 (916) 358-2803	**TDI-Brooks International** 1902 Pinon College Station, TX 77845 (979) 693-3446 Thomas McDonald, (979) 220-3821
Alpha Woods Hole Laboratories 375 Paramount Drive Raynham, MA 02767 Peter Kane, (508) 822-9300	**Zymax Forensics** 71 Zaca Lane San Luis Obispo, CA 93401 (805) 544-4696 Alan Jeffrey, (805) 546-4693
Mote Marine Laboratory 1600 Ken Thompson Parkway Sarasota, Florida 34236 (941) 388-4312 Dana Wetzel, (941) 388-4441	**Geochemical & Environmental Research Group (GERG)** Texas A&M University 833 Graham Road College Station, Texas 77845 (979) 862-2323

The laboratory should be able to perform analysis of the 16 traditionally-studied, parent PAHs listed as priority pollutants by the Environmental Protection Agency (EPA) in addition to the 44 alkylated and heterocyclic PAHs.

Unified Command and Trustee Agencies will make final decision on laboratory use.

Appendix 9. Oiled Marine Mammal Necropsy Form

Oiled Marine Mammal

Gross Necropsy Report

Spill Name:	
Animal Log #	
Level A Field #	**Tag #**
Species:	
Sex:	**Age:**
Weight:	kg. (estimate/actual)
SON:	emaciated 1 2 3 4 5 6 7 obese

Measurements:		Blubber depth	mm
SL cm	AG cm	UG cm	XG cm

Form completed by:	Date:	
Enforcemnent Officer:		
Strand/Capture location:		
Collecters Name:		
Intake date:		Euthanasia
Death date:	Time:	☐ yes
Post mortem date:	Time:	☐ no
Carcass Classification:	**Frozen**: ☐ yes ☐ no	
2- fresh, 3-fair (organs intact), 4-poor, 5- mummified		
Photographs: ☐		
Radiographs: ☐		

Clinical signs/diagnosis	
Antibiotics given	
Pertinent lab results	

GROSS NECROPSY ABNORMALITIES:

HYDROCARBON ANALYSIS SAMPLES		
bile	kidney	blubber/fat
blood	muscle	other:
urine	lung	
liver	intestine	

MICROBIOLOGY	**SWABS: other**
Lung ☐	
Liver ☐	
other ☐	

HISTOLOGY SAMPLES

lung	thyroid	ileum	kidney	mammary gland	muscle	**LYMPH NODES:**
trachea	tonsil	colon	ureter	adrenal	gonad	colonic / gastric
heart	tongue	pancreas	urinary bladder	skin	prostate	sublumbar / hepatic
aorta	esophagus	spleen	urethra	eye (L/R)	uterus	inguinal / mediastinal
pulmonary artery	stomach	liver	blubber	fat–site:	vagina	axillary / submandibular
thymus	duodenum	gall bladder	bone marrow		cervix	mesenteric / tracheobronchial
salivary gland	jejunum	brain	spinal cord	whole repro	penis	
other:						

Cause of death (preliminary diagnosis):

Examiner: Examiner's signature: Date:

Appendix 10. Chain of Custody Form

CHAIN OF CUSTODY RECORD

Case Number:

DATE AND TIME OF SEIZURE:	DUTY STATION:	EVIDENCE/PROPERTY SEIZED BY:

SOURCE OF EVIDENCE/PROPERTY (person and/ or location) TAKEN FROM: RECEIVED FROM: FOUND AT:	DEFENDANT/COMPANY NAME AND REMARKS:

ITEM NO:	DESCRIPTION OF EVIDENCE/PROPERTY (include Seizure Tag numbers and any serial numbers):

ITEM NO:	FROM: (PRINT NAME, AGENCY)	RELEASE SIGNATURE:	RELEASE DATE:	DELIVERED VIA: FEDEX U.S. MAIL IN PERSON OTHER:
	TO: (PRINT NAME, AGENCY)	RECEIPT SIGNATURE:	RECEIPT DATE:	

ITEM NO:	FROM: (PRINT NAME, AGENCY)	RELEASE SIGNATURE:	RELEASE DATE:	DELIVERED VIA: FEDEX U.S. MAIL IN PERSON OTHER:
	TO: (PRINT NAME, AGENCY)	RECEIPT SIGNATURE:	RECEIPT DATE:	

Appendix 10b. Chain of Custody Form, page 2

ITEM NO:	FROM: (PRINT NAME, AGENCY)	RELEASE SIGNATURE:	RELEASE DATE:	DELIVERED VIA: FEDEX U.S. MAIL IN PERSON OTHER:
	TO: (PRINT NAME, AGENCY)	RECEIPT SIGNATURE	RECEIPT DATE:	
ITEM NO:	FROM: (PRINT NAME, AGENCY)	RELEASE SIGNATURE:	RELEASE DATE:	DELIVERED VIA: FEDEX U.S. MAIL IN PERSON OTHER:
	TO: (PRINT NAME, AGENCY)	RECEIPT SIGNATURE:	RECEIPT DATE:	
ITEM NO:	FROM: (PRINT NAME, AGENCY)	RELEASE SIGNATURE:	RELEASE DATE:	DELIVERED VIA: FEDEX U.S. MAIL IN PERSON OTHER
	TO: (PRINT NAME, AGENCY)	RECEIPT SIGNATURE	RECEIPT DATE:	
ITEM NO:	FROM: (PRINT NAME, AGENCY)	RELEASE SIGNATURE:	RELEASE DATE:	DELIVERED VIA: FEDEX U.S. MAIL IN PERSON OTHER:
	TO: (PRINT NAME, AGENCY)	RECEIPT SIGNATURE:	RECEIPT DATE:	
ITEM NO:	FROM: (PRINT NAME, AGENCY)	RELEASE SIGNATURE:	RELEASE DATE:	DELIVERED VIA: FEDEX U.S. MAIL IN PERSON OTHER:
	TO: (PRINT NAME, AGENCY)	RECEIPT SIGNATURE	RECEIPT DATE:	
ITEM NO:	FROM: (PRINT NAME, AGENCY)	RELEASE SIGNATURE:	RELEASE DATE:	DELIVERED VIA: FEDEX U.S. MAIL IN PERSON OTHER:
	TO: (PRINT NAME, AGENCY)	RECEIPT SIGNATURE:	RECEIPT DATE:	

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Microsoft Outlook

From: Brett.Dodson@noaa.gov
Sent: Monday, May 31, 2010 9:14 PM
To: Brett Dodson; DWHNRDA; Ed Lavine; Gary Shigenaka; Gregg Gitschlag; Guy Davenport; James Nance; Jim Gilpatrick; John Foret; Jordan Stout; Lance Garrison; Michael Ziccardi; Rachel Struch; Sheryan Epperly; Simeon Hahn; Southeast Regional Office
Cc: Daniel Hahn
Subject: Deepwater Horizon MC-252 05-31 Marine Mammal/Turtle Flight Summary

Good afternoon,
* The team flew SE today - 75nm from the delta, 35 nm past the source.
* Survey was performed from a Sikorsky S-76C with two pilots.
* The team left Houma at 13:00 and returned at 16:45.
* The planned survey was lengthened adding an additional point and transect.
* Survey flight time was approximately 114 minutes and a survey distance of 140nm was covered.
* Three turtles were seen, one Ridley, one Loggerhead, and one Leatherback.
* Approximately 80 dolphins were seen, 55 Bottlenose, the rest unidentified.
* Other sightings: a whale shark, a hammerhead, and 2 Mahi Mahi (each 8-12 miles from source).
* There were four contoled burns in the vicinity of the source while we were flying the area.
* The team is scheduled to fly a STR survey on 06-01-10 at 07:00 for the full day.
* Tuesday's flight will focus east and south east of delta in the convergence zone providing aerial support for the STR ground team.
* Observers on today's flight: Brett Dodson, Jim Gilpatrick, Rachel Struch.

Marine Mammal/Turtle Survey team

Microsoft Outlook

From: Sheryan Epperly [Sheryan.Epperly@noaa.gov]
Sent: Tuesday, June 01, 2010 2:52 PM
To: Chris Sasso; Paul Richards; Jim Bohnsack
Subject: Fwd: Re: Australian govt website from Montara oil spill incident
Attachments: sdarticle.pdf; m210p255.pdf

FYI

-------- Original Message --------
Subject: Re: Australian govt website from Montara oil spill incident
Date: Tue, 01 Jun 2010 14:06:30 -0400
From:svanpari <svanpari@mercury.wh.whoi.edu>
Reply-To: Sofie.VanParijs@noaa.gov
To: Lewandowski, Jill <Jill.Lewandowski@mms.gov>
CC: Simeon Hahn <Simeon.Hahn@noaa.gov>, Teri.Rowles@noaa.gov, Lance.Garrison@noaa.gov, "Epperson, Deborah" <Deborah.Epperson@mms.gov>, Sheryan.Epperly@noaa.gov, Sofie.VanParijs@noaa.gov, Tim Ragen <tragen@mmc.gov>, "Skrupky, Kimberly A" <Kimberly.Skrupky@mms.gov>, "Price, James Michael" <James.Price2@mms.gov>, "Sanders, Greg" <Greg.Sanders@mms.gov>, "Valdes, Sally J" <Sally.Valdes@mms.gov>, "Woehr, James R" <James.Woehr@mms.gov>, "Bennett, James F" <James.Bennett2@mms.gov>, "Kendall, James" <James.Kendall@mms.gov>, "Cluck, Rodney" <Rodney.Cluck@mms.gov>

```
Here are a couple of useful papers in case you don't have these looking
at long term effects.
Sofie

Lewandowski, Jill wrote:
>
> FYI.  In case you are unaware, the Australian government has a web
> page (see below) with some limited but potentially useful information
> on the effects of the oil spill from the Montara incident last year.
>
>
>
> http://www.environment.gov.au/coasts/oilspill.html
>
>
>
> I am trying to work through some contacts with the Aussie govt to see
> if any of the results from the Monitoring Plan are available.
>
>
>
> Thanks,
>
> Jill
>
>
>
> ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
```

>
> **Jill Lewandowski**
>
> Protected Species Biologist
>
> Minerals Management Service
>
> Department of Interior
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> Jill.Lewandowski@mms.gov <mailto:Jill.Lewandowski@mms.gov>
>
> www.mms.gov <http://www.mms.gov>
>
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REVIEW

Sampling design begets conclusions: the statistical basis for detection of injury to and recovery of shoreline communities after the 'Exxon Valdez' oil spill

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[2]WEST, Inc., 2003 Central Avenue, Cheyenne, Wyoming 82001, USA
[3]Department of Zoology, University of Western Ontario, London, Ontario N6A 5B7, Canada

ABSTRACT: The joint effect of multiple initial decisions made about sampling design in evaluation of environmental impacts using observational field assessments influences the ability to detect and accurately estimate responses. The design can dictate in advance whether the study can identify even large impacts that truly exist. Following the 'Exxon Valdez' oil spill in 1989, 4 separate studies of effects of the spill on the intertidal biota were conducted. Studies overlapped sufficiently in geographic area, shoreline habitat, and biological response variables to permit contrasts showing how the aggregate of multiple design decisions led to differences in conclusions. The SEP (Shoreline Ecology Program) supported by Exxon and the CHIA (Coastal Habitat Injury Assessment) funded by the Exxon Valdez Oil Spill Trustee Council shared a core approach of establishing a stratified random design of site selection. The Exxon-supported GOA (Gulf of Alaska) study and the NOAA (National Oceanographic and Atmospheric Administration) Hazmat (Hazardous Materials) study both chose to employ subjective choices of fixed sites. Despite many common goals, these 4 studies differed greatly in: (1) sampling effort (area covered per sample quadrat, sample replication within sites, numbers of study sites per category, numbers of samplings, and total areas sampled) and sampling design (philosophy of targeting sampling effort, complete randomization versus matched pair designs, sampling frame, treatment of habitat heterogeneity within sites, interspersion of sites, and control of shoreline treatment and oiling intensity); (2) analytical methodology (analysis of covariance versus paired designs, treatment of subsamples as replicates in *F*-ratios, logic of inferring recovery, and power calculations); and (3) choice of biological response variables (taxonomic level of analysis, aggregating versus splitting separate communities, and scope of communities and habitats examined). The CHIA and NOAA Hazmat studies of epibiotic responses in sheltered rocky shores of Prince William Sound made several decisions to enhance detection power and produced similar conclusions about large reductions in total biotic cover of intertidal space, *Fucus* cover, mussel abundance, abundance of the limpet *Tectura persona* and a balanoid barnacle, and increases in open space and abundance of an opportunistic barnacle, *Chthamalus dalli*. In contrast, the SEP study of this same habitat and geographic region adopted design choices resulting in lower power of detection in 12 (vs CHIA and vs NOAA Hazmat) of 15 separate decisions (with one tie in each contrast). Accordingly, the SEP study was able to detect declines only in *Fucus* cover and occasionally in total limpet abundance but not in total epifaunal or mussel or balanoid barnacle abundance and, unlike the results of the other 2 studies, most of the taxa analyzed showed apparent increases rather than decreases from oiling and shoreline treatment. The more powerful GOA and CHIA studies of impacts of oiling in the Gulf of Alaska, where oil grounded 1 to 8 wk later and in more weathered condition than in Prince William Sound, showed more consistent and larger reductions in intertidal biota in the sheltered rocky habitat than did the SEP study of Prince William Sound. Thus, the combined effects of many design decisions that reduced power to detect impacts in the SEP study led to failure to demonstrate large impacts of the spill documented by other studies of the same habitat in the same and the more remote region.

KEY WORDS: Analytical methodology · Biological response variables · Environmental impact assessment · 'Exxon Valdez' oil spill · Intertidal biota · Sampling design · Statistical power · Type II error

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INTRODUCTION

In the 2 decades that have passed since publication of Green's (1979) book on environmental statistics with its 10 simple rules for how to test effectively for environmental responses, the literature on assessment designs for environmental impact studies has grown dramatically in abundance and sophistication. By 1986, the National Research Council (1986) in its comprehensive report on oil in the sea wrote that '[a] discussion of statistical techniques used in studies of the fate and effects of oil in the environment would need to cover most of the areas in modern statistics.' More recently, new analytical tools (e.g., Field et al. 1982, Clarke & Ainsworth 1993, Manly 1997) and novel statistical test designs (e.g., Underwood 1981, 1994, 1997, Stewart-Oaten et al. 1986, 1992, Wiens & Parker 1995, Schmitt & Osenberg 1996) have been developed for the explicit task of assessing environmental impacts. Despite this growth in technical sophistication and subtlety of assessment designs and analyses, relatively simple decisions, assumptions, and conditions of the study design can still be extracted to explain how conclusions may be dictated by choice of study design.

Approaches to inferring the degree of injury to natural resources following an environmental perturbation differ dramatically, with major implications for the types of statistical support required. In ecology and environmental sciences, the practice of applied statistics has been slowly moving away from testing a null hypothesis as the sole means of evaluating responses and towards estimation statistics (Stewart-Oaten et al. 1992, Johnson 1999). Testing the null hypothesis of no effect on various species populations is trivial when deaths have been observed. The more compelling goal is to estimate the magnitude of the loss or the time course to recovery, and in such cases statistics are critical in calculating the confidence intervals or the Bayesian credibility intervals around those estimates. This estimation approach is not yet engrained into the fabric of environmental assessment. Some acute injuries resulting from toxic exposure are currently estimated, for example those based upon counts of oiled, dead seabirds (e.g., Piatt & Lensink 1989). For this class of injury, inferential statistics are used to assess sampling efficiency and confidence intervals of the estimates and to model post-mortem fate and transport (Piatt & Ford 1996). A typically small fraction of those seabirds that are killed by acute contact with oil spilled at sea is subsequently recovered, thus requiring a model to adjust mortality estimates for probability of recovery (Ford et al. 1987). Despite such examples of using body counts to estimate mortality, the intellectual framework that has guided most formal natural resource damage assessments that use field observations has concentrated on testing null hypotheses of no effect.

Another fundamental contrast in approach to environmental assessment juxtaposes design/data-based and model-based methods (Gilbert 1987). A design/data-based protocol involves an empirical assessment to collect new data in a design intended to provide estimates of biological parameters or a direct test of an hypothesis (e.g., Cochran 1977). A pure model-based protocol includes no collection of new data, but rather involves construction of a deductive model to reach a conclusion. In practice, even design/data-based inference depends on models because its probabilities are based on the specific randomization procedure used to select sites, assign treatments, and so forth (Cox 1958, Manly 1997). Perturbations (oiling) are not assigned at random to sites, so design/data-based inference requires an assumed model intrinsic to observational studies that oiled and unoiled sites would have the same distribution in the absence of the oiling. What one is really interested in is how the specific oiled sites differ from the state that they would have reached in the absence of the perturbation. Inference is further complicated by realization that what is desired is actually a time sequence of how the oiled sites would have behaved had there been no oil spill. Because all 4 studies of oil spill impact contrasted here are design/data-based, relevant issues that arise include comparisons of the model-based rationales that underlie the design protocols chosen in each case. Some have argued that design/data-based studies provide superior quantification of injury and greater reliability (Gilbert 1987, Johnson et al. 1989) because models typically require multiple assumptions wherever their demands for information go beyond available scientific understanding of critical underlying processes. For example, Peterson (2001) shows how use of an ecotoxicity risk assessment approach to model an oil spill as a pulse perturbation of acute mortality fails to include important chronic and indirect delayed impacts, which can best be evaluated empirically in a long-term field assessment program. Yet, the large differences in outcomes among the field studies of 'Exxon Valdez' oil spill impacts on intertidal communities that we consider here illustrate a potential shortcoming in design/data-based approaches, their dependency on critical design decisions.

Many generic components of a study design affect the outcomes of observational assessments and the conclusions derived from them (e.g., Bernstein & Zalinski 1983, Gilbert 1987, Peterson 1993, Mapstone 1995, Underwood 1997). When using the approach of testing null hypotheses to assess injury to species populations through field observations, achieving a defensible balance between type I and type II errors is a challenge.

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Because heterogeneity within natural ecological systems creates noisy data, the issue of power and type II error in environmental assessment has attracted substantial attention in recent literature (Green 1989, 1994, Eberhardt & Thomas 1991, Fairweather 1991, Peterman & M'Gonigle 1992, Peterson 1993, Steidl et al. 1997). Prior to the guidance provided by these publications, the historical tradition of natural science had focused almost exclusively on avoiding type I errors, falsely concluding that an effect exists (Toft & Shea 1983). In environmental studies, such type I errors are a special concern when the mechanistic causal model is absent or equivocal. Controlling the type I error rate at a low level has, however, the implication of elevating the likelihood of making the alternative type II error of falsely concluding absence of an effect when there is one. In tests where the null hypothesis of no significant effect cannot be rejected, basic scientists now routinely estimate the power of the test or the magnitude of detectable effect size so as to provide an indication of the probability of type II errors. In environmental assessments using hypothesis testing approaches, where making a type II error may be especially serious or costly to the public interest, there is added incentive for insuring high power in important tests (Fairweather 1991, Peterman & M'Gonigle 1992). Because of this interplay between type I and type II error rates, the issue of power of designs can be abstracted to a question of burden of proof: should managers of public trust resources carry the burden of proving that injury occurred beyond some small doubt or should the party responsible for the environmental incident carry the burden of proving that there was not any injury (Dayton 1998). In the ideal situation, a study design will have low error rates for both types of mistaken conclusions, but in many cases high costs of such powerful designs will require compromising the traditionally fixed type I error rates to insure low type II errors. In either case, attention to power in all aspects of the study design is critical to making correct inferences about impacts under natural conditions of environmental variability.

Here we take advantage of a rare opportunity to compare redundant, or at least broadly overlapping, studies of how the same ecological system responded to a large environmental perturbation. Paine et al. (1996) decried the huge wastage of funds involved in the intensive and redundant assessments of ecological impacts following the 'Exxon Valdez' oil spill of 1989. Here, we exploit this rare duplication to evaluate how simple design decisions within large complex studies combine to influence the outcomes of those studies. We review the design decisions and conclusions of 4 separate, largely independent studies of the impacts of the same environmental incident, the 'Exxon Valdez' oil spill, on the same system, the shoreline community of intertidal plants and animals. Each of these studies required investment of substantial resources and involved rather sophisticated sampling and analytical designs using trained statisticians and biologists, yet they appeared to reach different conclusions. We show by this example how application of relatively simple concepts and principles in sampling design and statistical analysis can explain the reasons for reaching different conclusions. Specifically, we demonstrate how multiple design decisions that affect the ability to remove or avoid bias in parameter estimates from observational studies and influence the power to detect effects can combine to produce inconclusive results.

MATERIALS AND METHODS

The 'Exxon Valdez' oil spill. On 24 March 1989, the tanker 'Exxon Valdez' ran aground on Bligh Reef in the northeastern region of Prince William Sound, Alaska, leading to a release of approximately 11 million gallons (35 000 tonnes) of North Slope crude oil. After 3 d of calm weather, the floating oil was then transported by storm winds and prevailing currents to the southwest, where it first encountered the shorelines of many of the islands in Prince William Sound (see map of oil transport in Babcock et al. 1996). Subsequently, oil was transported out of Montague Strait, contacting several sites along the outer Kenai coast and then inside lower Cook Inlet. Finally, the oil traveled westward to the shores of the Kodiak Island complex and the Alaska Peninsula along the Shelikov Strait. During this 1 to 8 wk journey, the floating oil changed chemically and physically as some more volatile components entered the atmosphere, as others were oxidized photochemically and via bacterial metabolism, and as the floating crude oil became more consolidated into mousse and patties (Wolfe et al. 1994).

About half the spilled oil was estimated to have come ashore on beaches, 40% within Prince William Sound and 7 to 11% on shorelines of the Kenai and Alaska Peninsulas and on the Kodiak Island complex (Spies et al. 1996). Aerial surveys by the Alaska Department of Environmental Conservation reported that by the end of summer 1989: (1) 280 of the 1182 miles observed in Prince William Sound revealed light-to-heavy oiling; (2) 168 of 1039 miles of Kenai Peninsula-Cook Inlet shoreline observed revealed light-to-heavy oiling; and (3) 590 out of 1850 miles observed on the Kodiak-Alaska Peninsula region showed light-to-heavy oiling (ADEC 1989). Heavy oiling was much more concentrated in Prince William Sound. The shoreline assessment conducted by Exxon using aerial videotape suggested even greater lengths of oiled shoreline,

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including over 500 miles in Prince William Sound (Neff et al. 1995). Intensive treatment of oiled shorelines applied to displace and remove the oil from the intertidal zone took place in summers of 1989 to 1991 with some further work in spring 1992. Shoreline treatments included mechanical excavation of shoreline rocks, pressurized application of hot or cool water, hand cleaning of rocks, and bioremediation via nutrient application (Mearns 1996). Injuries to the biota of the oiled shorelines thus included both the effects of oiling and the effects of shoreline treatment.

Studies of impact of the 'Exxon Valdez' oil spill on intertidal communities. Four major studies were conducted to assess the responses of intertidal biota to the 'Exxon Valdez' oil spill and subsequent shoreline treatment: CHIA (Coastal Habitat Injury Assessment) (McDonald et al. 1995, Highsmith et al. 1996, Stekoll et al. 1996, Sundberg et al. 1996), conducted by scientists funded by the Exxon Valdez Oil Spill Trustee Council (a consortium of federal and state government agencies with responsibilities for managing public trust resources); SEP (Shoreline Ecology Program) (Page et al. 1995, Gilfillan et al. 1995a), conducted by Exxon contractors to evaluate impacts in Prince William Sound; GOA, also funded by Exxon but targeting the Gulf of Alaska spill area (Gilfillan et al. 1995b); and a fourth study conducted by the NOAA (National Oceanographic and Atmospheric Administration) Hazmat (Hazardous Materials) program (Driskell et al. 1996, Houghton et al. 1996, Lees et al. 1996). A fifth study initiated by the US National Park Service was terminated when oil failed to come ashore at any of the sites where pre-spill surveys were conducted. Design and analysis were complicated by: (1) the large extent of oiled shoreline; (2) the extreme heterogeneity of affected shoreline types and habitats; (3) the varying degrees and types of oiling and shoreline treatment; (4) inaccuracies in maps and databases on shoreline types and locations of oil and shoreline treatments; and (5) the challenge of making statistical inferences on the full geographic extent of the injuries, magnitude of injuries, and extent of recovery. These difficulties in designing intertidal assessments ultimately forced both the CHIA and the SEP studies to be completely redesigned after the first field season, resulting in loss of critical information about injury in 1989.

Two fundamentally different approaches were embodied within these 4 damage assessment studies, an approach involving random selection of sites in some fashion designed to permit extrapolation to a larger spill-affected area and an alternative approach of choosing fixed sites, selected to cover particular habitats and/or to reflect known shoreline oiling and treatments. The CHIA study and the SEP (specifically the SRS [stratified random sampling] portion; Page et al. 1995) study for Prince William Sound followed the first of these approaches. The NOAA Hazmat study and the GOA assessment adopted the second approach. (There was also a small portion of both the Trustee Council- and the Exxon-funded programs in Prince William Sound that employed fixed sites.) The fundamental dichotomy in these 2 approaches is so great that it should not be surprising that different conclusions might arise from them. In practice, the fixed-site results are probably most useful in providing separation of otherwise confounded effects of oiling and shoreline treatment and in assessing the process of recovery at fixed sites of known history, whereas the programs involving random sampling of shorelines are more appropriate for extrapolating to estimate the full extent of injury. We devote most of our effort in this paper to comparing the 2 stratified random studies because they held an important geographic region (Prince William Sound) and a year (1990) in common and ostensibly had similar goals with similar methodologies. A close examination of the 2 protocols readily reveals fundamental differences.

The stratified random designs. CHIA and the stratified random portion of SEP, despite their common approach of random site selection, possessed many differences in design that caused them to generate different conclusions. The first decision made in designing both studies was to stratify the shorelines of both the oiled and reference areas into distinct subregions that were more homogeneous with respect to factors that influence the intertidal biological communities (e.g., Cochran 1977, Thompson 1992). These choices of strata were made in somewhat different ways in the 2 studies. CHIA first stratified by geographic area into 3 spill regions (Prince William Sound, Kenai Peninsula-lower Cook Inlet, and Kodiak-Alaska Peninsula) because of likely pre-existing biological differences among these environmentally and geographically different regions and because of changes in the quality of the oil over time during its sequential transport to the different regions. The Exxon-supported assessment studies stratified geographically by conducting 2 independent studies in the 2 separate regions, Prince William Sound (SEP; Page et al. 1995, Gilfillan et al. 1995a) and the Gulf of Alaska (GOA; Gilfillan et al. 1995b), which included both the Kenai coast and the Kodiak archipelago-Alaska Peninsula area.

A second decision held in common, although done with operational differences by each study, was to stratify by habitat type within each geographic region. The SEP design defined and sampled 4 intertidal habitats in Prince William Sound: exposed bedrock, sheltered bedrock, boulder/cobble, and pebble/gravel (Page et al. 1995). All sites close to eagle nests were eliminated in SEP to avoid any unintentional impacts on a charis-

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matic species. Fine-sediment shores were deemed too rare to sample. CHIA chose to ignore and not sample the steep and dangerous wave-exposed rocky shores where worker safety would be imperiled. The CHIA design identified 5 different intertidal habitats: exposed rocky shores, sheltered rocky shores, coarse-textured beaches, fine-textured beaches, and sheltered estuarine shores (Sundberg et al. 1996). Sampling in CHIA was conducted in all habitats, although fine-textured beaches were dropped after the 1990 field season and analyses of this habitat remain incomplete. Not all habitats were sampled in every geographic area: sheltered estuarine shores and exposed rocky shores were not included in the Kodiak-Alaska Peninsula design, and exposed rocky shores were also excluded from sampling in the Kenai Peninsula-Cook Inlet region (Stekoll et al. 1996). Thus, despite some general similarity in habitat identification (especially for exposed and sheltered rocky [= bedrock]), there were also differences between these 2 studies in their choices of habitat strata. Contrasts of results between studies are most readily achieved for the sheltered rocky habitat, which was sampled in all regions by each study. Although the boulder/cobble and pebble/gravel habitats of SEP appear to match the coarse-textured beaches of CHIA, sampling differences between studies in this environment and the lack of parallelism in habitat definitions inhibit definitive comparisons.

A third decision made in establishing the design of these 2 stratified random shoreline assessments was to stratify by elevation in the intertidal zone, recognizing that differences in aerial exposure have critical impacts in structuring intertidal communities (e.g., Connell 1972). SEP identified and sampled biological communities at 4 elevation zones: the upper intertidal at mean high water; the middle intertidal at mean tide level; the lower intertidal at mean lower low water; and the subtidal at 3 m below mean lower low water (Page et al. 1995). CHIA stratified initially into 4 zones, each of the first 4 m of vertical drop starting from mean high water (Highsmith et al. 1996). Because the mean low water level is 3.4 m below mean high in Prince William Sound, the fourth meter of vertical drop was not always accessible to sampling, so sampling at this level was discontinued after the 1990 field season. Thus, the elevation zones sampled in the 2 stratified random designs are similar but not identical.

In both stratified random studies, a GIS-based map of shoreline type and oiling was used to help identify the sampling frame of oiled and references sites for each habitat stratum (McDonald et al. 1995, Page et al. 1995, Sundberg et al. 1996). For CHIA, shoreline segments 100 to 600 m long within each stratum were defined and selected by a random procedure with probability proportional to length, while eliminating all sites less than 100 m long. SEP defined study sites of uniform length of 100 m, eliminating study sites less than 100 m for all strata except 1 habitat type where sites of 60 m were used. SEP then similarly selected a simple random sample of equal-sized sites from each stratum. Both CHIA and SEP carved up any long stretches of identical habitat into contiguous segments equal to the maximum length. Consequently, the sampling frame for both studies eliminated from consideration some types of sites that truly exist, the short segments of habitat, thereby requiring the assumption that conclusions from the longer beach segments can be extrapolated to shorter sites. In both CHIA and SEP, if the field assessment team found that a study site was misclassified by any criterion, then it was dropped and could not be included among the possible sampling sites for the stratum to which it properly belonged. During analysis of the SEP, data were combined across strata in multivariate analyses without regard for the unequal weights created by the actual practice of stratified random sampling. This shortcoming in the SEP design violates the principle of equal (or, more generally, known) probability of sampling every site within a stratum. CHIA planned for unequal probabilities of sampling from the start and modified the weights assigned to the data by knowledge of the imperfections in classification and how sites were correctly and incorrectly assigned to strata. The method used by CHIA (see McDonald et al. 1995) to apply unequal weights was the Stouffer-Liptak meta-analysis procedure (Folks 1984), also known as the inverse normal method (Hedges & Olkin 1985) or a consensus test (Rice 1990). Unpublished analyses conducted during SEP indicate, however, that this problem of unequal weights had minor effects on conclusions of SEP (J. Harner pers. comm.).

The 2 stratified random assessment studies differed fundamentally in the protocol for site selection and the basic design for contrasting sites. CHIA, as it was conducted from 1990 onwards, used a control-treatment paired design (Skalski & Robson 1992), in which the oiled sites were randomly sampled from a frame of all moderately and heavily oiled sites. Then, each oiled site was compared against a matched reference site, with selection of the match done on the basis of geographic proximity, beach slope, wave exposure, substrate composition, nearshore bathymetry, and proximity to sources of freshwater (McDonald et al. 1995, Highsmith et al. 1996). Reference sites included lightly oiled as well as unoiled sites, potentially making inferences on the impacts of oiling conservative and reducing power to detect oil spill effects if light oiling actually caused any mortality. SEP selected both oiled and reference sites from a Prince William Sound sampling frame without pairing. By adhering to a strict random-

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ization procedure, reference sites were not interspersed with oiled sites and the frame of selection for reference sites was broadly enough defined that it included sites near glacier inputs that seasonally lowered salinities and enhanced turbidity relative to the oiled sites. Site properties of sediment size, total organic carbon, and wave energy were measured and used as covariates to analyze effects of oiling (Page et al. 1995). Four oiling categories were used in SEP: heavy, moderate, light to very light, and none. Neither of these approaches necessarily addresses a critical underlying problem in such a design. The investigator in such environmental assessments does not control the oiling and does not assign oiling at random; thus the possibility that oiled sites differ systematically from unoiled sites because of differential exposure to current flux or some other factor is not tested, and the logic of both designs is deficient (Peterson 1993). This concern illustrates how some sort of conceptual model underlies even a design/data-based assessment.

Subsampling techniques at each site differed between the 2 stratified random assessment studies, as did methods of using the data for statistical inference. Both CHIA and SEP used quadrats on rocks and cores in soft sediments located along replicate transects to provide the subsamples at each site, but the size, number, and shape of quadrat samples all differed greatly. CHIA involved 5 different sampling dates: 1 pilot sampling in 1989, then 2 samplings (early and late summer) in both 1990 and 1991 to provide an indication of rate and extent of recovery (McDonald et al. 1995). The SEP study of biological response was a 1-time sampling of Prince William Sound in summer 1990, although some repeated sampling of the fixed study sites occurred with minimal reporting of the results (Gilfillan et al. 1995a, Page et al. 1995). The choices of injury indicators differed between the 2 studies, with CHIA measuring the abundance and biomass by species of intertidal plants and invertebrates, while SEP generally pooled species into coarser taxonomic groupings and community-level parameters (such as species richness and Shannon-Wiener diversity) for their analyses. CHIA included a sampling of intertidal fishes, which were not a part of the SEP sampling (Barber et al. 1995). Decisions about pooling samples and about using subsamples as replicates differed in the analyses.

The fixed-site designs. The NOAA Hazmat program began as Exxon's project in 1989 and was then taken over by NOAA for subsequent years. One component study was designed as a short-term (3 to 10 d) evaluation of the biological impacts of several alternative beach treatments: low-pressure warm-water wash, the dispersant Corexit 7664, the beach cleaner Corexit 9580 M2, and high-pressure hot-water wash (Lees et al. 1996). The evaluation of each treatment was done separately at a single site, chosen to facilitate testing, in oiled, protected boulder/cobble habitat. Plots were selected at random within sites to receive treatment and the test of effects was a contrast of pre- to post-treatment abundances of epibiotic species. Lacking control plots, this design assumes that changes over the 3 to 10 d period were all due to treatment: this assumption can be only partially relaxed by contrasts with other sites nearby that were similarly oiled but untreated (Lees et al. 1996). Randomly selected 0.25 m^2 quadrats were used as the sampling units within each treatment plot. The design of this study lends itself to direct observation of process and inference on mechanism, but inference to the entire frame of oiled and treated sites, as defined by the SEP and CHIA protocols, requires some (perhaps plausible) assumptions. For example, to extrapolate, one would need to assume that variance in oiling response among sites of this habitat type is so low that the single study site represents the distribution of responses well and that the observed treatment effects remain nearly constant across different habitats.

The longer-term components of this NOAA Hazmat study of fixed sites involved use of replicate sites not chosen by a formal randomization process (Driskell et al. 1996, Houghton et al. 1996). Sites were rapidly selected during the spill event to represent oiled and unoiled sites in each major habitat type (rocky, boulder/cobble, and mixed-soft). Sites were then post-categorized by beach treatment into oiled but not treated (except perhaps by cool-water flushes and/or bioremediation fertilizers), oiled + treated with pressurized hot water (plus also fertilizers), and unoiled. Additional sites were added in 1990, 1991, and 1992 to enhance replication. This study had 2 components with different methodologies: an infaunal study using 10.7 cm diameter cores, whose invertebrates were retained on 1 mm mesh (Lees et al. 1996), and an epibiota study using 0.25 m^2 quadrats (Houghton et al. 1996). Two elevation strata were sampled in the infaunal component and 3 in the epibiota component. Thus, while assumptions are required to extrapolate results to the entire sampling frame of oiled and treated shores, the study serves directly to separate out the 2 sources of impact to shoreline biota, while providing a long-term monitoring to document recovery processes at the fixed sites in both hard- and soft-bottom communities.

The fixed-site portion of SEP included 12 sites, 8 of which were selected and sampled in 1989 (Page et al. 1995). Sites were chosen to represent certain conditions of special interest or concern, such as soft-sediment habitats or especially heavily oiled sites, so the results of this sampling are not intended to be representative of a broad type of oiled shores. Some fixed sites were revisited in 1990 and 1991, but sampling was not con-

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ducted in a comparable fashion that would allow contrast of biological parameters (Page et al. 1995). Two types of samples were taken in the fixed-site component, 0.25 × 0.125 m scrapes of rock surfaces and 10 cm diameter cores to 10 cm depth in sediments. Each type of sample was sieved in the field through a 1 mm mesh to yield abundance data for targeted taxa. A sample of each type was taken, wherever possible, at each of 3 intertidal elevations on each of 3 transects, established in perpendicular orientation to the shoreline.

GOA also did not choose sites at random and thereby employed a fixed-site design (Gilfillan et al. 1995b). Sites were chosen to cover the 2 geographic regions of the Gulf, the Kenai coast and the Kodiak-Alaska Peninsula area. Sites were also selected to provide coverage of 3 different habitats: bedrock, boulder/cobble, and pebble/gravel. Five sites characterized as sand or mud were also sampled, but sand sites lacked controls and mud sites lacked oiled counterparts, thereby preventing contrasts that might allow inference of impacts of the oil spill. Within each habitat and geographic region, replicate sites were selected in each of 3 levels of oiling, moderate-to-heavy, light, and unoiled references. For all sites, biological data were collected in 1989 by estimating areal coverage of dominant species in 0.5 × 0.5 m quadrats, by collecting 0.063 m^2 scrape samples from rock surfaces in the first 2 types of habitats, and by collecting 0.0078 m^2 cores to 15 cm depth from sediments in the latter 2 types of habitats (boulder/cobble possessing both hard- and soft-bottom substrate). Organisms collected on a 1 mm sieve comprised the core samples in the 1989 data set. Samples were taken at 5 elevations within the intertidal zone on each of 3 replicate vertical transects. In 1990 only core samples were taken but at a subset of sites mostly where cores had not been taken in 1989, preventing meaningful inferences about the status of the communities in 1990 and the recovery process in the intervening year. Thus, the target populations to which results of this study were intended to apply are the moderately-to-heavily oiled sites and the lightly oiled sites in each of 3 rocky habitat types. Such extrapolation requires several (perhaps plausible) assumptions, including especially the representative nature of the sets of subjectively chosen, fixed sites.

RESULTS OF COMPARISONS OF STUDY DESIGNS

Issues of sampling intensity and effort

(1) Area covered per sample

The 4 independent studies of effects of the 'Exxon Valdez' oil spill on intertidal epibiota used samples that encompassed substantially different surface areas (Table 1). SEP used scrape samples covering 0.031 m^2 (results of 0.25 m^2 photographs do not appear in the publications), whereas the CHIA study took samples of 0.10 (destructive scrape collection) and 0.40 (areal cover) m^2 (results of 1.5 to 1.7 m^2 samples for nearest neighbor measures do not appear in the publications) and NOAA Hazmat used areal cover samples of 0.25 m^2. Thus, the area of intertidal rock surface assayed in a single sample was 3 (scrape) to 13 (areal cover) times larger in CHIA and 8 (areal cover) times larger in NOAA Hazmat than in SEP. The corresponding GOA study (Gilfillan et al. 1995b) used samples of 0.25 m^2 for areal coverage and 0.063 m^2 for scrapes of rock surfaces: areal cover samples of a size equal to that of NOAA Hazmat and 8 times the size of SEP, and scrape samples each of an area about the same as CHIA and 8 times that of SEP (Table 1).

The areal size of a sample is an important design consideration for several reasons. The optimal size of each sample depends on the variable to be estimated. In estimating individual species densities, small sample sizes may be preferable provided that the sampling effort saved is simply redistributed by utilizing numerous small samples. For example, point estimates are a common standard in studies of spatial cover on rocky shores. However, the substantially smaller samples used in SEP were not accompanied by higher replication of sampling so total sampling effort was much lower than in the other studies (see points 2 to 5 in Table 1). A larger area of coverage by a sample can achieve better representation by spreading the sample out over a larger range of any natural gradient or across spatial heterogeneity. In this case, the CHIA scrape samples were rectangular with 0.2 m in the horizontal axis and 0.5 m in the vertical axis, along which tidal exposure differences directly and indirectly induce great changes in biota. As stated by Krebs (1989), '…nearly everyone has found that long thin quadrats are better than circular or square ones of the same area. The reason for this is habitat heterogeneity. Long quadrats cover more patches.' Thus, the larger CHIA scrape samples covered double the vertical distance of the 0.125 × 0.25 m scrape samples in SEP and of the 0.25 × 0.25 m scrape samples of GOA. The rocky intertidal community of the Pacific Northwest is well known for its patchy mosaic nature as a consequence of varying duration of succession since disturbance (Paine & Levin 1981). SEP data on distributions of abundances of species in scrape samples support the conclusion that its samples were small relative to patch sizes in that over half the distributions were best described by the negative binomial (Gilfillan et al. 1995a). Thus, CHIA scrape samples are likely to cover more of the vertical environmental gradient and aver-

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Table 1. Contrasts of sampling intensity and effort in the 4 main studies to assess injury to intertidal biota following the 'Exxon Valdez' oil spill (the SRS portion of the SEP study by Exxon, the Gulf of Alaska (GOA) study of Exxon, the CHIA study of the Exxon Valdez Oil Spill Trustee Council, and the NOAA Hazmat study). PWS: Prince William Sound

Issue	SEP[a]	Exxon GOA[b]	CHIA[c]	NOAA[d]
(1) Area covered by single sample	Scrape - 0.031 m^2 Core - 0.0078 m^2	% cover- 0.25 m^2 Scrape - 0.063 m^2 Core - 0.0078 m^2	% cover - 0.40 m^2 Scrape - 0.10 m^2 Core - 0.10 m^2	% cover - 0.25 m^2 Core - 0.0090 m^2
(2) Numbers of replicate subsamples per site at a given elevation	3 transects	3 transects	6 transects	5, 10, 10 (by level) for % cover; 10 for cores
(3) Numbers of study sites per category	2–6 randomly selected sites in each of 4 habitat types and 4 oiling levels (64 total sites)	In 1989 2–6 sites from each of 3 habitat types and 3 oiling levels (43 total sites)	3, 5, 4 and 2 pairs in PWS in exposed rocky, sheltered rocky, coarse textured, and estuarine habitat: 6½ sheltered rocky, 5 coarse textured, 2½ estuarine pairs in GOA (56 total sites)	10–18 sheltered rocky, 10–14 mixed soft and additional boulder/ cobble unanalyzed (22–30 total sites for the 2 habitats)
(4) Numbers of sampling dates	1	1	4	5[e]
(5) Total area sampled in a given stratum in a single year (e.g., sheltered rocky at mid elevation)	~1.36 m^2 (in 1990)	~9.6 m^2 (in 1989: includes scrape (1.1 m^3) % cover (8.5 m^2) on sheltered and exposed rocky)	~ 60 m^2 (in 1990: includes scrape (12 m^2) and % cover (48 m^2) and 2 dates)	~ 35 m^2 (in 1992)

[a] The stratified-random component (SRS) of Exxon's study in Prince William Sound (Gilfillan et al. 1995a, Page et al. 1995)
[b] The Exxon-sponsored study of the Gulf of Alaska shores (Gilfillan et al. 1995b)
[c] The study sponsored by the Exxon Valdez Oil Spill Trustees (McDonald et al. 1995, Highsmith et al. 1996, Stekoll et al. 1996)
[d] The study conducted by the NOAA Hazmat Program (Driskell et al. 1996, Houghton et al. 1996)
[e] This number refers only to the sampling dates of rocky shores from 1990–1992: soft-sediment sampling was reported for 4 dates, 1989–1992, and sampling of each has continued annually through 1999 (A. J. Mearns pers. comm.)

age more of the heterogeneity than the other scrape samples, thereby reducing error variance and enhancing power. The larger samples used for estimating percent cover by CHIA, NOAA Hazmat, and GOA studies would be expected to do an even better job of averaging across gradients and patches.

If sampling is being done to estimate a community property such as species richness or species diversity from each sample, then small sample size can also be problematic by leading to greater variance among samples (Pielou 1966). Such community response variables were calculated and reported in SEP (Gilfillan et al. 1995a), where areal coverage of both epifaunal (scrapes) and infaunal (cores) samples was the smallest of the 4 studies, and in GOA (Gilfillan et al. 1995b), where areal coverage of scrape samples was intermediate among studies and core samples as small as in SEP (Table 1). CHIA did not report species richness and diversity, but NOAA Hazmat, which used larger areal cover samples than the scrape samples used in SEP and GOA, did analyze and report such community responses (Houghton et al. 1996). The NOAA Hazmat samples for epibiotic cover would be expected to have yielded lower error variances for species richness and diversity than the smaller scrape samples of SEP and GOA, but because of reduced detail in visual estimates the NOAA Hazmat epibiotic samples probably missed some of the rarer species. The differences among studies in the surface areas covered by the infaunal cores (Table 1) are small and probably do not affect the power of statistical inferences on soft-sediment biota greatly.

(2) Sample replication

Replication within a site was achieved by collecting subsamples along replicate vertical transects for each

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of the 4 intertidal resource assessment studies. The numbers of these replicate transects (and thus the numbers of replicate subsamples per site at any given elevation) varied among studies by a factor of 2 to 3 (Table 1). SEP and GOA had the fewest replicates (3), while CHIA used 6 and NOAA Hazmat 5 to 10, depending on elevation. Especially as it approaches 1, the number of replicates has important consequences on the standard error around estimates of mean densities of individual species and on the adequacy with which the community is characterized. By this criterion alone, power to detect effects of the oil spill on densities of species at specific sites would be lowest for SEP and GOA, greater for CHIA, and greatest for NOAA Hazmat. To evaluate the effect of replication within sites on estimating species richness, we used the data from actual samples to compare the SEP results to the NOAA Hazmat results. Using all the 1990 sheltered rocky mid-intertidal sites, on average 3 replicates of the 0.031 m^2 scrapes from SEP contained 10.75 taxa, with new taxa added in the third replicate averaging 21.5% of the total. In contrast, using the NOAA Hazmat sample results for this same habitat but employing 10 replicate 0.25 m^2 quadrats, an average of 17.3 taxa was obtained and new taxa added in the last (the tenth) replicate averaged only 3.0% of the total. Thus, the NOAA Hazmat sampling was achieving a much more complete representation of the community composition than the SEP study. Because area covered per sample and replication both differed between the 2 studies, this contrast confounds the effects of size of the sampling unit and replication of samples (number of transects). To separate these effects, we resampled the NOAA Hazmat sample results by randomly selecting 3 quadrats (the same number as in SEP) in 20 separate randomization runs. On average, 12.0 taxa were obtained, with new taxa added in the last replicate averaging 10.6% of the total. This comparison demonstrates that both small size of the sampling unit and low replication contributed to the poor representation of the community membership, but that replication had the greater impact on this response variable. By missing more (generally rarer) taxa in the SEP sampling, the power to detect oiling effects on species richness would probably be lower except in the unlikely case where oiling affected species richness by eliminating common (readily detected) but not rare species.

(3) Numbers of study sites per category

The 4 studies of impact to intertidal biota used different numbers of study sites in their assessment designs, although within a given habitat type and oiling treatment category, numbers of replicate sites were surprisingly similar (Table 1). The SEP study of Prince William Sound used random numbers to select 64 study sites, more than any of the other studies (Page et al. 1995). These study sites represented a mean of 4 (range of 2 to 6) replicate sites in each of 16 cells, defined by habitat (4 types) and oiling level (4 types). CHIA assessed species densities at 56 study sites (Stekoll et al. 1996), of which 28 were located within Prince William Sound and the other 28 within the other 2 geographic areas (Kenai Peninsula - lower Cook Inlet and Kodiak archipelago-Alaska Peninsula). Within Prince William Sound, the CHIA design involved an average of 3.5 (range of 2 to 5) replicate pairs of study sites for each of 4 habitat types, where each pair involved contrast of 2 oiling levels (moderate–heavy vs light–no oil). In the Gulf of Alaska areas outside the sound, CHIA consisted of 3 to 7 pairs of study sites within each of 3 habitat types, again using the pairing to contrast moderately-to-heavily oiled shores with lightly oiled or unoiled shores. GOA included 43 replicate study sites in 1989, when biological data were collected (Gilfillan et al. 1995b). These study sites represented a mean of 4.8 (range of 2 to 6) replicates for each cell of a matrix of 3 habitat types and 3 oiling levels. The NOAA Hazmat study in Prince William Sound employed the smallest total number of study sites (22 to 30, depending on year); however, these covered only 2 habitat types for which results have been reported. Because the design within each habitat involved a contrast of 3 treatments (oiled-untreated vs oiled + treated vs unoiled controls), the average number of replicate study sites for this NOAA Hazmat program was 3.3 to 6 for the sheltered rocky habitat and 3.3 to 4.7 for the mixed soft-sediment habitat (Driskell et al. 1996, Houghton et al. 1996).

On the sole basis of this criterion of replication at the level of study site, it is essentially impossible to order the different studies by power to detect impacts. Within a given jointly sampled habitat type and oiling treatment level, replication hardly varied among studies. However, the numbers of oiling treatments and habitats fully sampled did differ. Thus, GOA sampled more total sites (43) than the CHIA component in the Gulf of Alaska region (28). Furthermore, SEP sampled more sites (64) than the CHIA Prince William Sound component (28), and within the sheltered rocky and mixed cobble soft-sediment habitats, the NOAA Hazmat study had site replication equal to or greater than that of SEP (Table 1). In comparing study designs, the intrinsically interesting issue of how many oiling treatment levels to establish arises. In cases where the shape of the possible relationship between treatment level and response is unknown, Cox (1958) recommended using none, medium, and high as the generally most efficient design. None of the studies followed

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that advice. Although SEP used 4 oiling categories in its design, one can show that CHIA with only 2 oiling categories and half the total number of sites in a given habitat would be nearly as efficient in detecting the effect of oiling and with equal total numbers of study sites could have been more efficient, assuming that light oiling and unoiled controls truly did not differ and that medium and heavy oiling did not differ. (On the other hand, if *a priori* reasons suggested importance for distinguishing the magnitude of impacts at different levels of oiling, a design comparing only medium-to-heavy oiling with light-to-no oiling fails even to pose the required contrast.)

To demonstrate that inclusion of treatment categories that do not explain any of the variance can actually lower power to detect the effect of the treatment, assume 4 oiling categories and consider the following hypothetical example. The no oiling and light oiling both have a true mean (u) of 20 for the response variable, while the medium and heavy oiling categories have the identical u of 15. Assume that each category has a standard deviation (sigma) of 5 and site replication of 16. Then, under an alpha of 0.05, simple computation of the power to reject the hypothesis of no oiling effect for alternative 1-factor ANOVA designs that do or do not subdivide those oiling categories that truly do not differ reveals that: (1) for the design that distributes its 64 sites among the 4 oiling categories, power = 0.92 (expected $F(3,60) = 5.33$ with a p-value, assuming no oil effect, of 0.0025); while (2) for the design that uses only half as many sites (32) but specifies and contrasts only the 2 (truly different) oiling categories, power = 0.87 (expected $F(1,30) = 8$; $p = 0.0083$). If in this latter design, 64 sites were employed and assigned to the 2 oiling categories, power = 0.99 (expected $F(1,62) = 16$ with a p-value, assuming no oil effect, of 0.00017). Thus, allocating sampling effort among categories that do not differ incurs a cost in efficiency of the resulting assessment design. Although samples of petroleum hydrocarbons in sediments have demonstrated that many control sites were actually exposed to some oiling (Jewett et al. 1999), implying that lightly oiled and reference sites were not likely to differ in general, and responses to heavy and medium oil rarely differed (Gilfillan et al. 1995a), we do not know that the assumptions used in this demonstration approximate the realty of the spill responses. Consequently, we cannot conclude that the CHIA and SEP designs for Prince William Sound necessarily achieved nearly equal efficiency through their site allocation, but we similarly cannot conclude that replication at the site level created substantial differences in detection power among studies. Nevertheless, the calculations of relative efficiency of alternative designs emphasize the wisdom of Cox's (1958) design advice.

(4) Numbers of sampling dates

The number of dates on which sampling is conducted and the time period encompassed by the sampling design have important consequences for the ability to detect and quantify oiling effects and to infer recovery trajectories (Stewart-Oaten et al. 1986). The 4 large studies of oil spill impacts on intertidal biota differed greatly in numbers of samplings (Table 1). SEP provided biological information for only a single 1-time (summer 1990) sampling, whereas CHIA employed 4 sampling dates over a period of 2 summers (1990 and 1991) and NOAA Hazmat sampled rocky shore sites on 5 occasions over 3 yr (1990 to 1992). Limited sampling of sites for CHIA occurred for 3 more years through 1994 (Stekoll & Deysher 1996) and the NOAA Hazmat study has been continued annually through summer 1999 (A. J. Mearns pers. comm.). GOA sampled biota in each of 2 years (1989 and 1990) but did not resample the same sites with the same methods in 1990, preventing meaningful temporal contrasts and resulting in availability of biological data for only the single summer of 1989. Sampling for all studies was conducted during a single season, summer, so that no study was able to evaluate the possibility of seasonal variation of oil spill effects (which may be important for such dynamic variables as algal cover). By sampling during both early and late summer in 1990 and 1991, CHIA could make some inferences about seasonal dynamics. In 1989, NOAA Hazmat sampled 1 set of sites in April, May, July, and September (Houghton et al. 1996), providing the best (but limited) seasonal sequence of any study.

Such differences in numbers of samplings have several important consequences. First, repeated sampling has the implication of reducing the degree of uncertainty in inferences about impacts of the oil spill simply because of the likely additional power from increasing replication that is provided by the additional sampling effort. At a minimum, multiple tests of effects could be conducted (1 for each sampling date, assuming no pooling of similar dates), with the power of each test essentially identical to the power of the single test available for a 1-time sampling. Moreover, with repeated observations on the same sites over time, estimation of time trends will be possible and site differences more precisely estimated with repeated measures ANOVA (Kuehl 2000).

The potential for an interaction with date represents a second grounds for preferring multiple sampling dates. This allows treatment × time interactions to be tested in statistical analyses and, even more importantly, provides estimates of how the differences between oiled and controls sites change through time. Such interactions provide insight into many processes

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that cannot be evaluated by a single sampling, including most importantly an evaluation of whether recovery has been initiated in the biota and what the time course to complete recovery is estimated to be. A detrimental effect of an environmental perturbation is much more serious biologically if it lasts a longer period of time, so repeated sampling to document recovery with confidence is a critical component of a good assessment design. For example, Barber et al. (1995) demonstrated that the abundance of intertidal fish was still significantly reduced by about 50% on oiled shores in 1990: by sampling again in 1991, they showed by exploring the significant time × oiling interaction that recovery in total intertidal fish abundance was nearly complete by 2.5 yr after the oil spill.

Third, repeated sampling allows detection of any delayed effects: delays in effects are an expected outcome of indirect effects operating within a community, such as trophic cascades (Schoener 1993, Menge 1995). NOAA Hazmat detected a delayed effect of the oil spill on the rockweed *Fucus gardneri*, the major provider of biogenic habitat in the upper and mid intertidal of this system: after years of convergence in *F. gardneri* abundances on oiled and unoiled shores, a large fraction of the population died at oiled sites but not on control shores, perhaps because the plants on the oiled shores were dominated by individuals from a single post-spill age class which all senesced together (Paine et al. 1996, Houghton et al. 1997).

Finally, repeated sampling allows testing of the necessary assumption of an observational damage assessment design that lacks pre-spill data, namely that the oiled and reference sites would possess similar biotic communities with similar species abundances in the absence of the intervention caused by the spill. In its strictest form, this assumption is almost certainly false: the oiled sites are not likely to be identical to the unoiled sites or else the physical processes transporting the oil would not have treated them differently. It is possible that the oiled sites over some period of time, decades perhaps, would resemble the control sites in important biotic parameters, but a single 1-time sampling is missing an entire component of variance to assess this and to correct estimates of oil spill effects for the degree of violation of this assumption. The magnitude of difference and variance over time in the differences between oiled sites and unoiled sites, absent the effects of oiling, are needed to assess whether such natural differences are not as big as the presumptive effect of oiling estimated from a single sampling. By having a time series of assessments at the oiled and reference sites, this weak assumption of identity of undisturbed communities is testable by evaluating the degree of ultimate convergence of oiled and reference sites (Skalski & Robson 1992, Barber et al. 1995, Highsmith et al. 1996) and by using differences and their variances between oiled and reference sites in a time period absent of oil effects to assess the significance of the presumptive oil effects and make necessary adjustments in its magnitude. This is analogous to the BACI (Before-After-Control-Impact) designs of Stewart-Oaten et al. (1986) except that the natural variation between those sites used for the treatment and those used for controls is evaluated not before the perturbation but instead after recovery has occurred. Because the oil seemed to preferentially strike sites that had greater current flows, and thus greater probabilities of encounter with oil, and because greater current flows imply higher fluxes and greater potential settlement of invertebrate larvae and algal spores, it is possible that all 3 assessment studies of injury to intertidal biota underestimated the effects of the spill because control sites were not chosen to represent locations of high current flow (Peterson 1993, Highsmith et al. 1996). Further temporal sampling can evaluate this possibility and other presently uncontemplated reasons for oiled and control sites to differ naturally. In summary, the differences in numbers of samplings among the assessment studies imply further disparity in power to detect and characterize oiling effects, with SEP and GOA lacking the power that temporal replication likely brings to the other studies, lacking the ability to estimate the time course of recovery, unable to assess any delayed effects of oiling, and unable to evaluate the degree to which oiled and reference sites represent a good match.

(5) Total area sampled

Although the importance of total area sampled within a habitat cannot be fully appreciated without knowledge of how effort was distributed within and among samples, transects, sites, and dates, computation of this simple metric helps illuminate intrinsically large differences among studies in their effort and in the consequent reliability of their conclusions. For any given elevation on shore and jointly sampled habitat type, the sampling effort conducted in Prince William Sound covered dramatically less shoreline area in SEP than in CHIA or the NOAA Hazmat studies (Table 1). For example, the total area sampled in mid-elevation on sheltered rocky shores was 1.36 m^2 in SEP in 1990 (Gilfillan et al. 1995a, Page et al. 1995). This represents contents of 44 scrape samples, each of a size of 0.031 m^2. In contrast, NOAA Hazmat sampled a total area of about 35 m^2 of this habitat in a single sampling of 1992 (ten 0.25 m^2 quadrats at 14 sites; Houghton et al. 1996) and CHIA sampled about 60 m^2 (not including the nearest neighbor samples) of this habitat in Prince

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William Sound in 1990 alone (sixty 0.10 m^2 scrape and sixty 0.40 m^2 areal cover samples on each of 2 dates; Highsmith et al. 1994, 1996). If analogous calculations were made pooling over all sampling dates, disparities among studies would grow much larger because the SEP study of biotic response variables was conducted on only a single date, while the others sampled on multiple occasions. GOA sampled about 9.6 m^2 of combined sheltered (4.0 m^2) and exposed (5.6 m^2) rocky habitat at the mid-tidal level (Gilfillan et al. 1995b), 3.5 times the area sampled by SEP in these 2 habitats pooled but far less than the area of these habitats sampled by CHIA or NOAA Hazmat. The GOA sampling consisted of eighteen 0.063 m^2 scrape samples plus thirty-four 0.25 m^2 areal cover quadrats. The most important consequence of such differences in total sampling effort is a large disparity in reliability and confidence in the estimates of injuries derived from the separate studies. This contrast of studies in areal coverage of epibiotic sampling involves 2 different types of samples, scrapes and cover estimates. Scrapes provide more detailed information on organism abundance, including small organisms, and biomass, if weights are taken. Areal cover estimates are cruder estimates that can be feasibly made over wider areas. But even within each of these 2 types of samples, GOA and SEP used substantially less effort (total areal cover) than CHIA for scrapes and GOA used less effort than CHIA and NOAA Hazmat for areal cover samples, even in a single sampling (Table 1).

Issues of sampling design

(6) Philosophical support for targeting putative affected areas

The initial (often trivial) objective of an environmental impact study is often to test the null hypothesis that there was no impact of the event in question, here the oil spill and associated shoreline treatments. Failure to reject this null hypothesis should be done with adequate power to have detected any biologically significant impact. The subsequent (more meaningful) objective is to estimate the magnitude of impacts and the time course of recovery. Thus, evaluating the biological significance (in one sense) as opposed to the statistical significance of demonstrated differences is a necessary part of the philosophical basis of injury assessment. The 2 stratified random sampling designs possessed contrasting underlying philosophies despite their general similarity (Table 2). SEP was designed to permit extrapolation to the entire 'affected area' of Prince William Sound (Page et al. 1995). The sampling frame included lightly and very lightly oiled shores, thereby diverting effort and potentially compromising power (see above) by including a category in the categorical ANOVA or ANCOVA design that may not be expected to differ much or at all from unoiled controls. In addition, much of the sampling effort was expended in the dominant high-energy habitat, where oil is more likely to be removed by wave action, where vertebrate consumers are less able to forage, and where environmental sensitivity is presumed to be lower (Teal & Howarth 1984, NRC 1986). Nevertheless, the presumption of low sensitivity of high-energy environments is arguable, justifying assessment effort in them. Injury from the oil spill to benthic resources may be just as serious in wave-beaten rocks, even if natural, physically forced clean-up occurs more readily, intrinsically high productivity speeds recovery, and higher-level predators have limited access to benthos. The CHIA study, in contrast, incorporated only a single contrast of oiling categories and concentrated efforts in presumably more sensitive habitats with lower physical energy (Sundberg et al. 1996), including the 'estuarine' soft sediment marshes that are relatively rare in the spill region but known to be highly sensitive (Teal & Howarth 1984). These allocations of effort reflect different philosophies of assessment (Gilfillan et al. 1996). Ideally, necessarily limited resources should not be squandered either by devoting extensive effort to sampling even abundant habitats with low sensitivity or by oversampling rare but sensitive habitats in hopes of detecting small but biologically unimportant differences. However, sensitivity is little more than an informed guess and biological importance is often a value judgment. There is another related implication of assessment philosophy that influences detection of injuries. By sampling only the most abundant habitats and assessing the community of species so defined by that sampling choice, SEP failed to focus on response variables chosen *a priori* to be likely to be affected. In contrast, CHIA included a study of subtidal eelgrass habitats and focused on sampling techniques appropriate to assess abundances of amphipods and echinoderms (Dean et al. 1996, Jewett et al. 1999), taxa known to be sensitive to oil toxicity (Warwick & Clarke 1993, Peterson et al. 1996). Thus, fundamental philosophical decisions about the sampling frame and the response variables to measure differed between the 2 stratified random sampling studies in ways that made the SEP results more applicable to the most common, but perhaps least sensitive habitat and the most common oiling category (light oiling) and the CHIA study more likely to identify effects of the oil spill by targeting its sampling efforts on more sensitive, but less common habitats and biota (Gilfillan et al. 1996).

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Table 2. Differences among studies of injury to the intertidal biota after the 'Exxon Valdez' oil spill in sampling design. PAH: polycyclic aromatic hydrocarbon

Issue	SEP	Exxon GOA	CHIA	NOAA
(6) Philosophy of sampling affected area	Effort devoted equally to 4 selected habitats (exposed bedrock, sheltered bedrock, boulder/cobble, pebble/gravel)	Effort devoted equally to 3 selected habitats (bedrock, boulder/cobble, pebble/gravel)	Effort devoted equally to 4 selected habitats including fine sediments (exposed rocky, sheltered rocky, coarse textured, estuarine)	Effort devoted equally to 3 selected habitats (sheltered rocky, exposed boulder/cobble, mixed soft)
(7) Random site selection vs matched-pair design	Random selection of both oiled and reference sites within habitat	Subjective choice of oiled and reference sites	Random selection of oiled sites then matched to reference sites	Subjective choice of oiled and reference sites
(8) Sampling frame	Extended to include reference sites in SW areas near mainland glacier ice-melt	Sites subjectively chosen to cover shoreline along spill path	Reference sites paired with oiled sites by geographic proximity, freshwater influence, and 4 other factors	Sites subjectively chosen for known treatment history and coverage of the spill area in PWS
(9) Treatment of habitat heterogeneity within sites	Systematic spacing of transects did not exclude secondary habitat	Subjective site selection provided some homogeneity	All secondary habitat excluded	Subjective site selection provided some homogeneity
(10) Interspersion of sites	Poor interspersion in some cases because low replication (2–6) and random selection makes accidental overweighting of areas probable	Sites chosen in part to achieve even coverage and dispersion	Pairing (blocking) helps guarantee good interspersion of oiled and reference sites	Sites chosen in part to achieve interspersion
(11) Controls for shoreline treatment and oiling intensity	Shoreline treatment uncontrolled but design employed 4 levels of oiling and a measured sediment PAH covariate	Shoreline treatment uncontrolled but design employed 3 levels of oiling	Shoreline treatment uncontrolled and only 2 levels of oiling in design (with very light oiling included in reference sites)	Designed specifically to address shoreline treatment effects vs oil effects

(7) Random site selection versus matched-pair design

The 2 stratified random sampling designs differed fundamentally in their underlying approach to removing the intrinsic bias associated with an observational study (Table 2). SEP chose for each habitat both oiled (3 levels) and reference sites at random from a GIS (Geographical Information System) frame of all possible sites of sufficient length within each oiling category, followed by ANCOVAs. CHIA used a design in which only oiled sites were chosen at random from a GIS frame of all heavily and moderately oiled sites of sufficient length within each habitat and geographic area. Then, every oiled site was paired with a matching reference site, with matching done on the basis of geographic proximity, beach slope, wave exposure, substrate composition, nearshore bathymetry, and proximity to sources of freshwater. This control-treatment paired design of Skalski & Robson (1992) attempts to control for multiple important sources of error in estimation of treatment effects. In the SEP design, attempt was made to control for other confounding factors by measuring site covariates (wave energy for epibiota in scrape samples; and sediment size, total organic carbon, and wave energy for infauna in cores) and using them in ANCOVAs (Page et al. 1995). If the relationships of the response variable to each of the covariates is linear and parallel, and the distributions of the covariates are symmetrical, this regression approach is generally a superior means of controlling bias (Cochran & Rubin 1973). On the other hand, pairing (blocking) methods are generally more efficient, thus enhance power more, and are effective even in the case of complex, non-linear relationships between dependent and independent variables (Cox 1957).

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Neither of these alternative approaches to controlling error is free of assumptions, most of which were probably not fully satisfied. ANCOVA assumes that the effects of the covariates and resulting residual errors are correctly modeled. The blocking approach makes assumptions about which variables are important to control. Levels of matching variables are not known without error and uncertainty. No 2 sites are identical in the full suite of matching variables, so trade-offs are necessary in choosing the paired control sites. However, the use in CHIA of multiple matching variables, including spatial proximity, which is a proxy for other unmeasured and uncontemplated confounding factors, to achieve a blocked design represents application of a widely applied and powerful method for controlling natural heterogeneity and enhancing power in environmental assessments (Skalski & Robson 1992). The philosophical approach of SEP and GOA explicitly contends that natural variation among reference sites should be a part of error against which to gauge and test environmental impact. In analyses of epibiota on rock surfaces, SEP used only 1 covariate, wave energy, instead of the 6 matching factors considered in CHIA, probably removing less of the natural site variation from the error variance and thus not enhancing power to the same degree. In analyses of infaunal invertebrates in cores, SEP employed 4 (3 independent) covariates but these were measured after the oiling treatment and 1 of those (organic content) was likely itself influenced by the treatment. Under that condition, the adjustment for the covariate removes part of the treatment effect (Fairfield Smith 1957, Winer 1971). The GOA and NOAA Hazmat studies, in which core samples were also analyzed, used neither pairing nor ANCOVA to control for natural variation. The best general means of controlling error variance is blocking combined with regression adjustment for covariates (Cochran & Rubin 1973), but none of the studies adopted this mixed strategy. For example, the CHIA design could have been improved by using covariates measured in each quadrat to further control for natural variability (Sundberg et al. 1996).

(8) Sampling frame

To employ a fully randomized observational design like that of SEP for selecting both oiled and control sites, one must clearly and appropriately define the sampling frame from which those site selections are to be made. Both the SEP and the CHIA designs used a frame that included only those sites where shoreline segments equaled or exceeded 100 m (or 60 m in 1 habitat) and eliminated other sites from consideration (namely certain dangerous sites in CHIA and those near eagle nests in SEP), which limits the ability of both studies to extrapolate to the complete universe of oiled shores. However, the use of random selection procedures to identify the control sites, while sounding unbiased in principle, poses a serious problem. The oil did not strike shorelines at random but instead struck certain geographic areas and certain environments preferentially. Specifically, within Prince William Sound the oil beached largely on the islands rather than the mainland and probably more frequently encountered shores with greater current flux. Consequently, if the oil did not strike shores at random, the selection of reference sites should ideally mimic the selectivity of the oiling process (Peterson 1993).

This selectivity in the oiling process represents a substantial challenge to any assessment design, but recognizing the issue allows some of the most serious errors to be avoided. The fully randomized SEP design did not adequately limit selection of reference sites to the island shores towards the eastern side of the sound to correspond to the selectivity of the oiling process. The most serious consequence of this inclusion of sites near the mainland was to allow sites that were already impacted by mainland run-off from low-salinity, high-turbidity ice melt to be included, when such shores had low probability of inclusion in the oiled universe. For example, in SEP 3 of 4 reference sites for the pebble/gravel habitat fell on the relatively unproductive southwest shores of Prince William Sound in close proximity to glaciers (the Bainbridge area and Whale Bay; Page et al. 1995). The field data from surveys of 2 of these imply strong evidence of impacts of ice melt on the intertidal biota in the form of gross biotic impoverishment. Inclusion of such inappropriate controls arising from an unjustified sampling frame can lead to biased estimates of the impacts of the oil spill: in this case, effects are biased downwards, helping to explain the contradiction between the SEP conclusion that the oil spill enhanced diversity and abundance of the intertidal biota in Prince William Sound (Gilfillan et al. 1995a) and the opposite results of the other 3 studies. The CHIA study made this same error in its initial pilot year of 1989, when it failed to recognize the bias for oiling of island shores and had not yet collected comparative field data to show how seriously impoverished shorelines exposed to glacial runoff are. That study was subsequently redesigned with the paired approach to overcome the huge problem of identifying the precise selectivity of the oiling process so as to define properly the sampling frame. Matching by geographic proximity, proximity to freshwater sources, and local bathymetry was intended in CHIA to control for the most serious departures from randomness in the process of oil beaching. Nevertheless, the protocol for matching sites must be unbiased in the sense that the suite of other factors besides oiling

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that influence biological response variables cannot systematically favor the oiled or the reference sites. Thus, the optimal design is one that combines blocking (stratification) with randomization in some fashion, such as the CHIA protocol. With more resources available for damage assessment, this basic study design could have been further enhanced by random selection of more than 1 matching site from a pool of candidate reference sites (e.g., Underwood 1994). NOAA Hazmat avoided choosing reference sites in those eastern areas of the sound where glacier inputs would confound interpretation, yet the failure to use random selection for any site categories limits the ability to extrapolate results. Similarly, GOA did not use any explicit randomization process to select sites, although those chosen do not reflect any obvious bias relative to geographically based confounding factors.

(9) Treatment of habitat heterogeneity within sites

Although misclassified sites were excluded from sampling in the stratified random studies of SEP (Page et al. 1995) and CHIA (McDonald et al. 1995, Sundberg et al. 1996), many sites that were selected were heterogeneous to such a degree that the site contained a mix of multiple geomorphological habitats. This was a consequence of the original site categorization being done at a coarse spatial scale. CHIA handled this problem by excluding from consideration any stretches of different habitat types, sampling only in the primary habitat type for that site (Highsmith et al. 1996). This decision represents another way in which the CHIA sampling protocol failed to live up to its purported goal of pure random sampling that would allow extrapolation to the entire spill region. SEP apparently included such secondary habitat types within their sampling frame if a systematically located transect fell on a geomorphologically different habitat (Page et al. 1995). This decision permits more rigorous extrapolation of results to the entire spill area. However, the CHIA procedure has the consequence of reducing variances among replicate transects and samples, thereby decreasing error variance and enhancing power to detect impacts of the oil spill. The level of control of within-site heterogeneity among samples was presumably intermediate, somewhere in between SEP and CHIA, for both GOA and NOAA Hazmat. GOA and NOAA Hazmat selected sites subjectively, thereby achieving some control over heterogeneity within sites but GOA located replicate samples by a systematic algorithm (Gilfillan et al. 1995b) and NOAA Hazmat randomly (Houghton et al. 1996). Neither of these fixed-site studies identified a procedure for excluding samples from secondary habitat types within sites.

(10) Interspersion of sites

Another problem that can arise in the selection of sites by randomization is a failure to achieve adequate interspersion of sites, thus creating an unbalanced and confounded representation of the relevant spill region if site replication is low (Hurlbert 1984). Interspersion is actually just one aspect of a broader problem of the potential for extreme outcomes created by fully randomized sampling designs (Cox 1958). Because error distributions include the possibilities of extreme outcomes, a failure to stratify over all possible important parameters (geographic area here) leads to a more inefficient design in which relatively high error variance incorporates variation among strata that could be factored out in a stratified design. It is for this reason that Box et al. (1978) recommend experimental designs that 'block what you can: randomize what you cannot'.

Initial stratification by broad geographic region induced interspersion on a large spatial scale in all the 'Exxon Valdez' oil spill assessments. But on the smaller scale within Prince William Sound, fully randomized site selection created strongly unbalanced site choices on occasion in SEP (Table 2). For example, 3 of 5 exposed bedrock reference sites in SEP fell along the same shore of a single small island (Perry Island; Page et al. 1995). This problem in poor interspersion (confounding) by overweighting the Perry Island shores in the controls for the exposed bedrock habitat implies a need to reassess the statistical test results conditional on the extreme outcome produced by the randomization. Specifically, this observed spatial confounding implies that the actual probability of a biologically extreme outcome is higher than the nominally computed probability. This creates greater uncertainty in estimation of the oil spill impacts. A possible solution to this problem would have been re-randomization, especially if what is considered an extreme order was established *a priori* (Cox 1958). This procedure would have reduced bias at the expense of inaccurate estimation of error, which is poorly estimated by small numbers of sampling sites anyway. The pairing of oiled and reference sites in CHIA achieved interspersion of oiled and reference sites within geographic region, but here too the use of randomly selected oiled sites has the potential to over- or underweight certain areas of the sound. Systematic selection (Thompson 1992) of study sites within the basic strata would have yielded better spatial dispersion in all studies, but there are serious potential problems with systematic sampling if a periodic pattern of some sort is present (Fisher 1971). Much finer stratification would be the preferable means of increasing efficiency of the sampling design and avoiding spatial confounding of study sites; however, if the range of site choices is narrowed too much

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by fine spatial stratification, the resultant design approaches a systematic design (Cox 1952). Outside Prince William Sound, the CHIA study stratified by treating the 2 geographic areas separately, Kenai-lower Cook Inlet and Kodiak-Alaska Peninsula, whereas GOA pooled results from these 2 geographic areas. Given the substantial differences in response between these areas demonstrated in CHIA (Highsmith et al. 1996, Stekoll et al. 1996), this additional level of stratification in CHIA controlled for a large source of geographic variability, thereby producing greater power to detect (regionally different) responses to the oil spill. Despite the absence of formal stratification in the design, some degree of interspersion of study sites was achieved intentionally in NOAA Hazmat and especially in GOA by a desire to cover the geographic area of the spill.

(11) Controls for shoreline treatment and oiling intensity

In both the CHIA and SEP studies, important variation existed in the level of oiling and the subsequent shoreline treatments that is not controlled for in the statistical design (Table 2). The short- and long-term evaluations of impacts of various shoreline treatments by NOAA Hazmat (Houghton et al. 1996, Lees et al. 1996) show convincingly that shoreline treatment greatly reduced abundances of the rockweed *Fucus gardneri*, the primary provider of shelter and biogenic habitat in the intertidal zone, and of most of the common hard- and soft-substrate invertebrates of the intertidal shores. Yet because of incomplete record keeping, neither CHIA nor SEP nor GOA was able to use type and intensity of shoreline treatment as a covariate or as a stratification factor in the design of the assessment sampling. To the degree that post-spill shoreline treatments augmented injuries caused by oiling alone (Houghton et al. 1996, Lees et al. 1996), confounding of the 2 processes may have enhanced ability to detect impacts of the oil spill, although causing uncertainty in attribution to cause. The ability to separate the effects of oiling from subsequent treatment is the main strength of the assessment design used in NOAA Hazmat, made possible by selecting shorelines before treatment and where reliable treatment records could be maintained. A random selection of study sites would not have afforded this capability.

The intensity of oiling represents a variable that was not well controlled in any of the studies. Sites were categorized by the width of the oil layer initially observed on the intertidal shore, but within a shoreline segment, and especially among elevations on a shore, substantial heterogeneity in oiling existed. A heavy layer of oil deposited high in the intertidal does not imply that oiling was also heavy lower on shore, thereby inducing additional unexplained error variance. In addition, the oiling intensity classification was based on initial oiling even though the oil was remobilized and redeposited in many sites over time. While older oil was probably less toxic chemically, its ability to harm intertidal invertebrates by smothering and other physical mechanisms would remain intact. The failure to control for this variation in oiling intensity renders the assessment designs less able to detect impacts of the spill. SEP did the better job of stratifying by 4 levels of oiling in the selection of the sites for the stratified random component of the study. That study also measured a PAH (polycyclic aromatic hydrocarbons) covariate to help adjust for varying levels of oil in the sediments at its infaunal coring sites (Page et al. 1995). GOA employed 3 levels of oiling in its stratification of sites (Gilfillan et al. 1995b). CHIA, in contrast, selected oiled sites from those that were either heavily or moderately oiled and used some lightly oiled sites as controls (Sundberg et al. 1996). The consequence of this failure to stratify by oiling intensity in CHIA is unclear. If finer oiling classifications reduce otherwise unexplained error variance, then the CHIA pooling of oil categories would have reduced power to detect oiling effects. On the other hand, if both differences between reference sites and lightly oiled sites and differences between heavily and moderately oiled sites are slight (as implied by results of SEP; Gilfillan et al. 1995a), then the simpler CHIA design would be more powerful (see above).

Issues of analytical methodology

(12) ANCOVA with covariate affected by treatment

The fundamentally different sampling approaches used by the suite of studies of the oil spill impacts on intertidal biota implied different abilities and methods to control for environmental variability. Because random selection of both oiled and reference sites for SEP retained substantial uncontrolled variation among sites within treatment categories, covariates were used in ANCOVA to remove some natural environmental variation. For scrape samples, wave energy served as a single covariate and for core samples of infauna, sediment particle size (interdependent % sand and % silt/clay measures), wave energy, and total organic carbon were measured and used as covariates (Page et al. 1995). CHIA used pairing of reference sites with randomly chosen oiled sites to control natural among-site differences in important forcing factors (Sundberg et al. 1996). The covariates used in SEP were undoubtedly measured with error,

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which in itself reduces power. For example, in the limit, if the covariate has sufficiently high error as to be random, then ANCOVA does no more than reduce the effective replication. Additionally, there existed correlation between both total organic carbon and oiling level and also between wave exposure and oiling level (Page et al. 1995). When a covariate is measured after imposition of the treatment, is affected by the treatment, and represents one of the mechanisms by which the treatment influences the dependent variable, then a basic postulate of ANCOVA is violated (Cox 1958). In that case, some of the effect of the oiling treatment is captured by the covariate term and factored out as if it were merely part of the background variation among sites (Fairfield Smith 1957). Organic content of sediments is likely increased by oiling and is also likely to affect sediment invertebrates (Spies et al. 1988) indirectly by augmenting food resources (a positive influence) and by enhancing sediment oxygen demand and sulfide production (a negative influence). Consequently, while use of covariates to remove uncontrolled variation represents a laudable goal, in practice, the properties of the SEP data set, with error in the measures of the covariate and at least 1 covariate responding to treatment, have the effect of masking impacts of oiling and making impact detection more difficult (Table 3).

CHIA controlled for variation due to background environmental variation to the degree that the pairing process matched sites with similar levels of the 6 factors that were used in the matching. As discussed above, perfect matching against 6 factors simultaneously is impossible and clearly occurred imperfectly. Any interaction among factors that is not captured in the matching process retains unexplained variability in the error variance, analogous to failure to include interactions in regression models describing effects of covariates. An important factor that probably varies systematically between oiled and reference sites in the CHIA design was the current flux, which appears to have been generally greater at oiled sites (Highsmith et al. 1996). None of the injury assessment studies effectively controlled for variation in current flux, although the geographic proximity factor used in matching by CHIA would be expected to have incorporated some of the geographic variance in flow. The failure to control completely for flow differences in all the assessment studies would lead to conservative estimates of injury because the intertidal biota is enhanced in productivity by exposure to increased flows (Leigh et al. 1987), implying that oiled shores should have exhibited naturally richer intertidal communities. The NOAA Hazmat and the GOA studies did not use any formal method to control for environmental covari-

Table 3. Differences among studies of injury to the intertidal biota after the 'Exxon Valdez' oil spill in analytical methodology. DCCA: detrended partial canonical correspondence analysis

Issue	SEP	Exxon GOA	CHIA	NOAA
(12) ANCOVA vs paired design	ANCOVA flawed by use of covariates that were estimated with error, one of which was affected by oiling	Simple ANOVA without control for environmental variation	Pairing by proximity, freshwater exposure, slope, bathymetry, sediments, wave exposure controls for environment	Simple ANOVA without control for environmental variation
(13) Pseudoreplication (in formulation of *F*-ratios)	Subsamples (transects) treated as if they were independent replicates in ANCOVA	Subsamples (transects) in 1 set of analyses treated as if they were independent replicates in ANOVA	Pairs compared by *t*-tests, then meta-analyses used to compute a joint p-value	Randomization ANOVA and *t*-tests using site means as the sampling units
(14) Inferring recovery	Done by comparing oiled points to the spread of unoiled points in a DCCA multi-variate analysis	Not attempted	Used simple convergence of densities between oiled and reference sites over years	Used simple convergence of oiled and reference sites over years
(15) Power analysis	Done by a pilot simulation of power using a philosophy that signals smaller than noise of natural among-site variation need not be detected	Not attempted	Actually computed power for each test based on observed variances and estimated effects magnitude	Not attempted

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ates, rendering these studies equally poor at removing variance associated with environmental heterogeneity.

(13) Pseudoreplication

Pseudoreplication is defined by Hurlbert (1984) as 'testing for treatment effects with an error term inappropriate to the hypothesis being considered.' This problem most commonly occurs when treatments are not replicated, just subsampled, or when replicates are not statistically independent (Hurlbert 1984). McArdle (1996) has noted that this definition includes 2 issues, replication to eliminate confounding and independence of sampling units. He argued that the first of these concerns is valid but that independence of sampling units is a fallacy because what most statistical methods require is not independence of samples but of errors. Non-independent units can actually be exploited to better describe the true autocorrelated biological patterns and to adjust testing methods appropriately and efficiently (reviewed by Legendre 1993). Non-independent errors can even be accommodated by some statistical solutions (Searle et al. 1992).

In the SEP study, data from the 3 spatially confounded transects within each site were treated as if they represented separate independent sites in determining the significance and approximate power of tests in about 78% of comparisons (Page et al. 1995). The transects are actually subsamples, not necessarily independent replicates: transects were spaced 20 to 30 m apart. Pooling sources of variation is usually done to increase error degrees of freedom in tests of hypotheses and thereby to increase the power of the tests. That was the intent of the SEP procedure (Table 3). However, the question of when it is appropriate to pool errors is controversial. It is always safest not to pool errors, and that decision seems especially appropriate in this application by SEP because of the proximity and systematic spacing of the transects. To its credit, SEP did employ tests of whether variances among sites differed from variance among transects before pooling, but the rejection criterion was set at 0.05 (Page et al. 1995) instead of the high alpha of 0.20 to 0.30 widely recommended to protect against low power of discrimination (e.g., Winer 1971). One possible reason for relatively high variance among the systematically spaced transects in SEP might be found in its apparent inclusion of transects or sample locations within transects that fell in small stretches of habitat that differed from the nominal habitat type. In contrast, CHIA used the subsamples to compare each matched pair of sites (McDonald et al. 1995) and then developed an overall test of significance across all site pairs using 2 types of meta-analysis (Fisher's procedure of combining p-values from independent tests and Stouffer's procedure [Folks 1984]). By treating the subsamples within sites as if they represented replicate sites, the analyses reported in SEP claim a higher power for their tests than may actually be present because the transects are spatially confounded and likely to be autocorrelated. The F-ratio contrasting among-site to within-site variances with degrees of freedom replication of 1 to 5 and 2, respectively, and an alpha of 0.05 as a means of testing for autocorrelation do not meet the burden of proof that Hurlbert's (1984) paper demands. GOA utilized both sites (true replicates) and transects (pseudoreplication) in separate analyses (Gilfillan et al. 1995b). NOAA Hazmat used sites as replicates in most analyses of long-term effects of the oil spill (Driskell et al. 1996, Houghton et al. 1996, 1997).

(14) Inferring degree of recovery

CHIA (Barber et al. 1995, Highsmith et al. 1996, Stekoll et al. 1996, van Tamelen et al. 1997) and NOAA Hazmat (Driskell et al. 1996, Houghton et al. 1996, 1997) used sampling over multiple sampling dates spread over 2 or more years to infer rate of recovery of injured resources in the intertidal habitat. GOA did not attempt to estimate degree of recovery (Gilfillan et al. 1995b). In contrast, SEP (Page et al. 1995, Gilfillan et al. 1995a) devised a method that purported to estimate degree of recovery from a single one-time sampling (Table 3). SEP used a multivariate statistical analysis (the canonical version of DCCA; detrended partial canonical correspondence analysis) to evaluate recovery of the intertidal community. The analyses fitted a DCCA model using all environmental variables, calculated a 95% probability ellipse for all reference points in an arbitrary 2-dimensional space, and then defined oiled sites to be recovered if points representing those oiled sites fell inside the ellipse (Gilfillan et al. 1995a).

There are several problems both with this approach and its application. While there are useful roles for such ordination analyses (e.g., Field et al. 1982), especially in data exploration, they can often be abused in practice. The precise details of the analyses are commonly obscured within a computer program (Digby & Kempton 1987). In the SEP application, the axes are not explicitly specified and no attempt is made to figure out just what the axes are approximating or to follow up such data exploration with explicit tests of process related to physiological and ecological mechanisms (Gilfillan et al. 1995a). Given in addition that such methods are based on implausible assumptions of normality and represent approximations even then (Digby & Kempton 1987), much more rigorous evaluation of the meaning of the results is required (as in

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Clarke & Ainsworth 1993). Even if a defensible multivariate analysis were conducted to form 'recovery ellipses,' there is a philosophical inconsistency. With only 1 point in time over a year after the spill, it is impossible to infer how much of the similarity between oiled and control sites is a consequence of a small initial impact and how much is a consequence of recovery from an initially large impact. In other words, rate of recovery and degree of recovery are impossible to distinguish from a single sampling even using 'recovery ellipses' because one could tell only how similar oiled and reference sites are, not how similarity has changed over time.

Several aspects of the SEP application of DCCA to estimating recovery are troublesome. First, all species occurring in less than 20% of the samples were removed before analysis. This removes a much larger fraction of the information than is the standard practice in conducting DCCA, where a 5% cut is typical. If 20% had to be removed, this suggests instability of the results of the DCCA. Sensitivity to small changes in species inclusions is common in data sets with limited numbers of sites, implying that there may be an intrinsic problem in applying DCCA to this particular data set. The partial justification provided, that a 20% cut produced stable GLIM (General Linear Interactive Model; Numerical Algorithm Group, Inc.) analyses, is unconvincing because the GLIM is a univariate analogue to ANCOVA with a quite different algorithm. (GLIM is unstable when large numbers of zeros occur in the data set.) Regardless of the issue of stability of the DCCA, the use of the 20% cut has the effect of reducing the information in the data and potentially reducing power to detect differences between oiled and reference sites. Second, the inclusion of a second, potentially non-significant axis has the effect of creating a large ellipse in 2-dimensional space that represents an easy standard for oiled points to meet because, as in most ordinations, the higher dimensions would be largely noise. On average, unexplained variance in the SEP DCCA analyses ranged from 65 to 81% across habitats (Gilfillan et al. 1995a), so the degree of (unreported) noise in the second axis must have been high. Third, the results suggest that oiling levels and the physical covariates each account for an average of only about 12% of the total variability (Gilfillan et al 1995a). Partial DCCA performs the ordination after removing effects of the other physical covariates. As discussed above, if oiling acts on the biota in part through its influence on a covariate, then some of the oiling effect is being removed before the analysis is conducted. Furthermore, the calculation of recovery ellipses based on this procedure ignores the possibility that other impacts from oiling may have occurred that were not well correlated with the chosen variables. Retention of unimportant variables that increase the error variance and absence of variables that may be related to oiling impacts have the likely effect of decreasing the power to discriminate differences between oiled and reference sites in this analysis. Fourth, the analysis of recovery ellipses maintained an alpha of 5% without showing that power to detect differences was retained despite this low type I error rate. Finally, this use of multivariate statistics to infer differences between oiled and reference sites requires that the oil spill impacts be detectable over and above the natural variation among sites in a design that did not stratify to remove among-site variation. This is the fallacy discussed earlier that maintains that an impact is insignificant if it is not substantially greater than natural variation (itself dependent on sampling design), a contention that is unjustified (Peterson 1993, Green 1994).

The CHIA and NOAA Hazmat inferences on degree of recovery are themselves far from perfect. In the CHIA program, the full suite of community composition and species abundance data was assessed only through summer 1991 (Highsmith et al. 1996). Only for *Fucus* and some other major occupiers of space on protected rocky shores did some sampling continue beyond that date (e.g., Stekoll & Deysher 1996, van Tamelen et al. 1997). Consequently, the ability to demonstrate convergence of oiled and control communities and the ability to test the assumption that, in the absence of spill influence, oiled and control sites would be biologically identical had not been realized. Sampling in the NOAA Hazmat program has continued annually at many study sites through summer 1999, so the time frame for assessing convergence is much greater. Epibiotic communities on sheltered rocky shores demonstrated convergence by about 1993, but subsequently diverged (Houghton et al. 1997). On mixed sedimentary shores, infaunal abundances had not yet converged by 1998 (Coats et al. 1999). This raises the unanswered question of whether the oiled/ treated sites and control sites possess intrinsic large environmental and biological differences or whether the erosional loss of sediments during application of pressurized hot water has altered the habitat in a way that is slow to recover (Coats et al. 1999). Thus, recovery rate is still not well characterized by CHIA or NOAA Hazmat, but the longer time frames of assessment provide a superior opportunity both to estimate duration of the recovery processes and to test implicit assumptions of intrinsic identity of treatment and reference sites.

(15) Power analysis

The 2 stratified random studies of the impacts of the oil spill used very different approaches to treating

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questions of power of tests (Table 3). CHIA used observed variances to calculate directly the power of all tests for effects of specified magnitudes (Highsmith et al. 1994). SEP did not calculate power for specific tests for specific magnitudes of effects but instead adopted an approach of estimating power with a pilot power simulation study using a 'signal-to-noise ratio' approach (Page et al. 1995, Gilfillan et al. 1996). Such an approach is justified as a first cut where error variances are unknown but cannot substitute for estimating and controlling error variances in the actual data and basing power analyses on those estimated variances and on specified effect magnitudes for each variable and test. It is worth noting that all these complex and often obfuscating calculations of power would disappear if an estimation approach to the assessment had been adopted. Reporting the standard errors of estimates would replace power calculation with a much more understandable and standard metric (Stewart-Oaten et al. 1992).

The power simulation of SEP is, in addition, based upon the philosophy that a signal-to-noise ratio of 1 is adequate for environmental impact testing. This is a form of the contention that power need only be sufficient to detect a change that is greater than the natural variability. That is a grossly conservative standard (Green 1994). Furthermore, the error that enters into such a contrast is dictated by the study design that yields it, such that all decisions that lead to failure to control for variability in the design affect the magnitude of the standard. For example, a failure to stratify by tidal elevation or by habitat would greatly increase the 'natural variation' as represented by the error variance and thus also the magnitude of an impact that is judged significant. In addition, intrinsic natural variability in space and time is very large in many populations and communities (e.g., Andrew & Mapstone 1987). Just because one population may exhibit higher variability than another does not imply logically that this first population can be hit with a larger impact without loss of value to the ecosystem or to humans (Peterson 1993). In fact, natural environmental variation represents a situation to which species have generally adapted. The effects of a major oil spill do not represent such a situation. They add on top of natural mortality and variation such that a significance standard equal to the magnitude of natural variability does not reflect risk of protracted times of recovery or even extinction at the extreme. The added mortality of an oil spill could reduce abundances to levels well below those from which species are accustomed and adapted to recover rapidly. In addition, the estimates of power provided in SEP are based upon error pooled among sites and among transects, which inflates the degrees of freedom and presumed power, as discussed above. By not providing actual calculations of power of individual tests based upon observed variances, the SEP study fails to show the balance between type I and type II error that is necessary to share the burden of proof in environmental assessments (Dayton 1998). SEP maintained a strict, classical devotion to an alpha of 0.05 (Toft & Shea 1983) without demonstrating that actual power was high for each important test.

Issues of appropriate biological response variables

(16) Taxonomic level used for analysis

CHIA (Highsmith et al. 1996, Stekoll et al. 1996) and NOAA Hazmat (Driskell et al. 1996, Houghton et al. 1996) analyze and report patterns of the abundance of individual species populations, whereas SEP (Gilfillan et al. 1995a) and GOA (Gilfillan et al. 1995b) rarely report results by species and instead tend to pool data for univariate analyses into higher taxonomic categories (Table 4). Such pooling uses less of the available information and can obscure impacts if potentially important compensatory changes occur within higher taxonomic categories. Species that are closely related taxonomically tend to be more ecologically similar and thus represent more likely competitors. Given that sampling of intertidal biota in these 2 stratified random studies of impact to shoreline biota occurred 15 to 17 mo after the spill, and given that competition for space can be an important process in the rocky intertidal habitat (e.g., Connell 1972), it is reasonable to expect that within genera or families compensatory changes may have occurred that could mask the decline of a sensitive member species in the epibiota. For example, Highsmith et al. (1996) showed that, of the species of barnacles on the high rocky shore, *Semibalanus* and *Balanus* spp. tended to exhibit significant declines in density on oiled sites, whereas the opportunistic species *Chthamalus dalli* increased. Analysis of barnacles as a group fails to detect this changing membership and compensatory trends in post-spill dynamics. Consequently, the analysis of biological response of individual taxa at a higher level of taxonomy in systems where competition can be an important factor affecting densities can imply reduced ability to detect significant differences between oiled and reference shores. Through this decision about taxonomic level of biological response variables, SEP and GOA became less likely than CHIA and NOAA Hazmat to detect effects of the oil spill.

There are valid reasons why environmental assessments may not be conducted using species-level discriminations. Species-level identification may not always be possible or financially feasible, although the

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Table 4. Differences among studies of injury to the intertidal biota after the 'Exxon Valdez' oil spill in choice of biological response variables

Issue	SEP	Exxon GOA	CHIA	NOAA
(16) Taxonomic level used for analysis	With 4 exceptions at the species level, analyses provided only at higher levels, especially total community	Presents analyses done only at a community level (e.g., total cover, total abundance)	Analyses down to the species level	Analyses down to the species level
(17) Pooling disparate communities	Pooled poorly sampled meiofauna (nematodes) and macrofauna in soft-sediment analyses	Unclear whether all animals retained on 1 mm were used or just macrofauna	Used only macrofauna in the traditional taxonomic separation of soft-sediment communities	Used only macrofauna in the traditional taxonomic separation of soft-sediment communities
(18) Scope of communities and habitats examined	Evaluated the epibiota and infauna where possible on exposed bedrock, protected bedrock, boulder/cobble, and pebble/gravel	Evaluated the epibiota on bedrock and boulder/cobble and the infauna on boulder/cobble and pebble/gravel	Included fine-sediment estuarine habitats, intertidal fishes, and eelgrass amphipods,[a] and echinoderms[b] –all known to be sensitive to toxic contamination	Evaluated the epibiota of rocky shores and equally the infauna of mixed soft-hard shores

[a]Reported in Jewett et al. (1999)
[b]Reported in Dean et al. (1996)

SEP report (Gilfillan et al. 1995a) mentions that identifications were done at the species level. The question of how important the shuffling of species abundances within higher taxa might be to community function and value, of course, is not answered. Most species in a community undergo species-specific interactions with 1 or more members of the community, so it is reasonable to assume that species composition matters. However, that question of the value of biodiversity in communities remains an area of current intense investigation (e.g., Tilman & Downing 1994, Naeem 1997). Several papers have conducted comparisons of parallel multivariate ordination analyses using non-metric multi-dimensional scaling to assess the consequences of using species-level information versus higher-level data in the same data sets. These studies (e.g., Warwick 1988, Warwick & Clarke 1993) reveal that identifications made at the family level are typically as effective as those made at the species level in detecting patterns in marine infaunal communities. That information critical to discrimination is not lost in changing from species to family levels in infaunal communities may be related to the general ineffectiveness of competition in sedimentary systems (Peterson 1991). Rocky intertidal communities, in contrast, can be strongly organized by competition for space (Connell 1972). Consequently, the compensatory replacement of barnacles evident in the CHIA rocky shore results (Highsmith et al. 1996) that is masked in analysis at the family level may not represent a problem in analysis of infaunal communities. In assessing patterns in infaunal, as opposed to epibiotic, communities, limited resources for study might be more wisely spent on enhancing the statistical rigor and power of the sampling design than on identifications at fine taxonomic levels.

(17) Pooling of disparate communities

The 2 stratified random studies of intertidal impacts of the oil spill on Prince William Sound made different decisions about how to define the response community in sedimentary environments (Table 4). Although both studies employed a mesh size of 1 mm to process core samples, CHIA included only those taxa recognized as macrofauna, those taxa effectively retained on a 1 or 0.5 mm mesh. SEP included meiofauna such as nematodes and copepods in its definition of the infaunal response community. Inclusion of data on meiofaunal taxa such as nematodes means that a species variable is used that is very poorly estimated, since only the largest meiofauna are retained on the mesh and size distributions may vary among sites. Furthermore, retention of even large meiofauna on a 1 mm mesh would be very sensitive to the vigor applied in washing and the amount of sediment retained. Such poorly estimated variables increase error and decrease the ability

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to detect significant differences in assessments of oil spill effects. The standard protocol for evaluating soft-sediment communities is to treat the meiofauna and macrofauna separately and independently, including use of specialized sampling methodologies to provide stable and repeatable estimates of meiofaunal and macrofaunal abundances (e.g., Peterson et al. 1996). Pooling inadequately estimated meiofaunal counts with macrofauna is simply unjustified and invalid scientifically. The GOA study of infauna shared this problem of merging poorly sampled meiofauna and macrofauna into its estimates of composition, abundance, and species diversity of soft-sediment communities (Gilfillan et al. 1995b), whereas the NOAA Hazmat study generally excluded meiofauna and epifauna from its analyses of oil spill impacts on sedimentary communities (Driskell et al. 1996). This NOAA Hazmat study does the best job of all 4 assessments on infaunal communities because in addition to its proper separation of meio- and macrofauna its results have been published. Results of the CHIA study of infauna have not been made generally accessible.

(18) Scope of communities and habitats examined

The wider the range of systems examined, the greater the chance of finding an impact of an environmental perturbation, if one indeed exists. CHIA examined a wider range of habitats and biotic response systems than did NOAA Hazmat, SEP, or GOA (Table 4). CHIA included estuarine fine-sediment sites, such as the marsh at Bay of Isles in Prince William Sound and the marsh at Tonsina Bay on the Kenai coast (Highsmith et al. 1996, Stekoll et al. 1996). While such fine-sediment shores were rare in the spill path, such systems are highly sensitive to oil, are known to suffer long protracted periods of injury if oiled, and have high ecological value (Teal & Howarth 1984). Consequently, their inclusion in an assessment of injuries resulting from the spill seems reasonable. SEP overlooked this habitat in its randomized design because of its rarity but did follow a fixed marsh site within Bay of Isles that was oiled. CHIA (Barber et al. 1995) also evaluated the response of intertidal fishes to the oil spill (which caused a reduction of about 50% in fish abundance in summer 1990), whereas no other study included this group of organisms. The benthic life style and close association of these animals with the oiled rocks and sediments for foraging, egg laying, and incubation make them especially likely to be exposed to oil repeatedly and at high concentrations. Furthermore, the importance of small demersal fishes as prey to higher-level consumers such as pigeon guillemots and river otters renders these nearshore fishes important to ecosystem functioning. Consequently, devoting some effort to evaluate this group of potentially sensitive organisms represented a decision that enhanced the ability of CHIA to detect important effects of the spill. Similarly, a subtidal habitat study that began as part of CHIA focused explicit attention on sampling eelgrass beds for amphipods and echinoderms (Dean et al. 1996, Jewett et al. 1999), groups of organisms known to be especially sensitive to toxic chemicals in an environment of high value as a marine nursery habitat. This decision too enhanced the probability of detecting a spill effect as compared to SEP and GOA, which allocated effort to the most common habitats and did not devote attention to developing and applying methodologies for sampling some of the most sensitive taxa and environments. NOAA Hazmat sampled only 2 geomorphological habitats, did not include benthic fish evaluations, but did conduct assessments of eelgrass.

DISCUSSION

The conclusions about the extent of injury to intertidal resources, the types and patterns of injury, and the progress toward recovery differed rather substantially among the 4 assessment studies. The NOAA Hazmat study found that pressurized hot-water wash, a widely applied post-spill shoreline treatment in Prince William Sound, directly killed large numbers of rockweed (*Fucus*) plants, blue mussels and *Protothaca* clams (Lees et al. 1996). Lees et al. (1996) further concluded from short-term (3 to 10 d) experiments that 95 min or more of application of this pressurized hot-water treatment reduced densities of *Fucus*, littorine snails, limpets, and mussels in the mid and upper intertidal elevations by up to 100%. Losses from this treatment lower on shore were not so great and losses from other beach treatments were more selective of the species that they injured (Lees et al. 1996). Consistent with these short-term observations of mortality and experimental demonstrations of declines following pressurized hot-water washing, the long-term evaluations of the biological impacts of the oil spill and of shoreline treatment also demonstrated large declines in many epibiotic species on sheltered rocky shores and some infaunal species on mixed sedimentary shores. The long-term NOAA Hazmat study revealed that most of the reduction in abundance of intertidal epibiota following the oil spill was caused by shoreline cleanup, with a smaller contribution made by the oiling itself (Houghton et al. 1996). By summer 1991, no significant differences in epibiota remained between oiled-untreated shores and unoiled reference shores, but the epibiota on oiled + treated shores was still significantly depressed (Houghton et al. 1996). Although by sum-

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mer 1992 few significant differences were detected between oiled + treated shores and unoiled reference shores, in summers of 1994 and 1995 the single-aged stand of *Fucus* exhibited widespread senescence and its demise resulted in declines of associated animals (Houghton et al. 1997). By 1996, recovery had begun anew, suggesting that the oil spill may have induced a cyclic behavior in this system (Paine et al. 1996). In the lower intertidal zone of mixed soft-sediment shores in protected areas, differences in community composition of the infaunal community demonstrated that impacts of oiling and pressurized hot-water treatment were greater than impacts of oiling alone. While oiled-untreated beaches were similar to unoiled ones by summer 1992, the oiled + treated beaches were still impoverished and had not recovered by that date more than 3 yr after the oil spill (Driskell et al. 1996). Direct observations of mortalities of *Protothaca* clams, transport of sediments down-slope and loss of fines, and burial of animals suggest the mechanisms by which much of the impact on treated soft-sediment shores occurred (Driskell et al. 1996).

The conclusions about the effects of the 'Exxon Valdez' oil spill on intertidal biota in Prince William Sound that emerged from CHIA were largely consistent with the conclusions of the NOAA Hazmat study. CHIA was unable to partition effects of oiling and post-spill shoreline treatment, so its conclusions apply to the joint effects of the 2 perturbations. The studies also differed in their duration, with most of the sites examined by CHIA unvisited since 1991 (although some further multi-year data are available for the sheltered rocky habitat in Prince William Sound; van Tamelen et al. 1997). For the 2 years 1990 and 1991, when both CHIA and NOAA Hazmat evaluated the intertidal injuries and dynamics of the recovery process on sheltered rocky shores of Prince William Sound, the results were highly concordant. Specifically, total epibiotic cover, abundance, and biomass were substantially lower at oiled than at reference sites at all 3 tidal levels of sheltered rocky shore in Prince William Sound during the initial visit in 1990 (Highsmith et al. 1996, Houghton et al. 1996, Stekoll et al. 1996). The taxa most responsible for this general pattern were *Fucus*, the barnacle *Balanus glandula*, the limpet *Tectura persona* in the upper intertidal zone, and the mussel *Mytilus trossulus* in the low intertidal (Highsmith et al. 1996, Houghton et al. 1996). The barnacle *Chthamalus dalli* and oligochaetes showed the opposite pattern of enhancement on oiled shores (statistically significant only for *C. dalli*). By the final sampling in summer 1991, recovery was incomplete in this sheltered rocky habitat of Prince William Sound, with many taxa still significantly depressed on oiled shores (Highsmith et al. 1996). NOAA Hazmat also showed little progress toward recovery of epibiota in sheltered rocky shores of Prince William Sound by 1991 (Houghton et al. 1996). CHIA did not report results of its infaunal sampling on mixed soft-sediment shores to compare to the results of the NOAA study. For the habitat and geographic region held in common, the similarities in the results of these 2 studies are striking. Given the fundamental contrast in approach of these 2 studies, one using a stratified random sampling and the other a subjective choice of fixed sites, the similarity in results provides confidence in the robustness of the conclusions.

Results and conclusions of the SRS portion of SEP contrast rather sharply with those of the other 2 studies of intertidal injury and recovery in Prince William Sound. Of 141 tests conducted on densities of individual species in the sheltered rocky habitat, 13.5% showed significant effects of oiling, but more of the significant differences indicated enhanced abundance rather than depressed abundance (Gilfillan et al. 1995a). The important provider of structural habitat, *Fucus*, tended to exhibit substantially lower biomass at oiled sites in the sheltered rocky habitat, although statistical tests only detected significance in some contrasts (Gilfillan et al. 1995a). So, except for the lack of statistical significance in most contrasts, this response mirrors those of the NOAA Hazmat and CHIA studies. The total abundance of all species of limpets combined was reported to be significantly depressed by light and moderate oiling but not by heavy oiling in the high intertidal zone of sheltered bedrock shores (Gilfillan et al. 1995a), a pattern not immediately explicable. Data on the species *Tectura persona* alone by tidal elevation were not presented, so a direct contrast with CHIA results for that species is not possible. The NOAA Hazmat study detected significant and large declines for all limpets pooled only at mid tidal levels (Houghton et al. 1996) and CHIA only occasionally showed significant responses (declines) in the total limpet category despite the significant and large reductions with oiling in the one component species, *T. persona* (Highsmith et al. 1996). SEP failed to detect any significant response of mussel abundance to the oil spill (Gilfillan et al. 1995a), although both CHIA (Highsmith et al. 1996) and NOAA Hazmat (Houghton et al. 1996) showed generally lower mussel densities at oiled sites in this sheltered rocky habitat. Thus, for limpets and mussels in this habitat and region where all 3 studies overlapped, the results of SEP are discordant.

While no additional results for tests of other taxa on sheltered rocky shores are provided in the SEP publication to permit contrasts with the CHIA and NOAA Hazmat results, SEP does provide information on tests of total invertebrate abundance and algal biomass: no significant differences were detected in the sheltered rocky habitat for either of these parameters (Gilfillan et

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al. 1995a). This lack of response contrasts sharply with the large, generally significant, and consistent depressions on oiled shores detected in both the NOAA Hazmat and CHIA studies. Because 97% of all community-level tests of impact of the oil spill (on total invertebrate density, algal biomass, species richness, and Shannon-Wiener diversity) failed to detect a significant effect of the oil spill in this habitat, SEP reported that one estimate of degree of recovery was 97% recovery for the sheltered bedrock shore of Prince William Sound in 1990 (Gilfillan et al. 1995a). This contrasts dramatically with the large and still statistically significant differences in many species- and community-level parameters of the intertidal community by the end of summer 1991 that were demonstrated in both CHIA (Highsmith et al. 1996, Stekoll et al. 1996) and NOAA Hazmat (Driskell et al. 1996, Houghton et al. 1996).

This same habitat, the sheltered rocky shore, was also studied in the Gulf of Alaska region independently in 2 of the major assessments, CHIA and GOA, allowing a further contrast of how studies differing in methodology, means of removing bias, and power of their assessment designs may have produced accordingly different conclusions. In CHIA, where the geography was segregated into the Kenai-lower Cook Inlet shores versus the Kodiak-Alaska Peninsula shores, some large differences in response to the oil spill emerged between the 2 geographic regions. In both regions, the *Fucus* cover was significantly lower and the unoccupied space significantly higher on oiled shores than on reference sites in the upper and mid intertidal zones of the sheltered rocky habitat for most sample dates in 1990 and 1991 (Highsmith et al. 1996). In the low intertidal, *Fucus* cover and biomass were significantly greater on oiled sheltered rocky shores in the Kenai region but not in Kodiak-Alaska Peninsula: *Fucus* cover in the lower shore of the Kenai region was higher on oiled shores, where this species was replacing other algae, especially some annual reds and browns (Highsmith et al. 1996). The mussel *Mytilus trossulus* exhibited significantly reduced densities on oiled shores within the sheltered rocky habitat on the Kenai but not in the Kodiak-Alaska Peninsula region (Highsmith et al. 1996). The limpet *Tectura persona* occasionally exhibited lower abundance on oiled shores at the mid tidal level on the Kodiak-Alaska Peninsula region's sheltered rocky coast but not on the Kenai Peninsula region shores in the CHIA study results (Highsmith et al. 1996). The barnacle *Chthamalus dalli* tended to be more abundant on oiled shores in the sheltered rocky habitat, especially on the Kodiak-Alaska Peninsula region, although the pattern was reversed in the high intertidal on the Kenai coast (Highsmith et al. 1996). The other barnacles, *Balanus glandula* and *Semibalanus balanoides*, exhibited inconsistent patterns of differences in the sheltered rocky habitat across tidal levels and between the 2 geographic regions. GOA reported only some community-level parameters that allow comparisons with CHIA results for this region (combining the Kenai and Kodiak-Alaska Peninsula into a single region). Both total biotic cover on bedrock (pooling sheltered and exposed habitats) and total epifaunal abundance declined substantially (at all 3 elevations) and significantly (at the mid intertidal only) with increased levels of oiling (Gilfillan et al. 1995b). This result is fully consistent with the observation of widespread and significant increases in unoccupied intertidal space on the sheltered rocky shores of the Kenai and Kodiak regions demonstrated in CHIA (Highsmith et al. 1996). Thus, these 2 studies did not produce inconsistent results where comparisons can be drawn, but the heterogeneous response between the 2 geographic regions at the species level exhibited in CHIA could not possibly be reflected in GOA results, even if species-level results were reported, because of the failure to stratify geographically. GOA conducted its assessments of biological response in 1989, whereas the redesigned CHIA study, like SEP, assessed impacts beginning in 1990. This difference in timing of assessments may help crudely compensate for the difference in character of oil between regions: the Kenai-Kodiak regions received the oil after 1 to 8 wk of transport and weathering, whereas the Prince William Sound region was oiled rapidly and more heavily by less weathered oil (Wolfe et al. 1994). The GOA study to assess the Kenai-Kodiak region detected larger and more consistent negative impacts of the oiling than the SEP study detected for Prince William Sound. Differences in year of assessment and in sampling design probably both contribute to the contrasting levels of impact reported in these 2 studies.

One other habitat and geographic area was held in common by pairs of the major intertidal assessments, allowing some limited further contrasts. The infauna of the boulder/cobble habitat in Prince William Sound was studied by a common technique of coring in both SEP and NOAA Hazmat. SEP failed to detect an oiling effect on total infaunal abundance at any elevation in this habitat despite substantially lower mean abundances at mid intertidal elevations and somewhat higher mean abundances at low intertidal elevations on oiled shores (Gilfillan et al. 1995a). No analyses of responses of individual infaunal taxa were presented for SEP. Because 85% of the community-level analyses failed to identify a significant effect of the oil spill on the infauna in this habitat, SEP reported that one estimate of the degree of recovery was 85% recovery of the infauna of the boulder/cobble habitat (Gilfillan et al. 1995a). The NOAA Hazmat coring study for this

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habitat in Prince William Sound demonstrated large and significant depressions in infaunal abundance on oiled + treated shores as compared to unoiled and oiled-untreated shores for each of 4 years 1989 to 1992 (Driskell et al. 1996). The dominant infaunal taxa also exhibited substantial depression in abundance at oiled + treated boulder/cobble sites such that the community composition differed between oiled + treated shores, on the one hand, and both unoiled and oiled-untreated shores. Between 1991 and 1992, the compositions of the 3 types of shores began to converge, but densities of major taxa were still depressed on oiled + treated shores (Driskell et al. 1996). Thus, the SEP and the NOAA Hazmat studies conflicted in their ability to detect impact and in the magnitude of the estimated responses. They also differed in the claims about recovery (85% by 1990 reported in SEP vs grossly divergent still in 1992 in NOAA Hazmat).

This set of contrasts of the comparable conclusions of the 4 major studies of intertidal injury and recovery reveals a pattern in which CHIA and NOAA Hazmat demonstrate substantially more impacts of the 'Exxon Valdez' oil spill on intertidal populations and communities in Prince William Sound than SEP. In addition, the CHIA program outside Prince William Sound likewise showed more responses than GOA. These differences in outcomes can be related to differences among studies in the suite of design decisions that affect the power of the environmental assessment. To provide contrasts among the 4 studies in how different design decisions affected power to detect impacts of the oil spill, we tabulated results of our analysis of design decisions (Table 5). We did not attempt to quantify magnitudes of differences among studies for each design decision but instead provide rankings of the 4 studies for each design parameter. Although such rankings necessarily involve professional judgment, the basis for the each ranking has been presented and defended in the corresponding sections above. We also did not attempt to weight these decisions by their relative importance in determining the overall power of the study, but we discuss the relative importance of various decisions below. We merely list each separately and then provide a sum of ranks for each study. We rank studies in order of lowest (1) to highest (4) power in this table.

Of the 18 design decisions that we isolated for analysis, 3 largely concern philosophy of assessment and do not represent separate criteria for assessing power contrasts. Of the 15 remaining design decisions, SEP included choices that reduced its power to detect impacts of the oil spill below that of CHIA in 12 decisions, with 1 tie (Table 5). Only in 2 (no. 11–controls for shoreline treatment and oiling intensity, and no. 13–pseudoreplication) of these remaining 14 decisions did SEP employ a more powerful approach. In assigning a greater power to SEP for using 4 levels of oiling in its design instead of just the 2 used by CHIA, we provide a more conservative estimate of the cumulative power difference between these studies because we assume that biological differences exist between light oiling and no oiling and between moderate and heavy oiling. In addition, although SEP receives a higher

Table 5. Summary of how design decisions influenced power to detect impacts of the 'Exxon Valdez' oil spill in the 4 major impact assessments. Entries are ranks for each decision variable (with 1 indicating lowest power). Ties are averaged to preserve the sum of ranks across rows. na: not applicable

Design decision	SEP	GOA	CHIA	NOAA
(1) Area covered per sample	1	2.5	4	2.5
(2) Sample replication	1.5	1.5	3	4
(3) Numbers of study sites per category	2.5	2.5	2.5	2.5
(4) Numbers of sampling dates	1.5	1.5	3	4
(5) Total area sampled	1	2	4	3
(6) Philosophical support for targeting putative affected areas	na	na	na	na
(7) Random site selection vs matched pairs	na	na	na	na
(8) Sampling frame	1	2.5	4	2.5
(9) Treatment of habititat heterogeneity within sites	1	2.5	4	2.5
(10) Interspersion of sites	1	2	4	3
(11) Controls for shoreline treatment and oiling intensity	3	2	1	4
(12) ANCOVA with covariate affected by treatment	3	1.5	4	1.5
(13) Pseudoreplication	4	3	1.5	1.5
(14) Inferring degree of recovery	1.5	1.5	3	4
(15) Power analysis	na	na	na	na
(16) Taxonomic level used for analysis	1.5	1.5	3.5	3.5
(17) Pooling of disparate communities	1.5	1.5	3	4
(18) Scope of communities and habits assessed	2	1	4	3
Sum of rank scores	27	29	48.5	45.5

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power score for the decision to use pseudoreplicated transects as replicates in constructing *F*-ratios in tests of oiling (Gilfillan et al. 1995a report that this decision enhanced power), the spatial confounding may have led to bias in estimates of effects. Similarly, the SEP study included decisions that reduced detection power relative to the NOAA Hazmat study in 12 of the 15 parameters, with 1 tie (Table 5). The only decisions that favored power of the SEP study were again the problematic decision to use pseudoreplication in constructing its *F*-ratios (no. 13) and the measurement and use of covariates to remove effects of environmental heterogeneity (no. 12). As a means of providing contrasts in cumulative detection power among studies, for each study we summed the ranks over all 15 decision criteria (Table 5). This calculation reveals the great disparity between SEP at the bottom with a sum of ranks of 27 as compared to CHIA (48.5) and NOAA Hazmat (45.5) at the top. This disparity in power of overall assessment design is likely the explanation for SEP reporting fewer impacts of the oil spill than CHIA or NOAA Hazmat. The most important decisions that enhanced power to identify real impacts of the oil spill in the CHIA and NOAA Hazmat studies are probably the total area sampled per category, the use of multiple sampling dates, and the restriction of the sampling frame so that reference sites better mimicked the nonrandom selection of sites by the oiling process. Each of these factors differed greatly between the SEP and the CHIA studies (Tables 1 to 4). Other decisions, such as the problem of using a covariate that was affected by the treatment, probably had relatively small influence on the overall conclusions of the tests and studies.

The CHIA and NOAA Hazmat studies differ in one major way that affects power, by the control of shoreline treatment history. The short- and long-term studies of NOAA Hazmat both suggest that the high-pressure hot-water wash that was widely applied as a shoreline treatment had more serious consequences than the oiling itself (Driskell et al. 1996, Houghton et al. 1996, Lees et al. 1996). Thus, the inability to control for type and amount of shoreline treatment in the CHIA study probably greatly increased the unexplained error variance and accordingly lowered its power to detect true oil spill effects. This may explain why some of the impacts reported in the NOAA Hazmat study are often somewhat larger than those identified in the CHIA study.

Although the GOA study like the SEP study was supported by Exxon Corporation, shared some principle investigators, and had many similarities in methodology, the 2 studies differed in important ways. The sum of the ranks of design decisions that affected power for the GOA study was 29 as compared to 27 for SEP (Table 5). Yet, these 2 studies contrasted greatly in some key design decisions that probably affected power most, namely the choice of quadrat size, total area sampled, and use of a sampling frame that was similar for oiled and control sites (Tables 1 to 4). GOA used an areal cover quadrat almost an order of magnitude larger in surface area than the scrape sample used by SEP (Table 1). This led to conclusions based upon more total area sampled for a given habitat (Table 1) and allowed a better characterization of the local community composition in this system of such patchiness (Paine & Levin 1981). GOA sampled 7 times the total area per habitat stratum. And GOA did not appear to share the problem of SEP that involved confounding of oil effects with stress from glacier ice-melt at reference sites. These differences between SEP and GOA in design decisions that affect power may explain the paradox that GOA demonstrated larger and more consistently negative impacts of the oil spill in the geographic region that received weathered oil some 1 to 8 wk after much of the oil had initially grounded on the nearby shores of Prince William Sound. Alternatively or additionally, the year of assessment may play an important role in dictating differences between SEP and GOA conclusions: GOA was conducted in 1989 whereas SEP assessed biological patterns in 1990.

Despite the apparent complexity and sophistication of designs for environmental assessments, multiple simple design decisions are often ultimately the determinants of much of the power to detect true impacts. We take the opportunity provided by redundancy, or at least overlap, of intensive studies of how the same ecological system responded to a large environmental perturbation to show how even complex studies can be analyzed by extracting the set of basic design decisions that influence their power to detect impacts, accurately estimate them, and describe the course of recovery. We then recombine those separate decisions into a single metric to contrast the multiple studies. When any study combines several decisions that fail to reduce error variance and fail to enhance power, the outcome of such multiple decisions is almost guaranteed to be a set of inconclusive results unable to detect even large impacts of environmental perturbation. Wiens (1996) argued that government agency science suffers in general and suffered in specific seabird analyses following the 'Exxon Valdez' oil spill from becoming overwhelmed by environmental advocacy. What Wiens failed to acknowledge are the strong financial and institutional incentives for corporate science also to overwhelm dispassionate and objective scientific judgment. Should we place more trust, for example, in the human health science promulgated and publicized by the tobacco industry than that conducted by government health laboratories? To achieve a balanced understanding of environmental impacts, assessment designs

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should include estimation approaches and insure high power to detect and estimate impacts of importance. Government and corporate entities both often have substantial resources to invest in scientific studies: any inequality in such investment can greatly affect sampling effort and thereby create an imbalance in detection power. Evaluating reliability of conclusions of scientific studies includes a need not only for comparing effort but also for synthesizing consequences of all the multiple design decisions that may affect that power.

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Distribution, abundance and conservation status of dugongs and dolphins in the southern and western Arabian Gulf

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Abstract

The marine mammals of Saudi Arabia, Bahrain, Qatar and the United Arab Emirates (UAE) were censussed by three strip–transect aerial surveys. The Arabian Gulf supports a population of ca. 5800 dugongs (*Dugong dugon*), which is the largest known outside Australia. The most important habitats occur (1) around Murawah Island (UAE), (2) between Qatar and Bahrain and (3) between Qatar and the UAE. Surveys of the UAE were repeated 13 years apart. The two estimates of the dugong population were not significantly different, suggesting a stable population of ca. 3000 between 1986 and 1999. In the region between Kuwait and Oman, the Indian Ocean bottlenose dolphin (*Tursiops aduncus*) is the most common cetacean (71% of groups and individuals), followed by the Indo-Pacific humpback dolphin (*Sousa chinensis*; 27%) and finless porpoise (*Neophocaena phocaenoides*; 2%). The estimates of cetacean abundance in the UAE differed significantly between 1986 and 1999 and indicate a population decline of 71%. At least two die-offs of marine mammals occurred between these surveys. The countries of the southern Gulf are developed and affluent and are well positioned to take a lead in marine conservation in the region. A coordinated series of protected areas could greatly enhance the long-term prospects for marine mammals and other components of biodiversity in the region.
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1. Introduction

There are many reasons why the Arabian Gulf may not immediately be thought of as prime habitat for marine mammals. Being a shallow, nearly land-locked body of water that is largely surrounded by desert, it is a harsh environment. Salinity ranges from 40‰ to 70‰, summer water temperatures reach as high as 36 °C, and the annual range of water temperatures is as much as 24 °C (Sheppard et al., 1992). The Gulf is also the world centre for petroleum extraction and export. Moreover, it has experienced two wars in recent times, the Iran–Iraq (1980–1988) and the Gulf war (1990–1991), and both these wars were associated with massive oil spills (MEPA, 1985; Price and Robinson, 1993). Yet, the Arabian Gulf supports an important population of dugongs (*Dugong dugon*) and is home to several species of cetacean.

Although the dugong is listed as Vulnerable to extinction (IUCN, 1996), very little is known of its true status. In many areas throughout its range, which stretches from Mozambique around the rim of the Indian Ocean to Vanuatu in the south-west Pacific (Nishiwaki and Marsh, 1985), there is anecdotal information to suggest that dugong numbers have declined substantially in recent decades (Marsh et al., 2002). However, only in three areas, Australia, the eastern Red Sea and the Arabian Gulf, have quantitative population estimates been derived (Bayliss and Freeland, 1989; Preen, 1989; Marsh and Saalfeld, 1990; Marsh et al., 1996; Preen et al., 1997; Marsh and Lawler, 2001). From these and numerous less quantitative surveys conducted in many other parts of the dugongs' range it is apparent that the Arabian Gulf is the most important area for

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dugongs in the western half of their range, and the most important area outside Australia (Marsh et al., 2002).

At least 10 species of cetacean have been identified in the Gulf (Gallagher, 1991; Baldwin et al., 1999; Preen, unpublished data), but most of these are vagrant or seasonal visitors. Only two species of dolphin, the Indo-Pacific humpback (*Sousa chinensis*) and the bottlenose (previously reported as *Tursiops truncatus*, but now believed to be *Tursiops aduncus*; Wells and Scott, 2002) are thought to be common residents of the Gulf. The finless porpoise (*Neophocaena phocaenoides*) is thought to be an uncommon resident. The world conservation status of these species is Data Deficient, that is, there is insufficient information on which to make an assessment (IUCN, 1996).

This paper reports the results of three aerial surveys of dugongs and dolphins in the southern and western Arabian Gulf – between Kuwait and Oman, and covering the coastal waters of Saudi Arabia, Bahrain, Qatar and the United Arab Emirates (UAE). Two of the surveys were conducted in 1986 and provide quantitative information on the distribution and abundance of dugongs and dolphins over an area of 46,533 km^2. The third survey was conducted in 1999 and repeated the 1986 survey of the United Arab Emirates (14,841 km^2). The two UAE surveys allow an assessment of population trends over an interval of 13 years, a period of significant disturbance in the Gulf. Dugong numbers and distribution changed little between surveys, but the abundance of dolphins appears to have declined greatly.

2. Methods

2.1. Areas surveyed

Three strip–transect aerial surveys were conducted in the Arabian Gulf between 1986 and 1999 (Table 1). The first two surveys were precipitated by a die-off of dugongs along the Saudi coast at the time of the 1983 Nowruz oil spill. Consequently, they were designed principally to census dugongs, although other species were also systematically recorded. This emphasis is reflected in the spatial extent of the surveys: they sought to cover all the dugong habitat in the Arabian Gulf, but not all the cetacean habitat. The bathymetry and water temperature regime of the Gulf suggests that dugongs would not occur in the waters of Kuwait, Iraq and Iran (with the possible exception of an area around Qeshm Island near the Strait of Hormuz; Fig. 1). These areas lack suitable expanses of shallow water for the development of large seagrass meadows, or experience very low water temperatures in winter. Dugongs feed almost exclusively on seagrasses (Heinsohn and Birch, 1972; Marsh et al., 1982; Preen, 1995a) and appear to avoid prolonged exposure to water temperatures of less than about 18 °C (Preen, 1992; Marsh et al., 1994). Published and unpublished reports from these countries were searched for information on dugongs, but no evidence was found for the presence of dugongs in Iran, Iraq or Kuwait. The surveys, therefore, all occurred in the waters of the western and southern sections of the Gulf.

Table 1
Summary of three strip–transect aerial surveys of marine mammals in the Arabian Gulf

	Winter 1985–1986	Summer 1986	Summer 1999
Aircraft	Bell 206	Bell 206	Bell 412
Time of survey	Jan–Mar 1986	Aug–Oct 1986 UAE section: Aug 1986	September 1999
Countries surveyed	Saudi Arabia, Bahrain	Saudi Arabia, Bahrain, Qatar, UAE	UAE
Area covered	21,587 km^2	34,144 km^2	14,841 km^2
Total transect length	5739 km	9788 km	4057 km
Transect orientation	North-south	East-west	East-west
Transect separation	3.7 km	3.7 km	3.7 km
Navigation by	Loran-C	Loran-C	GPS
Transects covered water to depth of	20–30 m	10–15 m	10–15 m
Nominal survey altitude	152 m	152 m	152 m
Nominal transect width	390 m	400 m	400 m
Overall survey coverage	10.3%	11.3%	10.9%
Ground speed range	165–205 km/h	165–205 km/h	165–205 km/h
Coordinator	A. Preen	A. Preen	A. Preen
Observers	T. Rasheed[a] M.Al Owaifeer G. Heinsohn A. Preen J. Miller	N. Shalhoub Z. Daghastani	L. Al-Amri[b] A. Loughland[b] F. Al-Hadrami[c] A.M. Youssef[c]

[a] Only two observers at any one time.
[b] Principal observers.
[c] Observations used to develop correction factors for principal observers.

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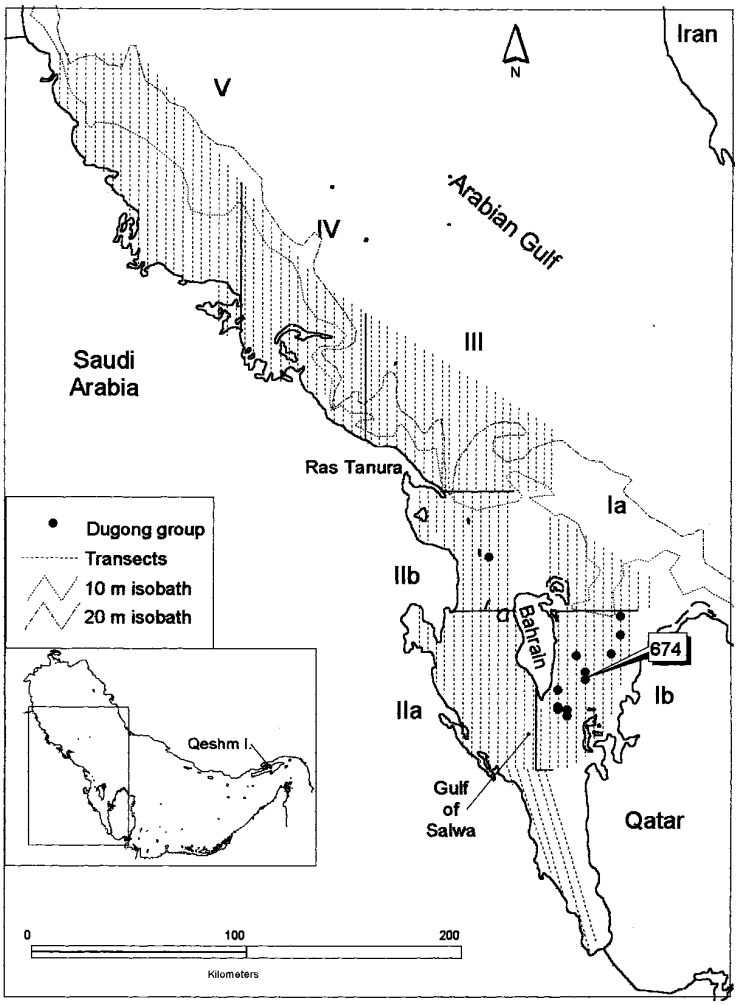

Fig. 1. Strip-transect aerial survey of the western Arabian Gulf flown in the winter of 1985–1986: transects, survey blocks (la–5) and dugong groups. The location of the exceptional herd of 674 dugongs is indicated.

The first survey was flown during the winter of 1985–1986 and covered all the coastal waters of Saudi Arabia and Bahrain, out to a depth of 20–30 m (Fig. 1). At this latitude, the winter sun, passes well to the south. Therefore, the transects were oriented north-south to minimise differences in glare on each side of the aircraft.

The second survey, flown in the summer of 1986, included the waters of Saudi Arabia, Bahrain, Qatar and the UAE. This survey covered waters 10–15 m deep (Fig. 2). This depth range was determined by (1) the absence of any dugong sightings or evidence of seagrass meadows in water more than 10 m deep during the winter survey and (2) the results of sampling that established that seagrasses extended only to a depth of about 10 m in the western Gulf (Preen, 1989). As the survey was conducted in summer, the transects were oriented east-west. This survey did not include the waters off the northern coast of Saudi Arabia. This area was excluded because no dugongs were seen there during the winter survey and because several additional overflights and beach surveys had failed to locate any evidence of dugongs in this region. The northern coast of the United Arab Emirates was also excluded from the strip–transect survey. This area, between Ras Ghanadba and the border with Oman (Fig. 2), has a relatively narrow strip of water shallower than 10 m and was not expected to include important dugong habitat. A shoreline aerial survey of this coast was conducted before the start of the strip–transect survey to check this assumption (see below).

The third survey could only include the waters of the United Arab Emirates (Fig. 2). It was designed to replicate that section of the 1986 survey that covered the UAE. Both surveys flew the same transects, under very similar conditions, during the height of summer (1986 survey: 14–23 August; 1999 survey: 7–14 September). During September 2000, a number of flights were

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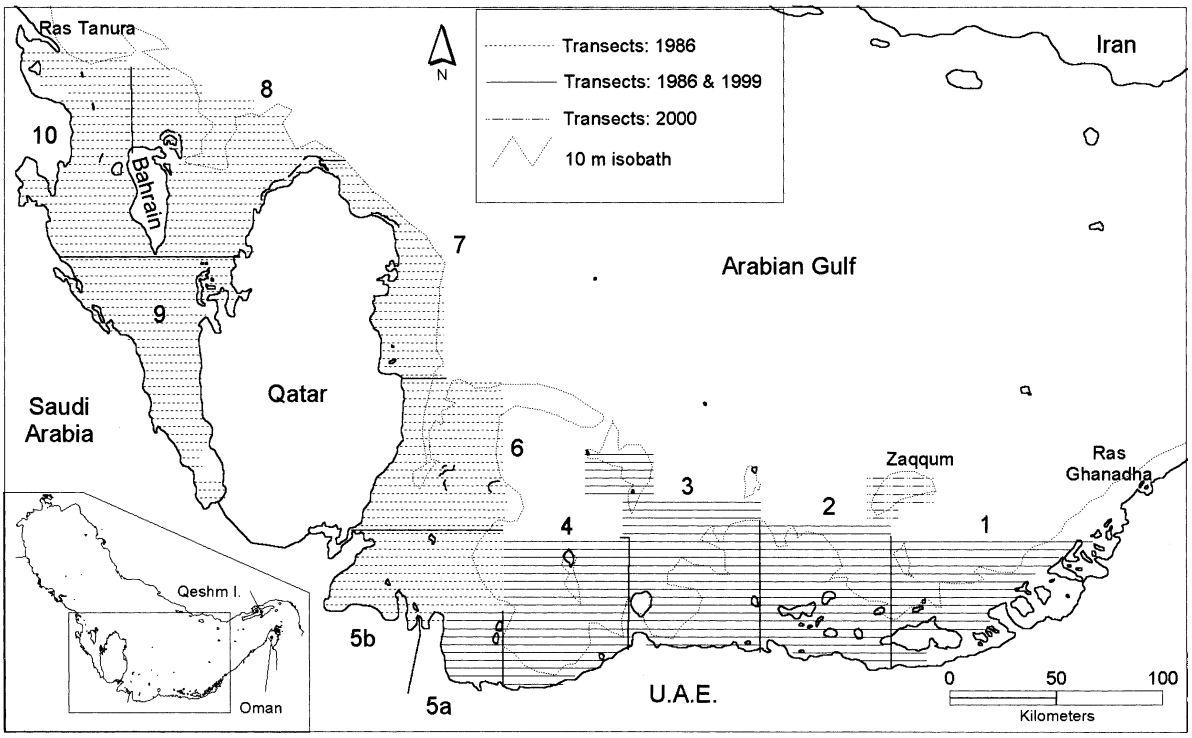

Fig. 2. Transects and survey blocks (1–10) of the strip–transect aerial surveys of the southern Arabian Gulf flown in the summers of 1986 and 1999. Transects flown over the Zaqqum oil field in the summer of 2000 are also shown.

conducted to check for the presence of dugongs in areas not covered by the strip–transect surveys of 1986 and 1999 (see below).

2.2. Strip-transect survey methodology

The surveys were conducted using helicopters, fitted with external frames that allowed the observers to delineate a fixed width transect for searching. Parallel transects were flown within narrow speed and altitude bands and the average altitude of each transect was used to determine the actual transect width. Table 1 compares the technical details of each survey. Every effort was made to conduct the surveys only under good weather conditions. Survey flights were avoided during periods of severe glare (early morning, late afternoon and midday) and when the surface wind exceeded about 27 km/h (Beaufort sea state >3).

During the 1986 surveys, the survey team consisted of two rear-seat observers, a front seat coordinator and a pilot. Observers called sightings following a strict protocol and the coordinator recorded the information onto data sheets. The coordinator also recorded times of sightings, coordinates of important sightings, aircraft altitude and sea surface conditions. The winter survey involved five different observers (but only two at any time). The summer survey used the same two observers throughout.

The 1999 survey used four observers, a coordinator, and two pilots. Two isolated, independent observers were used on each side of the aircraft. Observations were recorded onto separate tracks of a stereo tape recorder, as described in Marsh and Sinclair (1989). Additionally, the sightings made by the principal pair of observers were entered into a lap-top computer as they were called. The tapes were used to check these data and to edit in the observations of the rear-seat observers. The same coordinator managed all the surveys (Table 1).

2.3. Correction factors

Perception bias correction factors correct for the animals visible, but missed by the observers. During the 1986 summer survey, the coordinator acted as a part-time observer whenever he was not physically recording data. Observations made during these periods were recorded as being seen by him, by the full-time observer behind him, or both him and the full-time observer. These data were subsequently used in a Peterson mark-recapture model to determine the probability of the full-time observer seeing each target object, and hence, a correction factor for that observer. The formulae used to calculate this perception bias correction factor, and its coefficient of variation, are detailed in Marsh and Sinclair (1989). The two observers were periodically switched between the left and right sides of the aircraft,

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Table 2
Survey specific estimates of group size (for groups <10) and correction factors used to derive population estimates for dugongs and dolphins

Survey	Dugongs	Cetaceans		
Mean group size (CV)				
Winter 1986		2.439 (0.070)		
Summer 1986 – S–B–Q	1.326 (0.090)	2.807 (0.083)		
Summer 1986 – UAE	1.846 (0.152)	2.611 (0.104)		
Summer 1999 – UAE	1.704 (0.137)	2.643 (0.160)		
	Observer 1	Observer 2	Observer 1	Observer 2
Perception bias correction factor (CV)				
Summer 1986	1.267 (0.116)	1.625 (0.031)	1.295 (0.008)	1.318 (0.009)
Summer 1999	1.667 (0.00)	1.10 (0.005)	1.50 (0.173)	1.00 (0.00)
Availability correction factor (CV)				
Summer 1986 – S–B–Q	3.313 (0.150)			
Summer 1986 – UAE	3.836 (0.140)			
Summer 1999 – UAE	2.5602 (0.1683)			

To allow a more accurate comparison of the 1986 and 1999 data from the UAE, the 1986 summer survey has been split into Saudi–Bahrain–Qatar (S–B–Q) and UAE sections to calculate group size and availability correction factors. Bracketed numbers are coefficients of variation (CV).

so an adequate set of data could be collected for each observer.

During the 1999 survey, there were two observers on each side of the aircraft. The mid- and rear-seat observers on each side were visually and aurally isolated from one another by a curtain and an intercom with isolate switches. The perception bias correction factor for each mid-seat observer (Table 2) was calculated using the Peterson mark-recapture analysis of the sightings of each pair of observers. Sightings from the rear seat observers were not used for part of the survey, where those observers were undergoing training.

Availability bias correction factors (Table 2) attempt to correct for number of animals not near the surface, and hence, not available to observers at the time the aircraft passes over. For dugongs, the availability correction factor standardises the number seen at the surface during the survey to the number seen at the surface in clear water where all the dugongs were visible. This standard was derived from surveys and vertical aerial photos of dugongs in exceptionally clear water in Moreton Bay, Queensland (Marsh and Sinclair, 1989) and has been used to standardise all dugong surveys conducted using similar methods. The corrections for availability bias for dugongs make the untested assumption that a constant proportion of dugongs is at the surface. Although this is improbable, the correction factor is likely to be conservative and provides a means of standardising for repeat surveys in the same area. Availability bias was not corrected for small cetaceans because of the lack of suitable data to use as a standard.

2.4. Analysis

To calculate regional densities of dugongs and dolphins, the survey areas were divided into survey blocks (Figs. 1 and 2). The boundaries of the blocks were determined more by political and logistic exigencies than by ecological considerations. Such constraints were unavoidable because the summer 1986 survey crossed five separate international borders and abutted three more. Moreover, the 1986 surveys occurred during the height of the Iran–Iraq war, and this put particular constraints on flying in the region.

As the transects were variable in length and area, the Ratio Method (Jolly, 1969; Caughley and Grigg, 1981) was used to estimate density and population size for dugongs and cetaceans for each survey block. Input data were the estimated number of dugongs and cetaceans, in groups of <10, for each observer for each transect calculated with the appropriate corrections for perception and availability bias and mean group size (Table 2). Only sightings made by the principal observers were used. Sightings made by other observers to develop perception bias corrections factors were not input into the analyses. The standard errors were adjusted to incorporate the error associated with each correction factor as outlined in Marsh and Sinclair (1989). Groups of 10 or more animals were excluded from the calculation of population estimates, and subsequently added to the population estimate, as suggested by Norton-Griffiths (1978).

The surveys were designed primarily to census dugongs. Logistical constraints meant that normally it was not possible to circle groups of cetaceans to confirm species identifications, so many groups were not identified to species. Consequently, the cetaceans have been analysed as a single species group.

The 1999 survey of the UAE replicated the 1986 survey. The significance of the differences between the abundance of dugongs and cetaceans in each survey was tested with analysis of variance. Blocks (1–5a) and

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times (1986, 1999) were treated as fixed factors and transect as a random factor nested within block. Input data were corrected densities (per km^2) with each transect contributing one density per survey. The densities were transformed ($\ln(x+1)$) to equalise the error variances. The analysis was run both with and without the covariate of average Beaufort sea state of each transect.

2.5. Flights to check areas not covered by the strip–transect surveys

The coastal waters of the northern UAE, between Ras Ghanadha and the Oman border (Fig. 2) were surveyed by air in August 1986 and in September 1999. On each occasion the 190 km of coast was overflown twice: once ca. 800 m offshore and once ca. 1.5 km offshore. The 1986 survey had an observer on each side of the aircraft, while the 1999 survey relied primarily on a single observer. The aircraft flew at an altitude of 160 m and a strip ca. 800 m wide was searched. Sightings were recorded on maps and Loran-C or GPS coordinates recorded.

The Zaqqum oil field is an isolated area of shallow water (5–10 m), located some 70 km off the UAE coast (Fig. 2). It was not included in the 1986 and 1999 strip–transect surveys of the UAE because it is highly developed. However, during September 2000, a series of six east-west oriented transects were flown over this area following the strip–transect protocols described above and using two observers on each side.

The coast around Abu Dhabi city in the UAE is particularly complex with many low sand islands surrounded by large expanses of very shallow water and a limited number of deeper channels. The water amongst these islands is likely to become very warm and very saline during summer and was thought to be unlikely to be important dugong habitat. Consequently, this area was not included in the strip–transect surveys. Three flights were conducted over this area during September 2000 to check for the presence of dugongs and dolphins. The aircraft was flown at a height of 100–160 m, and two observers recorded the GPS waypoints of marine mammal sightings.

3. Results

Survey conditions were good for most of each survey. Good conditions are defined as calm sea surface (Beaufort scale of $\leqslant 2$), minimal glare and no cloud. The 1986 winter survey had some marginal days due to rough sea surface (Beaufort scale of 3) and or cloud. The 1986 summer survey of Saudi and Bahraini waters experienced severe glare on the south side of the aircraft at some times.

3.1. Dugongs

3.1.1. Distribution

The survey of the winter of 1985–1986 was remarkable for two reasons. Only 11 groups of dugong were seen along 5740 km of transects, and one of those groups was exceptionally large. In the area between Bahrain and Qatar, a group of dugongs contained 674 dugongs. This is the largest group of dugongs ever reported anywhere in the world.

All but one group of dugongs seen during the winter survey occurred between Bahrain and Qatar, in the upper Gulf of Salwa (Fig. 1). One dugong was seen to the northwest of Bahrain, and a recently dead dugong was seen floating just off the west coast of Bahrain. No dugongs were seen along the northern coast of Saudi Arabia.

During the summer survey of 1986, dugongs were widespread throughout the survey area (Fig. 3). Areas of greatest concentration occurred between Bahrain and Qatar and in the Murawah Island area of the UAE. Two other important areas were in the Saudi waters in the elbow between Qatar and the UAE and between Bahrain and Saudi Arabia. Groups of 12, 18 and 52 were seen in these areas (Fig. 3). Few dugongs were seen along the east coast of Qatar or in the deeper waters (>10 m) of the UAE.

The distribution of dugongs in the UAE in 1999 was similar to the 1986 pattern. Although widespread, the greatest concentration occurred in the central region, around Murawah Island. Large herds of 26, 50 and 60 dugongs were recorded within this area (Fig. 3).

The additional flights undertaken to check areas not included in the strip–transect surveys confirmed that all the important dugong habitat had been covered by the transects. Only one dugong was seen on the 1986 shoreline survey of the northern UAE, between Ras Ghanadha and Oman, and none were seen when this flight was repeated in 2000. No marine mammals were seen on the transects flown over the Zaqqum shoal in 2000. The three flights conducted amongst the islands around Abu Dhabi in the UAE in September 2000 established that there is relatively little summer dugong habitat in this area. Although there are large expanses of seagrass meadows, they are mostly too shallow for dugongs. Only three groups of dugongs (totalling four individuals) were seen on these flights and they were all in the deeper channels.

3.1.2. Abundance

No population estimate has been calculated from the 1986 winter survey as too few groups were seen. However, the large aggregation of 674 dugongs, plus the other 12 dugongs seen, provides a minimum population size for the Gulf of Salwa area. The proportion of calves in five series of close-up photos of sections of the large herd averaged 15.7% (SE 0.5%).

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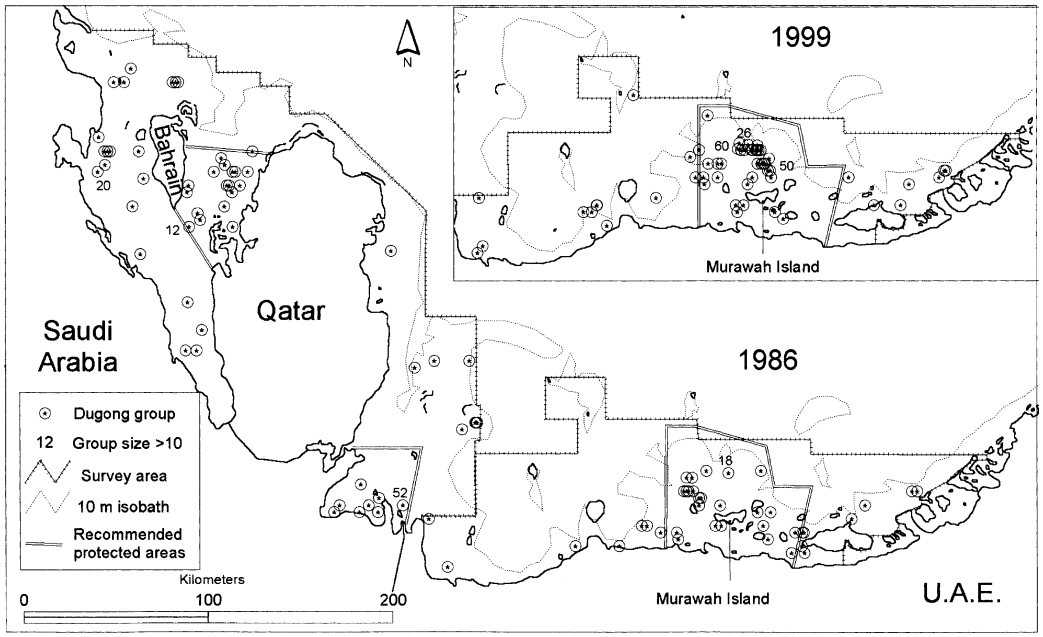

Fig. 3. Locations of dugong groups recorded during strip–transect aerial surveys of the southern Arabian Gulf during the summers of 1986 and 1999. Sizes of groups $\geqslant 10$ are indicated. The locations of three areas recommended for protection, including the recently declared Muarwah marine protected area, are indicated.

The 1986 summer survey of the southern and south-western Gulf resulted in an estimated dugong population of 5840 dugongs (SE 903) at an overall density of 0.171/km^2 (SE 0.026; Table 3). Dugongs were most abundant and occurred at the highest density in survey blocks 2 and 3 (around Murawah Island in the UAE) and block 8 (between Bahrain and Qatar). Calves made up 14.5% of all sightings.

The results of the UAE section of the 1986 summer survey and the 1999 repeat survey of the UAE were very similar (Table 4). The two population estimates (Table 3) were not significantly different (Table 5). There was no interaction between survey and block factors, reflecting the similar distribution pattern during each survey. Inclusion of Beaufort sea state as a covariate did not alter the ANOVA results.

Table 3
Results of summer aerial surveys of dugongs in the Arabian Gulf conducted in 1986 and 1999

Block	Area (km^2)	1986 survey			1999 survey		
		Coverage (%)	Density, km^{-2} (SE)	Abundance (SE)	Coverage (%)	Density, km^{-2} (SE)	Abundance (SE)
1	2665	10.9	0.133 (0.086)	354 (230)	11.0	0.107 (0.070)	285 (185)
2	3384	10.9	0.413 (0.133)	1399 (450)	11.1	0.389 (0.138)	1317 (465)
3	4463	10.9	0.230 (0.104)	1027 (464)	10.9	0.149 (0.063)	665 (283)
4	3499	11.0	0.030 (0.030)	105 (104)	10.7	0.090 (0.051)	315 (178)
5a	830	11.1	0.196 (0.146)	163 (121)	11.1	0.131 (0.099)	108 (82)
Sub-total	14,841	10.9	0.205 (0.047)	3047 (704)	10.9	0.181 (0.041)	2691 (608)
5b	2449	12.6	0.168 (0.080)	412 (197)			
6	3455	11.6	0.108 (0.061)	373 (211)			
7	1967	11.8	0.031 (0.032)	61 (64)			
8	4201	11.8	0.211 (0.089)	886 (374)			
9	3842	11.3	0.110 (0.041)	423 (159)			
10	3389	11.2	0.188 (0.076)	637 (258)			
Total	34,144	11.3	0.171 (0.026)	5840 (903)			

The 1999 survey covered the UAE only. The 1986 survey has been split in two, reflecting the blocks covering the UAE (blocks 1–5a) and the blocks covering Saudi Arabia, Bahrain and Qatar (blocks 5b–10). Bracketed numbers are standard errors (SE) of estimates.

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Table 4
Comparison of dugong data derived from the two summer surveys of the United Arab Emirates

	1986	1999
Population	3047, SE 704	2691, SE 608
Overall density	0.21/km^2	0.18/km^2
Mean group size (groups < 10)	1.85	1.71
Size of herds ⩾ 10	18	26, 50, 60
Calves as percentage of total	23%	18.7%
Density in survey blocks 2 + 3	0.31/km^2	0.25/km^2

3.2. Cetaceans

3.2.1. Species

A total of 311 groups of cetaceans, representing 1003 individuals, were recorded during the three surveys of the southern and western waters of the Gulf (Table 6). Identification of cetaceans, especially from the air, requires particular experience, which the observers often lacked. While the identification of many cetacean groups was confirmed by the coordinator, many could not be confirmed and therefore remain uncertain. Thirty-six percent of cetacean groups (26% of individuals) were not identified. Of the identified cetaceans, bottlenose dolphins accounted for 71%, humpback dolphins 27% and finless porpoises 2% (Table 6).

3.2.2. Distribution

The areas surveyed encompass the important habitat of dugongs in the Gulf. There was no expectation that the surveyed areas reflected the distribution of cetaceans. As a group, the cetaceans were widespread throughout each survey area. They occurred equally in shallow and deep areas, in embayments and in open water and showed no particular areas of concentration (Figs. 4 and 5). The humpback dolphin was most common in shallower waters and was the most likely species to be seen very close to the coast. Ninety-six percent of all humpback dolphin groups occurred within the 10-m isobath. The bottlenose dolphin was less restricted to shallower waters and 29% of all groups were seen in waters deeper than 10 m. Bottlenose dolphins were very common in the lower Gulf of Salwa, where salinity is 60–70‰ (Basson et al., 1977). By contrast, humpback dolphins were rare in this area. This pattern is supported by data from other overflights of this area and stranded carcasses (unpublished data). Although the finless porpoise is rare, it is apparently widespread. Sightings occurred from near the Kuwait border in the north to the UAE and from deep water to the lower Gulf of Salwa. No cetaceans were seen during the shoreline survey flights around the inshore islands in the UAE, or on the six transects flown over the Zaqqum oil field.

3.2.3. Abundance

Data are not available on the likelihood of a small cetacean being near the surface and visible to an observer. Consequently, abundance estimates for cetaceans have not been corrected for availability bias for any survey. The population estimates, therefore, provide an index of abundance, rather than an estimate of abundance.

During the winter survey of the western Arabian Gulf, the two observation positions were occupied by a total of five different observers (Table 1). Given the configuration of the aircraft it was not possible to collect the necessary data to calculate perception bias correction factors for each observer. The population estimates for this survey, therefore, include no corrections for perception bias. The estimated population was 1762 (SE 219) cetaceans, occurring at an overall density of 0.08 km^{-2} (SE 0.01; Table 7). The cetaceans were most abundant in survey block 5, off the far north coast of Saudi Arabia, although they occurred at the highest density in block 2b, in the vicinity of Ras Tanura (Table 7; Fig. 4).

The 1986 summer survey of the southern and southwestern Gulf resulted in a population index of 3378

Table 5
Results of analyses of variance comparing the 1986 and 1999 surveys of dugongs and cetaceans in the UAE

Source of variation	Dugongs						Cetaceans					
	df		*F*		*P*		df		*F*		*P*	
	1	2	1	2	1	2	1	2	1	2	1	2
Transect nested in block[a]	80	80	1.67	1.71	0.011	0.009	80	80	0.94	1.07	0.608	0.390
Block[b]	4	4	3.11	2.12	0.020	0.086	4	4	2.11	1.90	0.087	0.118
Survey[a]	1	1	0.22	2.69	0.643	0.105	1	1	23.35	31.77	0.000	0.000
Block by Survey[a]	4	4	0.27	0.19	0.899	0.945	4	4	0.76	0.81	0.555	0.525
Residual	80	79					80	79				
Regression[a]				4.53		0.036				7.22		0.009

Results are presented without covariates (1) and with Beaufort sea state as a covariate (2).
[a] Tested against residual.
[b] Tested against transect nested in block.

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Table 6
Number of cetaceans (groups and individuals) recorded during strip–transect surveys in the Arabian Gulf

	Number of groups				Total	Number of individuals				Total
	Finless porpoise	Humpback dolphin	Bottlenose dolphin	Unknown		Finless porpoise	Humpback dolphin	Bottlenose dolphin	Unknown	
Winter 1986	3	22	58	47	130	5	79	219	101	404
1986 – SBQ	1	16	52	28	97	2	72	180	70	324
1986 – UAE	1	13	23	28	65	1	44	75	72	192
1999 – UAE	0	2	7	10	19	0	2	59	22	83
Total	5	53	140	113	311	8	197	533	265	1003
% of total	1.6	17.0	45.0	36.3		0.8	19.6	53.1	26.4	
% of identified	2.5	26.8	70.7			1.1	26.7	72.2		

Data from the 1986 summer survey have been split into UAE and Saudi–Bahrain–Qatar (SBQ) sections.

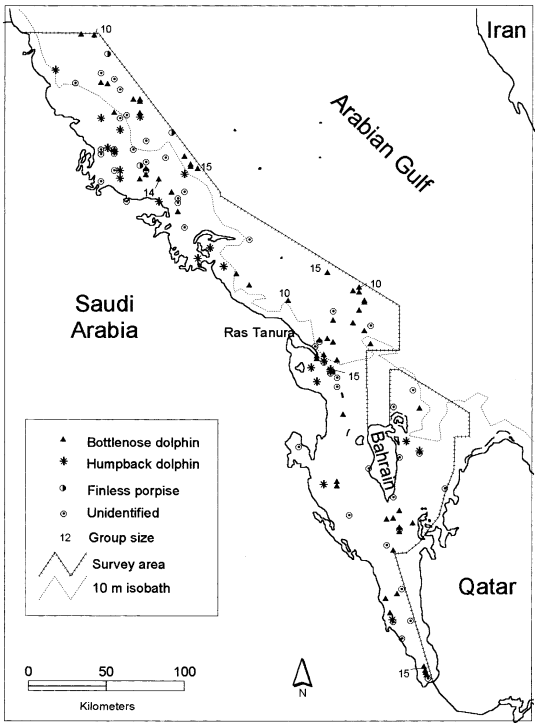

Fig. 4. Locations of cetacean groups recorded during the strip–transect aerial survey of the western Arabian Gulf in the winter of 1985–1986. Sizes of groups $\geqslant 10$ are indicated.

(SE 331) cetaceans (Table 8). The cetaceans were most abundant in central UAE (blocks 2 and 3) and the Gulf of Salwa (blocks 8, 9 and 10; Table 8; Fig. 5).

In August 1986, 65 groups of cetaceans were seen in transects in the UAE, while in September 1999, only 19 groups were seen along the same transects (Table 6). The 1986 population estimate for the UAE was 1690 (SE 212) cetaceans. However, 13 years later, the estimate for the same area was only 489 (SE 121; Table 8). The difference between surveys is highly significant and there was no interaction of terms (Table 5). Inclusion of sea state as a covariate did not alter the results, suggesting that the significant difference between surveys was not caused by different survey conditions. These results indicate a 71% decline cetacean abundance in the UAE between 1986 and 1999.

4. Discussion

4.1. Dugongs

The total population of dugongs in the Arabian Gulf in 1986 was estimated to be 5840, with a coefficient of variation of 15.5%. This is the largest population of dugongs known from outside Australia. Dugongs apparently do not occur in the waters of Kuwait (Clayton, 1983), Iraq or Iran (Harrington, 1976). The distribution of dugongs is primarily restricted to the south-west and southern Gulf, between Ras Tanura on the Saudi coast, to Ras Ghanadha in the UAE. Some dugongs occur north-east of Ras Ghanadha, but the shoreline aerial surveys conducted in this area in 1986 and 1999 suggest that there is limited dugong habitat in this region. By contrast, the coast of Saudi Arabia north of Ras Tanura includes extensive areas of seagrass meadows, but this resource is not regularly used by dugongs. Preen (1989) collected three sighting reports of dugongs along this coast: two from ship captains and one from a fisherman, but no surveys have confirmed the presence of dugongs. The 1986 winter survey covered 12,389 km^2 in this region and saw no dugongs. Between 1985 and 1988, 10 additional flights were conducted through this area. Then, immediately following the Gulf war oil spill in 1991, a further 11 flights were flown through this area. No dugongs were seen on any flight (Preen, 1989; Preen, unpublished data). Virtually the entire beach of the Saudi Gulf coast was driven on several occasions in 1985–1998 and in 1991 searching for skeletal material of marine mammals, but no dugong remains were found north of Ras Tanura (Preen, 1989; Preen, unpublished

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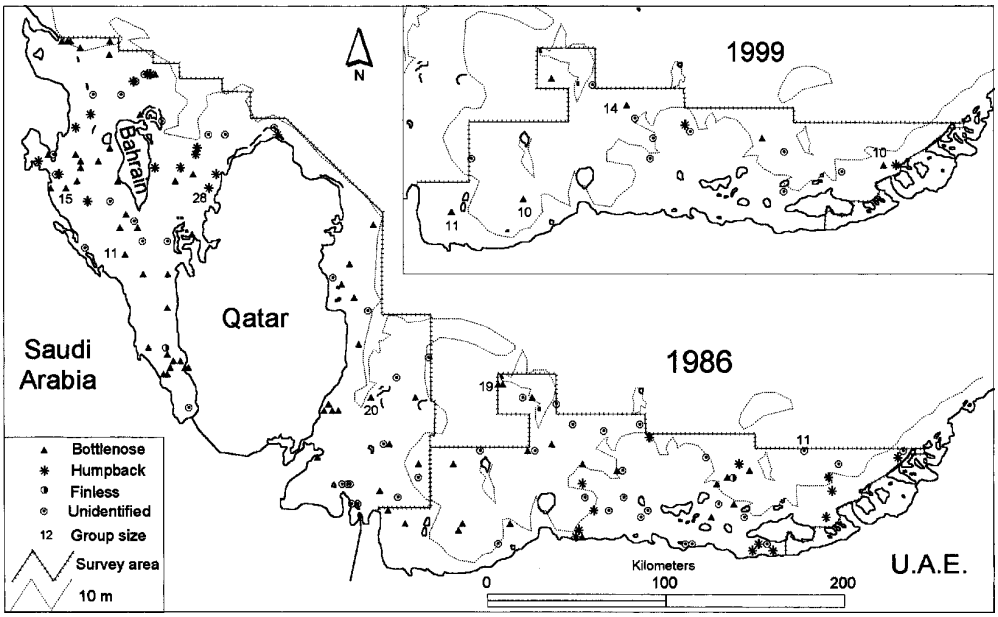

Fig. 5. Locations of cetacean groups recorded during strip–transect aerial surveys of the southern Arabian Gulf during the summers of 1986 and 1999. Sizes of groups $\geqslant 10$ are indicated.

Table 7
Results of 1986 winter survey of cetaceans in the western Arabian Gulf

Block	Area (km^2)	Coverage (%)	Density, km^{-2} (SE)	Abundance (SE)
1a	1373	9.7	0.039 (0.021)	54 (29)
1b	2163	9.6	0.113 (0.041)	244 (89)
2a	3863	9.9	0.080 (0.026)	309 (99)
2b	1798	9.4	0.136 (0.047)	245 (85)
3	3980	10.7	0.060 (0.016)	238 (63)
4	3245	10.6	0.068 (0.021)	219 (69)
5	5164	11.0	0.088 (0.022)	452 (114)
Total	21,587	10.3	0.082 (0.010)	1762 (219)

Population estimates not corrected for perception or availability bias.

data). It is apparent that, although dugongs may occur in this area, the coastal waters north of Ras Tanura are not significant for dugongs in the Arabian Gulf, despite the presence of large seagrass meadows.

High salinity does not appear to be the factor limiting dugong distribution in the Gulf, particularly along the Saudi coast. Dugongs are abundant in the northern Gulf of Salwa, where salinity typically ranges from 50‰ to 60‰ (Basson et al., 1977; Vine, 1986). Dugongs also occur at the very southern end of the Gulf of Salwa where the water contains 70‰ salt. Salinities along the north coast of Saudi Arabia, by contrast, range from 40‰ to 50‰ (Kenworthy et al., 1993). However, in areas near the latitudinal limits of the dugong's range, such as the northern Arabian Gulf, water temperature does affect dugong distribution. Dugongs are tropical and sub-tropical in distribution and the extremes of their latitudinal range correspond with a mean surface water temperature of 23 °C (Nishiwaki et al., 1979). Water temperature in winter is likely to be more important if the dugong's familial cousins, the manatees are a guide (Gallivan et al., 1983; Irvine, 1983). Anderson (1986) and Marsh et al. (1994) provide evidence that dugongs at the southern limit of their range in Shark Bay, Western Australia, abandon their summer feeding grounds when water temperatures drop below 18–19 °C. At Moreton Bay at the southern limit of the dugongs' range in eastern Australia, they are able to use a different strategy. Although winter water temperatures over their feeding areas average 17.7 °C, the dugongs do not leave the areas. Instead they make regular journeys of 8–20 km to an area outside the bay where an eddy of a warm offshore current provides a resting area that is 5 °C warmer than inside the bay (Preen, 1992). Average monthly water temperature is <19 °C for 4 months in Kuwait Bay, but for only 2 months at Ras Tanura (300

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Table 8
Results of summer aerial surveys of cetaceans in the Arabian Gulf conducted in 1986 and 1999

Block	Area (km^2)	1986 survey			1999 survey		
		Coverage (%)	Density, km^{-2} (SE)	Abundance (SE)	Coverage (%)	Density, km^{-2} (SE)	Abundance (SE)
1	2665	10.9	0.098 (0.028)	262 (75)	11.0	0.026 (0.018)	69 (48)
2	3384	10.9	0.139 (0.033)	470 (113)	11.1	0.042 (0.018)	142 (60)
3	4463	10.9	0.152 (0.029)	680 (130)	10.9	0.041 (0.017)	184 (76)
4	3499	11.0	0.062 (0.026)	217 (90)	10.7	0.014 (0.010)	49 (36)
5a	830	11.1	0.074 (0.053)	61 (44)	11.1	0.056 (0.047)	47 (39)
Sub-total	14,841	10.9	0.114 (0.014)	1690 (212)	10.9	0.033 (0.008)	489 (121)
5b	2449	12.6	0.090 (0.014)	220 (93)			
6	3455	11.6	0.047 (0.018)	162 (61)			
7	1967	11.8	0.024 (0.017)	47 (33)			
8	4201	11.8	0.089 (0.034)	373 (144)			
9	3842	11.3	0.122 (0.034)	468 (131)			
10	3389	11.2	0.123 (0.034)	418 (114)			
Total	34,144	11.3	0.175 (0.013)	3378 (331)			

The 1999 survey covered the UAE only. The 1986 survey has been split in two, reflecting the blocks covering the UAE (blocks 1–5a) and the blocks covering Saudi Arabia, Bahrain and Qatar (blocks 5b–10). Population estimates have not been corrected for availability bias. Bracketed numbers are standard errors (SE) of estimates.

km south). At Aziziyah (50 km south of Ras Tanura), which is adjacent to an area of high dugong density, water temperature is below 19 °C for only 1 month (Preen, 1989). It seems likely that the seagrass meadows along the north coast of Saudi Arabia are unsuitable for dugongs due to winter water temperatures.

In summer, approximately half the dugongs in the Gulf occur in the United Arab Emirates. Both the 1986 and 1999 aerial surveys of the UAE showed a very similar pattern of distribution and produced population estimates that were not significantly different. This consistency between widely spaced surveys suggests stability in the Arabian Gulf dugong population.

The aerial surveys have provided a good picture of dugong distribution in summer. The pattern of winter distribution, however, is less clear. Although the 1986 winter survey only covered about one-third of the dugongs' habitat in the Gulf, the contrast in dugong distribution between the 1986 summer and winter surveys is stark. In winter, nearly all the recorded dugongs occurred in a single herd composed of adjacent groups of 577 and 97 (counted from photos). Given that so few other dugongs were seen, it is quite probable that other large aggregations were present in the area. The group of 97 dugongs, which was not within the transect, was only detected when we circled the larger group. Interviews with Bahraini fishermen in 1986 suggested that the dugongs may aggregate into huge herds in this area every winter (Preen, 1989). The reasons for such aggregations are unclear. They may be drawn to the freshwater springs that are known to occur in this area. Such springs may provide a warm oasis in otherwise cool winter water. It is possible that dugongs from throughout the Gulf could aggregate in this area in winter. The distance between the main dugong area in the UAE (the Murawah Island area) and the area where the large aggregation was seen is about 400 km, which is well within the movement range of dugongs. Of 36 dugongs tracked for more than 1 month in Australia, four undertook trips of >400 km and one dugong twice moved between areas 865 km apart (Preen, unpublished data). If dugongs do aggregate in this area, or at other sites, the winter distribution of dugongs in the Arabian Gulf may differ quite substantially from the summer pattern. Moreover, such aggregation areas will deserve particular protection.

The density of dugongs in the southern Arabian Gulf (0.21/km^2 $\pm$ 0.05 in 1986) is near the lower end of the range of densities calculated for other areas surveyed using the same methods. These densities range from 0.08 in the eastern Red Sea (Preen, 1989) to 0.71/km^2 in Shark Bay (Preen et al., 1997), with most occurring between 0.26 and 0.62/km^2 (Table 4 in Marsh et al., 1994). In 1986, the proportion of dugongs that were calves in the western and southern Arabian Gulf was 14.5%, compared with 18.7% in the southern Gulf in 1999. These figures are typical of the proportions recorded on other surveys (Table 4 in Marsh et al., 1994).

4.2. Cetaceans

The population estimates provide the first quantitative information on abundance of small cetaceans in this region. Although they are known to be underestimates, the methods of data collection and analysis were standardised, so the estimates provide valid trend data. The density of small cetaceans in the southern and southwestern Gulf in 1986 (0.175/km^2; Table 8) is typical of

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cetacean densities measured in dugong surveys around Australia (Table 5 in Preen et al., 1997). The density of cetaceans in the UAE in 1999 (0.033/km^2; Table 8), however, is lower than any density measured in Australia using the same methods. The statistically significant decrease in cetacean abundance between 1986 and 1999 amounts to a 71% decline over 13 years. The raw counts of the number of groups and the number of individuals seen on each survey also declined by 71% and 57%, respectively.

The mid-summer timing of both UAE surveys reduces the likelihood that a seasonal migration or seasonal population shift was responsible for the difference in population abundance between 1986 and 1999. A non-seasonal range shift cannot be ruled out, although it would have to be substantial as the survey area covered 15,000 km^2. Furthermore, it would have had to involve both common species in the Gulf, as they both showed a similar decline (Table 6). The decline in cetacean numbers, therefore, is likely to be real and is a matter of concern. According to one report, UAE fishermen acknowledge that there appears to be fewer dolphins now than in the past (Baldwin, 1995) and there have been die-offs of cetaceans in Saudi Arabia, Bahrain and Qatar since the first aerial survey (Preen, unpublished).

The aerial surveys provide the first indication of the relative abundance of the species of cetacean in the shallower areas of the Arabian Gulf. Pooling across the three aerial surveys, Bottlenose dolphins accounted for 72% of identified sightings, humpback dolphins made up 27% of sightings and finless porpoise accounted for 1–2%. These ratios are in line with the relative abundance of species based on the identities of carcasses found during major die-offs in 1986 and 1991 (Table 9).

The humpback dolphins were largely restricted to areas $\leqslant 10$ m deep, while the bottlenose dolphins occurred equally across all depths within the survey areas. These patterns are consistent with what is known of the habitat preferences of these species (Saayman and Tayler, 1979; Corkeron, 1990; Corkeron et al., 1987). Common dolphins (*Delphinus delphis*) were not identified during the aerial surveys, but occurred at very low frequency amongst the carcasses (Table 9). This open ocean species (Jefferson et al., 1993) may be relatively more common closer to the Iranian coast, where the waters are deeper.

4.3. Protection of marine mammals in the Gulf

Despite its harsh climate, high density of offshore oil facilities and high level of shipping, the southern and western Arabian Gulf contains a rich diversity of subtropical marine habitats (Basson et al., 1977; Emirates Heritage Club, in press). The dominant habitats are vast seagrass meadows and areas of sandy and soft bottoms. Although the seagrass meadows are composed of only three species, at least two of these (*Halophila ovalis* and *Halodule uninervis*) are the preferred food of dugongs (Preen, 1995b) and support the largest population of dugongs known outside Australia.

The stability of the dugong population in the southern Gulf since 1986 is an encouraging result given some of the threats facing dugongs in that region and in light of the apparent decline in dugong numbers within parts of the Great Barrier Reef Marine Park in Australia (Marsh et al., 1996, 2001). Dugongs in the Arabian Gulf, however, face a number of threats. Oil spills are an ever-present threat in this area of high density off-shore oil production and transport. Two of the largest oil spills ever recorded have occurred in the Gulf: during the Iran–Iraq war in 1983 and the Gulf war in 1991. Dugong mortalities coincided with these (Preen, unpublished). Large-mesh fishing nets pose another threat to dugongs in the Arabian Gulf. In 1986, dugongs caught in these nets were sold in the markets in Abu Dhabi and Bahrain. Based on interviews with fish sellers, it was estimated that 50–150 dugongs died this way in the UAE each year (Preen, 1989). Based on the 1986 population estimate, the sustainable annual take is 60–120 dugongs (2–4%; Marsh et al., 1984). The sale of dugongs is no longer allowed in the UAE, but dugongs are still drowned in mesh nets. In 1998, 12 dugong carcasses were found tied under mangroves on Murawah Island, near an area where large-mesh gill nets were set (personal observation). These carcasses were in the same area where the remains of 28 dugongs were re-

Table 9
Relative abundance of small cetaceans in the Arabian Gulf

Species	Aerial surveys		Carcasses	
	Groups (%)	Individuals (%)	1986 die-off (%)	1991 die-off (%)
Bottlenose dolphin	71	72	64	80
Humpback dolphin	27	27	34	18
Finless porpoise	2	1	1	1
Common dolphin			2	
n	198	738	415	71

Identifications from (1) aerial surveys conducted during the winter 1986, summer 1986 to summer 1999 and (2) stranded carcasses associated with two die-offs in the western Arabian Gulf.

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ported in 1995. All had apparently died in nets (Baldwin and Cockcroft, 1995).

In contrast with the dugongs, the abundance of cetaceans in the UAE declined dramatically between 1986 and 1999 and this is real cause for concern. Efforts should be made to determine if this decline has been more widespread, and to determine its cause(s).

Coastal cetaceans and dugongs in other areas of the Indian Ocean region are also believed to be under great pressure (Preen, 1998; Marsh et al., 2002). The long-term survival of the dugong, like the survival of most terrestrial megafauna, will almost certainly rely on the establishment of an adequate network of protected areas where the impacts of human activities can be minimised. In the southern and western Arabian Gulf seven candidate areas for protection were identified by Preen et al. (in press, 1989). Three areas were considered to be crucial dugong habitat (Fig. 3): (1) the waters around Murawah Island in the UAE (characterised by high dugong density, very high sea turtle density, extensive seagrass meadows and numerous islands and reefs); (2) the waters between Qatar and Bahrain (characterised by very high dugong density, possible dugong aggregation site in winter, extensive seagrass meadows and a suite of rare terrestrial species on the Hawar Islands) and (3) the waters of Saudi Arabia between Qatar and the UAE (characterised by high dugong density, high sea turtle density and the most diverse and complex coastal habitats between Kuwait and Oman).

The 1999 aerial survey of the UAE confirmed the importance of the waters around Murawah Island for dugongs (and turtles) and in 2001, 4255 km^2 of this area (Fig. 3) was declared a protected area (Law 18/2001). The extent to which this declaration will help conserve the Gulf dugong population will depend, amongst other things, on the replacement of threatening fishing practices (particularly large-mesh gill nets) with more benign methods; extensive and detailed oil-spill contingency planning that emphasises the needs and vulnerabilities of dugongs, seagrasses and other susceptible species; limits on the expansion of oil production facilities, pipelines, causeways and channel dredging within the protected area and the extent of movement of dugongs outside the protected area. It is yet to be seen how the Environment Research and Wildlife Development Agency, which has responsibility for the management of the protected area, will address these issues.

It is hoped that this first marine protected area acts to encourage neighbouring countries to protect those other areas of critical dugong habitat. There are many impediments to the development of a system of marine protected areas in the Gulf, not the least being the need to coexist with very extensive offshore oil production, and the need for cooperative cross-border management. However, the Gulf states of Saudi Arabia, Bahrain, Qatar and the United Arab Emirates, have the advantages of being developed, affluent and sharing the same culture and language. Furthermore, important baseline studies of coastal environments have been undertaken in these countries, and there is growing public and political support for environmental conservation. These countries, therefore, have the opportunity and capacity to work together to establish a system of marine protected areas that would contribute very significantly to the conservation of dugong populations and the conservation of Arabian Peninsula and Indian Ocean biodiversity.

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Sent: Thursday, June 03, 2010 1:14 PM
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Subject: Daily Update 6/3/2010 Marine Mammal and Sea Turtle Health and Stranding Response - Deepwater Horizon MC252

Attachments: MMST Health and Stranding Update 06-02-10 FINAL.doc; Mammal_Turtle_Data_02_June_FINAL.xls; Mammal_Turtle_Data_02_June_FINAL-SUMMARY.xls

MMST Health and Stranding Upda... | Mammal_Turtle_Data_02_June_FIN... | Mammal_Turtle_Data_02_June_FIN...

Hi,

Attached is the daily summary from the Marine Mammal and Sea Turtle Health and Stranding Response Programs operating under the Unified Command. There are three files: a Word document using the new narrative template and two Excel spreadsheets. Once Excel file provides a breakdown by species; the other has only daily summary totals, as requested.

Please let us know if you have any questions.

Thanks,
Sarah & the Team

	TOTAL Dolphins								
	Live				Dead				Date
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending	Totals
Subtotal 30 Apr-31 May	0	0	0	0	1	0	0	28	29
1-Jun-10	0	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	1	0	0	0	1	2
Category Totals	0	0	0	1	1	0	0	29	31
Species Total	31								

Oiling Status Categories of Stranded Marine Mammals/Sea Turtles During MC 252 Spill

1) Oiled: Meet Criteria 1, 2, and/or 3 below.
2) Suspect: Meet Criteria 4, 5, and/or 6 below.
3) Unoiled: Do not meet criteria below.
4) Pending: Evaluation not yet completed.

Criteria For Establishing Oiling Status of Stranded Marine Mammals or Turtles

(From strongest to least strong lines of evidence)

1) Evidence of external oiling.
2) Evidence of internal oiling on initial exam: Oil in oral cavity or gastrointestinal tract
3) Evidence of internal oiling on necropsy: Oil in gastrointestinal tract
4) Evidence of pathological changes strongly associated with oil exposure on necropsy: Acute respiratory damage or pathology, acute damage or significant irritation to ocular tissues or mucous membranes.
5) Strandings in the "declared spill area".
6) Strandings adjacent to the "declared spill area" within a specified distance that affected mammals or turtles may travel after being affected (distance to be determined upon daily consultation with the Envt Unit within the Planning Section and the NR

	TOTAL Whales								
	Live				Dead				Date
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending	Totals
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0	0	0
1-Jun-10	0	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0	0
Category Totals	0	0	0	0	0	0	0	0	0
Species Total	0								

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4) Evidence of pathological changes strongly associated with oil exposure on necropsy: Acute respiratory damage or pathology, acute damage or significant irritation to ocular tissues or mucous membranes.
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6) Strandings adjacent to the "declared spill area" within a specified distance that affected mammals or turtles may travel after being affected (distance to be determined upon daily consultation with the Envt Unit within the Planning Section and the NR

	TOTAL Manatees								
	Live				Dead				Date
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending	Totals
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0	0	0
1-Jun-10	0	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0	0
Category Totals	0	0	0	0	0	0	0	0	0
Species Total	0								

Oiling Status Categories of Stranded Marine Mammals/Sea Turtles During MC 252 Spill

1) Oiled: Meet Criteria 1, 2, and/or 3 below.
2) Suspect: Meet Criteria 4, 5, and/or 6 below.
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5) Strandings in the "declared spill area".
6) Strandings adjacent to the "declared spill area" within a specified distance that affected mammals or turtles may travel after being affected (distance to be determined upon daily consultation with the Envt Unit within the Planning Section and the NR

	TOTAL Turtles												
	Live Strandings				Dead Strandings				Directed Turtle Captures				Date
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending	Totals
Subtotal 30 Apr-31 May	**2**	**0**	**0**	**18**	**1**	**0**	**7**	**224**	**10**	**0**	**0**	**0**	**262**
1-Jun-10	0	0	0	0	0	0	0	1	15	0	0	0	16
2-Jun-10	0	0	0	0	0	0	0	0	0	0	0	0	0
Category Totals	**2**	**0**	**0**	**18**	**1**	**0**	**7**	**225**	**25**	**0**	**0**	**0**	**278**
Species Total	**278**												

Oiling Status Categories of Stranded Marine Mammals/Sea Turtles During MC 252 Spill

1) Oiled: Meet Criteria 1, 2, and/or 3 below.
2) Suspect: Meet Criteria 4, 5, and/or 6 below.
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(From strongest to least strong lines of evidence)

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5) Strandings in the "declared spill area".
6) Strandings adjacent to the "declared spill area" within a specified distance that affected mammals or turtles may travel after being affected (distance to be determined upon daily consultation with the Envt Unit within the Planning Section and the NR

Dolphin Status	
Total Verified Dolphins	**31**
Total dead stranded dolphins	30
Total live dolphins currently in rehabilitation	0
Total live dolphins stranded that died in care	1
Total live released dolphins	0
Dolphin Necropsy Status	
Number assessed and unable to perform necropsies (e.g., advanced decomposition)	12
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	7
Number of full necropsies performed	4
Verified strandings but animals not collected due to stage of decomposition or unable to recover	6
Carcasses to be necropsied, if decomposition stage warrants	2

Whale Status	
Total Verified Whales	**0**
Total dead stranded whales	0
Total live whales currently in rehabilitation	0
Total live whales stranded that died in care	0
Total live released whales	0
Whale Necropsy Status	
Number assessed and unable to perform necropsies (e.g., advanced decomposition)	0
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	0
Number of full necropsies performed	0
Verified strandings but animals not collected due to stage of decomposition or unable to recover	0
Carcasses to be necropsied, if decomposition stage warrants	0

Manatee Status	
Total Verified Manatees	**0**
Total dead stranded manatees	0
Total live manatees currently in rehabilitation	0
Total live manatees stranded that died in care	0
Total live released manatees	0
Manatee Necropsy Status	
Number assessed and unable to perform necropsies (e.g., advanced decomposition)	0
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	0
Number of full necropsies performed	0
Verified strandings but animals not collected due to stage of decomposition or unable to recover	0
Carcasses to be necropsied, if decomposition stage warrants	0

Turtle Status	
Total Verified Turtles	**278**
Total turtles found dead	234
Total live turtles currently in rehabilitation	40
Total live turtles that died in rehabilitation	3
Total live turtles released	1
Turtle Necropsy Status	
Number assessed and unable to perform necropsies (e.g., advanced decomposition)	7
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	17
Number of full necropsies performed	50
Verified strandings but animals not collected due to stage of decomposition or unable to recover	46
Carcasses to be necropsied, if decomposition stage warrants	117

	TOTAL Dolphins								
	Live				Dead				Date Totals
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	1	0	0	28	29
1-Jun-10	0	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	1	0	0	0	1	2
Category Totals	0	0	0	1	1	0	0	29	31
Species Total	31								

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5) Strandings in the "declared spill area".
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	TOTAL Whales								
	Live				Dead				Date
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending	Totals
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0	0	0
1-Jun-10	0	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0	0
Category Totals	0	0	0	0	0	0	0	0	0
Species Total	0								

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	TOTAL Manatees								
	Live				Dead				Date Totals
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0	0	0
1-Jun-10	0	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0	0
Category Totals	0	0	0	0	0	0	0	0	0
Species Total	0								

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	TOTAL Turtles												
	Live Strandings				Dead Strandings				Directed Turtle Captures				Date
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending	Totals
Subtotal 30 Apr-31 May	**2**	**0**	**0**	**18**	**1**	**0**	**7**	**224**	**10**	**0**	**0**	**0**	**262**
1-Jun-10	0	0	0	0	0	0	0	1	15	0	0	0	16
2-Jun-10	0	0	0	0	0	0	0	0	0	0	0	0	0
Category Totals	**2**	**0**	**0**	**18**	**1**	**0**	**7**	**225**	**25**	**0**	**0**	**0**	**278**
Species Total	**278**												

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5) Strandings in the "declared spill area".
6) Strandings adjacent to the "declared spill area" within a specified distance that affected mammals or turtles may travel after being affected (distance to be determined upon daily consultation with the Envt Unit within the Planning Section and the NRDA Unit).

(For this operational period, the margins of the "declared spill area" ranges from the TX-LA border to

Procedures for Determining Oiling Status in Marine Mammals or Sea Turtles

1) Upon report of stranded animal, designated members of the Wildlife Branch (trained to appropriate evidence collection and Chain of Custody procedure) will be dispatched to the site for initial evaluation.
2) All animals within the designated spill area will be immediately externally evaluated, sampled, and photographed following NOAA's "Marine Mammal Oil Spill Response Guidelines" or the established "Sea Turtle MS 252 Response Guidelines". All animals within the specified distance determined above will be immediately externally evaluated and, if suspicious, will be externally sampled.
3) All stranded animals will be grossly evaluated by necropsy (cetacea at site of stranding or at the primary care facility if logistically feasible, sea turtles at the primary care facility or at a designated remote pathology center). If animals meet Criteria 1-5 above, full sampling following the appropriate Guidelines will be done.

Dolphin Status	
Total Verified Dolphins	**31**
Total dead stranded dolphins	30
Total live dolphins currently in rehabilitation	0
Total live dolphins stranded that died in care	1
Total live released dolphins	0
Dolphin Necropsy Status	
Number assessed and unable to perform necropsies (e.g., advanced decomposition)	12
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	7
Number of full necropsies performed	4
Verified strandings but animals not collected due to stage of decomposition or unable to recover	6
Carcasses to be necropsied, if decomposition stage warrants	2

Whale Status	
Total Verified Whales	**0**
Total dead stranded whales	0
Total live whales currently in rehabilitation	0
Total live whales stranded that died in care	0
Total live released whales	0
Whale Necropsy Status	
Number assessed and unable to perform necropsies (e.g., advanced decomposition)	0
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	0
Number of full necropsies performed	0
Verified strandings but animals not collected due to stage of decomposition or unable to recover	0
Carcasses to be necropsied, if decomposition stage warrants	0

Manatee Status	
Total Verified Manatees	**0**
Total dead stranded manatees	0
Total live manatees currently in rehabilitation	0
Total live manatees stranded that died in care	0
Total live released manatees	0
Manatee Necropsy Status	
Number assessed and unable to perform necropsies (e.g., advanced decomposition)	0
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	0
Number of full necropsies performed	0
Verified strandings but animals not collected due to stage of decomposition or unable to recover	0
Carcasses to be necropsied, if decomposition stage warrants	0

Turtle Status	
Total Verified Turtles	**278**
Total turtles found dead	234
Total live turtles currently in rehabilitation	40
Total live turtles that died in rehabilitation	3
Total live turtles released	1
Turtle Necropsy Status	
Number assessed and unable to perform necropsies (e.g., advanced decomposition)	7
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	17
Number of full necropsies performed	50
Verified strandings but animals not collected due to stage of decomposition or unable to recover	46
Carcasses to be necropsied, if decomposition stage warrants	117

	TOTAL Dolphins									
	Live				Dead				Date Totals	
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending		
Subtotal 30 Apr-31 May	0	0	0	0	1	0	0	28	29	
1-Jun-10	0	0	0	0	0	0	0	0	0	
2-Jun-10	0	0	0	1	0	0	0	1	2	NOTE: Dolphin stranded live, died prior to transpo
TOTALS	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**29**	**31**	
Species Total	**31**									

	Dolphins - FLORIDA								
	Live				Dead				
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0	0	
1-Jun-10	0	0	0	0	0	0	0	0	
2-Jun-10	0	0	0	1	0	0	0	1	NOTE: Dolphin stranded live, died prior to transport
TOTALS	0	0	0	1	0	0	0	1	
Species Total	2								

	Dolphins - ALABAMA							
	Live				Dead			
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0	3
1-Jun-10	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	3
Species Total	3							

	Dolphins - MISSISSIPPI							
	Live				Dead			
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0	6
1-Jun-10	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	6
Species Total	6							

	Dolphins - LOUISIANA							
	Live				Dead			
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	1	0	0	19
1-Jun-10	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	1	0	0	19
Species Total	20							

ort

	TOTAL Whales								
	Live				Dead				Date Totals
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0	0	0
1-Jun-10	0	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0	0
Category Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Species Group Total	**0**								

	Whales - FLORIDA							
	Live				Dead			
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending
Subtotal 6 May-15 May	0	0	0	0	0	0	0	0
1-Jun-10	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
Species Total	0							

	Whales - ALABAMA							
	Live				Dead			
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending
Subtotal 30 Apr-15 May	0	0	0	0	0	0	0	0
1-Jun-10	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
Species Total	0							

	Whales - MISSISSIPPI							
	Live				Dead			
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending
Subtotal 30 Apr-15 May	0	0	0	0	0	0	0	0
1-Jun-10	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
Species Total	0							

	Whales - LOUISIANA							
	Live				Dead			
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending
Subtotal 30 Apr-15 May	0	0	0	0	0	0	0	0
1-Jun-10	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
Species Total	0							

	TOTAL Manatees								
	Live				Dead				Date Totals
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0	0	**0**
1-Jun-10	0	0	0	0	0	0	0	0	**0**
2-Jun-10	0	0	0	0	0	0	0	0	**0**
Category Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Species Group Total	**0**								

	Manatees - FLORIDA							
	Live				Dead			
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending
Subtotal 6 May-31 May	0	0	0	0	0	0	0	0
1-Jun-10	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
Species Total	0							

	Manatees - ALABAMA							
	Live				Dead			
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending
Subtotal 30 Apr-15 May	0	0	0	0	0	0	0	0
1-Jun-10	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
Species Total	0							

	Manatees - MISSISSIPPI							
	Live				Dead			
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending
Subtotal 30 Apr-15 May	0	0	0	0	0	0	0	0
1-Jun-10	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
Species Total	0							

	Manatees - LOUISIANA							
	Live				Dead			
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending
Subtotal 30 Apr-15 May	0	0	0	0	0	0	0	0
1-Jun-10	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
Species Total	0							

	TOTAL Turtles												
	Live Strandings				Dead Strandings				Directed Turtle Captures				Date Totals
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending	
Subtotal 30 Apr -31 May	2	0	0	18	1	0	7	224	10	0	0	0	262
1-Jun-10	0	0	0	0	0	0	0	1	15	0	0	0	**16**
2-Jun-10	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Category Totals	**2**	**0**	**0**	**18**	**1**	**0**	**7**	**225**	**25**	**0**	**0**	**0**	**278**
Species Group Total	**278**												

	Turtles - FLORIDA							
	Live				Dead			
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending
Subtotal 6 May-31 May	0	0	0	4	0	0	0	26
1-Jun-10	0	0	0	0	0	0	0	1
2-Jun-10	0	0	0	0	0	0	0	0
TOTALS	0	0	0	4	0	0	0	27
Species Total	31							

	Turtles - ALABAMA							
	Live				Dead			
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending
Subtotal 30 Apr -31 May	0	0	0	2	0	0	5	42
1-Jun-10	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0
TOTALS	0	0	0	2	0	0	5	42
Species Total	49							

	Turtles - MISSISSIPPI							
	Live				Dead			
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending
Subtotal 30 Apr -31 May	0	0	0	10	0	0	0	95
1-Jun-10	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0
TOTALS	0	0	0	10	0	0	0	95
Species Total	105							

	Turtles - LOUISIANA							
	Live				Dead			
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending
Subtotal 30 Apr -31 May	2	0	0	2	1	0	2	61
1-Jun-10	0	0	0	0	0	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0
TOTALS	2	0	0	2	1	0	2	61
Species Total	68							

	Turtles - Dedicated On-Water Turtle Surveys							
	Live				Dead			
	Oiled	Suspect	Unoiled	Pending	Oiled	Suspect	Unoiled	Pending
Subtotal 30 Apr -31 May	10	0	0	0	0	0	0	0
1-Jun-10	14	0	0	0	1	0	0	0
2-Jun-10	0	0	0	0	0	0	0	0
TOTALS	24	0	0	0	1	0	0	0
Species Total	25							

Update through 2 June 2010 (as of 1800)

Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period:

- Increase of 1 turtle stranding in FL
- Increase of 2 dolphin strandings, both in FL
- Both dolphin strandings on 2 June were offshore animals from the genus *Stenella*
- See photos of on-water turtle directed capture operations below

Sea Turtles:

278 total sea turtles verified to date within the "designated spill area" (increase of 1 from June 1)

- 253 stranded (increase of 1 from June 1)
    - 233 of the stranded were found dead (increase of 1 from June 1)
    - 20 of the stranded were found alive (no change from June 1)
        - 3 recovered alive but died in rehab (no change from June 1)
        - 1 turtle released alive (no change from June 1)
        - 16 live turtles in rehabilitation (no change from June 1)

- 25 turtles collected during directed turtle sampling efforts (no change from June 1)
    - 24 live turtles in rehabilitation (no change from June 1)
    - 1 turtle collected dead (no change from June 1)

* For this event, a true stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 233 dead stranded, 1 dead directed capture, and 3 that died in rehab):

- 7 assessed and unable to perform necropsies (i.e. advance decomposition) (no change from June 1)
- 17 partial necropsies (e.g. due to scavenging or autolysis) (no change from June 1)
- 50 full necropsies performed (no change from June 1)
- 44 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from June 1)
- 119 carcasses to be necropsied, if decomposition stage warrants (increase of 1 from June 1)
- Of the 67 full or partial necropsies completed, the two primary considerations for the cause of these strandings are forced submergence or acute toxicosis.

Information on Signs of Oiling:

- To date, visible evidence of oil has been documented externally on 1 dead stranded sea turtle, and 2 live stranded sea turtles caught in skimming operations.
- To date, visible evidence of oil has been documented externally on 24 live sea turtles and one dead sea turtle captured during directed turtle surveys.

Historical Strandings:

Update through 2 June 2010 (as of 1800)

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from April 30th through June 2nd is 253.
- This is much higher than the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, and Alabama during this time frame (combined range of 4-30 for LA, MS, and AL)
    - Overall Northern Gulf range for recent years has been 18-46.
    - From 2005 – 2009 the number of turtle strandings for the month of May has ranged from 1 to 15 in Louisiana
    - From 2005 – 2009 0 to 13 in Mississippi
    - From 2005 – 2009 1 to 15 in Alabama.
    - In the Florida panhandle, from 2003 – 2007, the number of strandings in May has ranged from 13 to 37
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles; however, we do not believe this factor fully explains the increase.

Marine Mammals:

- 31 dolphins have been verified to date within the "designated spill area" (increase of 2 from June 1).
    - 30 were dead stranded dolphins (increase of 1 from June 1)
    - 1 was a live stranded dolphin that died on the beach (increase of 1 from June 1)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR
- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status:

- 12 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from June 1)
- 7 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from June 1)
- 4 full necropsies performed (increase of 1 from June 1)
- 6 Verified strandings but animals not collected due to stage of decomposition or unable to recover (no change from June 1)
- 2 Carcasses to be necropsied, if decomposition stage warrants (increase of 2 from June 1)

Information on Signs of Oiling:

- One of the dolphins had evidence of external oil on its tongue and body and therefore is classified as oiled. Since the carcass was first reported in the water/oil line on the oiled

beach, we are unable at this time to determine whether the animal was externally covered in oil post mortem when the carcass came on shore or was oiled prior to death.

Historical Strandings

- Since 30 April 2010, the observed dolphin stranding rate is higher than the historical averages that have been documented in recent years (2003-2007) in Louisiana, Mississippi, and Alabama. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.
- For the entire Northern Gulf of Mexico, the combined observed range is 0-14 for the years 2003 to 2007 in LA, MS, AL, and FL (Panhandle). The breakdown by state for the range of animals historically stranding in the month of May (2003-2007) is as follows:
    - Louisiana: 0-4 stranded dolphins
    - Mississippi: 0-3 stranded dolphins
    - Alabama : 0-3 stranded dolphins
    - Florida panhandle: 0-4 stranded dolphins

Summary of Action Plan Items:

- The on–water directed turtle survey operating under Unified Command was not on the water due to weather today. Operations are expected to continue on June 3rd. Louisiana DWF did not report any new directed turtle captures, and it is unknown whether that operation was fielded on June 2.
- Additional coordination with beach cleanup operations out of Mobile was initiated to ensure that cleanup crews are operating in accordance with established protocols regarding sea turtle nests. With reports of oil anticipated to come ashore increasingly further east along the northern Gulf shoreline, the threats to incubating nests and nesting females are substantially increased.
- Skimmer vessels, especially a newly added vessel specifically deployed to suck up oiled *Sargassum* mats, are of significant concern as far as clean up operations go. An SEC staff member observed this prototype barge skimmer off the AL/MS coast on Jun 1 and provided a report to the Houma ICC. This particular vessel's operations were suspended due to US Coast Guard requirements, but it will likely be reactivated in the near future. We are working to place an observer aboard to monitor the operations to attempt to observer any interactions with sea turtles if/when the vessel reactivates. We continue to work to deploy observers on other types of skimmers.

Update through 2 June 2010 (as of 1800)

Photo 1: Searching convergence/oil areas for turtles. On-water operations under Wildlife Branch, Unified Command.

Photo 2: Live, oiled green turtle recovered from convergence/oil areas 1 June 2010. On-water operations under Wildlife Branch, Unified Command.

Deepwater Horizon MC252

Update through 2 June 2010 (as of 1800)

Photo 3. Live, oiled green turtle recovered from convergence/oil areas 1 June 2010. On-water operations under Wildlife Branch, Unified Command.

Photo 4. Live, oiled Kemp's ridley recovered from convergence/oil areas 1 June 2010.

Deepwater Horizon MC252

Update through 2 June 2010 (as of 1800)

Photo 4. Vessel of Opportunity contracted for directed on-water turtle search/capture operations, burning of surface convergence oil/Sargassum/mix in background.

Photo 6. Dr. Brian Stacy (NOAA OPR sea turtle veterinarian) conducting initial cleaning of oiled Kemp's ridley. On-water operations under Wildlife Branch, Unified Command.

Deepwater Horizon MC252

Microsoft Outlook

From: Wendy Teas [Wendy.Teas@noaa.gov]
Sent: Thursday, June 17, 2010 3:38 PM
To: Sheryan.Epperly; Lisa Belskis; Kate Mansfield; Chris Sasso; Paul Richards; Lesley Stokes; Jim Bohnsack; Bonnie Ponwith; Theo Brainerd; Peter Thompson
Subject: [Fwd: Death by fire in the gulf]

Attachments: Death by fire in the gulf.eml (1.64 KB)

Death by fire in the gulf.eml ...

FYI - story regarding turtles being burned in GOM

Microsoft Outlook

From: Wendy.Teas@noaa.gov
Sent: Thursday, June 17, 2010 3:36 PM
To: Wendy.Teas@noaa.gov
Subject: Death by fire in the gulf

This story was sent to you by: Wendy

Death by fire in the gulf

So-called burn boxes are torching oil from the water's surface at the sacrifice of turtles, crabs, sea slugs and other sea life.

By Kim Murphy, Los Angeles Times

June 17 2010

Reporting from the Gulf of Mexico -- Here on the open ocean, 12 miles from ground zero of the Deepwater Horizon oil spill, the gulf is hovering between life and death.

The complete article can be viewed at:
http://www.latimes.com/news/nationworld/nation/la-na-oil-spill-burnbox-20100617,0,4814068.story

Visit latimes.com at http://www.latimes.com

Microsoft Outlook

From: David Bernhart [David.Bernhart@noaa.gov]
Sent: Friday, June 18, 2010 5:56 PM
To: Buck Sutter; Kim Amendola; _NMFS SER Emergency Consult
Subject: [Fwd: Stop Boom and Burn of Sea Turtles by BP Crews]

Hi Buck and Kim,

Heads up that STRP sent out an action e-mail on the in-situ burning issue. The e-mail generate button sends a complaint about the burning to:

David Cottingham

NMFS Marine Mammal and Sea Turtle Conservation Division
1315 East West Highway
Silver Spring, MD 20910
US
Fax:(301) 713-4060

Billy Nungesser

President, Plaquemines Parish
LA
US

Steve Jones

BP Consultant

-------- Original Message --------
Subject:Stop Boom and Burn of Sea Turtles by BP Crews
Date:Fri, 18 Jun 2010 17:05:25 -0400 (EDT)
From:Chris Pincetich, Sea Turtle Restoration Project <noreply@noreply.com>
Reply-To:tirn@mail.democracyinaction.org
To:David.Bernhart@noaa.gov

SEA TURTLE RESTORATION PROJECT

Subscribe | Donate | Tell A Friend

Dear Supporter,

Endangered sea turtles are being burned alive in BP's cleanup efforts, according to an interview by a BP hired local boat owner involved in the cleanup operations. To read about BP's boom and burn operations killing sea

turtles and watch the first-hand account of blocking sea
turtle rescue from the oil slick, click here to go to our website Campaign Updates. We need your help now to tell local, federal, and BP officials to stop the boom and burn cleanup that is killing endangered sea turtles.

BP Blocks Sea Turtle Rescue, Wildlife Photos, and Interviews

In his shocking interview, Captain Mike describes how BP-hired workers prevented the rescue of sea turtles caught up in boomed oil offshore of Louisiana right before the boomed oil slick was set on fire to burn off the oil. For weeks, reports from the front lines have described BP officials denying access to oiled beaches, blocking reporters from taking photographs of oiled wildlife, and threatening to fire local workers if they participated in media interviews.

The Sea Turtles Restoration Project Launches 1-877-STRP-GLF

The Sea Turtle Restoration Project has launched 1-877-STRPGLF (787-7453) a new toll-free number for reporting oil or injured as well as nesting or hatchling sea turtles in any state in the Gulf of Mexico. Calling this number directs you to local authorities who can provide rescue and rehabilitation of sea turtles in trouble.

Send a Message to STOP the Boom and Burn of Endangered Sea Turtles

Here's how you can help,

1) Click here to send a letter to local, federal, and BP officials to stop the boom and burn of endangered sea turtles.

2) Donate to the Sea Turtle Restoration Project to support our ongoing efforts to protect Gulf of Mexico's endangered sea turtles.

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Thank you for your continued support of the Sea Turtle Restoration Project.

Sincerely,

Chris Pincetich, Ph.D., Campaigner & Marine Biologist, Sea Turtle Restoration Project

Photo: a loggerhead sea turtle caught in the oil slick (AP, Nicole Bengiveno).

Sea Turtle Restoration Project Email News and Updates
PO Box 370, Forest Knolls, CA 94933 USA

You are subscribed to this list as david.bernhart@noaa.gov

To update your preferences or contact information, click here

Click here to unsubscribe or send an email to info@seaturtles.org with "unsubscribe" in the subject line

Microsoft Outlook

From: Sheryan Epperly [Sheryan.Epperly@noaa.gov]
Sent: Friday, June 18, 2010 6:00 PM
To: David Bernhart
Cc: Buck Sutter; Kim Amendola; _NMFS SER Emergency Consult
Subject: Re: [Fwd: Stop Boom and Burn of Sea Turtles by BP Crews]

I received a call and e-mail from someone at STRP a couple days ago and I referred him to the Mike Ziccardi, lead of Marine Mammals and Turtles in the Wildlife Branch. STRP planned to begin their own response/rescue operations and already had boats lined up. Mike informed them that everything had to be coordinated through the ICC.

On 6/18/10 5:56 PM, David Bernhart wrote:

> Hi Buck and Kim,
>
> Heads up that STRP sent out an action e-mail on the in-situ burning issue. The e-mail generate button sends a complaint about the burning to:

David Cottingham

NMFS Marine Mammal and Sea Turtle Conservation Division
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Silver Spring, MD 20910
US
Fax:(301) 713-4060

Billy Nungesser

President, Plaquemines Parish
LA
US

Steve Jones

BP Consultant

-------- Original Message --------
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Date:Fri, 18 Jun 2010 17:05:25 -0400 (EDT)
From:Chris Pincetich, Sea Turtle Restoration Project <noreply@noreply.com>
Reply-To:tirn@mail.democracyinaction.org
To:David.Bernhart@noaa.gov

SEA TURTLE RESTORATION PROJECT

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Dear Supporter,

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Sincerely,

Chris Pincetich, Ph.D., Campaigner & Marine Biologist, Sea Turtle Restoration Project

Photo: a loggerhead sea turtle caught in the oil slick (AP, Nicole Bengiveno).

Sea Turtle Restoration Project Email News and Updates

PO Box 370, Forest Knolls, CA 94933 USA

You are subscribed to this list as david.bernhart@noaa.gov

To update your preferences or contact information, click here

Click here to unsubscribe or send an email to info@seaturtles.org with "unsubscribe" in the subject line

Microsoft Outlook

From: Joan Browder [j_browde@bellsouth.net]
Sent: Saturday, June 19, 2010 12:27 PM
To: Paul.Richards@noaa.gov; Sheryan.Epperly@noaa.gov
Subject: Fwd: oil/sea turtles

X-MSK: CML=0.001000
X-Apparently-To: j_browde@bellsouth.net via 68.180.196.161; Fri, 18 Jun 2010 18:33:07 -0700
X-YMailISG: kFgn6QgcZAqUeeuBhWEmqAqRECkwfbLMhh.qQEYHwuME6tZ92UXwH2UMZjHnN1kvC9YfHTu9RYc
-
X-Originating-IP: [205.188.105.146]
Authentication-Results: mta1019.sbc.mail.sp1.yahoo.com from=aol.com; domainkeys=neutral (no sig); from=aol.com; dkim=neutral (no sig)
X-Originating-IP: [205.188.105.146]
From: TorResInc@aol.com
Date: Fri, 18 Jun 2010 21:32:36 EDT
Subject: oil/sea turtles
To: willmackin@verizon.net, CHaney@defenders.org, wilson_laney@fws.gov, j_browde@bellsouth.net, Janturtle@aol.com, mkclark141@aol.com, brian@patteson.com, dwingate@northrock.bm, Chuck_Hunter@fws.gov, vclark@vims.edu
X-Mailer: Thunderbird - Mac OS X sub 310
X-AOL-ORIG-IP: 63.3.11.1
X-AOL-IP: 172.20.22.196
X-Spam-Flag:NO
X-AOL-SENDER: TorResInc@aol.com

DEATH BY FIRE IN THE GULF -SO-CALLED BURN BOXES ARE TORCHING OIL FROM THE
WATER'S SURFACE AT THE SACRIFICE OF TURTLES, CRABS, SEA SLUGS AND OTHER SEA
LIFE.

By Kim Murphy, Los Angeles Times, June 17, 2010

Reporting from the Gulf of Mexico -

Here on the open ocean, 12 miles from ground zero of the Deepwater Horizon oil spill, the gulf is hovering between life and death.

The large strands of sargassum seaweed atop the ocean are normally noisy with birds and thick with crustaceans, small fish and sea turtles. But now this is a silent panorama, heavy with the smell of oil.

There are no birds. The seaweed is soaked in rust-colored crude and chemical

dispersant. It is devoid of life except for the occasional juvenile sea turtle, speckled with oil and clinging to the only habitat it knows. Thick ribbons of oil spread out through the sea like the strips in egg flower soup, gorgeous and deadly.

A few dead fish float in the water, though dolphin-fish, tuna, flying fish and the occasional shark can still be seen swimming near the surface, threading their way through the wavy, sometimes iridescent gobs of crude.

"This is devastating. I mean literally, it's terrible. All this should be pretty much blue water, and - look at it. It just looks bad," said Kevin Aderhold, a longtime charter fishing captain who has been taking a team of researchers deep into the gulf every day to rescue oil-soaked sea turtles.

"When this first happened, a lot of us were like, they'll cap that thing and we'll be out fishing again. Now reality's set in. Look around you. This is long-term. This'll be here for-ev-er."

And then it gets worse. When the weather is calm and the sea is placid, ships trailing fireproof booms corral the black oil, the coated seaweed and whatever may be caught in it, and torch it into hundred-foot flames, sending plumes of smoke skyward in ebony mushrooms. This patch of unmarked ocean gets designated over the radio as "the burn box."

Wildlife researchers operating here, in the regions closest to the spill, are witnesses to a disquieting choice: Protecting shorebirds, delicate marshes and prime tourist beaches along the coast by stopping the oil before it moves ashore has meant the largely unseen sacrifice of some wildlife out at sea, poisoned with chemical dispersants and sometimes boiled by the burning of spilled oil on the water's surface.

"It reflects the conventional wisdom of oil spills: If they just keep the oil out at sea, the harm will be minimal. And I disagree with that completely," said Blair Witherington, a research scientist with the Florida Fish and Wildlife Conservation Commission who has been part of the sea turtle rescue mission.

By unhappy coincidence, the same convergences of ocean currents that create long mats of sargassum - nurturing countless crabs, slugs and surface fish that are crucial food for turtles, birds and larger fish - also coalesce the oil, creating islands of death sometimes 30 miles long.

"Most of the Gulf of Mexico is a desert. Nothing out there to live on. It's all concentrated in these oases," Witherington said.

"Ordinarily, the sargassum is a nice, golden color. You shake it, and all kinds of life comes out: shrimp, crabs, worms, sea slugs. The place is really just bursting with life. It's the base of the food chain. And these areas we're seeing here by comparison are quite dead," he said.

"It's amazing. We'll see flying fish, and they'll land in this stuff and just get stuck."

Hardest hit of all, it appears, are the sea jellies and snails that drift along the gulf's surface, some of the most important food sources for sea turtles.

"These animals drift into the oil lines and it's like flies on fly paper," Witherington said. "As far as I can tell, that whole fauna is just completely wiped out."

The turtle rescue team sets out at 6 a.m. in the muggy warm stillness of the harbor at Venice, La. The researchers move into the open gulf about an hour later, past a line of shrimp boats deputized to lay boom along the coastal marshes.

Closer to the Deepwater Horizon site, the water takes on a foreboding gray pallor tinged with a rainbow-like sheen. Soon, the oil begins swirling around the boat and the seascape smells like an auto mechanic's garage.

Strewn among the oil and seaweed are human flotsam: an orange hardhat, a pie pan, a wire coat hanger, yellow margarine-tub lids, a black-and-green ashtray. The crew has found papers - long at sea on global currents - bearing inscriptions in Spanish, Arabic, Greek and Chinese.

The only sound that breaks the stillness is the deep thrum of the motors of the large charter boat and a small skiff carrying the turtle researchers. From dawn until nearly dusk, across sargassum islands that normally are alive with birds looking for crabs and snails - bridal terns, shearwaters, storm-petrels - only one bird is seen.

"What's amazing is there's so little bird life out here right now. Either they've moved on, or the oiling has had a tremendous impact," said Kate Sampson, a researcher with the National Oceanic and Atmospheric Administration who is part of the turtle rescue team.

"We saw a few yesterday. We saw a few laughing gulls fly by. They were oiled, but they could still fly. And we saw a northern gannet, a diving

bird. It was oiled too," she said. "I can only imagine that the birds left because the dining hall is closed."

Soon, the rising towers of the Discoverer Enterprise drill ship, which is collecting oil and gas from the damaged well, and the tall rigs boring two relief wells miles into the seabed appear through the haze. A flare of burning natural gas is silhouetted against the gray hull of the ship.

The Premier Explorer, which is helping coordinate cleanup operations at the broken well, announces the day's burn box: A 500-square-mile field within which 16 controlled burns will be conducted.

In the days since the April 20 explosion on the Deepwater Horizon, more than 5 million gallons of oil have been consumed in more than 165 burns.

"The real issue is to stop this thing at the source, do maximum skimming, in-situ burning - deal with it as far off shore as possible, and do everything you can to keep it from getting to shore, because once it's into the marshes, quite frankly, I think we would all agree there's no good solution at that point," Coast Guard Adm. Thad Allen told reporters last week.

But the burn operations have proved particularly excruciating for the turtle researchers, who have been trolling the same lines of oil and seaweed as the boom boats, hoping to pull turtles out of the sargassum before they are burned alive.

Much of the wildlife here seems doomed in any case. "We've seen the oil covering the turtles so thick they could barely move, could hardly lift their heads," Witherington said. "I won't pretend to know which is the nastiest."

Yet in one case, the crew had to fall back and watch as skimmers gathered up a long line of sargassum that hadn't yet been searched - and which they believe was full of turtles that might have been saved.

"In a perfect world, they'd gather up the material and let us search it before they burned it," Witherington said. "But that connection hasn't been made. The lines of communication aren't there."

The smoke starts rising on the horizon at midday. The two boats carrying the researchers head in different directions, hoping to find and rescue a few more turtles before their mission wraps up. They find 11, all of them

heavily speckled with oil.

Each day, the chances of rescues grow smaller. That there are still so many left stranded in the oil without food is a small miracle. Their long-term chances "are zero," Witherington said.

"Turtles just take a long time to die."

Microsoft Outlook

From: Sheryan Epperly [Sheryan.Epperly@noaa.gov]

Sent: Sunday, June 27, 2010 2:44 PM

To: Bonnie Ponwith; Theo Brainerd; Peter Thompson; Jim Bohnsack

Cc: Chris Sasso; Wendy Teas; Lisa Belskis; Lesley Stokes; Paul Richards; Kate L. Mansfield; Aleta Hohn; Joanne B Mcneill; Larisa Avens

Subject: Turtle Update - June 27, 2010 - Deepwater Horizon MC252

Attachments: Sea_Turtle_Strandings_and_Live_Captures_-_Deepwater_Horizon.xls; DWHMC252_Turtles20100627.pdf; Mammal_Turtle_Data_26_June FINAL.xls; MMST_Health_and_Stranding_Update_for 27 June (for activities 26 June) FINAL3.doc

Paul is backing up Wendy this weekend and sending out the nightly report (see below and attached). We also receive daily reports from the Wildlife Branch in Houma (see attached).

The rest of the team is standing down.

-------- Original Message --------
Subject:6/25 Strandings Update - Non-oiled and Oiled Turtles - Deepwater Horizon
Date: Sat, 26 Jun 2010 22:21:05 -0400
From: Paul.Richards@noaa.gov
To: HoumaICC MMST <HoumaICC.MMST@noaa.gov>, MobileICC MMST <MobileICC.MMST@noaa.gov>, Bonnie Ponwith <Bonnie.Ponwith@noaa.gov>, Sheryan Epperly <Sheryan.Epperly@noaa.gov>, NMFS SER Emergency Consult <nmfs.ser.emergency.consult@noaa.gov>, Lisa Belskis <Lisa.Belskis@noaa.gov>, Chris Sasso <Chris.Sasso@noaa.gov>, Wendy Teas <Wendy.Teas@noaa.gov>, Brian Stacy <Brian.Stacy@noaa.gov>, Karen Mitchell <Karen.Mitchell@noaa.gov>

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There were  8 turtle strandings reported / verified today:
AL - 3 dead - all Kemp's ridleys, not oiled
FL - (no report)
LA - 2 dead - all Kemp's ridleys, not oiled
MS - 3 dead - all Kemp's ridleys, not oiled

The on-water capture teams caught 3 Kemp's ridleys and 1 green today - all externally oiled
and taken Audubon (unkown condition).

See attached Excel file for details.
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Update through June 26, 2010 (as of 1800)

Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period

- Increase of 8 turtle strandings (3 dead in AL,3 dead in MS,, 2 dead in LA)
- Increase of 4 live oiled turtle recovered during directed capture surveys
- Increase of 1 dead dolphin stranding (1dead dolphin reported late on 25 June necropsied by IMMS)
- Efforts continue within Unified Command to work through all logistics to place observers on various clean up activities, including burns and skimmers, in a manner that ensures observer safety, which is of paramount concern and must be addressed.
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols.

Sea Turtles

Total Turtle Numbers
567 total sea turtles verified to date within the "designated spill area" (increase of 12from June 26 report)

- 469 stranded* (increase of 8 from June 26)
  - 425 of the stranded were found dead (increase of 8 from June 26)
  - 44 of the stranded were found alive (no change from June 26)
    - 4 recovered alive but died in rehab (no change from June 26)
    - 4 turtles released alive (no change from June 26)
    - 36 live turtles in rehabilitation (no change from June 26)
- 98 turtles collected during directed turtle sampling efforts (increase of 4 from June 26)
  - 91 live turtles in rehabilitation (increase of 4 from June 26)
  - 4 turtles collected dead (no change from June 26)
  - 3 turtles died in rehabilitation (no change from June 26)

* For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 425 dead stranded, 4 dead directed capture, and 7 that died in rehab):

- 7 assessed and unable to perform necropsies (i.e. advance decomposition) (no change from June 26)
- 17 partial necropsies (e.g. due to scavenging or autolysis) (no change from June 26)
- 59 full necropsies performed (no change from June 26)
- 46 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from June 26)

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- 307 carcasses to be necropsied, if decomposition stage warrants (increase of 8 from June 26)
- Of the initial 75 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. Further results are pending.

Information on Signs of Sea Turtle Oiling:

- To date, visible evidence of oil has been documented externally on 6 dead stranded sea turtle and 6 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 86 live sea turtles and 3 dead sea turtle captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from June 1- June 26 is 213.
- This is much higher than the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. The breakdown by state for the range of animals historically stranding in the month of June (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-1 stranded sea turtles
    - Alabama: 0-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 5-17 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles; however, we do not believe this factor fully explains the increase.

Marine Mammals

Total Mammal Numbers

55 dolphins have been verified to date within the "designated spill area" (increase of 1 from June 26).

- 50 were dead stranded* dolphins (increase of 1 from June 26)
- 5 were live stranded dolphins (no change from June 26)
    - 2 died shortly after stranding (no changefrom June 26)
    - 1 euthanized upon stranding (no change from June 26)
    - 1 stranded live and freed immediately (no change from June 26)
    - 1 live and in care (no change from June 26)

1 dead stranded sperm whale has been verified to date within the "designated spill area" (no change from June 26)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR

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- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status (of the 50 dead stranded and 3 live stranded dolphins that died or were euthanized):

- 27 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from June 26)
- 7 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from June 26)
- 11 full necropsies performed (increase of 2 from June 26)
- 5 verified strandings but animals not collected due to stage of decomposition or unable to recover (no change from June 26)
- 3 carcasses to be necropsied, if decomposition stage warrants (decreaseof 1 from June 26)
- Necropsy results are pending for all animals necropsied to date.

Whale Necropsy Status (of the 1 dead stranded):

- 0 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from June 26)
- 0 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from June 26)
- 0 full necropsies performed (no change from June 26)
- 1 verified stranding but animal not collected due to stage of decomposition or unable to recover (no change from June 26)
- 0 carcasses to be necropsied, if decomposition stage warrants (no change from June 26)

Information on Signs of Mammal Oiling:

- Dolphins: Five of the verified dolphins had evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to determine whether the three dead stranded animals were externally oiled pre- or post-mortem. All other necropsy findings are pending.
- Whales: The verified whale had no evidence of external oil.

Historical Dolphin Strandings

- The total number of dolphin strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from June 1 - June 26 is 25.
- This is higher than the number of marine mammal strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.
- The breakdown by state for the range of animals historically stranding in the month of June (2003-2007) is as follows:

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- Louisiana: 0-5 stranded dolphins
- Mississippi: 0-1 stranded dolphins
- Alabama : 0-1 stranded dolphins
- Florida panhandle: 0-4 stranded dolphins

Historical Whale Strandings

- The total number of whale strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from June 1 - June 26 is 1.
- There are no records of stranded whales in the Gulf of Mexico for the month of June (2003-2007).

Summary of Action Plan Items:

- The plan for movement of northern Gulf of Mexico sea turtle nests to Atlantic Florida has been implemented, one early season nest was moved; no additional nests will be affected for approximately 10-14 days.
- A NOAA team from PR and SERO has arrived in the Florida panhandle and Alabama to work with the local community on dolphin assessments and information regarding impacts on dolphins from this event and has started an on water pilot project for assessment of the health and behavior of dolphins in near shore areas as part of our pro-active response efforts.
- Plans for severe weather evacuations and personnel reporting are being finalized by the Wildlife Branch and Unified Command.
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Defined Categories of Stranded Marine Mammals/Sea Turtles During MC 252 Spill

1) Visibly Oiled
   a. Evidence of external oiling (live or dead animals); or
   b. Evidence of internal oiling on initial exam: Oil in oral cavity, nares or blowhole (live or dead animals); or
   c. Evidence of internal oiling on necropsy: Oil in esophagus, gastrointestinal tract and/or respiratory tract (dead animals).
2) Not Visibly Oiled: Do not meet criteria above. Note not visibly oiled does not imply cause of death nor whether this event impacted the animal.

Procedures for Determining Oiling Status in Marine Mammals or Sea Turtles

1) Upon report of stranded animal, designated members of the Wildlife Branch (trained to appropriate evidence collection and Chain of Custody procedure) will be dispatched to the site for initial evaluation.

2) All animals within the "designated spill area" will be immediately externally evaluated, sampled, and photographed following NOAA's "Marine Mammal Oil Spill Response Guidelines" or the established "Sea Turtle MS 252 Response Guidelines".
   a. All animals within a specified distance that affected mammals or turtles may travel or float after being affected (distance to be determined upon daily consultation with the Envt Unit within the Planning Section and the NRDA Unit) will be immediately externally evaluated and, if suspicious, will be externally sampled.
   b. Those animals not within or adjacent to the "designated spill area" should *not* be considered as part of this spill and not be accounted for in the spill documentation (but standard stranding procedures should be followed).
3) All stranded animals will be grossly evaluated by necropsy (cetacea at site of stranding, at the primary care facility, or at a pre-determined necropsy site if logistically feasible, sea turtles at the primary care facility or at a designated remote pathology center).
   a. For certain carcasses, such as turtles with open coelomic cavities or dolphins in advanced state of decomposition and no intact GI tract, it may not be possible to pathologically determine cause of death or pathologies and collect useable tissues. The sampling of these animals will be for the presence of external oil only.

4) Oiling status will be determined based on external and internal gross evaluation. NOTE THAT THE DETERMINATION OF OILING STATUS DOES NOT ESTABLISH SUB-APPARENT OIL EXPOSURE OR THE CAUSE OF DEATH. In fact, some gross pathological changes, such as respiratory damage or significant irritation to ocular tissues or mucous membranes, can be associated with oil exposure. The determination of these types of impacts must come from further evaluation of the samples and other evidence, such as histopathological evaluation of tissues and/or PAH analysis of the biological samples.

Summary Totals

	TOTAL Dolphins						
	Live			Dead			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	1	31	0	32
Subtotal 1 Jun-15 Jun	0	2	0	2	8	2	14
16-Jun-10	0	0	0	0	0	0	0
17-Jun-10	1	0	0	0	0	0	1
18-Jun-10	0	0	0	0	0	0	0
19-Jun-10	0	1	0	0	0	1	2
20-Jun-10	0	0	0	0	1	0	1
21-Jun-10	0	0	0	0	0	0	0
22-Jun-10	0	0	0	0	0	0	0
23-Jun-10	1	0	0	0	1	0	2
24-Jun-10	0	0	0	0	0	0	0
25-Jun-10	0	0	0	0	2	1	3
26-Jun-10	0	0	0	0	0	0	0
Category Totals	2	3	0	3	43	4	55
Species Total	55						

Defined Categories of Stranded Marine Mammals/Sea Turtles During MC 252 Spill

1) Visibly Oiled
   a. Evidence of external oiling (live or dead animals); or
   b. Evidence of internal oiling on initial exam: Oil in oral cavity, nares or blowhole (live or dead animals); or
   c. Evidence of internal oiling on necropsy: Oil in esophagus, gastrointestinal tract and/or respiratory tract (dead animals).

2) Not Visibly Oiled: Do not meet criteria above. Note not visibly oiled does not imply cause of death nor whether this event impacted the animal.

Procedures for Determining Oiling Status in Marine Mammals or Sea Turtles

1) Upon report of stranded animal, designated members of the Wildlife Branch (trained to appropriate evidence collection and Chain of Custody procedure) will be dispatched to the site for

2) All animals within the "designated spill area" will be immediately externally evaluated, sampled, and photographed following NOAA's "Marine Mammal Oil Spill Response Guidelines" or the established "Sea Turtle MS 252 Response Guidelines".
   a. All animals within a specified distance that affected mammals or turtles may travel or float after being affected (distance to be determined upon daily consultation with the Envt Unit within the Planning Section and the NRDA Unit) will be immediately externally evaluated and, if suspicious, will be externally sampled.
   b. Those animals not within or adjacent to the "designated spill area" should *not* be considered as part of this spill and not be accounted for in the spill documentation (but standard stranding procedures should be followed).

3) All stranded animals will be grossly evaluated by necropsy (cetacea at site of stranding, at the primary care facility, or at a pre-determined necropsy site if logistically feasible, sea turtles at the primary care facility or at a designated remote pathology center).
   a. For certain carcasses, such as turtles with open coelomic cavities or dolphins in advanced state of decomposition and no intact GI tract, it may not be possible to pathologically determine cause of death or pathologies and collect useable tissues. The sampling of these animals will be for the presence of external oil only.

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Summary Totals

	TOTAL Whales						
	Live			Dead			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-15 Jun	0	0	0	0	0	1	1
16-Jun-10	0	0	0	0	0	0	0
17-Jun-10	0	0	0	0	0	0	0
18-Jun-10	0	0	0	0	0	0	0
19-Jun-10	0	0	0	0	0	0	0
20-Jun-10	0	0	0	0	0	0	0
21-Jun-10	0	0	0	0	0	0	0
22-Jun-10	0	0	0	0	0	0	0
23-Jun-10	0	0	0	0	0	0	0
24-Jun-10	0	0	0	0	0	0	0
25-Jun-10	0	0	0	0	0	0	0
26-Jun-10	0	0	0	0	0	0	0
Category Totals	0	0	0	0	0	1	1
Species Total	1						

Defined Categories of Stranded Marine Mammals/Sea Turtles During MC 252 Spill

1) Visibly Oiled
   a. Evidence of external oiling (live or dead animals); or
   b. Evidence of internal oiling on initial exam: Oil in oral cavity, nares or blowhole (live or dead animals); or
   c. Evidence of internal oiling on necropsy: Oil in esophagus, gastrointestinal tract and/or respiratory tract (dead animals).
2) Not Visibly Oiled: Do not meet criteria above. Note not visibly oiled does not imply cause of death nor whether this event impacted the animal.

Procedures for Determining Oiling Status in Marine Mammals or Sea Turtles

1) Upon report of stranded animal, designated members of the Wildlife Branch (trained to appropriate evidence collection and Chain of Custody procedure) will be dispatched to the site for

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   a. All animals within a specified distance that affected mammals or turtles may travel or float after being affected (distance to be determined upon daily consultation with the Envt Unit within the Planning Section and the NRDA Unit) will be immediately externally evaluated and, if suspicious, will be externally sampled.
   b. Those animals not within or adjacent to the "designated spill area" should *not* be considered as part of this spill and not be accounted for in the spill documentation (but standard stranding procedures should be followed).
3) All stranded animals will be grossly evaluated by necropsy (cetacea at site of stranding, at the primary care facility, or at a pre-determined necropsy site if logistically feasible, sea turtles at the primary care facility or at a designated remote pathology center).
   a. For certain carcasses, such as turtles with open coelomic cavities or dolphins in advanced state of decomposition and no intact GI tract, it may not be possible to pathologically determine cause of death or pathologies and collect useable tissues. The sampling of these animals will be for the presence of external oil only.
4) Oiling status will be determined based on external and internal gross evaluation. NOTE THAT THE DETERMINATION OF OILING STATUS DOES NOT ESTABLISH SUB-APPARENT OIL EXPOSURE OR THE CAUSE OF DEATH. In fact, some gross pathological changes, such as respiratory damage or significant irritation to ocular tissues or mucous membranes, can be associated with oil exposure. The determination of these types of impacts must come from further evaluation of the samples and other evidence, such as histopathological evaluation of tissues and/or PAH analysis of the biological

Summary Totals

	TOTAL Turtles												
	Live Strandings			Dead Strandings			Live Directed Captures			Dead Directed Captures			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	2	17	0	1	82	153	10	0	0	0	0	0	265
Subtotal 1 Jun-15 Jun	3	9	2	3	0	111	53	0	0	3	0	0	184
16-Jun-10	1	0	0	1	0	5	6	0	0	0	0	0	13
17-Jun-10	0	3	0	0	0	6							9
18-Jun-10	0	0	0	0	0	8	1	0	0	0	0	0	9
19-Jun-10	0	1	0	0	0	7	6	0	0	0	0	0	14
20-Jun-10	0	4	0	0	0	6	0	0	0	0	0	1	11
21-Jun-10	0	0	0	0	0	13	2	8	0	0	0	0	23
22-Jun-10	0	0	0	0	0	7	0	0	0	0	0	0	7
23-Jun-10	0	0	0	0	0	4	0	0	0	0	0	0	4
24-Jun-10	0	1	0	1	0	5	3	0	0	0	0	0	10
25-Jun-10	0	1	0	0	0	4	1	0	0	0	0	0	6
26-Jun-10	0	0	0	0	0	8	4	0	0	0	0	0	12
Category Totals	6	36	2	6	82	337	86	8	0	3	0	1	567
Species Total	567												

Defined Categories of Stranded Marine Mammals/Sea Turtles During MC 252 Spill

1) Visibly Oiled

a. Evidence of external oiling (live or dead animals); or

b. Evidence of internal oiling on initial exam: Oil in oral cavity, nares or blowhole (live or dead animals); or

c. Evidence of internal oiling on necropsy: Oil in esophagus, gastrointestinal tract and/or respiratory tract (dead animals).

2) Not Visibly Oiled: Do not meet criteria above. Note not visibly oiled does not imply cause of death nor whether this event impacted the animal.

Procedures for Determining Oiling Status in Marine Mammals or Sea Turtles

1) Upon report of stranded animal, designated members of the Wildlife Branch (trained to appropriate evidence collection and Chain of Custody procedure) will be dispatched to the site for initial evaluation.

2) All animals within the "designated spill area" will be immediately externally evaluated, sampled, and photographed following NOAA's "Marine Mammal Oil Spill Response Guidelines" or the established "Sea Turtle MS 252 Response Guidelines".

a. All animals within a specified distance that affected mammals or turtles may travel or float after being affected (distance to be determined upon daily consultation with the Envt Unit within the Planning Section and the NRDA Unit) will be immediately externally evaluated and, if suspicious, will be externally sampled.

b. Those animals not within or adjacent to the "designated spill area" should *not* be considered as part of this spill and not be accounted for in the spill documentation (but standard stranding procedures should be followed).

3) All stranded animals will be grossly evaluated by necropsy (cetacea at site of stranding, at the primary care facility, or at a pre-determined necropsy site if logistically feasible, sea turtles at the primary care facility or at a designated remote pathology center).

a. For certain carcasses, such as turtles with open coelomic cavities or dolphins in advanced state of decomposition and no intact GI tract, it may not be possible to pathologically determine cause of death or pathologies and collect useable tissues. The sampling of these animals will be for the presence of external oil only.

4) Oiling status will be determined based on external and internal gross evaluation. NOTE THAT THE DETERMINATION OF OILING STATUS DOES NOT ESTABLISH SUB-APPARENT OIL EXPOSURE OR THE CAUSE OF DEATH. In fact, some gross pathological changes, such as respiratory damage or significant irritation to ocular tissues or mucous membranes, can be associated with oil exposure. The determination of these types of impacts must come from further evaluation of the samples and other evidence, such as histopathological evaluation of tissues and/or PAH analysis of the biological samples.

Status Summary

Dolphin Status	
Total Verified Dolphins	**55**
Total dead stranded dolphins	50
Total live dolphins currently in rehabilitation	1
Total live dolphins stranded that died in care	3
Total live released dolphins	1
Dolphin Necropsy Status	
Number collected and unable to perform necropsies (e.g., advanced decomposition)	27
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	7
Number of full necropsies performed	11
Verified strandings but animals not collected due to stage of decomposition or unable to recover	5
Carcasses to be necropsied, if decomposition stage warrants	3

Whale Status	
Total Verified Whales	**1**
Total dead stranded whales	1
Total live whales currently in rehabilitation	0
Total live whales stranded that died in care	0
Total live released whales	0
Whale Necropsy Status	
Number collected and unable to perform necropsies (e.g., advanced decomposition)	0
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	0
Number of full necropsies performed	0
Verified strandings but animals not collected due to stage of decomposition or unable to recover	1
Carcasses to be necropsied, if decomposition stage warrants	0

Turtle Status	
Total Verified Turtles	**567**
Total turtles found dead	429
Total live turtles currently in rehabilitation	127
Total live turtles that died in rehabilitation	7
Total live turtles released	4
Turtle Necropsy Status	
Number collected and unable to perform necropsies (e.g., advanced decomposition)	7
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	17
Number of full necropsies performed	59
Verified strandings but animals not collected due to stage of decomposition or unable to recover	46
Carcasses to be necropsied, if decomposition stage warrants	307

Dolphins

	TOTAL Dolphins						
	Live			Dead			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	1	31	0	32
Subtotal 1 Jun-15 Jun	0	2	0	2	8	2	14
16-Jun-10	0	0	0	0	0	0	0
17-Jun-10	1	0	0	0	0	0	1
18-Jun-10	0	0	0	0	0	0	0
19-Jun-10	0	1	0	0	0	1	2
20-Jun-10	0	0	0	0	1	0	1
21-Jun-10	0	0	0	0	0	0	0
22-Jun-10	0	0	0	0	0	0	0
23-Jun-10	1	0	0	0	1	0	2
24-Jun-10	0	0	0	0	0	0	0
25-Jun-10	0	0	0	0	2	1	3
26-Jun-10	0	0	0	0	0	0	0
TOTALS	2	3	0	3	43	4	55
Species Total	55						

	Dolphins - FLORIDA					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0
Subtotal 1 Jun-15 Jun	0	2	0	0	1	0
16-Jun-10	0	0	0	0	0	0
17-Jun-10	0	0	0	0	0	0
18-Jun-10	0	0	0	0	0	0
19-Jun-10	0	0	0	0	0	0
20-Jun-10	0	0	0	0	0	0
21-Jun-10	0	0	0	0	0	0
22-Jun-10	0	0	0	0	0	0
23-Jun-10	1	0	0	0	0	0
24-Jun-10	0	0	0	0	0	0
25-Jun-10	0	0	0	0	0	0
26-Jun-10	0	0	0	0	0	0
TOTALS	1	2	0	0	1	0
Species Total	4					

	Dolphins - MISSISSIPPI					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	8	0
Subtotal 1 Jun-15 Jun	0	0	0	1	1	1
16-Jun-10	0	0	0	0	0	0
17-Jun-10	0	0	0	0	0	0
18-Jun-10	0	0	0	0	0	0
19-Jun-10	0	0	0	0	0	1
20-Jun-10	0	0	0	0	1	0
21-Jun-10	0	0	0	0	0	0
22-Jun-10	0	0	0	0	0	0
23-Jun-10	0	0	0	0	0	0
24-Jun-10	0	0	0	0	0	0
25-Jun-10	0	0	0	0	0	0
26-Jun-10	0	0	0	0	0	0
TOTALS	0	0	0	1	10	2
Species Total	13					

	Dolphins - ALABAMA					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	3	0
Subtotal 1 Jun-15 Jun	0	0	0	0	0	1
16-Jun-10	0	0	0	0	0	0
17-Jun-10	1	0	0	0	0	0
18-Jun-10	0	0	0	0	0	0
19-Jun-10	0	0	0	0	0	0
20-Jun-10	0	0	0	0	0	0
21-Jun-10	0	0	0	0	0	0
22-Jun-10	0	0	0	0	0	0
23-Jun-10	0	0	0	0	0	0
24-Jun-10	0	0	0	0	0	0
25-Jun-10	0	0	0	0	0	1
26-Jun-10	0	0	0	0	0	0
TOTALS	1	0	0	0	3	2
Species Total	6					

	Dolphins - LOUISIANA					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	1	20	0
Subtotal 1 Jun-15 Jun	0	0	0	1	6	0
16-Jun-10	0	0	0	0	0	0
17-Jun-10	0	0	0	0	0	0
18-Jun-10	0	0	0	0	0	0
19-Jun-10	0	1	0	0	0	0
20-Jun-10	0	0	0	0	0	0
21-Jun-10	0	0	0	0	0	0
22-Jun-10	0	0	0	0	0	0
23-Jun-10	0	0	0	0	1	0
24-Jun-10	0	0	0	0	0	0
25-Jun-10	0	0	0	0	2	0
26-Jun-10	0	0	0	0	0	0
TOTALS	0	1	0	2	29	0
Species Total	32					

Whales

	TOTAL Whales						
	Live			Dead			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-15 Jun	0	0	0	0	0	1	1
16-Jun-10	0	0	0	0	0	0	0
17-Jun-10	0	0	0	0	0	0	0
18-Jun-10	0	0	0	0	0	0	0
19-Jun-10	0	0	0	0	0	0	0
20-Jun-10	0	0	0	0	0	0	0
21-Jun-10	0	0	0	0	0	0	0
22-Jun-10	0	0	0	0	0	0	0
23-Jun-10	0	0	0	0	0	0	0
24-Jun-10	0	0	0	0	0	0	0
25-Jun-10	0	0	0	0	0	0	0
26-Jun-10	0	0	0	0	0	0	0
Category Totals	0	0	0	0	0	1	1
Species Group Total	1						

	Whales - FLORIDA					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0
Subtotal 1 Jun-15 Jun	0	0	0	0	0	0
16-Jun-10	0	0	0	0	0	0
17-Jun-10	0	0	0	0	0	0
18-Jun-10	0	0	0	0	0	0
19-Jun-10	0	0	0	0	0	0
20-Jun-10	0	0	0	0	0	0
21-Jun-10	0	0	0	0	0	0
22-Jun-10	0	0	0	0	0	0
23-Jun-10	0	0	0	0	0	0
24-Jun-10	0	0	0	0	0	0
25-Jun-10	0	0	0	0	0	0
26-Jun-10	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0
Species Total	0					

	Whales - MISSISSIPPI					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0
Subtotal 1 Jun-15 Jun	0	0	0	0	0	0
16-Jun-10	0	0	0	0	0	0
17-Jun-10	0	0	0	0	0	0
18-Jun-10	0	0	0	0	0	0
19-Jun-10	0	0	0	0	0	0
20-Jun-10	0	0	0	0	0	0
21-Jun-10	0	0	0	0	0	0
22-Jun-10	0	0	0	0	0	0
23-Jun-10	0	0	0	0	0	0
24-Jun-10	0	0	0	0	0	0
25-Jun-10	0	0	0	0	0	0
26-Jun-10	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0
	0					

	Whales - ALABAMA					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0
Subtotal 1 Jun-15 Jun	0	0	0	0	0	0
16-Jun-10	0	0	0	0	0	0
17-Jun-10	0	0	0	0	0	0
18-Jun-10	0	0	0	0	0	0
19-Jun-10	0	0	0	0	0	0
20-Jun-10	0	0	0	0	0	0
21-Jun-10	0	0	0	0	0	0
22-Jun-10	0	0	0	0	0	0
23-Jun-10	0	0	0	0	0	0
24-Jun-10	0	0	0	0	0	0
25-Jun-10	0	0	0	0	0	0
26-Jun-10	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0
Species Total	0					

	Whales - LOUISIANA					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0
Subtotal 1 Jun-15 Jun	0	0	0	0	0	0
16-Jun-10	0	0	0	0	0	0
17-Jun-10	0	0	0	0	0	0
18-Jun-10	0	0	0	0	0	0
19-Jun-10	0	0	0	0	0	0
20-Jun-10	0	0	0	0	0	0
21-Jun-10	0	0	0	0	0	0
22-Jun-10	0	0	0	0	0	0
23-Jun-10	0	0	0	0	0	0
24-Jun-10	0	0	0	0	0	0
25-Jun-10	0	0	0	0	0	0
26-Jun-10	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0
	0					

	Whales - Off-Shore					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0
Subtotal 1 Jun-15 Jun	0	0	0	0	0	1
16-Jun-10	0	0	0	0	0	0
17-Jun-10	0	0	0	0	0	0
18-Jun-10	0	0	0	0	0	0
19-Jun-10	0	0	0	0	0	0
20-Jun-10	0	0	0	0	0	0
21-Jun-10	0	0	0	0	0	0
22-Jun-10	0	0	0	0	0	0
23-Jun-10	0	0	0	0	0	0
24-Jun-10	0	0	0	0	0	0
25-Jun-10	0	0	0	0	0	0
26-Jun-10	0	0	0	0	0	0
TOTALS	0	0	0	0	0	1
Species Total	1					

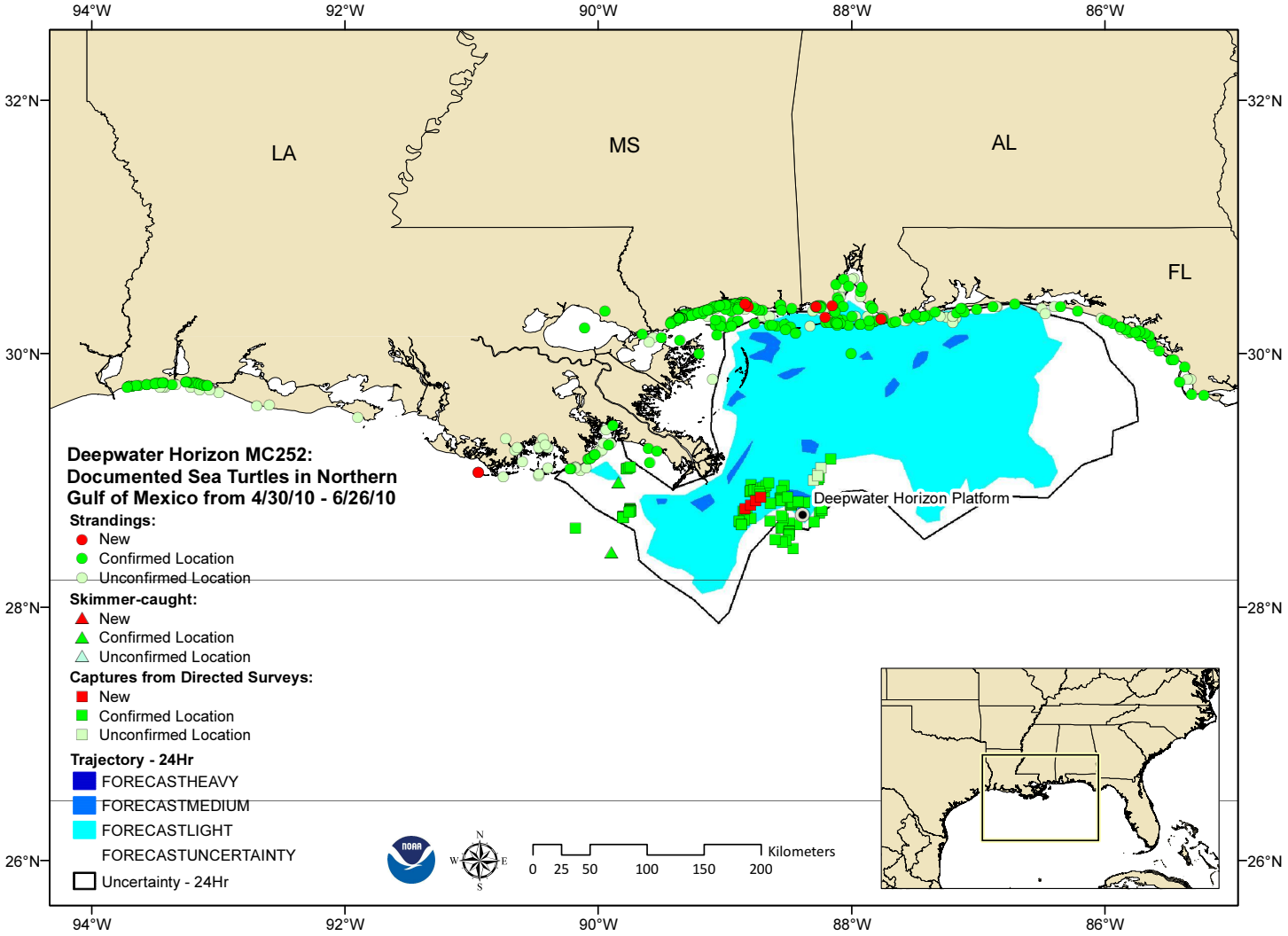
Turtles

	TOTAL Turtles												
	Live Strandings			Dead Strandings			Live Directed Captures			Dead Directed Captures			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	**2**	**17**	**0**	**1**	**82**	**153**	**10**	**0**	**0**	**0**	**0**	**0**	**265**
Subtotal 1 Jun-15 Jun	**3**	**9**	**2**	**3**	**0**	**111**	**53**	**0**	**0**	**3**	**0**	**0**	**184**
16-Jun-10	1	0	0	1	0	5	6	0	0	0	0	0	**13**
17-Jun-10	0	3	0	0	0	6							**9**
18-Jun-10	0	0	0	0	0	8	1	0	0	0	0	0	**9**
19-Jun-10	0	1	0	0	0	7	6	0	0	0	0	0	**14**
20-Jun-10	0	4	0	0	0	6	0	0	0	0	0	1	**11**
21-Jun-10	0	0	0	0	0	13	2	8	0	0	0	0	**23**
22-Jun-10	0	0	0	0	0	7	0	0	0	0	0	0	**7**
23-Jun-10	0	0	0	0	0	4	0	0	0	0	0	0	**4**
24-Jun-10	0	1	0	1	0	5	3	0	0	0	0	0	**10**
25-Jun-10	0	1	0	0	0	4	1	0	0	0	0	0	**6**
26-Jun-10	0	0	0	0	0	8	4	0	0	0	0	0	**12**
Category Totals	**6**	**36**	**2**	**6**	**82**	**337**	**86**	**8**	**0**	**3**	**0**	**1**	**567**
Species Total	**567**												

	Turtles - FLORIDA						Turtles - MISSISSIPPI					
	Live			Dead			Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	4	0	0	0	27	0	9	0	0	75	22
Subtotal 1 Jun-15 Jun	1	3	1	0	0	10	0	4	1	0	0	77
16-Jun-10	1	0	0	0	0	0	0	0	0	0	0	5
17-Jun-10	0	0	0	0	0	1	0	3	0	0	0	3
18-Jun-10	0	0	0	0	0	1	0	0	0	0	0	4
19-Jun-10	0	0	0	0	0	0	0	1	0	0	0	4
20-Jun-10	0	1	0	0	0	0	0	3	0	0	0	4
21-Jun-10	0	0	0	0	0	0	0	0	0	0	0	10
22-Jun-10	0	0	0	0	0	4	0	0	0	0	0	3
23-Jun-10	0	0	0	0	0	0	0	0	0	0	0	3
24-Jun-10	0	1	0	0	0	0	0	0	0	0	0	3
25-Jun-10	0	0	0	0	0	0	0	1	0	0	0	2
26-Jun-10	0	0	0	0	0	0	0	0	0	0	0	3
TOTALS	2	9	1	0	0	43	0	21	1	0	75	143
Species Total	55						240					

	Turtles - ALABAMA						Turtles - LOUISIANA					
	Live			Dead			Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	2	0	0	5	43	2	2	0	1	2	61
Subtotal 1 Jun-15 Jun	2	0	0	0	0	9	0	2	0	3	0	15
16-Jun-10	0	0	0	1	0	0	0	0	0	0	0	0
17-Jun-10	0	0	0	0	0	0	0	0	0	0	0	2
18-Jun-10	0	0	0	0	0	1	0	0	0	0	0	2
19-Jun-10	0	0	0	0	0	2	0	0	0	0	0	1
20-Jun-10	0	0	0	0	0	2	0	0	0	0	0	0
21-Jun-10	0	0	0	0	0	2	0	0	0	0	0	1
22-Jun-10	0	0	0	0	0	0	0	0	0	0	0	0
23-Jun-10	0	0	0	0	0	1	0	0	0	0	0	0
24-Jun-10	0	0	0	1	0	1	0	0	0	0	0	1
25-Jun-10	0	0	0	0	0	1	0	0	0	0	0	1
26-Jun-10	0	0	0	0	0	3	0	0	0	0	0	2
TOTALS	2	2	0	2	5	65	2	4	0	4	2	86
Species Total	76						98					

	Turtles - Dedicated On-Water Turtle Surveys					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	10	0	0	0	0	0
Subtotal 1 Jun-15 Jun	53	0	0	3	0	0
16-Jun-10	6	0	0	0	0	0
17-Jun-10						
18-Jun-10	1	0	0	0	0	0
19-Jun-10	6	0	0	0	0	0
20-Jun-10	0	0	0	0	0	1
21-Jun-10	2	8	0	0	0	0
22-Jun-10	0	0	0	0	0	0
23-Jun-10	0	0	0	0	0	0
24-Jun-10	3	0	0	0	0	0
25-Jun-10	1	0	0	0	0	0
26-Jun-10	4	0	0	0	0	0
TOTALS	86	8	0	3	0	1
Species Total	98					


94°W
92°W
90°W
88°W
86°W
32°N
30°N
28°N
26°N
LA
MS
AL
FL
Deepwater Horizon MC252:
Documented Sea Turtles in Northern
Gulf of Mexico from 4/30/10 - 6/26/10
Strandings:
New
Confirmed Location
Unconfirmed Location
Skimmer-caught:
New
Confirmed Location
Unconfirmed Location
Captures from Directed Surveys:
New
Confirmed Location
Unconfirmed Location
Trajectory - 24Hr
FORECASTHEAVY
FORECASTMEDIUM
FORECASTLIGHT
FORECASTUNCERTAINTY
Uncertainty - 24Hr
Deepwater Horizon Platform
Kilometers
0 25 50 100 150 200

Date	Stranding Reference	Species	ReportType	Condition	Disposition	Status	State
5/2/2010	MRC20100502-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/2/2010	MRC20100502-02	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	SNW20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	JMI20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	MPW20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	SNW20100504-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	SNW20100504-02	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	FXM20100504-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/5/2010	MPW20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/5/2010	MRC20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/6/2010	MPW20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/6/2010	MPW20100506-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/7/2010	MPW20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/7/2010	MPW20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/8/2010	ANR20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/8/2010	JMI20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/10/2010	JMI20100510-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/11/2010	MPW20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MPW20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MPW20100513-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/14/2010	LAJ20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/16/2010	LAJ20100516-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/17/2010	MRC20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MRC20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/19/2010	LAJ20100519-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/19/2010	JMI20100519-01	Lepidochelys kempii	Stranding	Alive	Released		AL
5/20/2010	LAJ20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL

5/20/2010	LAJ20100520-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/20/2010	LAJ20100520-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/21/2010	MPW20100521-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/22/2010	RLR20100522-01	Lepidochelys kempii	Stranding	Alive	Rehab-Died	Necropsied	AL
5/22/2010	JMI20100522-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/22/2010	JMI20100522-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/23/2010	JMI20100523-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/23/2010	JMI20100523-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/28/2010	20100528	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/29/2010	20100529	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/3/2010	JMI20100603-01	Caretta caretta	Stranding	Alive	Rehab	Rehab-IMMS	AL
6/4/2010	20100604	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/5/2010	RLR20100605-01	Eretmochelys imbricata	Stranding	Alive	Rehab	Rehab-IMMS	AL
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/6/2010	20100606	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/6/2010	20100606	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/7/2010	20100607	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/9/2010	20100609	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/11/2010	20100611	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/16/2010	20100616	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL

6/21/2010	20100621	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/21/2010	20100621	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/23/2010	20100623	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/8/2010	NME20100508-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/8/2010	NME20100508-02	Caretta caretta	Stranding	Alive	Rehab-Died	Frozen-GV	FL
5/8/2010	NME20100508-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/10/2010	MEM20100510-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/11/2010	MAN20100511-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/12/2010	JWM20100512-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/13/2010	AVH20100513-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/14/2010	VEL20100514-01	Caretta caretta	Stranding	Alive	Rehab-Died	Frozen-GV	FL
5/14/2010	MEC20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/15/2010	NME20100515-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	NME20100517-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	MAN20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	MAN20100517-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	SSM20100517-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/18/2010	WAJ20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/18/2010	JRJ20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/18/2010	CTS20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	NME20100519-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	NME20100519-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	MAN20100519-01	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
5/20/2010	WAJ20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	BAE20100520-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	20100520	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	MAN20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/21/2010	MAN20100521-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
5/24/2010	NME20100524-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/24/2010	GWG20100524-01	Caretta caretta	Stranding	Dead	Left on beach		FL
5/25/2010	NME20100525-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/27/2010	MJH20100527-01	Caretta caretta	Stranding	Dead	Buried		FL

5/28/2010	VXW20100528-01	Chelonia mydas	Stranding	Dead	Buried		FL
5/30/2010	NAD20100530-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/1/2010	NME20100601-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/6/2010	20100606	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/7/2010	NAD20100607-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/7/2010	NME20100607-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/9/2010	RAB20100609-01	Lepidochelys kempii	Stranding	Alive	Released		FL
6/10/2010	20100610	Eretmochelys imbricata	Stranding	Alive	Rehab	Rehab-GulfWorld	FL
6/11/2010	20100611	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/11/2010	20100611	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/12/2010	20100612	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
6/12/2010	20100612	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/12/2010	20100612	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/13/2010	20100613	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/14/2010	20100614	Caretta caretta	Stranding	Dead	Buried		FL
6/15/2010	20100615	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/16/2010	20100616	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/18/2010	20100618	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-GulfWorld	FL
6/22/2010	KEG20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/22/2010	NME20100622-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/22/2010	NME20100622-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/22/2010	20100622	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
5/1/2010	MJF20100504-01	Unknown	Stranding	Dead	Left on beach		LA
5/1/2010	MJF20100504-02	Unknown	Stranding	Dead	Left on beach		LA
5/3/2010	XXX20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/3/2010	20100503	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/5/2010	JAL20100505-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
5/7/2010	MXC20100507-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA

5/7/2010	MXC20100507-05	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-06	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-07	Caretta caretta	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-08	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-09	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-10	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-11	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-12	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-13	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-14	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	GXP20100507-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen	LA
5/10/2010	CSE20100510-01	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/10/2010	CSE20100510-02	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/10/2010	MXC20100510-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-05	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
5/11/2010	20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/11/2010	20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/12/2010	MXC20100512-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/12/2010	MXC20100512-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/12/2010	MXC20100512-03	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
5/12/2010	MXC20100512-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	MXT20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	JEB20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	MXC20100513-01	Eretmochelys imbricata	Stranding	Dead	Left on beach		LA
5/13/2010	MXC20100513-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/13/2010	20100513	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/14/2010	MXC20100514-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
5/16/2010	MXH20100516-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA

5/16/2010	MXH20100516-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-05	Caretta caretta	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-06	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-07	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-08	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-09	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/17/2010	MXT20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/17/2010	AXL20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/18/2010	SDD20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/19/2010	20100519	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/20/2010	NXX20100520-01	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/22/2010	20100522	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/22/2010	20100522	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/23/2010	20100523	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/24/2010	20100524	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/24/2010	20100524	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/28/2010	20100528	Lepidochelys kempii	Skimmer	Alive	Rehab	Rehab-AOA	LA
5/29/2010	20100529	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/31/2010	20100531	Lepidochelys kempii	Skimmer	Alive	Rehab	Rehab-AOA	LA
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/7/2010	20100607	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/7/2010	20100607	Unknown	Stranding	Dead	Salvaged	Frozen	LA
6/8/2010	20100608	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA

6/9/2010	20100609	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
6/9/2010	20100609	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/10/2010	20100610	Unknown	Stranding	Dead	Salvaged	Frozen	LA
6/12/2010	20100612	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/14/2010	20100614	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/15/2010	20100615	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/15/2010	20100615	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/17/2010	20100617	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
6/18/2010	20100618	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/21/2010	20100621	Caretta caretta	Stranding	Dead	Salvaged	Frozen	LA
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
4/26/2010	CNH20100426-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	CNH20100430-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	TTH20100430-01	Lepidochelys kempii	Stranding	Alive	Rehab-Died	Necropsied	MS
5/1/2010	KMF20100501-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	EXP20100501-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS

5/2/2010	KMF20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	KMF20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	KMF20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	EXP20100504-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/5/2010	WLH20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/5/2010	DKV20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	SXC20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JBT20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	CLM20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS

5/7/2010	JBT20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	MMK20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	SAH20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JKM20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	SAH20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JNF20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JNF20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JKM20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	WLH20100510-01	Caretta caretta	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/10/2010	WLH20100510-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/10/2010	ZHS20100510-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/11/2010	BTN20100511-01	Caretta caretta	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/13/2010	JXS20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/13/2010	CNH20100514-01	Caretta caretta	Stranding	Dead	Left on beach		MS
5/14/2010	JNF20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/14/2010	JNF20100514-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/14/2010	SAH20100514-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/15/2010	LMJ20100515-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/15/2010	LMJ20100515-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/15/2010	JKM20100515-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/15/2010	JKM20100515-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/15/2010	KMM20100515-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/16/2010	EXJ20100516-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/18/2010	KPB20100518-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS

5/18/2010	KPB20100518-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
5/18/2010	WLH20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/19/2010	MDH20100519-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/19/2010	MDH20100519-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/20/2010	TTH20100520-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/20/2010	JNF20100520-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/20/2010	JNF20100520-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/21/2010	RDS20100521-01	Caretta caretta	Stranding	Dead	Left on beach		MS
5/21/2010	JNF20100521-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/21/2010	JNF20100521-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/22/2010	TTH20100522-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/24/2010	WLH20100524-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/24/2010	AJD20100524-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	JXB20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	CNH20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	WLH20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/27/2010	JBT20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/27/2010	JKM20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/27/2010	MJB20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/28/2010	JNF20100528-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/28/2010	RAW20100528-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/3/2010	CNH20100603-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/4/2010	DKV20100604-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	KMM20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS

6/6/2010	JBT20100606-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	JRS20100608-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	WLH20100607-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	KMH20100607-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
6/8/2010	WLH20100608-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/8/2010	WLH20100608-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	WLH20100609-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	WLH20100609-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	WLH20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	WLH20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	TTH20100611-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS

6/11/2010	KMH20100611-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/11/2010	WLH20100611-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-09	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-10	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-11	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-12	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-13	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	CRS20100611-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	RCL20100612-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	CRS20100612-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	JKM20100612-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/13/2010	CRS20100613-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	CRS20100613-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	CRS20100613-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	LCB20100613-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	LCB20100613-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	JKM20100613-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/13/2010	JKM20100613-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/13/2010	JKM20100613-03	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS

6/13/2010	JKM20100613-04	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/14/2010	WLH20100614-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/15/2010	LCB20100615-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS

6/21/2010	SKM20100621-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-09	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-10	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	TTJ20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	TTJ20100622-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	20100622	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	20100623	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	20100623	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	20100623	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/24/2010	20100624	Unknown	Stranding	Dead	Salvaged	Frozen-IMMS	MS
5/18/2010	BXW20100518-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/20/2010	MXT20100520-01	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA	
5/20/2010	MXT20100520-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-07	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-01	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-02	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-03	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-07	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-08	Eretmochelys imbricata	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	

6/1/2010	BAS20100601-10	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	XXX20100601-01	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied
6/1/2010	XXX20100601-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	XXX20100601-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	XXX20100601-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	XXX20100601-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-01	Eretmochelys imbricata	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-05	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied
6/10/2010	BAS20100610-01	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied
6/10/2010	BAS20100610-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/10/2010	BAS20100610-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/10/2010	BAS20100610-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-08	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-09	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	20100613	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	20100613	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA

6/14/2010	BAS20100614-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-08	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-10	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-11	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-05	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-06	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-07	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-02	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/18/2010	20100618	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/20/2010	20100620	Chelonia mydas	Directed Capture	Dead	Salvaged	Frozen
6/21/2010	MCT20100621-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-02	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-05	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-06	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA

6/21/2010	MCT20100621-08	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA	
6/21/2010	MCT20100621-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/21/2010	MCT20100621-10	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA	
6/24/2010	BAS20100624-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/24/2010	BAS20100624-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/24/2010	BAS20100624-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/25/2010	20100625	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Dauphin Is	AL
6/25/2010	20100625	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	20100625	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	20100625	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/25/2010	20100625	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-Audubon	LA
6/25/2010	20100625	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Dauphin Is	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Dauphin Is	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Bon Secor	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/26/2010	20100626	Lepidochelys kempii	Directed Capture			Audubon	
6/26/2010	20100626	Lepidochelys kempii	Directed Capture			Audubon	
6/26/2010	20100626	Lepidochelys kempii	Directed Capture			Audubon	
6/26/2010	20100626	Chelonia mydas	Directed Capture			Audubon	

Descriptive Location	Latitude	Longitude	External oil?	TempLocation	Stranding	New	Alive
"Lots of Sand Dunes" Condo, Baldwin Co	30.232019	-87.936861	N	No	Yes	No	N
eastern point of Dauphin Island	30.250125	-88.075553	N	No	Yes	No	N
Dauphin Island	30.248253	-88.125822	N	No	Yes	No	N
floating 2 miles North of Fort Gaines	30.268880	-88.071720	N	No	Yes	No	N
Dauphin Island	30.332274	-88.132595	N	No	Yes	No	N
Dauphin Island	30.248253	-88.125822	N	No	Yes	No	N
Mobile Bay, 4 miles south of Fowl River	30.395431	-88.107261	N	No	Yes	No	N
Mobile Bay, 7287 Bay Rd	30.552467	-88.123317	N	No	Yes	No	N
floating off of Bayou La Batre	30.368167	-88.278317	N	No	Yes	No	N
Coden	30.445639	-88.109028	N	No	Yes	No	N
Dauphin Island	30.250164	-88.162886	N	No	Yes	No	N
Donnie Grace, bay side	30.249856	-88.202100	N	No	Yes	No	N
outside Weeks Bay toward Fish River Reef	30.367914	-87.839833	N	No	Yes	No	N
18261 Scenic Hwy 98	30.492133	-87.929833	N	No	Yes	No	N
Dauphin Island	30.249450	-88.172633	N	No	Yes	No	N
Gulf Shores	30.253417	-87.823317	N	No	Yes	No	N
Bayou La Batre	30.381033	-88.267233	N	No	Yes	No	N
pier across from Fort Morgan Museum	30.230283	-88.023694	N	No	Yes	No	N
Baldwin Co	30.250570	-87.828960	N	No	Yes	No	N
Baldwin Co	30.228430	-87.861390	N	No	Yes	No	N
Baldwin Co	30.231160	-87.928990	N	No	Yes	No	N
200 yds SE of city pier	30.245610	-88.124230	N	No	Yes	No	N
Hwy 193 past Hwy 188, Mobile Co	30.370900	-88.109670	N	No	Yes	No	N
east of Dauphin Is public fishing pier on Sand Is	30.247186	-88.125303	N	No	Yes	No	N
Little Dauphin Is, north side	30.274270	-88.111150	N	No	Yes	No	N
Audubon Place beach	30.243830	-88.092890	N	No	Yes	No	N
bay side of Sand Island	30.227653	-88.113175	N	No	Yes	No	N
Coden	30.377883	-88.241517	N	No	Yes	No	N
Mobile Bay, 1 mile south of Fowl River	30.425728	-88.103975	N	No	Yes	No	N
Hwy 98 on county rd 1, near Pelican Island	30.378320	-87.851020	N	No	Yes	No	N
Dauphin Island	30.247530	-88.124480	N	No	Yes	No	N
mouth of Bayou La Batre, Mobile Bay	30.375000	-88.285000	N	No	Yes	No	Y
Dauphin Island, west end	30.386400	-88.560983	N	No	Yes	No	N

Dauphin Island, west end	30.386400	-88.560983	N	No	Yes	No	N
Coden	30.006272	-88.004007	N	No	Yes	No	N
Dauphin Island	30.244817	-88.114433	N	No	Yes	No	N
Bayou La Batre	30.381586	-88.257034	N	No	Yes	No	Y
floating near Bayou La Batre	30.376750	-88.258480	N	No	Yes	No	N
Mobile Bay	30.591497	-88.063306	N	No	Yes	No	N
Shore Rd of CR12	30.358870	-87.832670	N	No	Yes	No	N
Plash Island	30.282700	-87.751230	N	No	Yes	No	N
Dauphin Island	30.250000	-88.200000	N	Yes	Yes	No	N
Dauphin Island	30.270000	-88.150000	N	Yes	Yes	No	N
Mobile Bay	30.400000	-88.100000	N	Yes	Yes	No	N
Mobile Bay	30.500000	-88.100000	N	Yes	Yes	No	N
Mobile Bay	30.300000	-87.750000	N	Yes	Yes	No	N
west end of Dauphin Island	30.220000	-88.330000	N	Yes	Yes	No	N
Dauphin Island, bayside	30.260000	-88.110000	N	Yes	Yes	No	N
Mobile Bay	30.300000	-87.970000	N	Yes	Yes	No	N
floating in MS Sound near Coden Bayou	30.350000	-88.220000	N	Yes	Yes	No	N
floating in Perdido Pass near Orange Beach	30.278471	-87.555537	Y	No	Yes	No	Y
floating south of Coden	30.374000	-88.240000	N	Yes	Yes	No	N
East Beach, Baldwin County	30.248301	-87.676815	Y	No	Yes	No	Y
Bon Secour Bay	30.300000	-87.875000	N	Yes	Yes	No	N
W Dauphin Island	30.250000	-88.060000	N	Yes	Yes	No	N
floating off of Bayou La Batre	30.340000	-88.310000	N	Yes	Yes	No	N
Mobile Bay, east side	30.450000	-87.930000	N	Yes	Yes	No	N
Mobile Bay, west side	30.450000	-88.090000	N	Yes	Yes	No	N
Gulf Shores	30.251060	-87.653670	N	No	Yes	No	N
Bayou La Batre	30.366460	-88.244330	N	No	Yes	No	N
~100 ft from Fairhope Municipal Pier	30.525780	-87.917040	N	No	Yes	No	N
Orange Beach	30.260000	-87.570000	Y	Yes	Yes	No	N
floating in Mobile Bay, Mobile side of bay	30.600000	-87.980000	N	Yes	Yes	No	N
floating in Bon Secour Bay	30.267240	-87.787240	N	No	Yes	No	N
floating in Bon Secour Bay	30.280430	-87.766780	N	No	Yes	No	N
floating in Mobile Bay, SE of Gaillard Island	30.371770	-88.065410	N	No	Yes	No	N
floating in Mobile Bay, NE of Dauphin Is. Bridge	30.332983	-88.130400	N	No	Yes	No	N

floating in Mobile Bay, btwn Dog River Bridge and (	30.531760	-88.022900	N	No	Yes	No	N
floating in Mobile Bay, NE of Fort Morgan	30.298020	-87.997720	N	No	Yes	No	N
northern part of Mobile Bay	30.590000	-88.000000	N	Yes	Yes	No	N
Mobile Bay, west side near Dog River	30.530000	-88.070000	N	Yes	Yes	No	N
Orange Beach	30.260000	-87.580000	Y	Yes	Yes	No	N
Panama City Beach	30.19650	-85.84358	N	No	Yes	No	N
Panama City Beach	30.2442	-85.93718	N	No	Yes	No	Y
Panama City Beach	30.16782	-85.794	N	No	Yes	No	N
Panama City Beach	30.21513	-85.87758	N	No	Yes	No	N
Pensacola Beach	30.32589	-87.17208	N	No	Yes	No	N
St. Joseph Peninsula State Park	29.77851	-85.40833	N	No	Yes	No	N
Perdido Key State Park	30.28801	-87.47814	N	No	Yes	No	N
East Walton County Beach, Orange St access	30.2724	-86.00381	N	No	Yes	No	Y
Naval Live Oaks (Headquarters), GUIS	30.36422	-87.12725	N	No	Yes	No	N
Tyndall AFB, Archery Rd beach, east of marina	30.08165	-85.62992	N	No	Yes	No	N
Panama City Beach	30.18925	-85.83112	N	No	Yes	No	N
Perdido Key area of Gulf Islands NS	30.30350	-87.39394	N	No	Yes	No	N
Santa Rosa area of Gulf Islands NS	30.35489	-87.01419	N	No	Yes	No	N
west Walton County	30.37170	-86.34960	N	No	Yes	No	N
Crooked Island east, Tyndall AFB	29.95664	-85.47378	N	No	Yes	No	N
Crooked Island west, Tyndall AFB	30.02786	-85.56911	N	No	Yes	No	N
Walton County, east of Draper Lake	30.34060	-86.21480	N	No	Yes	No	N
Panama City Beach	30.26268	-85.97958	N	No	Yes	No	N
St. Andrews Bay, Bunkers Cove at yacht club	30.14250	-85.64920	N	No	Yes	No	N
Pensacola Beach	30.33619	-87.11075	N	No	Yes	No	Y
Tyndall AFB, Crooked Island east at boardwalk	29.95634	-85.45734	N	No	Yes	No	N
St. Joe Beach	29.90192	-85.36683	N	No	Yes	No	N
Rosemary Beach, Walton County	30.28000	-86.03000	N	Yes	Yes	No	N
Naval Live Oaks, south beach on Santa Rosa sound	30.36074	-87.14003	N	No	Yes	No	N
Perdido Key	30.29619	-87.42647	N	No	Yes	No	Y
Panama City, Baypoint Marina Yacht Club	30.14352	-85.72778	N	No	Yes	No	N
Navarre Beach	30.37590	-86.88760	N	No	Yes	No	N
St. Andrews Bay	30.16385	-85.68565	N	No	Yes	No	N
Pensacola Naval Air Station, Trout Point Beach	30.33185	-87.34040	N	No	Yes	No	N

W Escambia County, inshore, floating	30.31250	-87.49710	N	No	Yes	No	N
Cape San Blas	29.68224	-85.31182	N	No	Yes	No	N
St. Andrews Bay, Sun Harbor Marina, Panama City	30.18415	-85.73262	N	No	Yes	No	N
Panama City Beach	30.16000	-85.81000	N	Yes	Yes	No	N
St. Vincent NWR	29.67590	-85.21767	N	No	Yes	No	N
Port of Panama City	30.17795	-85.72493	N	No	Yes	No	N
Pensacola	30.29000	-87.25000	N	Yes	Yes	No	Y
Panama City, Inlet Beach	30.19000	-85.87000	N	Yes	Yes	No	Y
West Miramar Beach	30.37000	-86.40000	N	Yes	Yes	No	N
Pensacola	30.30000	-87.30000	N	Yes	Yes	No	Y
Navarre Beach	30.37000	-86.85000	N	Yes	Yes	No	N
approx 1 mile off of Pensacola Beach	30.28000	-87.18000	Y	Yes	Yes	No	Y
Eglin AFB, just east of Navarre Beach	30.37000	-86.86000	N	Yes	Yes	No	N
Pensacola Beach	30.25000	-87.20000	N	Yes	Yes	No	N
Pensacola Beach	30.30000	-87.20000	N	Yes	Yes	No	N
Pensacola Beach	30.27000	-87.45000	N	Yes	Yes	No	N
approx 1 mile off of Destin	30.35800	-86.49900	N	Yes	Yes	No	Y
Port St. Joe, Mexico Beach	29.80000	-85.32000	N	Yes	Yes	No	N
Tyndall AFB	30.06000	-85.62000	N	Yes	Yes	No	N
floating in St. Joe Bay	29.80000	-85.35000	N	Yes	Yes	No	Y
Eglin AFB, 100 yds east of A-11	30.39469	-86.71058	N	No	Yes	No	N
Panama City, access 59 west of city pier	30.21607	-85.87965	N	No	Yes	No	N
Panama City, Navy base behind the dive school	30.17280	-85.75803	N	No	Yes	No	N
Pensacola	30.30000	-87.20000	N	Yes	Yes	No	N
offshore Destin area	30.32000	-86.47000	N	Yes	Yes	No	Y
Elmers Island	29.17027	-90.08316	N	No	Yes	No	N
Elmers Island	29.18166	-90.06428	N	No	Yes	No	N
Slidell area, Lake Borgne	30.13447	-89.50054	N	No	Yes	No	N
Grand Isle	29.24	-89.98	N	Yes	Yes	No	N
Elmers Island	29.17235	-90.07981	N	No	Yes	No	N
Rutherford Beach	29.76692	-93.16193	N	No	Yes	No	N
Rutherford Beach	29.76879	-93.17164	N	No	Yes	No	N
Rutherford Beach	29.76972	-93.17667	N	No	Yes	No	N
Rutherford Beach	29.77171	-93.18671	N	No	Yes	No	N

Rutherford Beach	29.7732	-93.19467	N	No	Yes	No	N
Rutherford Beach	29.77341	-93.19683	N	No	Yes	No	N
Rutherford Beach	29.77354	-93.19756	N	No	Yes	No	N
Rutherford Beach	29.77576	-93.21589	N	No	Yes	No	N
Rutherford Beach	29.77738	-93.2461	N	No	Yes	No	N
Rutherford Beach	29.77728	-93.25497	N	No	Yes	No	N
Rutherford Beach	29.77728	-93.25497	N	No	Yes	No	N
Rutherford Beach	29.76578	-93.15643	N	No	Yes	No	N
Rutherford Beach	29.76119	-93.13665	N	No	Yes	No	N
Rutherford Beach	29.75513	-93.11017	N	No	Yes	No	N
floating near Slidell - Rigolets Pass	30.1588	-89.6505	N	No	Yes	No	N
Elmers Island	29.18184	-90.06364	N	No	Yes	No	N
Grand Isle	29.20786	-90.03112	N	No	Yes	No	N
Holly Beach	29.76897	-93.4392	N	No	Yes	No	N
Holly Beach	29.76879	-93.43438	N	No	Yes	No	N
Holly Beach	29.76922	-93.45638	N	No	Yes	No	N
Holly Beach	29.76897	-93.48772	N	No	Yes	No	N
Holly Beach	29.76771	-93.50714	N	No	Yes	No	N
Constance Beach	29.76031	-93.56936	N	No	Yes	No	N
Fourchon Beach	29.11	-90.18	N	Yes	Yes	No	N
Fourchon Beach	29.11	-90.18	N	Yes	Yes	No	N
Mae's Beach	29.74595	-93.68512	N	No	Yes	No	N
Mae's Beach	29.74582	-93.68592	N	No	Yes	No	N
Mae's Beach	29.7423	-93.70653	N	No	Yes	No	Y
Grand Isle	30.1086	-89.3545	N	No	Yes	No	N
Grand Terre	29.209166	-90.029166	N	No	Yes	No	N
Grand Isle	29.28435	-89.92149	N	No	Yes	No	N
Holly Beach	29.74232	-93.7065	N	No	Yes	No	N
Holly Beach	29.76391	-93.36438	N	No	Yes	No	N
found floating, location?	29.23	-89.99	N	Yes	Yes	No	N
Mae's Beach	29.7424	-93.7062	N	No	Yes	No	Y
Long Beach	29.7534	-93.6293	N	No	Yes	No	N
Long Beach	29.7509	-93.6492	N	No	Yes	No	N
Mae's Beach	29.7396	-93.7208	N	No	Yes	No	N

Constance Beach	29.7605	-93.5674	N	No	Yes	No	N
Holly Beach	29.7683	-93.5018	N	No	Yes	No	N
Holly Beach	29.7689	-93.441	N	No	Yes	No	N
Rutherford Beach	29.7555	-93.1114	N	No	Yes	No	N
Rutherford Beach	29.7513	-93.0941	N	No	Yes	No	N
Rutherford Beach	29.7498	-93.0873	N	No	Yes	No	N
Bayou Rigaud, floating	29.14436	-89.59246	N	No	Yes	No	N
Lake Pontchartrain, floating	30.205	-90.11194	N	No	Yes	No	N
Fourchon Beach	29.09	-90.21566	N	No	Yes	No	N
near Cocodrie	29.24	-90.66	N	Yes	Yes	No	N
4 mi NE of Fishing Smack Bay	30.003805	-89.20633	N	No	Yes	No	N
Grand Isle Beach	29.24	-89.99	N	Yes	Yes	No	N
Empire Jetty Beach	29.25412	-89.60345	N	No	Yes	No	N
Grand Terre	29.28	-89.92	N	Yes	Yes	No	N
Bayou Terrebonne by Bayou La Fleur	29.26	-90.64	N	Yes	Yes	No	N
Lake Chien	29.33	-90.44	N	Yes	Yes	No	N
Bayou Trove	29.2386	-89.53792	N	No	Yes	No	N
Grand Isle State Park	29.24	-89.97	Y	Yes	Yes	No	N
Queen Bess Island	29.3	-89.96	N	Yes	Yes	No	N
Lake Felicity, North of Timbalier Island	29.26	-90.4	N	Yes	Yes	No	N
Lake Felicity, North of Timbalier Island	29.26	-90.47	N	Yes	Yes	No	N
Lake Felicity, North of Timbalier Island	29.28	-90.42	N	Yes	Yes	No	N
Grand Isle Beach	29.2	-90.04	N	Yes	Yes	No	N
skimmer found ~50 mi S of Louisiana coastline, bro	28.4375	-89.8958	Y	No	Skimmer	No	Y
Cameron Parish beach	29.76	-93.34	N	Yes	Yes	No	N
skimmer found ~17 mi offshore Grand Isle	28.9932	-89.8412	Y	No	Skimmer	No	Y
Timbalier Island	29.04	-90.47	N	Yes	Yes	No	N
floating just offshore western LA beaches	29.76	-93.46	N	Yes	Yes	No	N
western Louisiana beaches	29.74	-93.42	N	Yes	Yes	No	N
western Louisiana beaches	29.74	-93.44	N	Yes	Yes	No	N
western Louisiana beaches	29.74	-93.46	N	Yes	Yes	No	N
Coup A Bel Pass	29.3	-89.9	Y	Yes	Yes	No	N
Marsh Island	29.5	-91.9	N	Yes	Yes	No	N
Barataria Bay	29.4	-89.94	Y	Yes	Yes	No	N

north Barataria Bay	29.43308	-89.88585	Y	No	Yes	No	N
western Louisiana, nearshore waters	29.7	-93	N	Yes	Yes	No	Y
Fourchon Beach	29.08	-90.14	N	Yes	Yes	No	N
no location info - est location in Chandeleur Sound	29.8	-89.1	N	Yes	Yes	No	Y
Rutherford Beach	29.74	-93.22	N	Yes	Yes	No	N
Rutherford Beach	29.72	-93.15	N	Yes	Yes	No	N
Rutherford Beach	29.72	-93.07	N	Yes	Yes	No	N
Fourchon Beach	29.1	-90.1	N	Yes	Yes	No	N
Slidell area	30.13	-89.57	N	Yes	Yes	No	N
Rollover Bayou (W LA near Rockefeller Refuge)	29.59	-92.7	N	Yes	Yes	No	N
Rollover Bayou (W LA near Rockefeller Refuge)	29.6	-92.6	N	Yes	Yes	No	N
Whiskey Island chain, south of Cocodrie	29.03	-90.75	N	Yes	Yes	No	N
Timbalier Island area - floating?	29.05	-90.47	N	Yes	Yes	No	N
west of Bayou La Fourche, north of jetties at Port F	29.1	-90.18	N	Yes	Yes	No	N
Timbalier Bay	29.1	-90.4	N	Yes	Yes	No	N
Lake Borgne	30.1	-89.6	N	Yes	Yes	No	N
floating in Terrebonne Bay, ~4-5 mi S of Cocodrie	29.15	-90.6	N	Yes	Yes	No	N
floating in Houma navigational channel	29.33	-90.73	N	Yes	Yes	No	N
Bay St. Louis	30.30880	-89.32590	N	No	Yes	No	N
Bay St. Louis	30.29410	-89.34320	N	No	Yes	No	N
Waveland	30.26410	-89.39200	N	No	Yes	No	N
Waveland	30.27260	-89.37750	N	No	Yes	No	N
Waveland	30.27360	-89.37640	N	No	Yes	No	N
Long Beach	30.34780	-89.13900	N	No	Yes	No	Y
Pass Christian	30.31481	-89.24207	N	No	Yes	No	N
Pass Christian	30.31071	-89.25556	N	No	Yes	No	N
Pass Christian	30.31460	-89.24252	N	No	Yes	No	N
Pass Christian	30.31080	-89.25728	N	No	Yes	No	N
Pass Christian	30.31295	-89.24477	N	No	Yes	No	N
Pass Christian	30.31082	-89.25535	N	No	Yes	No	N
Ocean Springs	30.40980	-88.84080	N	No	Yes	No	N
Bay St. Louis	30.31900	-89.32230	N	No	Yes	No	N
Waveland	30.28830	-89.36000	N	No	Yes	No	N
Waveland	30.28680	-89.36260	N	No	Yes	No	N

Pass Christian	30.30650	-89.26858	N	No	Yes	No	N
Pass Christian	30.30725	-89.26653	N	No	Yes	No	N
Bay St. Louis	30.30562	-89.32865	N	No	Yes	No	N
Pass Christian	30.32834	-89.19923	N	No	Yes	No	N
Pass Christian	30.30529	-89.27249	N	No	Yes	No	N
Pass Christian	30.32620	-89.20892	N	No	Yes	No	N
Pass Christian	30.32460	-89.21450	N	No	Yes	No	N
Biloxi	30.39289	-88.94716	N	No	Yes	No	N
Waveland	30.28865	-89.35290	N	No	Yes	No	N
Pass Christian	30.32824	-89.19985	N	No	Yes	No	N
Pass Christian	30.33144	-89.18568	N	No	Yes	No	N
Pass Christian	30.32144	-89.22351	N	No	Yes	No	N
Pass Christian	30.30750	-89.26659	N	No	Yes	No	N
Bay St. Louis	30.31558	-89.29004	N	No	Yes	No	N
Pass Christian	30.30525	-89.27421	N	No	Yes	No	N
Pass Christian	30.30989	-89.25963	N	No	Yes	No	N
Waveland	30.26362	-89.39346	N	No	Yes	No	N
Waveland	30.28670	-89.36321	N	No	Yes	No	N
Gulfport	30.35567	-89.11807	N	No	Yes	No	N
Waveland	30.24120	-89.42470	N	No	Yes	No	N
Gulfport	30.36948	-89.07825	N	No	Yes	No	N
Biloxi	30.39169	-88.95027	N	No	Yes	No	N
Biloxi	30.39271	-88.87608	N	No	Yes	No	N
Waveland	30.27834	-89.37222	N	No	Yes	No	N
Gulfport	30.37689	-89.04778	N	No	Yes	No	N
Waveland	30.27006	-89.38032	N	No	Yes	No	N
Bay St. Louis	30.30022	-89.33346	N	No	Yes	No	N
Pass Christian	30.32762	-89.20251	N	No	Yes	No	N
floating N of Ship Island	30.25080	-88.94120	N	No	Yes	No	N
Waveland	30.25685	-89.41499	N	No	Yes	No	N
Waveland	30.26483	-89.39040	N	No	Yes	No	N
Waveland	30.26471	-89.39070	N	No	Yes	No	N
Pass Christian, floating by Henderson Point	30.30320	-89.29570	N	No	Yes	No	N
Waveland	30.28749	-89.36136	N	No	Yes	No	N

Waveland	30.28790	-89.36065	N	No	Yes	No	N
Gulfport	30.36129	-89.10089	N	No	Yes	No	N
Long Beach	30.33749	-89.16818	N	No	Yes	No	N
Pass Christian	30.32775	-89.20048	N	No	Yes	No	N
Pass Christian	30.31166	-89.25018	N	No	Yes	No	N
Pass Christian	30.30335	-89.28335	N	No	Yes	No	N
Waveland	30.28267	-89.36761	N	No	Yes	No	N
Biloxi	30.39147	-88.95452	N	No	Yes	No	N
Biloxi	30.39385	-88.91407	N	No	Yes	No	N
Horn Island	30.22831	-88.64799	N	No	Yes	No	N
Pass Christian	30.31300	-89.24830	N	No	Yes	No	N
Pass Christian	30.31190	-89.29050	N	No	Yes	No	N
Gulfport	30.38250	-89.02280	N	No	Yes	No	N
Gulfport	30.38150	-89.02610	N	No	Yes	No	N
floating ~1/2 mile south of Biloxi bridge	30.38960	-88.84190	N	No	Yes	No	N
Waveland Beach at Nicholson Ave	30.29410	-89.35910	N	No	Yes	No	N
Pass Christian	30.32320	-89.21840	N	No	Yes	No	N
Gulfport Beach	30.35582	-89.11698	N	No	Yes	No	N
Gulfport Beach	30.33215	-89.18207	N	No	Yes	No	N
Lakeshore/Waveland	30.25117	-89.42138	N	No	Yes	No	N
Bay St. Louis	30.29545	-89.34080	N	No	Yes	No	N
Waveland	30.26715	-89.38553	N	No	Yes	No	N
Bay St. Louis	30.30980	-89.32553	N	No	Yes	No	N
West Ship Island	30.2115	-88.98480	N	No	Yes	No	N
Waveland	30.28248	-89.36733	N	No	Yes	No	N
Pass Christian	30.31406	-89.24347	N	No	Yes	No	N
Gulfport	30.37421	-89.04382	N	No	Yes	No	Y
Bay St. Louis	30.30883	-89.32583	N	No	Yes	No	N
Waveland	30.27683	-89.37367	N	No	Yes	No	N
Waveland	30.28064	-89.36495	N	No	Yes	No	Y
Waveland	30.28127	-89.36557	N	No	Yes	No	Y
Pascagoula Beach	30.3433	-88.55500	N	No	Yes	No	N
Waveland	30.27234	-89.37753	N	No	Yes	No	N
SE Horn Island	30.2207	-88.59330	N	No	Yes	No	N

southside Cat Island	30.2283	-89.07330	N	No	Yes	No	N
Pass Christian	30.31352	-89.24396	N	No	Yes	No	N
Bellefontaine Beach	30.3433	-88.70330	N	No	Yes	No	N
water south of Cadet Point, Biloxi	30.3877	-88.85890	N	No	Yes	No	N
Waveland	30.28063	-89.36495	N	No	Yes	No	Y
Biloxi Bay	30.40980	-88.86906	N	No	Yes	No	N
Biloxi Bay	30.40980	-88.86906	N	No	Yes	No	N
Horn Island, ~3000' from W end	30.2398	-88.76870	N	No	Yes	No	N
Waveland	30.28655	-89.36330	N	No	Yes	No	N
Pass Christian	30.30725	-89.26660	N	No	Yes	No	N
Waveland	30.28063	-89.36495	N	No	Yes	No	Y
Long Beach	30.33743	-89.16837	N	No	Yes	No	N
Biloxi Beach	30.39154	-88.95600	N	No	Yes	No	N
north side of Horn Island	30.22307	-88.62952	N	No	Yes	No	N
Bangs Lake off of Pascagoula	30.3588	-88.47300	N	No	Yes	No	N
Biloxi, Back Bay	30.40079	-88.85896	N	No	Yes	No	N
Ocean Springs, McPherson Pier	30.40397	-88.83031	N	No	Yes	No	Y
Waveland	30.28063	-89.36495	N	No	Yes	No	Y
Ocean Springs	30.40397	-88.83031	N	No	Yes	No	Y
Biloxi, near Palace Casino	30.3959	-88.85830	N	No	Yes	No	N
Ocean Springs	30.40397	-88.83031	N	No	Yes	No	Y
Ocean Springs	30.4075	-88.83540	N	No	Yes	No	N
Gulfport	30.35487	-89.12191	N	No	Yes	No	N
Waveland	30.26605	-89.38722	N	No	Yes	No	N
Long Beach	30.34084	-89.15894	N	No	Yes	No	N
Biloxi, near harbor	30.39268	-88.88209	N	No	Yes	No	N
Gautier / Belle Fontaine Beach	30.3457	-88.74080	N	No	Yes	No	N
Biloxi	30.39158	-88.94994	N	No	Yes	No	N
Biloxi	30.39184	-88.94596	N	No	Yes	No	N
Biloxi	30.39183	-88.94596	N	No	Yes	No	N
Biloxi	30.39184	-88.94576	N	No	Yes	No	N
Biloxi	30.39262	-88.93246	N	No	Yes	No	N
Biloxi Beach	30.3932	-88.90645	N	No	Yes	No	N
Biloxi Beach	30.39353	-88.92310	N	No	Yes	No	N

Biloxi Beach	30.39382	-88.91889	N	No	Yes	No	N
Biloxi Beach	30.39375	-88.92016	N	No	Yes	No	N
Biloxi Beach	30.39108	-88.96432	N	No	Yes	No	N
Biloxi Beach	30.38968	-88.97850	N	No	Yes	No	N
Ocean Springs / Belle Fontaine Beach	30.34316	-88.72950	N	No	Yes	No	N
Gulfport Beach	30.3597	-89.10686	N	No	Yes	No	N
Biloxi Beach	30.3938	-88.91200	N	No	Yes	No	N
Gulfport Beach	30.37834	-89.04083	N	No	Yes	No	N
Gulfport Beach	30.38538	-89.01003	N	No	Yes	No	N
Gulfport Beach	30.37825	-89.04118	N	No	Yes	No	N
Gulfport Beach	30.3844	-89.01535	N	No	Yes	No	N
Biloxi Beach	30.38942	-88.98023	N	No	Yes	No	N
Biloxi Beach	30.39028	-88.97433	N	No	Yes	No	N
Biloxi Beach	30.39357	-88.89623	N	No	Yes	No	N
Gulfport Beach	30.3831	-89.0192	N	No	Yes	No	N
Biloxi Beach	30.3914	-89.0069	N	No	Yes	No	N
Biloxi Beach	30.39	-88.9756	N	No	Yes	No	N
Biloxi Beach	30.3875	-88.9942	N	No	Yes	No	N
Biloxi Beach	30.3889	-88.9847	N	No	Yes	No	N
Gulfport Beach	30.37058	-89.0742	N	No	Yes	No	N
Gulfport Beach	30.3706	-89.07417	N	No	Yes	No	N
Gulfport Beach	30.37131	-89.07161	N	No	Yes	No	N
Gulfport Beach	30.37158	-89.07066	N	No	Yes	No	N
Gulfport Beach	30.3768	-89.07045	N	No	Yes	No	N
Gulfport Beach	30.37262	-89.06721	N	No	Yes	No	N
Gulfport	30.38075	-89.02951	N	No	Yes	No	N
Gulfport	30.38097	-89.02944	N	No	Yes	No	N
Gulfport	30.38048	-89.03049	N	No	Yes	No	N
Gulfport	30.38016	-89.03156	N	No	Yes	No	N
Biloxi	30.3799	-89.03266	N	No	Yes	No	N
Biloxi	30.38032	-89.03104	N	No	Yes	No	N
Gulfport Beach	30.37746	-89.0433	N	No	Yes	No	N
Gulfport Beach	30.37819	-89.0416	N	No	Yes	No	N
Waveland	30.2806	-89.3449	N	No	Yes	No	Y

Biloxi, Acadia Ave	30.39277	-88.9312	N	No	Yes	No	Y
Gulfport Beach	30.37819	-89.0416	N	No	Yes	No	N
Gulfport Beach	30.37819	-89.0416	N	No	Yes	No	N
Gulfport Beach	30.37843	-89.0413	N	No	Yes	No	N
Gulfport Beach	30.37837	-89.04101	N	No	Yes	No	N
Gulfport Beach	30.37457	-89.0563	N	No	Yes	No	N
Gulfport Beach	30.37456	-89.05634	N	No	Yes	No	N
Biloxi Beach	30.3887	-88.98878	N	No	Yes	No	N
Biloxi Beach	30.38877	-88.98797	N	No	Yes	No	N
Biloxi Beach	30.38877	-88.98797	N	No	Yes	No	N
Biloxi Beach	30.38886	-88.9741	N	No	Yes	No	N
Biloxi Beach	30.38886	-88.98734	N	No	Yes	No	N
Pass Christian Beach	30.32762	-89.20251	N	No	Yes	No	N
Gulfport Beach	30.38188	-89.02495	N	No	Yes	No	N
Gulfport Beach	30.38393	-89.01701	N	No	Yes	No	N
Gulfport Beach	30.38583	-89.00827	N	No	Yes	No	N
Biloxi Beach	30.39357	-88.89818	N	No	Yes	No	N
Biloxi Beach	30.39182	-88.94774	N	No	Yes	No	N
Biloxi Beach	30.39328	-88.92583	N	No	Yes	No	N
Biloxi Beach	30.37561	-89.09052	N	No	Yes	No	N
Biloxi Beach	30.37571	-89.05148	N	No	Yes	No	N
Biloxi Beach	30.38738	-89	N	No	Yes	No	N
Biloxi Beach	30.38746	-88.99895	N	No	Yes	No	N
near Horn Island - floating?	30.2333	-88.53093	N	No	Yes	No	N
floating off of Gulfport	30.32007	-89.17917	N	No	Yes	No	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	No	Y
Biloxi Beach	30.39383	-88.91076	N	No	Yes	No	N
Biloxi Beach	30.39167	-88.89817	N	No	Yes	No	N
Biloxi Beach	30.39383	-88.91895	N	No	Yes	No	N
Gulfport Beach	30.37125	-89.07175	N	No	Yes	No	N
west side of Deer Island, Biloxi	30.26278	-88.89885	N	No	Yes	No	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	No	Y
Waveland Pier	30.2806	-89.3449	N	No	Yes	No	Y
Waveland Pier	30.2806	-89.3449	N	No	Yes	No	Y

Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
Biloxi Beach	30.38722	-89.00137	N	No	Yes	No	N
Ocean Springs	30.3603	-88.7642	N	No	Yes	No	N
Ocean Springs	30.369965	-88.779549	N	No	Yes	No	N
Biloxi	30.392	-88.87	N	No	Yes	No	N
Long Beach	30.35226	-89.12932	N	No	Yes	No	N
Long Beach, Jeff Davis Ave	30.3437	-89.1498	N	No	Yes	No	N
Long Beach	30.3397	-89.94848	N	No	Yes	No	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
3 Oaks Bayou (Bayou Caddy), outside Waveland	30.24575	-89.43206	N	No	Yes	No	N
Pass Christian	30.32465	-89.2142	N	No	Yes	No	N
Long Beach	30.33843	-89.16594	N	No	Yes	No	N
Long Beach	30.34897	-89.13697	N	No	Yes	No	N
floating off of NE corner of Ship Island	30.22236	-88.94848	N	No	Yes	No	N
floating off NE coast of Cat Island	30.2596	-89.037	N	No	Yes	No	N
floating east Cat Island	30.2211	-89.0336	N	No	Yes	No	N
in MS Sound ~2 mi offshore Biloxi, brought in to Oc	30.368	-88.958	N	No	Yes	No	Y
Deer Island, Biloxi Harbor	30.21851	-88.48135	N	No	Yes	No	N
Biloxi Harbor	30.19418	-88.52193	N	No	Yes	No	N
Biloxi Harbor, NW end Horn Island	30.16057	-88.44111	N	No	Yes	No	N
Gulfport Harbor	30.1523	-89.0633	N	No	Yes	No	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
floating off of Biloxi	30.37	-88.92	N	Yes	Yes	No	N
floating off of Biloxi	30.365	-88.89	N	Yes	Yes	No	N
floating off of Biloxi	30.36	-88.86	N	Yes	Yes	No	N
floating off of Biloxi	30.35	-88.84	N	Yes	Yes	No	N
floating off of Biloxi Beach	30.3505	-88.9066	N	No	Yes	No	N
floating off of Biloxi Beach	30.389	-88.8865	N	No	Yes	No	N
floating off of Biloxi Beach	30.3531	-88.937	N	No	Yes	No	N
floating off of Biloxi Beach	30.3379	-88.9542	N	No	Yes	No	N

floating off of Cat Island, Long Beach	30.2736	-89.0744	N	No	Yes	No	N
floating off of Biloxi Beach	30.3498	-88.892	N	No	Yes	No	N
floating off of Biloxi Beach	30.3651	-88.8896	N	No	Yes	No	N
floating off of Biloxi Beach	30.3667	-88.8944	N	No	Yes	No	N
floating off of Biloxi Beach	30.356	-88.9961	N	No	Yes	No	N
floating off of Biloxi Beach	30.356	-88.898	N	No	Yes	No	N
Biloxi Beach	30.38757	-88.99525	N	No	Yes	No	N
Gulfport Beach	30.37807	-89.04175	N	No	Yes	No	N
Ocean Springs	30.4	-88.83	N	Yes	Yes	No	N
Long Beach	30.34	-89.14	N	Yes	Yes	No	N
Gulfport	30.36	-89.07	N	Yes	Yes	No	N
Biloxi Beach	30.39	-88.9	N	Yes	Yes	No	N
floating off of Biloxi	30.37	-88.89	N	Yes	Yes	No	N
Bay St. Louis, on beach	30.28	-89.33	N	Yes	Yes	No	N
floating off of Long Beach	30.3	-89.14	N	Yes	Yes	No	N
Directed Capture	28.4665	-88.46116	Y	No	No	No	Y
Directed Capture	28.96778	-88.79333	Y	No	No	No	Y
Directed Capture	28.90722	-88.80167	Y	No	No	No	Y
Directed Capture	28.9597	-88.5342	Y	No	No	No	Y
Directed Capture	28.9182	-88.5552	Y	No	No	No	Y
Directed Capture	28.865	-88.5658	Y	No	No	No	Y
Directed Capture	28.8538	-88.5617	Y	No	No	No	Y
Directed Capture	28.847	-88.5588	Y	No	No	No	Y
Directed Capture	28.8405	-88.5557	Y	No	No	No	Y
Directed Capture	28.6573	-88.4313	Y	No	No	No	Y
Directed Capture	28.8045	-88.4771	Y	No	No	No	Y
Directed Capture	28.804483	-88.4771	Y	No	No	No	Y
Directed Capture	28.80725	-88.47808	Y	No	No	No	Y
Directed Capture	28.813483	-88.480383	Y	No	No	No	Y
Directed Capture	28.81535	-88.479233	Y	No	No	No	Y
Directed Capture	28.81669	-88.47803	Y	No	No	No	Y
Directed Capture	28.828083	-88.37115	Y	No	No	No	Y
Directed Capture	28.829617	-88.471267	Y	No	No	No	Y
Directed Capture	28.826867	-88.464933	Y	No	No	No	Y

Directed Capture	28.834317	-88.42455	Y	No	No	No	Y
Directed Capture - LDWF	29.09	-89.78	Y	No	No	No	N
Directed Capture - LDWF	29.0919	-89.7781	Y	No	No	No	Y
Directed Capture - LDWF	29.0932	-89.7747	Y	No	No	No	Y
Directed Capture - LDWF	29.0998	-89.7574	Y	No	No	No	Y
Directed Capture - LDWF	29.1065	-89.748	Y	No	No	No	Y
Directed Capture	29.01025	-88.26369	Y	No	No	No	Y
Directed Capture	29.01025	-88.26369	Y	No	No	No	Y
Directed Capture	29.01025	-88.26369	Y	No	No	No	Y
Directed Capture	29.02569	-88.25586	Y	No	No	No	Y
Directed Capture	29.17372	-88.16519	Y	No	No	No	N
Directed Capture	28.7538	-88.85602	Y	No	No	No	N
Directed Capture	28.75114	-88.84875	Y	No	No	No	Y
Directed Capture	28.62252	-88.55688	Y	No	No	No	Y
Directed Capture	28.76398	-88.82482	Y	No	No	No	Y
Directed Capture	28.66965	-88.49193	Y	No	No	No	Y
Directed Capture	28.91208	-88.68748	Y	No	No	No	Y
Directed Capture	28.70114	-88.53979	Y	No	No	No	Y
Directed Capture	28.92108	-88.7991	Y	No	No	No	Y
Directed Capture	28.92094	-88.79822	Y	No	No	No	Y
Directed Capture	28.92891	-88.77321	Y	No	No	No	Y
Directed Capture	28.928	-88.7701	Y	No	No	No	Y
Directed Capture	28.92558	-88.74215	Y	No	No	No	Y
Directed Capture	28.93916	-88.71402	Y	No	No	No	Y
Directed Capture	28.94739	-88.70053	Y	No	No	No	Y
Directed Capture	28.96491	-88.67766	Y	No	No	No	Y
Directed Capture	28.98004	-88.65568	Y	No	No	No	Y
Directed Capture - LDWF	28.72474	-88.55243	Y	No	No	No	Y
Directed Capture - LDWF	28.81743	-88.63998	Y	No	No	No	Y
Directed Capture	28.62361	-88.54351	Y	No	No	No	Y
Directed Capture	28.60264	-88.49568	Y	No	No	No	Y
Directed Capture	28.59733	-88.49236	Y	No	No	No	Y
Directed Capture	28.59501	-88.49054	Y	No	No	No	Y
Directed Capture	28.57604	-88.49573	Y	No	No	No	Y

Directed Capture	28.57271	-88.49434	Y	No	No	No	Y
Directed Capture	28.56876	-88.49416	Y	No	No	No	Y
Directed Capture	28.52956	-88.51617	Y	No	No	No	Y
Directed Capture	28.50794	-88.54434	Y	No	No	No	Y
Directed Capture	28.53647	-88.60338	Y	No	No	No	Y
Directed Capture	28.69822	-88.79404	Y	No	No	No	Y
Directed Capture	28.90896	-88.72726	Y	No	No	No	Y
Directed Capture	28.6881	-88.84448	Y	No	No	No	Y
Directed Capture	28.67472	-88.88646	Y	No	No	No	Y
Directed Capture	28.68382	-88.88902	Y	No	No	No	Y
Directed Capture	28.8945	-88.72223	Y	No	No	No	Y
Directed Capture	28.6575	-88.87042	Y	No	No	No	Y
Directed Capture	28.65178	-88.86879	Y	No	No	No	Y
Directed Capture	28.6833	-88.64572	Y	No	No	No	Y
Directed Capture	28.74405	-88.2535	Y	No	No	No	Y
Directed Capture	28.7637	-88.23549	Y	No	No	No	Y
Directed Capture	28.7666	-88.23471	Y	No	No	No	Y
Directed Capture	28.78214	-88.23679	Y	No	No	No	Y
Directed Capture	28.87021	-88.50445	Y	No	No	No	Y
Directed Capture - LDWF	28.67327	-88.29708	Y	No	No	No	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.71517	-89.80517	Y	No	No	No	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.714	-89.806	Y	No	No	No	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.714	-89.806	Y	No	No	No	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.709	-89.80267	Y	No	No	No	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.70783	-89.80433	Y	No	No	No	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.70783	-89.80433	Y	No	No	No	Y
Directed Capture - LDWF, floating ~50 miles offsho	28.62647	-90.18168	N	No	No	No	N
Directed Capture - LDWF, floating ~35 miles offsho	28.78182	-89.7506	N	No	No	No	Y
Directed Capture - LDWF, floating ~35 miles offsho	28.77712	-89.74897	N	No	No	No	Y
Directed Capture - LDWF, floating ~35 miles offsho	28.77405	-89.74953	N	No	No	No	Y
Directed Capture - LDWF, floating ~35 miles offsho	28.76734	-89.747	N	No	No	No	Y
Directed Capture - LDWF, floating ~35 miles offsho	28.76683	-89.7453	N	No	No	No	Y
Directed Capture - LDWF, floating ~35 miles offsho	28.76467	-89.74487	N	No	No	No	Y
Directed Capture - LDWF, floating ~35 miles offsho	28.76212	-89.74383	Y	No	No	No	Y

Directed Capture - LDWF, floating ~35 miles offsho	28.75873	-89.74536	N	No	No	No	Y
Directed Capture - LDWF, floating ~35 miles offsho	28.75897	-89.74525	N	No	No	No	Y
Directed Capture - LDWF, floating ~35 miles offsho	28.7489	-89.75946	Y	No	No	No	Y
Directed Capture	29	-88.3	Y	Yes	No	No	Y
Directed Capture	29.05	-88.27	Y	Yes	No	No	Y
Directed Capture	29.1	-88.24	Y	Yes	No	No	Y
Bon Secour Bay	30.25917	-87.86152	N	No	Yes	No	N
Biloxi Beach	30.38	-88.89	N	Yes	Yes	No	N
floating off of Jackson County	30.3	-88.7	N	Yes	Yes	No	N
Jackson County	30.3	-88.65	N	Yes	Yes	No	Y
Fourchon Beach	29.09139	-90.22365	N	No	Yes	No	N
Directed Capture	29.04	-88.27	Y	Yes	No	No	Y
Bayou La Batre	30.370583	-88.2809	N	No	Yes	Yes	N
a bay 2mi N. of Dauphin Island (part of Mobile Bay)	30.290183	-88.208166	N	No	Yes	Yes	N
Bon Secour Bay	30.27595	-87.76513	N	No	Yes	Yes	N
Harrison County	30 22.522	-88 49.0470	N	No	Yes	Yes	N
Harrison County	30 22.657	-88 09.258	N	No	Yes	Yes	N
Jackson County	30 24.029	-88 50.537	N	No	Yes	Yes	N
Racoon Island	29 03.758	-90 56.993	N	No	Yes	Yes	N
Racoon Island	29 03.744	-90 56.798	N	No	Yes	Yes	N
Directed Capture			Y	Yes	Yes	Yes	Y
Directed Capture			Y	Yes	Yes	Yes	Y
Directed Capture			Y	Yes	Yes	Yes	Y
Directed Capture			Y	Yes	Yes	Yes	Y

Symbol	Log #	Comments
C		outside of area of concern
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C		outside of area of concern
C		outside of area of concern
C		outside of area of concern
C		outside of area of concern
C	D-0002 BSNWR	
C	D-0001 BSNWR	
C	D-0003 BSNWR	
C	D-0004 BSNWR	
C	D-0005 BSNWR	
C	D-0006 BSNWR	
C	D-0007 BSNWR	
C	D-0008 BSNWR	
C	D-0009 BSNWR	
C	D-0010 BSNWR	
C	D-0015 BSNWR	
C	D-0014 BSNWR	
C	D-0011 BSNWR	
C	D-0012 BSNWR	
C	D-0013 BSNWR	
C	D-0016 BSNWR	
C	D-0017 BSNWR	dried carcass
C	D-0018 BSNWR	
C	D-0019 BSNWR	
C	D-0020 BSNWR	
C	D-0021 BSNWR	
C	D-0023 BSNWR	
C	D-0022 BSNWR	
C	L-0001 BSNWR	
C	D-0024 BSNWR	

C	D-0025 BSNWR	
C	D-0026 BSNWR	
C	D-0027 BSNWR	
C	L-0007 IMMS	emaciated; taken to IMMS for rehab; died 5/25, shipped to UF for necropsy
C	D-0028 BSNWR	
C	D-0029 BSNWR	
C	D-0030 BSNWR	
C	D-0031 BSNWR	
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C	L-0012 IMMS	found floating next to boom; externally oiled turtle; taken to IMMS for rehab
U		
C	L-0013 IMMS	externally oiled turtle; taken to IMMS for rehab
U		
U		too decomposed for necropsy
U		
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C		parts only - head, guts and 1 flipper
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C	very emaciated, missing part of RRF
C	very emaciated; taken to Gulf World, died soon after recovery
C	no head, flippers or internal organs
C	brown algae on carapace; some small barnacles on skin; adult female
C	prop damage to right side of carapace
C	no wounds; barnacles and algae on carapace; adult male
C	missing notch from right side carapace; barnacle and algae growth
C	barnacles on carapace and flippers; taken to Gulf World, died same day
C	apparent piece of metal in ventral LFF near insertion
C	dried carcass; little skin remaining, bones visible
C	no head or front flippers, shark bites
C	missing both front flippers and lrf
C	carapace completely covered w/barnacles and algae; adult female
C	emaciated, lots of barnacles, damage to base of front flippers and neck
C	
C	
C	in pieces, decomposed
C	carapace broken, pieces missing
C	skin and scutes peeling
C	numerous barnacles and light algae on carapace; taken to Gulfarium
C	old wound to posterior marginals; scutes peeling
C	posterior carapace gone; plastron missing; falling apart, nasty
U	
C	apparent skeg/prop damage to center carapace
C	caught on hook and line, hook in throat; taken to Gulfarium
C	prop wounds to right posterior carapace; heavy barnacles,small barnacles on skin
C	2 apparent prop wounds across carapace
C	skin and scutes peeling, very decomposed
C	fishing line entangled around neck

C	no head or flippers; damage to carapace - likely prop
C	missing skull; carapace bones disarticulating due to decomp
C	missing head and LFF, possible shark bites; gashes on plastron
U	
C	carapace bones disarticulating due to decomp
C	dried carcass; carapace broken across posterior; portions missing
U	caught on hook and line, hook removed and turtle released
U	
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U	caught by relocation trawler; ~50% coverage of thin oil sheen, also sheen in mouth
U	
U	
U	in pieces due to decomp, unable to salvage
U	
U	caught by relocation trawler; observer thought oiled, Gulfarium said algae
U	
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C	wound/damage to throat area
C	
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U	caught by relocation trawler; Gulfarium said not oiled
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C	parts only
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C	swab sample taken
C	swab sample taken
C	taken to AOA for rehab
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C	swab sample taken
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C	taken to AOA for rehab
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C	swab sample taken
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U	partial carcass, pieces only
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C	D-0029 IMMS	
C	D-0030 IMMS	
C	D-0031 IMMS	
C	D-0032 IMMS	
C	D-0033 IMMS	
C	L-0001 IMMS	taken to IMMS, died in rehab, frozen for necropsy
C	D-0001 IMMS	
C	D-0002 IMMS	
C	D-0003 IMMS	
C	D-0004 IMMS	
C	D-0005 IMMS	
C	D-0006 IMMS	
C	D-0034 IMMS	
C	D-0007 IMMS	
C	D-0008 IMMS	
C	D-0009 IMMS	

C	D-0010 IMMS	
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C	D-0028 IMMS	
C	D-0035 IMMS	
C	D-0036 IMMS	
C	D-0037 IMMS	
C	D-0038 IMMS	
C	D-0039 IMMS	
C	D-0040 IMMS	
C	D-0041 IMMS	
C	D-0042 IMMS	
C	D-0043 IMMS	
C	D-0044 IMMS	
C	D-0045 IMMS	
C	D-0046 IMMS	
C	D-0047 IMMS	carcass in two pieces
C	D-0048 IMMS	
C	D-0049 IMMS	

C	D-0050 IMMS	
C	D-0051 IMMS	
C	D-0052 IMMS	
C	D-0053 IMMS	
C	D-0054 IMMS	
C	D-0055 IMMS	
C	D-0056 IMMS	
C	D-0057 IMMS	
C	D-0058 IMMS	
C	D-0063 IMMS	Decapitated, missing portions of flippers due to decomp; first reported on 5/8
C	D-0059 IMMS	
C	D-0060 IMMS	
C	D-0061 IMMS	
C	D-0062 IMMS	
C	D-0064 IMMS	
C	D-0065 IMMS	
C	D-0066 IMMS	
C	D-0067 IMMS	
C	D-0068 IMMS	
C	D-0069 IMMS	
C	D-0070 IMMS	
C	D-0071 IMMS	
C	D-0072 IMMS	
C	D-0085 IMMS	field necropsy on beach; damaged LFF, carapace covered in barnacles; first rep 5/13
C	D-0073 IMMS	
C	D-0074 IMMS	
C	L-0002 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	D-0075 IMMS	
C	D-0076 IMMS	carapace cracked/broken
C	L-0003 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	L-0004 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	D-0086 IMMS	"chopped up", likely prop wounds to carapace
C	D-0077 IMMS	red slimy substance covering carapace
C	D-0087 IMMS	skeletal remains

C	D-0088 IMMS	skeletal remains
C	D-0078 IMMS	
C	D-0089 IMMS	
C	D-0090 IMMS	floating, picked up by NPS
C	L-0005 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	D-0079 IMMS	carapace only
C	D-0080 IMMS	carapace only
C	D-0091 IMMS	sample taken and logged, carcass painted and left on beach
C	D-0081 IMMS	
C	D-0082 IMMS	
C	L-0006 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	D-0083 IMMS	
C	D-0092 IMMS	possible loggerhead, unsure of species ID
C	D-0093 IMMS	
C	D-0094 IMMS	carcass in plastic bag before oil swab taken
C	D-0084 IMMS	rear portion of carcass missing
C	L-0008 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	L-0009 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	L-0010 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	D-0095 IMMS	carcass in plastic bag before oil swab taken; severe prop damage
C	L-0011 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	D-0161 IMMS	
C	D-0096 IMMS	mangled caudal half of carcass
C	D-0097 IMMS	
C	D-0098 IMMS	
C	D-0099 IMMS	old injury to edge of carapace
C	D-0162 IMMS	
C	D-0100 IMMS	
C	D-0101 IMMS	
C	D-0102 IMMS	
C	D-0103 IMMS	
C	D-0104 IMMS	
C	D-0105 IMMS	scrapes along plastron
C	D-0106 IMMS	missing right edge of carapace, advanced decomp

C	D-0107 IMMS	
C	D-0108 IMMS	extra costal scute on L side
C	D-0109 IMMS	edges of marginal scutes broken, postmortem
C	D-0110 IMMS	extra vertebral scute
C	D-0163 IMMS	
C	D-0112 IMMS	
C	D-0111 IMMS	
C	D-0113 IMMS	
C	D-0114 IMMS	
C	D-0118 IMMS	severely mangled, no accurate meas possible
C	D-0119 IMMS	black substance in mouth
C	D-0115 IMMS	
C	D-0116 IMMS	
C	D-0117 IMMS	
C	D-0120 IMMS	
C	D-0121 IMMS	
C	D-0122 IMMS	
C	D-0123 IMMS	
C	D-0124 IMMS	
C	D-0125 IMMS	
C	D-0126 IMMS	
C	D-0127 IMMS	
C	D-0128 IMMS	
C	D-0129 IMMS	
C	D-0130 IMMS	
C	D-0164 IMMS	
C	D-0165 IMMS	
C	D-0166 IMMS	
C	D-0167 IMMS	
C	D-0168 IMMS	
C	D-0169 IMMS	
C	D-0131 IMMS	
C	D-0132 IMMS	
C	L-0015 IMMS	incidentally captured on hook and line; taken to IMMS for rehab

C	L-0014 IMMS	washed ashore alive
C	D-0133 IMMS	
C	D-0134 IMMS	
C	D-0135 IMMS	
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C	D-0150 IMMS	
C	D-0151 IMMS	
C	D-0152 IMMS	
C	D-0153 IMMS	
C	D-0154 IMMS	
C	D-0172 IMMS	
C	L-0016 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	D-0156 IMMS	
C	D-0157 IMMS	
C	D-0158 IMMS	
C	D-0159 IMMS	
C	D-0170 IMMS	
C	L-0017 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	L-0018 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	L-0019 IMMS	incidentally captured on hook and line; taken to IMMS for rehab

C	L-0020 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	D-0160 IMMS	
C	D-0171 IMMS	
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C		incidentally captured on hook and line; taken to IMMS for rehab
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C	only RRF present, head missing, most internal organs gone
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U	incidentally captured on hook and line; taken to IMMS for rehab, hook ingested
C	
U	
N	
N	
N	
N	
N	
N	
N	Severely decomposed, on beach
N	Severely decomposed, on beach
N	
N	
N	
N	

Microsoft Outlook

From: Sheryan Epperly [Sheryan.Epperly@noaa.gov]
Sent: Saturday, July 03, 2010 3:54 PM
To: Bonnie Ponwith; Theo Brainerd; Peter Thompson; Jim Bohnsack
Cc: Chris Sasso; Wendy Teas; Lisa Belskis; Lesley Stokes; Paul Richards; Kate L. Mansfield; Aleta Hohn; Joanne B Mcneill; Larisa Avens
Subject: Turtle Update - July 3, 2010 - Deepwater Horizon MC252
Attachments: Sea Turtle Strandings and Live Captures - Deepwater Horizon.xls; Mammal_Turtle_Data_2_July summary.pdf; Mammal_Turtle_Data_2_July.xls; MMST_Health_and_Stranding_Update_for 3 July (for activities 2 July) FINAL_2.doc

Wendy continues to coordinate the STSSN (see below and attached) and we receive daily reports and maps from the Wildlife Branch in Houma (see attached).

Kate Mansfield will review the NRDA proposal for the western Gulf of Mexico nesting beach study, which we received at the end of the week.

Lisa et al. are grounded now, as Lance deals with restrictions on airspace for the aerial surveys. I understand that we were not being allowed to continue flights below 1000'. The survey crew is still deployed while this gets worked out (our normal altitude is lower, 600', in order to sight sea turtles).

I assume that you have been reading the news and heard that several NGO's filed notice of intent to sue for violations of the ESA for the burn operations. I read (but haven't heard from reliable sources) that there has been a resolution that will entail placing many more observers on the response vessels. I don't know what that means for us - whether we could be tasked with training those observers or not.

Also, the hopper dredges arrived on site to begin dredging and building the Louisiana berm. Hopper dredges working outside the Mississippi River proper are required to carry observers to look for impacted protected species and to use relocation trawlers in front of the dredge to catch and relocate sea turtles. The ACOE and its contractors are scrambling to get the trawlers in place. Evidently, one hang up is that although the observers have had HAZWOPER training the vessels' crews have not.

The rest of the team was standing down.

-------- Original Message --------
Subject: 7/2 Strandings and Live Capture Update - Non-oiled and Oiled Turtles - Deepwater Horizon
Date: Fri, 02 Jul 2010 22:38:59 -0400
From: Wendy.Teas@noaa.gov
To: HoumaICC MMST <HoumaICC.MMST@noaa.gov>, MobileICC MMST <MobileICC.MMST@noaa.gov>, "Sheryan.Epperly" <Sheryan.Epperly@noaa.gov>, Bonnie Ponwith <Bonnie.Ponwith@noaa.gov>, Lisa Belskis <Lisa.Belskis@noaa.gov>, Chris Sasso <Chris.Sasso@noaa.gov>, Brian Stacy <Brian.Stacy@noaa.gov>, Paul Richards <Paul.Richards@noaa.gov>, "Karen.Mitchell" <Karen.Mitchell@noaa.gov>, _NMFS SER Emergency Consult <nmfs.ser.emergency.consult@noaa.gov>

There were 2 strandings reported / verified today:
FL - 0
AL - 2 oiled turtles - 1 dead Kemp's ridley, 1 live unknown (on way to pick up at time of report)- will be taken to IMMS for deoiling and rehab
MS - 0
LA - 0

There were two reports of dead floating turtles in Missisippi but bad weather/lightning prevented recovery attempts.

There was one live turtle recovered today by a LDWF live capture group -
it was a large loggerhead found approx 31 miles offshore of Grand Isle,
not oiled, emaciated, taken to Audubon for rehab.

See attached Excel file for details.

Update through July 2, 2010 (as of 1800)

Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period

- Increase of 2 turtle strandings (1 dead in AL and 1 live in AL, both oiled).
- One live debilitated loggerhead recovered by LDWF working offshore.
- Increase of 1 dead dolphin stranding (MS).
- Necropsies were completed on three dolphin carcasses at IMMS.
- Additional calls of dolphins in oil but no animals were observed in distress (LA).
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols.

Sea Turtles

Total Turtle Numbers (includes various corrections/edits from prior dates as data go through QA/QC; these corrections are not reflected in increase-decrease statements, those statements refer only to yesterday's stranding/capture events)

598 total sea turtles verified to date within the "designated spill area" (increase of 3 from July 2 report)

- 491 stranded* (increase of 2 from July 2)
  - 436 of the stranded were found dead (increase of 1 from July 2)
  - 55 of the stranded were found alive (increase of 1 from July 2)
    - 4 recovered alive but died in rehab (no change from July 2)
    - 4 turtles released alive (no change from July 2)
    - 47 live turtles in rehabilitation (increase of 1 from July 2)
- 107 turtles collected during directed turtle sampling efforts (increase of 1from July 2)
  - 100 live turtles in rehabilitation (increase of 1 from July 2)
  - 4 turtles collected dead (no change from July 2)
  - 3 turtles died in rehabilitation (no change from July 2)

* For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 436 dead stranded, 4 dead directed capture, and 7 that died in rehab):

- 7 assessed and unable to perform necropsies (i.e. advance decomposition) (no change from July 2)
- 17 partial necropsies (e.g. due to scavenging or autolysis) (no change from July 2)
- 59 full necropsies performed (no change from July 2)
- 49 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from July 2)

Update through July 2, 2010 (as of 1800)

- 315 carcasses to be necropsied, if decomposition stage warrants (increase of 1 from July 2)
- Of the initial 75 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. Further results are pending.

Information on Signs of Sea Turtle Oiling:

- To date, visible evidence of oil has been documented externally on 9 dead stranded sea turtle and 10 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 93 live sea turtles and 3 dead sea turtle captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from June 1- July 2 is 234.
- This is much higher than the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. The breakdown by state for the range of animals historically stranding in the month of June (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-1 stranded sea turtles
    - Alabama: 0-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 5-17 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles; however, we do not believe this factor fully explains the increase.

Marine Mammals

Total Mammal Numbers

56 dolphins have been verified to date within the "designated spill area" (increase of 1 from July 2).

- 52 were dead stranded* dolphins (increase of 1 July 2)
- 5 were live stranded dolphins (no change from July 2)
    - 2 died shortly after stranding (no change from July 2)
    - 1 euthanized upon stranding (no change from July 2)
    - 1 stranded live and freed immediately (no change from July 2)
    - 1 live and in care (no change from July 2)

1 dead stranded sperm whale has been verified to date within the "designated spill area" (no change from July 2)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR

Update through July 2, 2010 (as of 1800)

- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status (of the 52 dead stranded and 3 live stranded dolphins that died or were euthanized):

- 27 assessed and unable to perform necropsies (e.g. advanced decomposition) no change from July 2)
- 11 partial necropsies performed (e.g. due to scavenging or autolysis) (increase of 3 from July 2)
- 11 full necropsies performed (no change from July 2)
- 6 verified strandings but animals not collected due to stage of decomposition or unable to recover (increase of 1 from July 2)
- 1 carcass to be necropsied, if decomposition stage warrants (decrease of 3 from July 2)
- Necropsy results are pending for all animals necropsied to date.

Whale Necropsy Status (of the 1 dead stranded):

- 0 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 2)
- 0 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 2)
- 0 full necropsies performed (no change from July 2)
- 1 verified stranding but animal not collected due to stage of decomposition or unable to recover (no change from July 2)
- 0 carcasses to be necropsied, if decomposition stage warrants (no change from July 2)

Information on Signs of Mammal Oiling:

- Dolphins: Five of the verified dolphins had evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to determine whether the three dead stranded animals were externally oiled pre- or post-mortem. All other necropsy findings are pending.
- Whales: The verified whale had no evidence of external oil.

Historical Dolphin Strandings

- The total number of dolphin strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from June 1 - July 2 is 27.
- This is higher than the number of marine mammal strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.
- The breakdown by state for the range of animals historically stranding in June (2003-2007) is as follows:

Update through July 2, 2010 (as of 1800)

- Louisiana: 0-5 stranded dolphins
- Mississippi: 0-1 stranded dolphins
- Alabama : 0-1 stranded dolphins
- Florida panhandle: 0-4 stranded dolphins

Historical Whale Strandings

- The total number of whale strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from June 1 - July 2 is 1.
- There are no records of stranded whales in the Gulf of Mexico for June (2003-2007).

Summary of Action Plan Items:

- On-water direct turtle capture operations under Unified Command's Wildlife Branch were prohibited from leaving the dock in Destin, FL today due to BP personnel on the dock instructing all VOO's to remain at the dock due to weather in near shore areas. The on-water search team intended to work and considered the NOAA marine forecast for offshore areas acceptable for their work and equivalent to conditions they have been working under out of Venice, LA.
- A team from USFWS and NMFS conducted a site visit of the Audubon Aquatic Center rehabilitation facility for sea turtles transferred there under Unified Command efforts. A formal report will be provided to USFWS, the federal permit issuing authority.
- Training for Unified Command contracted turtle observers for in-situ burning and skimmer operations will begin tomorrow out of Destin, FL with the on-water capture team.
- The Wildlife Operations Branches of Houma and Mobile are working to resolve resource allocation issues at the Mobile command sector which are hindering response efforts.

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Defined Categories of Stranded Marine Mammals/Sea Turtles During MC 252 Spill

1) Visibly Oiled
   a. Evidence of external oiling (live or dead animals); or
   b. Evidence of internal oiling on initial exam: Oil in oral cavity, nares or blowhole (live or dead animals); or
   c. Evidence of internal oiling on necropsy: Oil in esophagus, gastrointestinal tract and/or respiratory tract (dead animals).
2) Not Visibly Oiled: Do not meet criteria above. Note not visibly oiled does not imply cause of death nor whether this event impacted the animal.

Procedures for Determining Oiling Status in Marine Mammals or Sea Turtles

1) Upon report of stranded animal, designated members of the Wildlife Branch (trained to appropriate evidence collection and Chain of Custody procedure) will be dispatched to the site for initial evaluation.

2) All animals within the "designated spill area" will be immediately externally evaluated, sampled, and photographed following NOAA's "Marine Mammal Oil Spill Response Guidelines" or the established "Sea Turtle MS 252 Response Guidelines".
   a. All animals within a specified distance that affected mammals or turtles may travel or float after being affected (distance to be determined upon daily consultation with the Envt Unit within the Planning Section and the NRDA Unit) will be immediately externally evaluated and, if suspicious, will be externally sampled.
   b. Those animals not within or adjacent to the "designated spill area" should *not* be considered as part of this spill and not be accounted for in the spill documentation (but standard stranding procedures should be followed).
3) All stranded animals will be grossly evaluated by necropsy (cetacea at site of stranding, at the primary care facility, or at a pre-determined necropsy site if logistically feasible, sea turtles at the primary care facility or at a designated remote pathology center).
   a. For certain carcasses, such as turtles with open coelomic cavities or dolphins in advanced state of decomposition and no intact GI tract, it may not be possible to pathologically determine cause of death or pathologies and collect useable tissues. The sampling of these animals will be for the presence of external oil only.

4) Oiling status will be determined based on external and internal gross evaluation. NOTE THAT THE DETERMINATION OF OILING STATUS DOES NOT ESTABLISH SUB-APPARENT OIL EXPOSURE OR THE CAUSE OF DEATH. In fact, some gross pathological changes, such as respiratory damage or significant irritation to ocular tissues or mucous membranes, can be associated with oil exposure. The determination of these types of impacts must come from further evaluation of the samples and other evidence, such as histopathological evaluation of tissues and/or PAH analysis of the biological samples.

Summary Totals

	TOTAL Dolphins						
	Live			Dead			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	1	31	0	32
Subtotal 1 Jun-30 Jun	2	3	0	2	12	5	24
1-Jul-10	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	1	0	1
Category Totals	2	3	0	3	44	5	57
Species Total	57						

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Summary Totals

	TOTAL Whales						
	Live			Dead			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	1	1
1-Jul-10	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0
Category Totals	0	0	0	0	0	1	1
Species Total	1						

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Summary Totals

	TOTAL Turtles												
	Live Strandings			Dead Strandings			Live Directed Captures			Dead Directed Captures			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	2	17	0	1	82	153	10	0	0	0	0	0	265
Subtotal 1 Jun-30 Jun	7	25	1	7	0	194							330
1-Jul-10	0	0	0	0	0	0							0
2-Jul-10	1	0	0	1	0	0	0	1	0	0	0	0	3
Category Totals	10	42	1	9	82	347	94	9	0	3	0	1	598
Species Total	598												

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Status Summary

Dolphin Status	
Total Verified Dolphins	**57**
Total dead stranded dolphins	52
Total live dolphins currently in rehabilitation	1
Total live dolphins stranded that died in care	3
Total live released dolphins	1
Dolphin Necropsy Status	
Number collected and unable to perform necropsies (e.g., advanced decomposition)	27
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	11
Number of full necropsies performed	11
Verified strandings but animals not collected due to stage of decomposition or unable to recover	6
Carcasses to be necropsied, if decomposition stage warrants	0

Whale Status	
Total Verified Whales	**1**
Total dead stranded whales	1
Total live whales currently in rehabilitation	0
Total live whales stranded that died in care	0
Total live released whales	0
Whale Necropsy Status	
Number collected and unable to perform necropsies (e.g., advanced decomposition)	0
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	0
Number of full necropsies performed	0
Verified strandings but animals not collected due to stage of decomposition or unable to recover	1
Carcasses to be necropsied, if decomposition stage warrants	0

Turtle Status	
Total Verified Turtles	**598**
Total turtles found dead	442
Total live turtles currently in rehabilitation	145
Total live turtles that died in rehabilitation	7
Total live turtles released	4
Turtle Necropsy Status	
Number collected and unable to perform necropsies (e.g., advanced decomposition)	7
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	17
Number of full necropsies performed	59
Verified strandings but animals not collected due to stage of decomposition or unable to recover	46
Carcasses to be necropsied, if decomposition stage warrants	320

Dolphins

	TOTAL Dolphins						
	Live			Dead			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Date Totals
Subtotal 30 Apr-31 May	**0**	**0**	**0**	**1**	**31**	**0**	**32**
Subtotal 1 Jun-30 Jun	**2**	**3**	**0**	**2**	**12**	**5**	**24**
1-Jul-10	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	1	0	1
TOTALS	**2**	**3**	**0**	**3**	**44**	**5**	**57**
Species Total	**57**						

	Dolphins - FLORIDA					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	1	2	0	0	1	0
1-Jul-10	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0
TOTALS	1	2	0	0	1	0
Species Total	4					

	Dolphins - MISSISSIPPI					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	8	0
Subtotal 1 Jun-30 Jun	0	0	0	1	2	3
1-Jul-10	0	0	0	0	0	0
2-Jul-10	0	0	0	0	1	0
TOTALS	0	0	0	1	11	3
Species Total	15					

	Dolphins - ALABAMA					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	3	0
Subtotal 1 Jun-30 Jun	1	0	0	0	0	2
1-Jul-10	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0
TOTALS	1	0	0	0	3	2
Species Total	6					

	Dolphins - LOUISIANA					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	1	20	0
Subtotal 1 Jun-30 Jun	0	1	0	1	9	0
1-Jul-10	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0
TOTALS	0	1	0	2	29	0
Species Total	32					

As of 6/6/2011 5:55 PM

Whales

	TOTAL Whales						
	Live			Dead			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	1	1
1-Jul-10	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0
Category Totals	0	0	0	0	0	1	1
Species Group Total	1						

	Whales - FLORIDA					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	0
1-Jul-10	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0
Species Total	0					

	Whales - MISSISSIPPI					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	0
1-Jul-10	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0
Species Total	0					

	Whales - ALABAMA					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	0
1-Jul-10	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0
Species Total	0					

	Whales - LOUISIANA					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	0
1-Jul-10	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0
Species Total	0					

	Whales - Off-Shore					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	1
1-Jul-10	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0
TOTALS	0	0	0	0	0	1
Species Total	1					

Turtles

	TOTAL Turtles												
	Live Strandings			Dead Strandings			Live Directed Captures			Dead Directed Captures			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	**2**	**17**	**0**	**1**	**82**	**153**	**10**	**0**	**0**	**0**	**0**	**0**	**265**
Subtotal 1 Jun-30 Jun	**7**	**25**	**1**	**7**	**0**	**194**	**84**	**8**	**0**	**3**	**0**	**1**	**330**
1-Jul-10	0	0	0	0	0	0							**0**
2-Jul-10	1	0	0	1	0	0	0	1	0	0	0	0	**3**
Category Totals	**10**	**42**	**1**	**9**	**82**	**347**	**94**	**9**	**0**	**3**	**0**	**1**	**598**
Species Total	**598**												

	Turtles - FLORIDA					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	4	0	0	0	27
Subtotal 1 Jun-30 Jun	3	4	1	1	0	18
1-Jul-10	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0
TOTALS	3	8	1	1	0	45
Species Total	58					

	Turtles - MISSISSIPPI					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	9	0	0	75	22
Subtotal 1 Jun-30 Jun	0	19	0	0	0	126
1-Jul-10	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0
TOTALS	0	28	0	0	75	148
Species Total	251					

	Turtles - ALABAMA					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	2	0	0	5	43
Subtotal 1 Jun-30 Jun	3	0	0	3	0	23
1-Jul-10	0	0	0	0	0	0
2-Jul-10	1	0	0	1	0	0
TOTALS	4	2	0	4	5	66
Species Total	81					

	Turtles - LOUISIANA					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	2	2	0	1	2	61
Subtotal 1 Jun-30 Jun	1	2	0	3	0	27
1-Jul-10	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0
TOTALS	3	4	0	4	2	88
Species Total	101					

	Turtles - Dedicated On-Water Turtle Surveys					
	Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	10	0	0	0	0	0
Subtotal 1 Jun-30 Jun	84	8	0	3	0	1
1-Jul-10						
2-Jul-10	0	1	0	0	0	0
TOTALS	94	9	0	3	0	1
Species Total	107					

Summary Totals

	TOTAL Dolphins						
	Live			Dead			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	1	31	0	32
Subtotal 1 Jun-30 Jun	2	3	0	2	12	5	24
1-Jul-10	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	1	0	1
Category Totals	2	3	0	3	44	5	57
Species Total	57						

Defined Categories of Stranded Marine Mammals/Sea Turtles During MC 252 Spill

1) Visibly Oiled
   a. Evidence of external oiling (live or dead animals); or
   b. Evidence of internal oiling on initial exam: Oil in oral cavity, nares or blowhole (live or dead animals); or
   c. Evidence of internal oiling on necropsy: Oil in esophagus, gastrointestinal tract and/or respiratory tract (dead animals).
2) Not Visibly Oiled: Do not meet criteria above. Note not visibly oiled does not imply cause of death nor whether this event impacted the animal.

Procedures for Determining Oiling Status in Marine Mammals or Sea Turtles

1) Upon report of stranded animal, designated members of the Wildlife Branch (trained to appropriate evidence collection and Chain of Custody procedure) will be dispatched to the site for
2) All animals within the "designated spill area" will be immediately externally evaluated, sampled, and photographed following NOAA's "Marine Mammal Oil Spill Response Guidelines" or the established "Sea Turtle MS 252 Response Guidelines".
   a. All animals within a specified distance that affected mammals or turtles may travel or float after being affected (distance to be determined upon daily consultation with the Envt Unit within the Planning Section and the NRDA Unit) will be immediately externally evaluated and, if suspicious, will be externally sampled.
   b. Those animals not within or adjacent to the "designated spill area" should *not* be considered as part of this spill and not be accounted for in the spill documentation (but standard stranding procedures should be followed).
3) All stranded animals will be grossly evaluated by necropsy (cetacea at site of stranding, at the primary care facility, or at a pre-determined necropsy site if logistically feasible, sea turtles at the primary care facility or at a designated remote pathology center).
   a. For certain carcasses, such as turtles with open coelomic cavities or dolphins in advanced state of decomposition and no intact GI tract, it may not be possible to pathologically determine cause of death or pathologies and collect useable tissues. The sampling of these animals will be for the presence of external oil only.
4) Oiling status will be determined based on external and internal gross evaluation. NOTE THAT THE DETERMINATION OF OILING STATUS DOES NOT ESTABLISH SUB-APPARENT OIL EXPOSURE OR THE CAUSE OF DEATH. In fact, some gross pathological changes, such as respiratory damage or significant irritation to ocular tissues or mucous membranes, can be associated with oil exposure. The determination of these types of impacts must come from further evaluation of the samples and other evidence, such as histopathological evaluation of tissues and/or PAH analysis of the biological

Summary Totals

	TOTAL Whales						
	Live			Dead			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	1	1
1-Jul-10	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0
Category Totals	0	0	0	0	0	1	1
Species Total	1						

Defined Categories of Stranded Marine Mammals/Sea Turtles During MC 252 Spill

1) Visibly Oiled
   a. Evidence of external oiling (live or dead animals); or
   b. Evidence of internal oiling on initial exam: Oil in oral cavity, nares or blowhole (live or dead animals); or
   c. Evidence of internal oiling on necropsy: Oil in esophagus, gastrointestinal tract and/or respiratory tract (dead animals).
2) Not Visibly Oiled: Do not meet criteria above. Note not visibly oiled does not imply cause of death nor whether this event impacted the animal.

Procedures for Determining Oiling Status in Marine Mammals or Sea Turtles

1) Upon report of stranded animal, designated members of the Wildlife Branch (trained to appropriate evidence collection and Chain of Custody procedure) will be dispatched to the site for
2) All animals within the "designated spill area" will be immediately externally evaluated, sampled, and photographed following NOAA's "Marine Mammal Oil Spill Response Guidelines" or the established "Sea Turtle MS 252 Response Guidelines".
   a. All animals within a specified distance that affected mammals or turtles may travel or float after being affected (distance to be determined upon daily consultation with the Envt Unit within the Planning Section and the NRDA Unit) will be immediately externally evaluated and, if suspicious, will be externally sampled.
   b. Those animals not within or adjacent to the "designated spill area" should *not* be considered as part of this spill and not be accounted for in the spill documentation (but standard stranding procedures should be followed).
3) All stranded animals will be grossly evaluated by necropsy (cetacea at site of stranding, at the primary care facility, or at a pre-determined necropsy site if logistically feasible, sea turtles at the primary care facility or at a designated remote pathology center).
   a. For certain carcasses, such as turtles with open coelomic cavities or dolphins in advanced state of decomposition and no intact GI tract, it may not be possible to pathologically determine cause of death or pathologies and collect useable tissues. The sampling of these animals will be for the presence of external oil only.
4) Oiling status will be determined based on external and internal gross evaluation. NOTE THAT THE DETERMINATION OF OILING STATUS DOES NOT ESTABLISH SUB-APPARENT OIL EXPOSURE OR THE CAUSE OF DEATH. In fact, some gross pathological changes, such as respiratory damage or significant irritation to ocular tissues or mucous membranes, can be associated with oil exposure. The determination of these types of impacts must come from further evaluation of the samples and other evidence, such as histopathological evaluation of tissues and/or PAH analysis of the

Summary Totals

	TOTAL Turtles												
	Live Strandings			Dead Strandings			Live Directed Captures			Dead Directed Captures			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	2	17	0	1	82	153	10	0	0	0	0	0	265
Subtotal 1 Jun-30 Jun	7	25	1	7	0	194							330
1-Jul-10	0	0	0	0	0	0							0
2-Jul-10	1	0	0	1	0	0	0	1	0	0	0	0	3
Category Totals	10	42	1	9	82	347	94	9	0	3	0	1	598
Species Total	598												

Defined Categories of Stranded Marine Mammals/Sea Turtles During MC 252 Spill

1) Visibly Oiled

a. Evidence of external oiling (live or dead animals); or

b. Evidence of internal oiling on initial exam: Oil in oral cavity, nares or blowhole (live or dead animals); or

c. Evidence of internal oiling on necropsy: Oil in esophagus, gastrointestinal tract and/or respiratory tract (dead animals).

2) Not Visibly Oiled: Do not meet criteria above. Note not visibly oiled does not imply cause of death nor whether this event impacted the animal.

Procedures for Determining Oiling Status in Marine Mammals or Sea Turtles

1) Upon report of stranded animal, designated members of the Wildlife Branch (trained to appropriate evidence collection and Chain of Custody procedure) will be dispatched to the site for initial evaluation.

2) All animals within the "designated spill area" will be immediately externally evaluated, sampled, and photographed following NOAA's "Marine Mammal Oil Spill Response Guidelines" or the established "Sea Turtle MS 252 Response Guidelines".

a. All animals within a specified distance that affected mammals or turtles may travel or float after being affected (distance to be determined upon daily consultation with the Envt Unit within the Planning Section and the NRDA Unit) will be immediately externally evaluated and, if suspicious, will be externally sampled.

b. Those animals not within or adjacent to the "designated spill area" should *not* be considered as part of this spill and not be accounted for in the spill documentation (but standard stranding procedures should be followed).

3) All stranded animals will be grossly evaluated by necropsy (cetacea at site of stranding, at the primary care facility, or at a pre-determined necropsy site if logistically feasible, sea turtles at the primary care facility or at a designated remote pathology center).

a. For certain carcasses, such as turtles with open coelomic cavities or dolphins in advanced state of decomposition and no intact GI tract, it may not be possible to pathologically determine cause of death or pathologies and collect useable tissues. The sampling of these animals will be for the presence of external oil only.

4) Oiling status will be determined based on external and internal gross evaluation. NOTE THAT THE DETERMINATION OF OILING STATUS DOES NOT ESTABLISH SUB-APPARENT OIL EXPOSURE OR THE CAUSE OF DEATH. In fact, some gross pathological changes, such as respiratory damage or significant irritation to ocular tissues or mucous membranes, can be associated with oil exposure. The determination of these types of impacts must come from further evaluation of the samples and other evidence, such as histopathological evaluation of tissues and/or PAH analysis of the biological samples.

Status Summary

Dolphin Status	
Total Verified Dolphins	**57**
Total dead stranded dolphins	52
Total live dolphins currently in rehabilitation	1
Total live dolphins stranded that died in care	3
Total live released dolphins	1
Dolphin Necropsy Status	
Number collected and unable to perform necropsies (e.g., advanced decomposition)	27
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	9
Number of full necropsies performed	13
Verified strandings but animals not collected due to stage of decomposition or unable to recover	5
Carcasses to be necropsied, if decomposition stage warrants	1

Whale Status	
Total Verified Whales	**1**
Total dead stranded whales	1
Total live whales currently in rehabilitation	0
Total live whales stranded that died in care	0
Total live released whales	0
Whale Necropsy Status	
Number collected and unable to perform necropsies (e.g., advanced decomposition)	0
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	0
Number of full necropsies performed	0
Verified strandings but animals not collected due to stage of decomposition or unable to recover	1
Carcasses to be necropsied, if decomposition stage warrants	0

Turtle Status	
Total Verified Turtles	**598**
Total turtles found dead	442
Total live turtles currently in rehabilitation	145
Total live turtles that died in rehabilitation	7
Total live turtles released	4
Turtle Necropsy Status	
Number collected and unable to perform necropsies (e.g., advanced decomposition)	7
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	17
Number of full necropsies performed	59
Verified strandings but animals not collected due to stage of decomposition or unable to recover	46
Carcasses to be necropsied, if decomposition stage warrants	320

Date	Stranding Reference	Species	ReportType	Condition	Disposition	Status	State
5/2/2010	MRC20100502-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/2/2010	MRC20100502-02	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	SNW20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	JMI20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	MPW20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	SNW20100504-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	SNW20100504-02	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	FXM20100504-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/5/2010	MPW20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/5/2010	MRC20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/6/2010	MPW20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/6/2010	MPW20100506-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/7/2010	MPW20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/7/2010	MPW20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/8/2010	ANR20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/8/2010	JMI20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/10/2010	JMI20100510-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/11/2010	MPW20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MPW20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MPW20100513-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/14/2010	LAJ20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/16/2010	LAJ20100516-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/17/2010	MRC20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MRC20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/19/2010	LAJ20100519-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/19/2010	JMI20100519-01	Lepidochelys kempii	Stranding	Alive	Released		AL
5/20/2010	LAJ20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL

5/20/2010	LAJ20100520-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/20/2010	LAJ20100520-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/21/2010	MPW20100521-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/22/2010	RLR20100522-01	Lepidochelys kempii	Stranding	Alive	Rehab-Died	Necropsied	AL
5/22/2010	JMI20100522-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/22/2010	JMI20100522-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/23/2010	JMI20100523-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/23/2010	JMI20100523-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/28/2010	20100528	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/29/2010	20100529	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/3/2010	JMI20100603-01	Caretta caretta	Stranding	Alive	Rehab	Rehab-IMMS	AL
6/4/2010	20100604	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/5/2010	RLR20100605-01	Eretmochelys imbricata	Stranding	Alive	Rehab	Rehab-IMMS	AL
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/6/2010	20100606	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/6/2010	20100606	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/7/2010	20100607	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/9/2010	20100609	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/11/2010	20100611	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/16/2010	20100616	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL

6/21/2010	20100621	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/21/2010	20100621	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/23/2010	20100623	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/25/2010	20100625	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
6/27/2010	20100627	Unknown	Stranding	Dead	Salvaged	Frozen-DI	AL
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/30/2010	20100630	Chelonia mydas	Stranding	Alive	Rehab	Rehab-IMMS	AL
5/8/2010	NME20100508-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/8/2010	NME20100508-02	Caretta caretta	Stranding	Alive	Rehab-Died	Frozen-GV	FL
5/8/2010	NME20100508-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/10/2010	MEM20100510-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/11/2010	MAN20100511-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/12/2010	JWM20100512-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/13/2010	AVH20100513-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/14/2010	VEL20100514-01	Caretta caretta	Stranding	Alive	Rehab-Died	Frozen-GV	FL
5/14/2010	MEC20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/15/2010	NME20100515-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	NME20100517-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	MAN20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	MAN20100517-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	SSM20100517-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/18/2010	WAJ20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/18/2010	JRJ20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/18/2010	CTS20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	NME20100519-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	NME20100519-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	MAN20100519-01	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
5/20/2010	WAJ20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	BAE20100520-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL

5/20/2010	20100520	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	MAN20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/21/2010	MAN20100521-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
5/24/2010	NME20100524-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/24/2010	GWG20100524-01	Caretta caretta	Stranding	Dead	Left on beach		FL
5/25/2010	NME20100525-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/27/2010	MJH20100527-01	Caretta caretta	Stranding	Dead	Buried		FL
5/28/2010	VXW20100528-01	Chelonia mydas	Stranding	Dead	Buried		FL
5/30/2010	NAD20100530-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/1/2010	NME20100601-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/6/2010	20100606	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/7/2010	NAD20100607-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/7/2010	NME20100607-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/9/2010	RAB20100609-01	Lepidochelys kempii	Stranding	Alive	Released		FL
6/10/2010	20100610	Eretmochelys imbricata	Stranding	Alive	Rehab	Rehab-GulfWorld	FL
6/11/2010	20100611	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/11/2010	20100611	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/12/2010	20100612	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
6/12/2010	20100612	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/12/2010	20100612	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/13/2010	20100613	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/14/2010	20100614	Caretta caretta	Stranding	Dead	Buried		FL
6/15/2010	20100615	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/16/2010	20100616	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/18/2010	20100618	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-GulfWorld	FL
6/22/2010	KEG20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/22/2010	NME20100622-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/22/2010	NME20100622-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/22/2010	20100622	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	FL
6/28/2010	SXH20100628-01	Chelonia mydas	Stranding	Alive	Rehab	Rehab-GulfWorld	FL

6/30/2010	20100630	Unknown	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/30/2010	20100630	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-NOAA	FL
5/1/2010	MJF20100504-01	Unknown	Stranding	Dead	Left on beach		LA
5/1/2010	MJF20100504-02	Unknown	Stranding	Dead	Left on beach		LA
5/3/2010	XXX20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/3/2010	20100503	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/5/2010	JAL20100505-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
5/7/2010	MXC20100507-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-05	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-06	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-07	Caretta caretta	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-08	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-09	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-10	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-11	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-12	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-13	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-14	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	GXP20100507-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen	LA
5/10/2010	CSE20100510-01	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/10/2010	CSE20100510-02	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/10/2010	MXC20100510-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-05	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
5/11/2010	20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/11/2010	20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/12/2010	MXC20100512-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/12/2010	MXC20100512-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA

5/12/2010	MXC20100512-03	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
5/12/2010	MXC20100512-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	MXT20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	JEB20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	MXC20100513-01	Eretmochelys imbricata	Stranding	Dead	Left on beach		LA
5/13/2010	MXC20100513-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/13/2010	20100513	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/14/2010	MXC20100514-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
5/16/2010	MXH20100516-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-05	Caretta caretta	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-06	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-07	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-08	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-09	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/17/2010	MXT20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/17/2010	AXL20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/18/2010	SDD20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/19/2010	20100519	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/20/2010	NXX20100520-01	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/22/2010	20100522	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/22/2010	20100522	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/23/2010	20100523	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/24/2010	20100524	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/24/2010	20100524	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA

5/28/2010	20100528	Lepidochelys kempii	Skimmer	Alive	Rehab	Rehab-AOA	LA
5/29/2010	20100529	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/31/2010	20100531	Lepidochelys kempii	Skimmer	Alive	Rehab	Rehab-AOA	LA
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/7/2010	20100607	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/7/2010	20100607	Unknown	Stranding	Dead	Salvaged	Frozen	LA
6/8/2010	20100608	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/9/2010	20100609	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
6/9/2010	20100609	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/10/2010	20100610	Unknown	Stranding	Dead	Salvaged	Frozen	LA
6/12/2010	20100612	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/14/2010	20100614	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/15/2010	20100615	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/15/2010	20100615	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/17/2010	20100617	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
6/18/2010	20100618	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/21/2010	20100621	Caretta caretta	Stranding	Dead	Salvaged	Frozen	LA
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/25/2010	20100625	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-AOA	LA
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/27/2010	20100627	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA

6/27/2010	20100627	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-will be tra	LA
4/26/2010	CNH20100426-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	CNH20100430-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	TTH20100430-01	Lepidochelys kempii	Stranding	Alive	Rehab-Died	Necropsied	MS
5/1/2010	KMF20100501-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	EXP20100501-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	KMF20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	KMF20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	KMF20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS

5/3/2010	WLH20100503-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	EXP20100504-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/5/2010	WLH20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/5/2010	DKV20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	SXC20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JBT20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	CLM20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JBT20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	MMK20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	SAH20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JKM20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	SAH20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JNF20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JNF20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JKM20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	WLH20100510-01	Caretta caretta	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/10/2010	WLH20100510-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/10/2010	ZHS20100510-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/11/2010	BTN20100511-01	Caretta caretta	Stranding	Dead	Salvaged	Necropsied	MS

5/12/2010	ZHS20100512-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/13/2010	JXS20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/13/2010	CNH20100514-01	Caretta caretta	Stranding	Dead	Left on beach		MS
5/14/2010	JNF20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/14/2010	JNF20100514-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/14/2010	SAH20100514-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/15/2010	LMJ20100515-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/15/2010	LMJ20100515-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/15/2010	JKM20100515-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/15/2010	JKM20100515-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/15/2010	KMM20100515-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/16/2010	EXJ20100516-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/18/2010	KPB20100518-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/18/2010	KPB20100518-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
5/18/2010	WLH20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/19/2010	MDH20100519-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/19/2010	MDH20100519-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/20/2010	TTH20100520-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/20/2010	JNF20100520-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/20/2010	JNF20100520-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/21/2010	RDS20100521-01	Caretta caretta	Stranding	Dead	Left on beach		MS
5/21/2010	JNF20100521-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/21/2010	JNF20100521-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/22/2010	TTH20100522-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/24/2010	WLH20100524-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/24/2010	AJD20100524-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	JXB20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	CNH20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	WLH20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/27/2010	JBT20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS

5/27/2010	JKM20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/27/2010	MJB20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/28/2010	JNF20100528-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/28/2010	RAW20100528-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/3/2010	CNH20100603-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/4/2010	DKV20100604-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	KMM20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	JRS20100608-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	WLH20100607-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	KMH20100607-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
6/8/2010	WLH20100608-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/8/2010	WLH20100608-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	WLH20100609-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	WLH20100609-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS

6/10/2010	SLE20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	WLH20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	WLH20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	TTH20100611-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/11/2010	KMH20100611-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/11/2010	WLH20100611-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-09	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-10	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-11	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-12	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-13	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	CRS20100611-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS

6/12/2010	WLH20100612-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	RCL20100612-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	CRS20100612-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	JKM20100612-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/13/2010	CRS20100613-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	CRS20100613-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	CRS20100613-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	LCB20100613-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	LCB20100613-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	JKM20100613-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/13/2010	JKM20100613-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/13/2010	JKM20100613-03	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/13/2010	JKM20100613-04	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/14/2010	WLH20100614-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/15/2010	LCB20100615-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS

6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-09	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-10	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	TTJ20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	TTJ20100622-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	SKM20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/24/2010	SKM20100624-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/24/2010	SKM20100624-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/24/2010	TTJ20100624-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	TTJ20100625-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	SKM20100625-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS

6/25/2010	SKM20100625-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/26/2010	JKM20100626-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/26/2010	SKM20100626-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/26/2010	SKM20100626-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/26/2010	SKM20100626-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/27/2010	JKM20100627-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/27/2010	JKM20100627-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/28/2010	JKM20100628-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/28/2010	SKM20100628-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-IMMS	
6/28/2010	SKM20100628-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	
6/29/2010	20100629	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	
5/18/2010	BXW20100518-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/20/2010	MXT20100520-01	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA	
5/20/2010	MXT20100520-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-07	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-01	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-02	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-03	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-07	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-08	Eretmochelys imbricata	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-10	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	

6/1/2010	XXX20100601-01	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied
6/1/2010	XXX20100601-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	XXX20100601-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	XXX20100601-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	XXX20100601-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-01	Eretmochelys imbricata	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-05	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied
6/10/2010	BAS20100610-01	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied
6/10/2010	BAS20100610-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/10/2010	BAS20100610-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/10/2010	BAS20100610-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-08	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-09	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	20100613	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	20100613	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA

6/14/2010	BAS20100614-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-08	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-10	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-11	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-05	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-06	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-07	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-02	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/18/2010	20100618	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/20/2010	20100620	Chelonia mydas	Directed Capture	Dead	Salvaged	Frozen
6/21/2010	MCT20100621-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-02	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-05	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-06	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-08	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA

6/21/2010	MCT20100621-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-10	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/22/2010	BAS20100622-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/24/2010	BAS20100624-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/24/2010	BAS20100624-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/24/2010	BAS20100624-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/25/2010	BAS20100625-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-03	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-04	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-06	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/2/2010	20100702	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI
7/2/2010	20100702	Unknown	Stranding	Alive	Rehab	Rehab-IMMS
7/2/2010	20100702	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon

Descriptive Location	Latitude	Longitude	External oil?	TempLocation	Stranding	New	Alive
"Lots of Sand Dunes" Condo, Baldwin Co	30.232019	-87.936861	N	No	Yes	No	N
eastern point of Dauphin Island	30.250125	-88.075553	N	No	Yes	No	N
Dauphin Island	30.248253	-88.125822	N	No	Yes	No	N
floating 2 miles North of Fort Gaines	30.268880	-88.071720	N	No	Yes	No	N
Dauphin Island	30.332274	-88.132595	N	No	Yes	No	N
Dauphin Island	30.248253	-88.125822	N	No	Yes	No	N
Mobile Bay, 4 miles south of Fowl River	30.395431	-88.107261	N	No	Yes	No	N
Mobile Bay, 7287 Bay Rd	30.552467	-88.123317	N	No	Yes	No	N
floating off of Bayou La Batre	30.368167	-88.278317	N	No	Yes	No	N
Coden	30.445639	-88.109028	N	No	Yes	No	N
Dauphin Island	30.250164	-88.162886	N	No	Yes	No	N
Donnie Grace, bay side	30.249856	-88.202100	N	No	Yes	No	N
outside Weeks Bay toward Fish River Reef	30.367914	-87.839833	N	No	Yes	No	N
18261 Scenic Hwy 98	30.492133	-87.929833	N	No	Yes	No	N
Dauphin Island	30.249450	-88.172633	N	No	Yes	No	N
Gulf Shores	30.253417	-87.823317	N	No	Yes	No	N
Bayou La Batre	30.381033	-88.267233	N	No	Yes	No	N
pier across from Fort Morgan Museum	30.230283	-88.023694	N	No	Yes	No	N
Baldwin Co	30.250570	-87.828960	N	No	Yes	No	N
Baldwin Co	30.228430	-87.861390	N	No	Yes	No	N
Baldwin Co	30.231160	-87.928990	N	No	Yes	No	N
200 yds SE of city pier	30.245610	-88.124230	N	No	Yes	No	N
Hwy 193 past Hwy 188, Mobile Co	30.370900	-88.109670	N	No	Yes	No	N
east of Dauphin Is public fishing pier on Sand Is	30.247186	-88.125303	N	No	Yes	No	N
Little Dauphin Is, north side	30.274270	-88.111150	N	No	Yes	No	N
Audubon Place beach	30.243830	-88.092890	N	No	Yes	No	N
bay side of Sand Island	30.227653	-88.113175	N	No	Yes	No	N
Coden	30.377883	-88.241517	N	No	Yes	No	N
Mobile Bay, 1 mile south of Fowl River	30.425728	-88.103975	N	No	Yes	No	N
Hwy 98 on county rd 1, near Pelican Island	30.378320	-87.851020	N	No	Yes	No	N
Dauphin Island	30.247530	-88.124480	N	No	Yes	No	N
mouth of Bayou La Batre, Mobile Bay	30.375000	-88.285000	N	No	Yes	No	Y
Dauphin Island, west end	30.386400	-88.560983	N	No	Yes	No	N

Dauphin Island, west end	30.386400	-88.560983	N	No	Yes	No	N
Coden	30.006272	-88.004007	N	No	Yes	No	N
Dauphin Island	30.244817	-88.114433	N	No	Yes	No	N
Bayou La Batre	30.381586	-88.257034	N	No	Yes	No	Y
floating near Bayou La Batre	30.376750	-88.258480	N	No	Yes	No	N
Mobile Bay	30.591497	-88.063306	N	No	Yes	No	N
Shore Rd of CR12	30.358870	-87.832670	N	No	Yes	No	N
Plash Island	30.282700	-87.751230	N	No	Yes	No	N
Dauphin Island	30.250000	-88.200000	N	Yes	Yes	No	N
Dauphin Island	30.270000	-88.150000	N	Yes	Yes	No	N
Mobile Bay	30.400000	-88.100000	N	Yes	Yes	No	N
Mobile Bay	30.500000	-88.100000	N	Yes	Yes	No	N
Mobile Bay	30.300000	-87.750000	N	Yes	Yes	No	N
west end of Dauphin Island	30.220000	-88.330000	N	Yes	Yes	No	N
Dauphin Island, bayside	30.260000	-88.110000	N	Yes	Yes	No	N
Mobile Bay	30.300000	-87.970000	N	Yes	Yes	No	N
floating in MS Sound near Coden Bayou	30.350000	-88.220000	N	Yes	Yes	No	N
floating in Perdido Pass near Orange Beach	30.278471	-87.555537	Y	No	Yes	No	Y
floating south of Coden	30.374000	-88.240000	N	Yes	Yes	No	N
East Beach, Baldwin County	30.248301	-87.676815	Y	No	Yes	No	Y
Bon Secour Bay	30.300000	-87.875000	N	Yes	Yes	No	N
W Dauphin Island	30.250000	-88.060000	N	Yes	Yes	No	N
floating off of Bayou La Batre	30.340000	-88.310000	N	Yes	Yes	No	N
Mobile Bay, east side	30.450000	-87.930000	N	Yes	Yes	No	N
Mobile Bay, west side	30.450000	-88.090000	N	Yes	Yes	No	N
Gulf Shores	30.251060	-87.653670	N	No	Yes	No	N
Bayou La Batre	30.366460	-88.244330	N	No	Yes	No	N
~100 ft from Fairhope Municipal Pier	30.525780	-87.917040	N	No	Yes	No	N
Orange Beach	30.260000	-87.570000	Y	Yes	Yes	No	N
floating in Mobile Bay, Mobile side of bay	30.600000	-87.980000	N	Yes	Yes	No	N
floating in Bon Secour Bay	30.267240	-87.787240	N	No	Yes	No	N
floating in Bon Secour Bay	30.280430	-87.766780	N	No	Yes	No	N
floating in Mobile Bay, SE of Gaillard Island	30.371770	-88.065410	N	No	Yes	No	N
floating in Mobile Bay, NE of Dauphin Is. Bridge	30.332983	-88.130400	N	No	Yes	No	N

floating in Mobile Bay, btwn Dog River Bridge and (	30.531760	-88.022900	N	No	Yes	No	N
floating in Mobile Bay, NE of Fort Morgan	30.298020	-87.997720	N	No	Yes	No	N
northern part of Mobile Bay	30.590000	-88.000000	N	Yes	Yes	No	N
Mobile Bay, west side near Dog River	30.530000	-88.070000	N	Yes	Yes	No	N
Orange Beach	30.260000	-87.580000	Y	Yes	Yes	No	N
Bon Secour Bay	30.25917	-87.86152	N	No	Yes	No	N
Bayou La Batre	30.370583	-88.2809	N	No	Yes	No	N
a bay 2mi N. of Dauphin Island (part of Mobile Bay)	30.290183	-88.208166	N	No	Yes	No	N
Bon Secour Bay	30.27595	-87.76513	N	No	Yes	No	N
200 yds off of Gilliard Island in Mobile Bay	30.49744	-88.04932	N	No	Yes	No	N
Secador industrial west in Mobile bay	30.50712	-88.0789	Y	No	Yes	No	N
Dauphin Island	30.23	-88.15	Y	Yes	Yes	No	Y
Panama City Beach	30.19650	-85.84358	N	No	Yes	No	N
Panama City Beach	30.2442	-85.93718	N	No	Yes	No	Y
Panama City Beach	30.16782	-85.794	N	No	Yes	No	N
Panama City Beach	30.21513	-85.87758	N	No	Yes	No	N
Pensacola Beach	30.32589	-87.17208	N	No	Yes	No	N
St. Joseph Peninsula State Park	29.77851	-85.40833	N	No	Yes	No	N
Perdido Key State Park	30.28801	-87.47814	N	No	Yes	No	N
East Walton County Beach, Orange St access	30.2724	-86.00381	N	No	Yes	No	Y
Naval Live Oaks (Headquarters), GUIS	30.36422	-87.12725	N	No	Yes	No	N
Tyndall AFB, Archery Rd beach, east of marina	30.08165	-85.62992	N	No	Yes	No	N
Panama City Beach	30.18925	-85.83112	N	No	Yes	No	N
Perdido Key area of Gulf Islands NS	30.30350	-87.39394	N	No	Yes	No	N
Santa Rosa area of Gulf Islands NS	30.35489	-87.01419	N	No	Yes	No	N
west Walton County	30.37170	-86.34960	N	No	Yes	No	N
Crooked Island east, Tyndall AFB	29.95664	-85.47378	N	No	Yes	No	N
Crooked Island west, Tyndall AFB	30.02786	-85.56911	N	No	Yes	No	N
Walton County, east of Draper Lake	30.34060	-86.21480	N	No	Yes	No	N
Panama City Beach	30.26268	-85.97958	N	No	Yes	No	N
St. Andrews Bay, Bunkers Cove at yacht club	30.14250	-85.64920	N	No	Yes	No	N
Pensacola Beach	30.33619	-87.11075	N	No	Yes	No	Y
Tyndall AFB, Crooked Island east at boardwalk	29.95634	-85.45734	N	No	Yes	No	N
St. Joe Beach	29.90192	-85.36683	N	No	Yes	No	N

Rosemary Beach, Walton County	30.28000	-86.03000	N	Yes	Yes	No	N
Naval Live Oaks, south beach on Santa Rosa sound	30.36074	-87.14003	N	No	Yes	No	N
Perdido Key	30.29619	-87.42647	N	No	Yes	No	Y
Panama City, Baypoint Marina Yacht Club	30.14352	-85.72778	N	No	Yes	No	N
Navarre Beach	30.37590	-86.88760	N	No	Yes	No	N
St. Andrews Bay	30.16385	-85.68565	N	No	Yes	No	N
Pensacola Naval Air Station, Trout Point Beach	30.33185	-87.34040	N	No	Yes	No	N
W Escambia County, inshore, floating	30.31250	-87.49710	N	No	Yes	No	N
Cape San Blas	29.68224	-85.31182	N	No	Yes	No	N
St. Andrews Bay, Sun Harbor Marina, Panama City	30.18415	-85.73262	N	No	Yes	No	N
Panama City Beach	30.16000	-85.81000	N	Yes	Yes	No	N
St. Vincent NWR	29.67590	-85.21767	N	No	Yes	No	N
Port of Panama City	30.17795	-85.72493	N	No	Yes	No	N
Pensacola	30.29000	-87.25000	N	Yes	Yes	No	Y
Panama City, Inlet Beach	30.19000	-85.87000	N	Yes	Yes	No	Y
West Miramar Beach	30.37000	-86.40000	N	Yes	Yes	No	N
Pensacola	30.30000	-87.30000	N	Yes	Yes	No	Y
Navarre Beach	30.37000	-86.85000	N	Yes	Yes	No	N
approx 1 mile off of Pensacola Beach	30.28000	-87.18000	Y	Yes	Yes	No	Y
Eglin AFB, just east of Navarre Beach	30.37000	-86.86000	N	Yes	Yes	No	N
Pensacola Beach	30.25000	-87.20000	N	Yes	Yes	No	N
Pensacola Beach	30.30000	-87.20000	N	Yes	Yes	No	N
Pensacola Beach	30.27000	-87.45000	N	Yes	Yes	No	N
approx 1 mile off of Destin	30.35800	-86.49900	N	Yes	Yes	No	Y
Port St. Joe, Mexico Beach	29.90475	-85.36946	N	No	Yes	No	N
Tyndall AFB	30.06000	-85.62000	N	Yes	Yes	No	N
floating in St. Joe Bay	29.80000	-85.35000	N	Yes	Yes	No	Y
Eglin AFB, 100 yds east of A-11	30.39469	-86.71058	N	No	Yes	No	N
Panama City, access 59 west of city pier	30.21607	-85.87965	N	No	Yes	No	N
Panama City, Navy base behind the dive school	30.17280	-85.75803	N	No	Yes	No	N
Pensacola	30.30000	-87.20000	N	Yes	Yes	No	N
offshore Destin area	30.32000	-86.47000	N	Yes	Yes	No	Y
St. Andrews Bay	30.14	-85.7	N	Yes	Yes	No	N
Panama City area	30.23488	-85.90698	Y	No	Yes	No	Y

Perdido Key	30.29	-87.43	Y	Yes	Yes	No	N
St. Andrews State Park	30.1297	-85.7242	N	No	Yes	No	N
Elmers Island	29.17027	-90.08316	N	No	Yes	No	N
Elmers Island	29.18166	-90.06428	N	No	Yes	No	N
Slidell area, Lake Borgne	30.13447	-89.50054	N	No	Yes	No	N
Grand Isle	29.24	-89.98	N	Yes	Yes	No	N
Elmers Island	29.17235	-90.07981	N	No	Yes	No	N
Rutherford Beach	29.76692	-93.16193	N	No	Yes	No	N
Rutherford Beach	29.76879	-93.17164	N	No	Yes	No	N
Rutherford Beach	29.76972	-93.17667	N	No	Yes	No	N
Rutherford Beach	29.77171	-93.18671	N	No	Yes	No	N
Rutherford Beach	29.7732	-93.19467	N	No	Yes	No	N
Rutherford Beach	29.77341	-93.19683	N	No	Yes	No	N
Rutherford Beach	29.77354	-93.19756	N	No	Yes	No	N
Rutherford Beach	29.77576	-93.21589	N	No	Yes	No	N
Rutherford Beach	29.77738	-93.2461	N	No	Yes	No	N
Rutherford Beach	29.77728	-93.25497	N	No	Yes	No	N
Rutherford Beach	29.77728	-93.25497	N	No	Yes	No	N
Rutherford Beach	29.76578	-93.15643	N	No	Yes	No	N
Rutherford Beach	29.76119	-93.13665	N	No	Yes	No	N
Rutherford Beach	29.75513	-93.11017	N	No	Yes	No	N
floating near Slidell - Rigolets Pass	30.1588	-89.6505	N	No	Yes	No	N
Elmers Island	29.18184	-90.06364	N	No	Yes	No	N
Grand Isle	29.20786	-90.03112	N	No	Yes	No	N
Holly Beach	29.76897	-93.4392	N	No	Yes	No	N
Holly Beach	29.76879	-93.43438	N	No	Yes	No	N
Holly Beach	29.76922	-93.45638	N	No	Yes	No	N
Holly Beach	29.76897	-93.48772	N	No	Yes	No	N
Holly Beach	29.76771	-93.50714	N	No	Yes	No	N
Constance Beach	29.76031	-93.56936	N	No	Yes	No	N
Fourchon Beach	29.11	-90.18	N	Yes	Yes	No	N
Fourchon Beach	29.11	-90.18	N	Yes	Yes	No	N
Mae's Beach	29.74595	-93.68512	N	No	Yes	No	N
Mae's Beach	29.74582	-93.68592	N	No	Yes	No	N

Mae's Beach	29.7423	-93.70653	N	No	Yes	No	Y
Grand Isle	30.1086	-89.3545	N	No	Yes	No	N
Grand Terre	29.209166	-90.029166	N	No	Yes	No	N
Grand Isle	29.28435	-89.92149	N	No	Yes	No	N
Holly Beach	29.74232	-93.7065	N	No	Yes	No	N
Holly Beach	29.76391	-93.36438	N	No	Yes	No	N
found floating, location?	29.23	-89.99	N	Yes	Yes	No	N
Mae's Beach	29.7424	-93.7062	N	No	Yes	No	Y
Long Beach	29.7534	-93.6293	N	No	Yes	No	N
Long Beach	29.7509	-93.6492	N	No	Yes	No	N
Mae's Beach	29.7396	-93.7208	N	No	Yes	No	N
Constance Beach	29.7605	-93.5674	N	No	Yes	No	N
Holly Beach	29.7683	-93.5018	N	No	Yes	No	N
Holly Beach	29.7689	-93.441	N	No	Yes	No	N
Rutherford Beach	29.7555	-93.1114	N	No	Yes	No	N
Rutherford Beach	29.7513	-93.0941	N	No	Yes	No	N
Rutherford Beach	29.7498	-93.0873	N	No	Yes	No	N
Bayou Rigaud, floating	29.14436	-89.59246	N	No	Yes	No	N
Lake Pontchartrain, floating	30.205	-90.11194	N	No	Yes	No	N
Fourchon Beach	29.09	-90.21566	N	No	Yes	No	N
near Cocodrie	29.24	-90.66	N	Yes	Yes	No	N
4 mi NE of Fishing Smack Bay	30.003805	-89.20633	N	No	Yes	No	N
Grand Isle Beach	29.24	-89.99	N	Yes	Yes	No	N
Empire Jetty Beach	29.25412	-89.60345	N	No	Yes	No	N
Grand Terre	29.28	-89.92	N	Yes	Yes	No	N
Bayou Terrebonne by Bayou La Fleur	29.26	-90.64	N	Yes	Yes	No	N
Lake Chien	29.33	-90.44	N	Yes	Yes	No	N
Bayou Trove	29.2386	-89.53792	N	No	Yes	No	N
Grand Isle State Park	29.24	-89.97	Y	Yes	Yes	No	N
Queen Bess Island	29.3	-89.96	N	Yes	Yes	No	N
Lake Felicity, North of Timbalier Island	29.26	-90.4	N	Yes	Yes	No	N
Lake Felicity, North of Timbalier Island	29.26	-90.47	N	Yes	Yes	No	N
Lake Felicity, North of Timbalier Island	29.28	-90.42	N	Yes	Yes	No	N
Grand Isle Beach	29.2	-90.04	N	Yes	Yes	No	N

skimmer found ~50 mi S of Louisiana coastline, bro	28.4375	-89.8958	Y	No	Skimmer	No	Y
Cameron Parish beach	29.76	-93.34	N	Yes	Yes	No	N
skimmer found ~17 mi offshore Grand Isle	28.9932	-89.8412	Y	No	Skimmer	No	Y
Timbalier Island	29.04	-90.47	N	Yes	Yes	No	N
floating just offshore western LA beaches	29.76	-93.46	N	Yes	Yes	No	N
western Louisiana beaches	29.74	-93.42	N	Yes	Yes	No	N
western Louisiana beaches	29.74	-93.44	N	Yes	Yes	No	N
western Louisiana beaches	29.74	-93.46	N	Yes	Yes	No	N
Coup A Bel Pass	29.3	-89.9	Y	Yes	Yes	No	N
Marsh Island	29.5	-91.9	N	Yes	Yes	No	N
Barataria Bay	29.4	-89.94	Y	Yes	Yes	No	N
north Barataria Bay	29.43308	-89.88585	Y	No	Yes	No	N
western Louisiana, nearshore waters	29.7	-93	N	Yes	Yes	No	Y
Fourchon Beach	29.08	-90.14	N	Yes	Yes	No	N
no location info - est location in Chandeleur Sound	29.8	-89.1	N	Yes	Yes	No	Y
Rutherford Beach	29.74	-93.22	N	Yes	Yes	No	N
Rutherford Beach	29.72	-93.15	N	Yes	Yes	No	N
Rutherford Beach	29.72	-93.07	N	Yes	Yes	No	N
Fourchon Beach	29.1	-90.1	N	Yes	Yes	No	N
Slidell area	30.13	-89.57	N	Yes	Yes	No	N
Rollover Bayou (W LA near Rockefeller Refuge)	29.59	-92.7	N	Yes	Yes	No	N
Rollover Bayou (W LA near Rockefeller Refuge)	29.6	-92.6	N	Yes	Yes	No	N
Whiskey Island chain, south of Cocodrie	29.03	-90.75	N	Yes	Yes	No	N
Timbalier Island area - floating?	29.05	-90.47	N	Yes	Yes	No	N
west of Bayou La Fourche, north of jetties at Port F	29.1	-90.18	N	Yes	Yes	No	N
Timbalier Bay	29.1	-90.4	N	Yes	Yes	No	N
Lake Borgne	30.1	-89.6	N	Yes	Yes	No	N
floating in Terrebonne Bay, ~4-5 mi S of Cocodrie	29.15	-90.6	N	Yes	Yes	No	N
floating in Houma navigational channel	29.33	-90.73	N	Yes	Yes	No	N
Fourchon Beach	29.09139	-90.22365	N	No	Yes	No	N
Racoon Island	29.06263	-90.94988	N	No	Yes	No	N
Racoon Island	29.0624	-90.94663	N	No	Yes	No	N
off shore S.E. Of Port Fourchon	29.01988	-90.11865	Y	No	Yes	No	Y
Grand Isle Beach	29.19899	-90.04115	N	No	Yes	No	N

Grand Isle Beach	29.22781	-90.00005	N	No	Yes	No	N
Bay St. Louis	30.30880	-89.32590	N	No	Yes	No	N
Bay St. Louis	30.29410	-89.34320	N	No	Yes	No	N
Waveland	30.26410	-89.39200	N	No	Yes	No	N
Waveland	30.27260	-89.37750	N	No	Yes	No	N
Waveland	30.27360	-89.37640	N	No	Yes	No	N
Long Beach	30.34780	-89.13900	N	No	Yes	No	Y
Pass Christian	30.31481	-89.24207	N	No	Yes	No	N
Pass Christian	30.31071	-89.25556	N	No	Yes	No	N
Pass Christian	30.31460	-89.24252	N	No	Yes	No	N
Pass Christian	30.31080	-89.25728	N	No	Yes	No	N
Pass Christian	30.31295	-89.24477	N	No	Yes	No	N
Pass Christian	30.31082	-89.25535	N	No	Yes	No	N
Ocean Springs	30.40980	-88.84080	N	No	Yes	No	N
Bay St. Louis	30.31900	-89.32230	N	No	Yes	No	N
Waveland	30.28830	-89.36000	N	No	Yes	No	N
Waveland	30.28680	-89.36260	N	No	Yes	No	N
Pass Christian	30.30650	-89.26858	N	No	Yes	No	N
Pass Christian	30.30725	-89.26653	N	No	Yes	No	N
Bay St. Louis	30.30562	-89.32865	N	No	Yes	No	N
Pass Christian	30.32834	-89.19923	N	No	Yes	No	N
Pass Christian	30.30529	-89.27249	N	No	Yes	No	N
Pass Christian	30.32620	-89.20892	N	No	Yes	No	N
Pass Christian	30.32460	-89.21450	N	No	Yes	No	N
Biloxi	30.39289	-88.94716	N	No	Yes	No	N
Waveland	30.28865	-89.35290	N	No	Yes	No	N
Pass Christian	30.32824	-89.19985	N	No	Yes	No	N
Pass Christian	30.33144	-89.18568	N	No	Yes	No	N
Pass Christian	30.32144	-89.22351	N	No	Yes	No	N
Pass Christian	30.30750	-89.26659	N	No	Yes	No	N
Bay St. Louis	30.31558	-89.29004	N	No	Yes	No	N
Pass Christian	30.30525	-89.27421	N	No	Yes	No	N
Pass Christian	30.30989	-89.25963	N	No	Yes	No	N
Waveland	30.26362	-89.39346	N	No	Yes	No	N

Waveland	30.28670	-89.36321	N	No	Yes	No	N
Gulfport	30.35567	-89.11807	N	No	Yes	No	N
Waveland	30.24120	-89.42470	N	No	Yes	No	N
Gulfport	30.36948	-89.07825	N	No	Yes	No	N
Biloxi	30.39169	-88.95027	N	No	Yes	No	N
Biloxi	30.39271	-88.87608	N	No	Yes	No	N
Waveland	30.27834	-89.37222	N	No	Yes	No	N
Gulfport	30.37689	-89.04778	N	No	Yes	No	N
Waveland	30.27006	-89.38032	N	No	Yes	No	N
Bay St. Louis	30.30022	-89.33346	N	No	Yes	No	N
Pass Christian	30.32762	-89.20251	N	No	Yes	No	N
floating N of Ship Island	30.25080	-88.94120	N	No	Yes	No	N
Waveland	30.25685	-89.41499	N	No	Yes	No	N
Waveland	30.26483	-89.39040	N	No	Yes	No	N
Waveland	30.26471	-89.39070	N	No	Yes	No	N
Pass Christian, floating by Henderson Point	30.30320	-89.29570	N	No	Yes	No	N
Waveland	30.28749	-89.36136	N	No	Yes	No	N
Waveland	30.28790	-89.36065	N	No	Yes	No	N
Gulfport	30.36129	-89.10089	N	No	Yes	No	N
Long Beach	30.33749	-89.16818	N	No	Yes	No	N
Pass Christian	30.32775	-89.20048	N	No	Yes	No	N
Pass Christian	30.31166	-89.25018	N	No	Yes	No	N
Pass Christian	30.30335	-89.28335	N	No	Yes	No	N
Waveland	30.28267	-89.36761	N	No	Yes	No	N
Biloxi	30.39147	-88.95452	N	No	Yes	No	N
Biloxi	30.39385	-88.91407	N	No	Yes	No	N
Horn Island	30.22831	-88.64799	N	No	Yes	No	N
Pass Christian	30.31300	-89.24830	N	No	Yes	No	N
Pass Christian	30.31190	-89.29050	N	No	Yes	No	N
Gulfport	30.38250	-89.02280	N	No	Yes	No	N
Gulfport	30.38150	-89.02610	N	No	Yes	No	N
floating ~1/2 mile south of Biloxi bridge	30.38960	-88.84190	N	No	Yes	No	N
Waveland Beach at Nicholson Ave	30.29410	-89.35910	N	No	Yes	No	N
Pass Christian	30.32320	-89.21840	N	No	Yes	No	N

Gulfport Beach	30.35582	-89.11698	N	No	Yes	No	N
Gulfport Beach	30.33215	-89.18207	N	No	Yes	No	N
Lakeshore/Waveland	30.25117	-89.42138	N	No	Yes	No	N
Bay St. Louis	30.29545	-89.34080	N	No	Yes	No	N
Waveland	30.26715	-89.38553	N	No	Yes	No	N
Bay St. Louis	30.30980	-89.32553	N	No	Yes	No	N
West Ship Island	30.2115	-88.98480	N	No	Yes	No	N
Waveland	30.28248	-89.36733	N	No	Yes	No	N
Pass Christian	30.31406	-89.24347	N	No	Yes	No	N
Gulfport	30.37421	-89.04382	N	No	Yes	No	Y
Bay St. Louis	30.30883	-89.32583	N	No	Yes	No	N
Waveland	30.27683	-89.37367	N	No	Yes	No	N
Waveland	30.28064	-89.36495	N	No	Yes	No	Y
Waveland	30.28127	-89.36557	N	No	Yes	No	Y
Pascagoula Beach	30.3433	-88.55500	N	No	Yes	No	N
Waveland	30.27234	-89.37753	N	No	Yes	No	N
SE Horn Island	30.2207	-88.59330	N	No	Yes	No	N
southside Cat Island	30.2283	-89.07330	N	No	Yes	No	N
Pass Christian	30.31352	-89.24396	N	No	Yes	No	N
Bellefontaine Beach	30.3433	-88.70330	N	No	Yes	No	N
water south of Cadet Point, Biloxi	30.3877	-88.85890	N	No	Yes	No	N
Waveland	30.28063	-89.36495	N	No	Yes	No	Y
Biloxi Bay	30.40980	-88.86906	N	No	Yes	No	N
Biloxi Bay	30.40980	-88.86906	N	No	Yes	No	N
Horn Island, ~3000' from W end	30.2398	-88.76870	N	No	Yes	No	N
Waveland	30.28655	-89.36330	N	No	Yes	No	N
Pass Christian	30.30725	-89.26660	N	No	Yes	No	N
Waveland	30.28063	-89.36495	N	No	Yes	No	Y
Long Beach	30.33743	-89.16837	N	No	Yes	No	N
Biloxi Beach	30.39154	-88.95600	N	No	Yes	No	N
north side of Horn Island	30.22307	-88.62952	N	No	Yes	No	N
Bangs Lake off of Pascagoula	30.3588	-88.47300	N	No	Yes	No	N
Biloxi, Back Bay	30.40079	-88.85896	N	No	Yes	No	N
Ocean Springs, McPherson Pier	30.40397	-88.83031	N	No	Yes	No	Y

Waveland	30.28063	-89.36495	N	No	Yes	No	Y
Ocean Springs	30.40397	-88.83031	N	No	Yes	No	Y
Biloxi, near Palace Casino	30.3959	-88.85830	N	No	Yes	No	N
Ocean Springs	30.40397	-88.83031	N	No	Yes	No	Y
Ocean Springs	30.4075	-88.83540	N	No	Yes	No	N
Gulfport	30.35487	-89.12191	N	No	Yes	No	N
Waveland	30.26605	-89.38722	N	No	Yes	No	N
Long Beach	30.34084	-89.15894	N	No	Yes	No	N
Biloxi, near harbor	30.39268	-88.88209	N	No	Yes	No	N
Gautier / Belle Fontaine Beach	30.3457	-88.74080	N	No	Yes	No	N
Biloxi	30.39158	-88.94994	N	No	Yes	No	N
Biloxi	30.39184	-88.94596	N	No	Yes	No	N
Biloxi	30.39183	-88.94596	N	No	Yes	No	N
Biloxi	30.39184	-88.94576	N	No	Yes	No	N
Biloxi	30.39262	-88.93246	N	No	Yes	No	N
Biloxi Beach	30.3932	-88.90645	N	No	Yes	No	N
Biloxi Beach	30.39353	-88.92310	N	No	Yes	No	N
Biloxi Beach	30.39382	-88.91889	N	No	Yes	No	N
Biloxi Beach	30.39375	-88.92016	N	No	Yes	No	N
Biloxi Beach	30.39108	-88.96432	N	No	Yes	No	N
Biloxi Beach	30.38968	-88.97850	N	No	Yes	No	N
Ocean Springs / Belle Fontaine Beach	30.34316	-88.72950	N	No	Yes	No	N
Gulfport Beach	30.3597	-89.10686	N	No	Yes	No	N
Biloxi Beach	30.3938	-88.91200	N	No	Yes	No	N
Gulfport Beach	30.37834	-89.04083	N	No	Yes	No	N
Gulfport Beach	30.38538	-89.01003	N	No	Yes	No	N
Gulfport Beach	30.37825	-89.04118	N	No	Yes	No	N
Gulfport Beach	30.3844	-89.01535	N	No	Yes	No	N
Biloxi Beach	30.38942	-88.98023	N	No	Yes	No	N
Biloxi Beach	30.39028	-88.97433	N	No	Yes	No	N
Biloxi Beach	30.39357	-88.89623	N	No	Yes	No	N
Gulfport Beach	30.3831	-89.0192	N	No	Yes	No	N
Biloxi Beach	30.3914	-89.0069	N	No	Yes	No	N
Biloxi Beach	30.39	-88.9756	N	No	Yes	No	N

Biloxi Beach	30.3875	-88.9942	N	No	Yes	No	N
Biloxi Beach	30.3889	-88.9847	N	No	Yes	No	N
Gulfport Beach	30.37058	-89.0742	N	No	Yes	No	N
Gulfport Beach	30.3706	-89.07417	N	No	Yes	No	N
Gulfport Beach	30.37131	-89.07161	N	No	Yes	No	N
Gulfport Beach	30.37158	-89.07066	N	No	Yes	No	N
Gulfport Beach	30.3768	-89.07045	N	No	Yes	No	N
Gulfport Beach	30.37262	-89.06721	N	No	Yes	No	N
Gulfport	30.38075	-89.02951	N	No	Yes	No	N
Gulfport	30.38097	-89.02944	N	No	Yes	No	N
Gulfport	30.38048	-89.03049	N	No	Yes	No	N
Gulfport	30.38016	-89.03156	N	No	Yes	No	N
Biloxi	30.3799	-89.03266	N	No	Yes	No	N
Biloxi	30.38032	-89.03104	N	No	Yes	No	N
Gulfport Beach	30.37746	-89.0433	N	No	Yes	No	N
Gulfport Beach	30.37819	-89.0416	N	No	Yes	No	N
Waveland	30.2806	-89.3449	N	No	Yes	No	Y
Biloxi, Acadia Ave	30.39277	-88.9312	N	No	Yes	No	Y
Gulfport Beach	30.37819	-89.0416	N	No	Yes	No	N
Gulfport Beach	30.37819	-89.0416	N	No	Yes	No	N
Gulfport Beach	30.37843	-89.0413	N	No	Yes	No	N
Gulfport Beach	30.37837	-89.04101	N	No	Yes	No	N
Gulfport Beach	30.37457	-89.0563	N	No	Yes	No	N
Gulfport Beach	30.37456	-89.05634	N	No	Yes	No	N
Biloxi Beach	30.3887	-88.98878	N	No	Yes	No	N
Biloxi Beach	30.38877	-88.98797	N	No	Yes	No	N
Biloxi Beach	30.38877	-88.98797	N	No	Yes	No	N
Biloxi Beach	30.38886	-88.9741	N	No	Yes	No	N
Biloxi Beach	30.38886	-88.98734	N	No	Yes	No	N
Pass Christian Beach	30.32762	-89.20251	N	No	Yes	No	N
Gulfport Beach	30.38188	-89.02495	N	No	Yes	No	N
Gulfport Beach	30.38393	-89.01701	N	No	Yes	No	N
Gulfport Beach	30.38583	-89.00827	N	No	Yes	No	N
Biloxi Beach	30.39357	-88.89818	N	No	Yes	No	N

Biloxi Beach	30.39182	-88.94774	N	No	Yes	No	N
Biloxi Beach	30.39328	-88.92583	N	No	Yes	No	N
Biloxi Beach	30.37561	-89.09052	N	No	Yes	No	N
Biloxi Beach	30.37571	-89.05148	N	No	Yes	No	N
Biloxi Beach	30.38738	-89	N	No	Yes	No	N
Biloxi Beach	30.38746	-88.99895	N	No	Yes	No	N
near Horn Island - floating?	30.2333	-88.53093	N	No	Yes	No	N
floating off of Gulfport	30.32007	-89.17917	N	No	Yes	No	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	No	Y
Biloxi Beach	30.39383	-88.91076	N	No	Yes	No	N
Biloxi Beach	30.39167	-88.89817	N	No	Yes	No	N
Biloxi Beach	30.39383	-88.91895	N	No	Yes	No	N
Gulfport Beach	30.37125	-89.07175	N	No	Yes	No	N
west side of Deer Island, Biloxi	30.26278	-88.89885	N	No	Yes	No	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	No	Y
Waveland Pier	30.2806	-89.3449	N	No	Yes	No	Y
Waveland Pier	30.2806	-89.3449	N	No	Yes	No	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
Biloxi Beach	30.38722	-89.00137	N	No	Yes	No	N
Ocean Springs	30.3603	-88.7642	N	No	Yes	No	N
Ocean Springs	30.369965	-88.779549	N	No	Yes	No	N
Biloxi	30.392	-88.87	N	No	Yes	No	N
Long Beach	30.35226	-89.12932	N	No	Yes	No	N
Long Beach, Jeff Davis Ave	30.3437	-89.1498	N	No	Yes	No	N
Long Beach	30.3397	-89.94848	N	No	Yes	No	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
3 Oaks Bayou (Bayou Caddy), outside Waveland	30.24575	-89.43206	N	No	Yes	No	N
Pass Christian	30.32465	-89.2142	N	No	Yes	No	N
Long Beach	30.33843	-89.16594	N	No	Yes	No	N
Long Beach	30.34897	-89.13697	N	No	Yes	No	N
floating off of NE corner of Ship Island	30.22236	-88.94848	N	No	Yes	No	N
floating off NE coast of Cat Island	30.2596	-89.037	N	No	Yes	No	N

floating east Cat Island	30.2211	-89.0336	N	No	Yes	No	N
in MS Sound ~2 mi offshore Biloxi, brought in to Oc	30.368	-88.958	N	No	Yes	No	Y
Deer Island, Biloxi Harbor	30.21851	-88.48135	N	No	Yes	No	N
Biloxi Harbor	30.19418	-88.52193	N	No	Yes	No	N
Biloxi Harbor, NW end Horn Island	30.16057	-88.44111	N	No	Yes	No	N
Gulfport Harbor	30.1523	-89.0633	N	No	Yes	No	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
floating off of Biloxi	30.37	-88.92	N	Yes	Yes	No	N
floating off of Biloxi	30.365	-88.89	N	Yes	Yes	No	N
floating off of Biloxi	30.36	-88.86	N	Yes	Yes	No	N
floating off of Biloxi	30.35	-88.84	N	Yes	Yes	No	N
floating off of Biloxi Beach	30.3505	-88.9066	N	No	Yes	No	N
floating off of Biloxi Beach	30.389	-88.8865	N	No	Yes	No	N
floating off of Biloxi Beach	30.3531	-88.937	N	No	Yes	No	N
floating off of Biloxi Beach	30.3379	-88.9542	N	No	Yes	No	N
floating off of Cat Island, Long Beach	30.2736	-89.0744	N	No	Yes	No	N
floating off of Biloxi Beach	30.3498	-88.892	N	No	Yes	No	N
floating off of Biloxi Beach	30.3651	-88.8896	N	No	Yes	No	N
floating off of Biloxi Beach	30.3667	-88.8944	N	No	Yes	No	N
floating off of Biloxi Beach	30.356	-88.9961	N	No	Yes	No	N
floating off of Biloxi Beach	30.356	-88.898	N	No	Yes	No	N
Biloxi Beach	30.38757	-88.99525	N	No	Yes	No	N
Gulfport Beach	30.37807	-89.04175	N	No	Yes	No	N
Ocean Springs	30.40376	-88.82699	N	No	Yes	No	N
Long Beach	30.34	-89.16059	N	No	Yes	No	N
Gulfport	30.37314	-89.0655	N	No	Yes	No	N
Biloxi Beach	30.38498	-89.01112	N	No	Yes	No	N
floating off of Long Beach	30.32185	-89.1497	N	No	Yes	No	N
floating in Back Bay of Biloxi	30.41678	-88.86855	N	No	Yes	No	N
Bay St. Louis, on beach, Lakeshore area	30.24835	-89.42323	N	No	Yes	No	N
Biloxi Beach	30.38	-88.89	N	Yes	Yes	No	N
floating off of Jackson County	30.3	-88.7	N	Yes	Yes	No	N

Ocean Springs Pier, Jackson County	30.40398	-88.82962	N	No	Yes	No	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
Harrison County	30.37537	-88.81745	N	No	Yes	No	N
Harrison County	30.37762	-88.1543	N	No	Yes	No	N
Jackson County	30.40048	-88.84228	N	No	Yes	No	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
Pass Christian	30.34114	-89.15825	N	No	Yes	No	N
Long Beach	30.32659	-89.2067	N	No	Yes	No	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	No	Y
Bay St. Louis	30.3	-89.3	N	Yes	Yes	No	N
Long Beach	30.33	-89.16	N	Yes	Yes	No	N
Long Beach	30.345	-89.1	N	Yes	Yes	No	N
Directed Capture	28.4665	-88.46116	Y	No	No	No	Y
Directed Capture	28.96778	-88.79333	Y	No	No	No	Y
Directed Capture	28.90722	-88.80167	Y	No	No	No	Y
Directed Capture	28.9597	-88.5342	Y	No	No	No	Y
Directed Capture	28.9182	-88.5552	Y	No	No	No	Y
Directed Capture	28.865	-88.5658	Y	No	No	No	Y
Directed Capture	28.8538	-88.5617	Y	No	No	No	Y
Directed Capture	28.847	-88.5588	Y	No	No	No	Y
Directed Capture	28.8405	-88.5557	Y	No	No	No	Y
Directed Capture	28.6573	-88.4313	Y	No	No	No	Y
Directed Capture	28.8045	-88.4771	Y	No	No	No	Y
Directed Capture	28.804483	-88.4771	Y	No	No	No	Y
Directed Capture	28.80725	-88.47808	Y	No	No	No	Y
Directed Capture	28.813483	-88.480383	Y	No	No	No	Y
Directed Capture	28.81535	-88.479233	Y	No	No	No	Y
Directed Capture	28.81669	-88.47803	Y	No	No	No	Y
Directed Capture	28.828083	-88.37115	Y	No	No	No	Y
Directed Capture	28.829617	-88.471267	Y	No	No	No	Y
Directed Capture	28.826867	-88.464933	Y	No	No	No	Y
Directed Capture	28.834317	-88.42455	Y	No	No	No	Y

Directed Capture - LDWF	29.09	-89.78	Y	No	No	No	N
Directed Capture - LDWF	29.0919	-89.7781	Y	No	No	No	Y
Directed Capture - LDWF	29.0932	-89.7747	Y	No	No	No	Y
Directed Capture - LDWF	29.0998	-89.7574	Y	No	No	No	Y
Directed Capture - LDWF	29.1065	-89.748	Y	No	No	No	Y
Directed Capture	29.01025	-88.26369	Y	No	No	No	Y
Directed Capture	29.01025	-88.26369	Y	No	No	No	Y
Directed Capture	29.01025	-88.26369	Y	No	No	No	Y
Directed Capture	29.02569	-88.25586	Y	No	No	No	Y
Directed Capture	29.17372	-88.16519	Y	No	No	No	N
Directed Capture	28.7538	-88.85602	Y	No	No	No	N
Directed Capture	28.75114	-88.84875	Y	No	No	No	Y
Directed Capture	28.62252	-88.55688	Y	No	No	No	Y
Directed Capture	28.76398	-88.82482	Y	No	No	No	Y
Directed Capture	28.66965	-88.49193	Y	No	No	No	Y
Directed Capture	28.91208	-88.68748	Y	No	No	No	Y
Directed Capture	28.70114	-88.53979	Y	No	No	No	Y
Directed Capture	28.92108	-88.7991	Y	No	No	No	Y
Directed Capture	28.92094	-88.79822	Y	No	No	No	Y
Directed Capture	28.92891	-88.77321	Y	No	No	No	Y
Directed Capture	28.928	-88.7701	Y	No	No	No	Y
Directed Capture	28.92558	-88.74215	Y	No	No	No	Y
Directed Capture	28.93916	-88.71402	Y	No	No	No	Y
Directed Capture	28.94739	-88.70053	Y	No	No	No	Y
Directed Capture	28.96491	-88.67766	Y	No	No	No	Y
Directed Capture	28.98004	-88.65568	Y	No	No	No	Y
Directed Capture - LDWF	28.72474	-88.55243	Y	No	No	No	Y
Directed Capture - LDWF	28.81743	-88.63998	Y	No	No	No	Y
Directed Capture	28.62361	-88.54351	Y	No	No	No	Y
Directed Capture	28.60264	-88.49568	Y	No	No	No	Y
Directed Capture	28.59733	-88.49236	Y	No	No	No	Y
Directed Capture	28.59501	-88.49054	Y	No	No	No	Y
Directed Capture	28.57604	-88.49573	Y	No	No	No	Y
Directed Capture	28.57271	-88.49434	Y	No	No	No	Y

Directed Capture	28.56876	-88.49416	Y	No	No	No	Y
Directed Capture	28.52956	-88.51617	Y	No	No	No	Y
Directed Capture	28.50794	-88.54434	Y	No	No	No	Y
Directed Capture	28.53647	-88.60338	Y	No	No	No	Y
Directed Capture	28.69822	-88.79404	Y	No	No	No	Y
Directed Capture	28.90896	-88.72726	Y	No	No	No	Y
Directed Capture	28.6881	-88.84448	Y	No	No	No	Y
Directed Capture	28.67472	-88.88646	Y	No	No	No	Y
Directed Capture	28.68382	-88.88902	Y	No	No	No	Y
Directed Capture	28.8945	-88.72223	Y	No	No	No	Y
Directed Capture	28.6575	-88.87042	Y	No	No	No	Y
Directed Capture	28.65178	-88.86879	Y	No	No	No	Y
Directed Capture	28.6833	-88.64572	Y	No	No	No	Y
Directed Capture	28.74405	-88.2535	Y	No	No	No	Y
Directed Capture	28.7637	-88.23549	Y	No	No	No	Y
Directed Capture	28.7666	-88.23471	Y	No	No	No	Y
Directed Capture	28.78214	-88.23679	Y	No	No	No	Y
Directed Capture	28.87021	-88.50445	Y	No	No	No	Y
Directed Capture - LDWF	28.67327	-88.29708	Y	No	No	No	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.71517	-89.80517	Y	No	No	No	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.714	-89.806	Y	No	No	No	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.714	-89.806	Y	No	No	No	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.709	-89.80267	Y	No	No	No	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.70783	-89.80433	Y	No	No	No	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.70783	-89.80433	Y	No	No	No	Y
Directed Capture - LDWF, floating ~50 miles offsho	28.62647	-90.18168	N	No	No	No	N
Directed Capture - LDWF, floating ~35 miles offsho	28.78182	-89.7506	N	No	No	No	Y
Directed Capture - LDWF, floating ~35 miles offsho	28.77712	-89.74897	N	No	No	No	Y
Directed Capture - LDWF, floating ~35 miles offsho	28.77405	-89.74953	N	No	No	No	Y
Directed Capture - LDWF, floating ~35 miles offsho	28.76734	-89.747	N	No	No	No	Y
Directed Capture - LDWF, floating ~35 miles offsho	28.76683	-89.7453	N	No	No	No	Y
Directed Capture - LDWF, floating ~35 miles offsho	28.76467	-89.74487	N	No	No	No	Y
Directed Capture - LDWF, floating ~35 miles offsho	28.76212	-89.74383	Y	No	No	No	Y
Directed Capture - LDWF, floating ~35 miles offsho	28.75873	-89.74536	N	No	No	No	Y

Directed Capture - LDWF, floating ~35 miles offsho	28.75897	-89.74525	N	No	No	No	Y
Directed Capture - LDWF, floating ~35 miles offsho	28.7489	-89.75946	Y	No	No	No	Y
Directed Capture	28.34139	-88.72183	Y	No	No	No	Y
Directed Capture	28.92028	-88.40833	Y	No	No	No	Y
Directed Capture	28.98478	-88.35519	Y	No	No	No	Y
Directed Capture	29.02858	-88.30956	Y	No	No	No	Y
Directed Capture	28.95217	-88.37383	Y	No	No	No	Y
Directed Capture	29.00767	-88.90133	Y	No	No	No	Y
Directed Capture	29.00914	-88.88017	Y	No	No	No	Y
Directed Capture	29.05264	-88.79911	Y	No	No	No	Y
Directed Capture	29.13067	-88.76469	Y	No	No	No	Y
Directed Capture	28.97922	-89.06208	Y	No	No	No	Y
Directed Capture	28.98544	-89.05781	Y	No	No	No	Y
Directed Capture	28.98914	-89.05772	Y	No	No	No	Y
Directed Capture	28.99314	-89.05647	Y	No	No	No	Y
Directed Capture	28.99411	-89.05583	Y	No	No	No	Y
Directed Capture	28.99439	-89.05569	Y	No	No	No	Y
Directed Capture	29.01933	-88.94467	Y	No	No	No	Y
east part of Pelican Is, near Dauphin Is pier	30.2255	-88.1089	Y	No	Yes	Yes	N
floating 2 mi SW of Mobile Bay buoy, ~10 mi offshc	30.105	-88.04166	Y	No	Yes	Yes	Y
Directed Capture			N	Yes	No	Yes	Y

Symbol	Log #	Comments
C		outside of area of concern
C		outside of area of concern
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C		outside of area of concern
C		outside of area of concern
C		outside of area of concern
C	D-0002 BSNWR	
C	D-0001 BSNWR	
C	D-0003 BSNWR	
C	D-0004 BSNWR	
C	D-0005 BSNWR	
C	D-0006 BSNWR	
C	D-0007 BSNWR	
C	D-0008 BSNWR	
C	D-0009 BSNWR	
C	D-0010 BSNWR	
C	D-0015 BSNWR	
C	D-0014 BSNWR	
C	D-0011 BSNWR	
C	D-0012 BSNWR	
C	D-0013 BSNWR	
C	D-0016 BSNWR	
C	D-0017 BSNWR	dried carcass
C	D-0018 BSNWR	
C	D-0019 BSNWR	
C	D-0020 BSNWR	
C	D-0021 BSNWR	
C	D-0023 BSNWR	
C	D-0022 BSNWR	
C	L-0001 BSNWR	
C	D-0024 BSNWR	

C	D-0025 BSNWR	
C	D-0026 BSNWR	
C	D-0027 BSNWR	
C	L-0007 IMMS	emaciated; taken to IMMS for rehab; died 5/25, shipped to UF for necropsy
C	D-0028 BSNWR	
C	D-0029 BSNWR	
C	D-0030 BSNWR	
C	D-0031 BSNWR	
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C	L-0012 IMMS	found floating next to boom; externally oiled turtle; taken to IMMS for rehab
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C	L-0013 IMMS	externally oiled turtle; taken to IMMS for rehab
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U		too decomposed for necropsy
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U		
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C		parts only - head, guts and 1 flipper
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C	only back flippers and a bit of carapace
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U	
C	very emaciated, missing part of RRF
C	very emaciated; taken to Gulf World, died soon after recovery
C	no head, flippers or internal organs
C	brown algae on carapace; some small barnacles on skin; adult female
C	prop damage to right side of carapace
C	no wounds; barnacles and algae on carapace; adult male
C	missing notch from right side carapace; barnacle and algae growth
C	barnacles on carapace and flippers; taken to Gulf World, died same day
C	apparent piece of metal in ventral LFF near insertion
C	dried carcass; little skin remaining, bones visible
C	no head or front flippers, shark bites
C	missing both front flippers and lrf
C	carapace completely covered w/barnacles and algae; adult female
C	emaciated, lots of barnacles, damage to base of front flippers and neck
C	
C	
C	in pieces, decomposed
C	carapace broken, pieces missing
C	skin and scutes peeling
C	numerous barnacles and light algae on carapace; taken to Gulfarium
C	old wound to posterior marginals; scutes peeling
C	posterior carapace gone; plastron missing; falling apart, nasty

U	
C	apparent skeg/prop damage to center carapace
C	caught on hook and line, hook in throat; taken to Gulfarium
C	prop wounds to right posterior carapace; heavy barnacles,small barnacles on skin
C	2 apparent prop wounds across carapace
C	skin and scutes peeling, very decomposed
C	fishing line entangled around neck
C	no head or flippers; damage to carapace - likely prop
C	missing skull; carapace bones disarticulating due to decomp
C	missing head and LFF, possible shark bites; gashes on plastron
U	
C	carapace bones disarticulating due to decomp
C	dried carcass; carapace broken across posterior; portions missing
U	caught on hook and line, hook removed and turtle released
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U	caught by relocation trawler; ~50% coverage of thin oil sheen, also sheen in mouth
U	
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U	in pieces due to decomp, unable to salvage
U	
U	caught by relocation trawler; observer thought oiled, Gulfarium said algae
C	
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C	wound/damage to throat area
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U	caught by relocation trawler; Gulfarium said not oiled
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C	parts only
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C	swab sample taken
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C	taken to AOA for rehab
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C	taken to AOA for rehab
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U	partial carcass, pieces only
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C	Severely decomposed, on beach
C	Severely decomposed, on beach
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C	D-0029 IMMS	
C	D-0030 IMMS	
C	D-0031 IMMS	
C	D-0032 IMMS	
C	D-0033 IMMS	
C	L-0001 IMMS	taken to IMMS, died in rehab, frozen for necropsy
C	D-0001 IMMS	
C	D-0002 IMMS	
C	D-0003 IMMS	
C	D-0004 IMMS	
C	D-0005 IMMS	
C	D-0006 IMMS	
C	D-0034 IMMS	
C	D-0007 IMMS	
C	D-0008 IMMS	
C	D-0009 IMMS	
C	D-0010 IMMS	
C	D-0011 IMMS	
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C	D-0027 IMMS	
C	D-0028 IMMS	
C	D-0035 IMMS	
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C	D-0041 IMMS	
C	D-0042 IMMS	
C	D-0043 IMMS	
C	D-0044 IMMS	
C	D-0045 IMMS	
C	D-0046 IMMS	
C	D-0047 IMMS	carcass in two pieces
C	D-0048 IMMS	
C	D-0049 IMMS	
C	D-0050 IMMS	
C	D-0051 IMMS	
C	D-0052 IMMS	
C	D-0053 IMMS	
C	D-0054 IMMS	
C	D-0055 IMMS	
C	D-0056 IMMS	
C	D-0057 IMMS	
C	D-0058 IMMS	
C	D-0063 IMMS	Decapitated, missing portions of flippers due to decomp; first reported on 5/8
C	D-0059 IMMS	
C	D-0060 IMMS	
C	D-0061 IMMS	
C	D-0062 IMMS	
C	D-0064 IMMS	
C	D-0065 IMMS	
C	D-0066 IMMS	

C	D-0067 IMMS	
C	D-0068 IMMS	
C	D-0069 IMMS	
C	D-0070 IMMS	
C	D-0071 IMMS	
C	D-0072 IMMS	
C	D-0085 IMMS	field necropsy on beach; damaged LFF, carapace covered in barnacles; first rep 5/13
C	D-0073 IMMS	
C	D-0074 IMMS	
C	L-0002 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	D-0075 IMMS	
C	D-0076 IMMS	carapace cracked/broken
C	L-0003 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	L-0004 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	D-0086 IMMS	"chopped up", likely prop wounds to carapace
C	D-0077 IMMS	red slimy substance covering carapace
C	D-0087 IMMS	skeletal remains
C	D-0088 IMMS	skeletal remains
C	D-0078 IMMS	
C	D-0089 IMMS	
C	D-0090 IMMS	floating, picked up by NPS
C	L-0005 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	D-0079 IMMS	carapace only
C	D-0080 IMMS	carapace only
C	D-0091 IMMS	sample taken and logged, carcass painted and left on beach
C	D-0081 IMMS	
C	D-0082 IMMS	
C	L-0006 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	D-0083 IMMS	
C	D-0092 IMMS	possible loggerhead, unsure of species ID
C	D-0093 IMMS	
C	D-0094 IMMS	carcass in plastic bag before oil swab taken
C	D-0084 IMMS	rear portion of carcass missing
C	L-0008 IMMS	incidentally captured on hook and line; taken to IMMS for rehab

C	L-0009 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	L-0010 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	D-0095 IMMS	carcass in plastic bag before oil swab taken; severe prop damage
C	L-0011 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	D-0161 IMMS	
C	D-0096 IMMS	mangled caudal half of carcass
C	D-0097 IMMS	
C	D-0098 IMMS	
C	D-0099 IMMS	old injury to edge of carapace
C	D-0162 IMMS	
C	D-0100 IMMS	
C	D-0101 IMMS	
C	D-0102 IMMS	
C	D-0103 IMMS	
C	D-0104 IMMS	
C	D-0105 IMMS	scrapes along plastron
C	D-0106 IMMS	missing right edge of carapace, advanced decomp
C	D-0107 IMMS	
C	D-0108 IMMS	extra costal scute on L side
C	D-0109 IMMS	edges of marginal scutes broken, postmortem
C	D-0110 IMMS	extra vertebral scute
C	D-0163 IMMS	
C	D-0112 IMMS	
C	D-0111 IMMS	
C	D-0113 IMMS	
C	D-0114 IMMS	
C	D-0118 IMMS	severely mangled, no accurate meas possible
C	D-0119 IMMS	black substance in mouth
C	D-0115 IMMS	
C	D-0116 IMMS	
C	D-0117 IMMS	
C	D-0120 IMMS	
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C	D-0123 IMMS	
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C	D-0167 IMMS	
C	D-0168 IMMS	
C	D-0169 IMMS	
C	D-0131 IMMS	
C	D-0132 IMMS	
C	L-0015 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	L-0014 IMMS	washed ashore alive
C	D-0133 IMMS	
C	D-0134 IMMS	
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C	D-0154 IMMS	
C	D-0172 IMMS	
C	L-0016 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	D-0156 IMMS	
C	D-0157 IMMS	
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C	D-0159 IMMS	
C	D-0170 IMMS	
C	L-0017 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	L-0018 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	L-0019 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	L-0020 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	D-0160 IMMS	
C	D-0171 IMMS	
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C		incidentally captured on hook and line; taken to IMMS for rehab
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C	incidentally captured on hook and line; taken to IMMS for rehab, hook ingested
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Microsoft Outlook

From: Eric Schwaab [Eric.Schwaab@noaa.gov]

Sent: Friday, July 09, 2010 6:46 PM

To: _NMFS All Hands; Jane Chalmers; Madelyn Appelbaum; dickschaef; mhk; Mary Glackin; Mary Beth Ward; Cheryl Oliver; Scott Smullen; Janet.E.Ward@noaa.gov; Connie Barclay; Monica Allen; jboreman@nc.rr.com; Jane Lubchenco; Amrit Mehra; Monica Medina; Justin kenney; Margaret Spring; Amy Holman; Lynn Maximuk; Bethany A Hale; Jennifer Day; Jeff LaDouce; Jeff Payne; Geno Olmi; Timi Vann; Andrew Winer; Tanya Dobrzynski; Stephanie Hunt; Jessica Kondel; John Gray; Sally Yozell; Laura Hamilton; Laura Furgione; Lisa Iwahara; Michelle Schmidt; Vicki Schwantes; Kate Balet; steve.bortone@gulfcouncil.org

Subject: Weekly Update

Attachments: F Video Notes.doc; Upcoming Events.doc; DWHBPOilSpillFisheryClosureMap_070410.pdf; Eric_Schwaab.vcf

MEMORANDUM FOR ALL NOAA FISHERIES EMPLOYEES

FROM: Eric C. Schwaab
Assistant Administrator for Fisheries

SUBJECT: Weekly Update for Week Ending July 9, 2010

Federal Fisheries Closure Update
On Sunday, July 4th, the fishery closed area was modified by extending the northwestern closure boundary to the western edge of Marsh Island, Louisiana, to encompass the actual and projected path of oil outside the existing boundary, several miles south of the state-federal water line. The closure measures 81,181 sq mi (210,259 sq km) and covers about 34% of the Gulf of Mexico EEZ, compared to the June 28 closure comprising 80,228 sq mi (207,790 sq km) which covered about 33% of the GOM EEZ. The revised closure map is attached. Link on http://sero.nmfs.noaa.gov to keep updated on modifications to the closed area. There have been no further changes to the closed area since the July 4th modification.

CNN Visits the Pascagoula Lab
CNN's Sanjay Gupta visited the Pascagoula Lab on Thursday and received a narrated tour of NOAA efforts to ensure that Gulf seafood is safe, including the overall strategy for fishery closures, at-sea sample collecting and the subsequent sensory testing and chemical analysis. Dr. John Stein (NOAA Fisheries Seafood Safety Program Manager/NWC Deputy Director) gave an overview of the Seafood Safety Program. Dr. Lisa Desfosse (Director, Pascagoula Lab) explained the sampling at sea program followed by a walk through with Dr. Calvin Walker (SF National Seafood Inspection Lab [NSIL]) who explained preparation of samples, Dr. Walt Dickhoff (NWC) described the chemical analysis done in the Northwest Fisheries Science Center and Steve Wilson/Bobby Downs (Seafood Inspection Program) demonstrated and described the effectiveness of sensory analysis in the sensory lab. Dr. Spencer Garrett (Director, NSIL) spoke about the National Seafood Inspection Lab and its ramped up efforts as part of the overall seafood safety program. This was a great opportunity for NOAA to tell its story. I appreciate everyone's involvement for a successful event. You can view Sanjay Gupta's interview with John Stein on the link below http://www.criticalmention.com/ctv3-1/landing_email.php?type=email&video=true&random_string=5850fe31612456c36125ef74e7237e54

Weekly Highlights
I hope you enjoyed the 4th of July holiday weekend with family and friends. This week, I have spent considerable time on oil spill activities. In addition, on Wednesday, Monica Medina

(Principal Deputy Secretary for NOAA), Jim Lecky (Director, Office of Protected Resources), Jolie Harrison (PR), Jennifer Nist/Mark Hodor (GCF) and I had a conference call with Don Schregardus (Deputy Asst Secretary for the Navy for Environment) and John Quinn (Deputy Director, Chief of Naval Operations, Environmental Readiness Division) for a briefing on their next round of environmental compliance documentation for the Navy's range complexes and major training exercises. We are working closely with the Navy to implement changes in the environmental compliance process that will result in streamlined efforts for both agencies. We also discussed the July 13-14 Marine Mammals and Sound Workshop that is being convened by the Navy and NOAA Fisheries. The workshop will bring together 100 government, academic and private sector science and policy experts to discuss research needs and the application of science to current management issues. The Navy also asked how they could assist NOAA with our oil spill response in the Gulf and we plan to meet next week to discuss.

Wednesday afternoon, Steve Murawski and I held our third stakeholder conference call to provide updates on NOAA Fisheries activities in the Gulf in response to the oil spill. Fifty-eight people participated and their primary concerns focused on the protocols and processes anticipated for re-opening areas of the Gulf that we have closed to fishing; the status of sampling to determine any impacts from the use of dispersants on marine life; and concerns over impacts on marine life, particularly sea turtles. A wide range of questions was discussed including policy on hatchling relocation, observer coverage, and volunteer training. Several follow-up responses are pending. An audio recording and transcript will be posted next week at www.externalaffairs.noaa.gov. I plan to continue these conference calls on a regular basis over the months ahead.

Thursday afternoon, we held an All Hands meeting to recognize the efforts of our Employee Worklife and Diversity Committee members for their outstanding contributions to the EWDC and community service. Thanks to the EWDC members—Queen Spriggs/Liz McMahon (F), Stefan Leeb/Bill Stern (CIO), Janine Galloway (GCF), Garry Mayer (HC), Paul Niemier (IA), DeeDee Hairston/Sarah Ellgen (MB), Traline Suggs (EN), Abbie Mimiko/Peaches Hodge (PR), Rebecca Chiampi/Craig Cockrell (SF), Cheryl Bleiberg (SI), Ana Valentin/Dennis Hansford (S&T) for a great event, in spite of the 98 degrees + temperature.

Friday morning, I had a conference call with Lois Schiffer (NOAA GC), Andy Winer (NOAA External Affairs), Alan Risenhoover (EN), Laurel Bryant (F) and Zubin Bamji (SF) for an update on preparation for the August 3 National Enforcement Summit.

This afternoon, John Oliver, Steve Murawski, John Stein, Steve Wilson/Lauren Lugo (SI) and I held a conference call with Dave Kennedy (Acting AA NOS/Deepwater Horizon Commander), and Monica Medina to brief them on the NOAA Fisheries Seafood Safety Program including sample collection and analysis plan for July-September and re-opening plans.

Thanks everyone for your hard work this week. Have a safe and enjoyable weekend.

Attachments

F Video Notes
Upcoming Events
Gulf Closure Map

Eric Schwaab

Assistant Administrator for Fisheries

NOAA Fisheries Service
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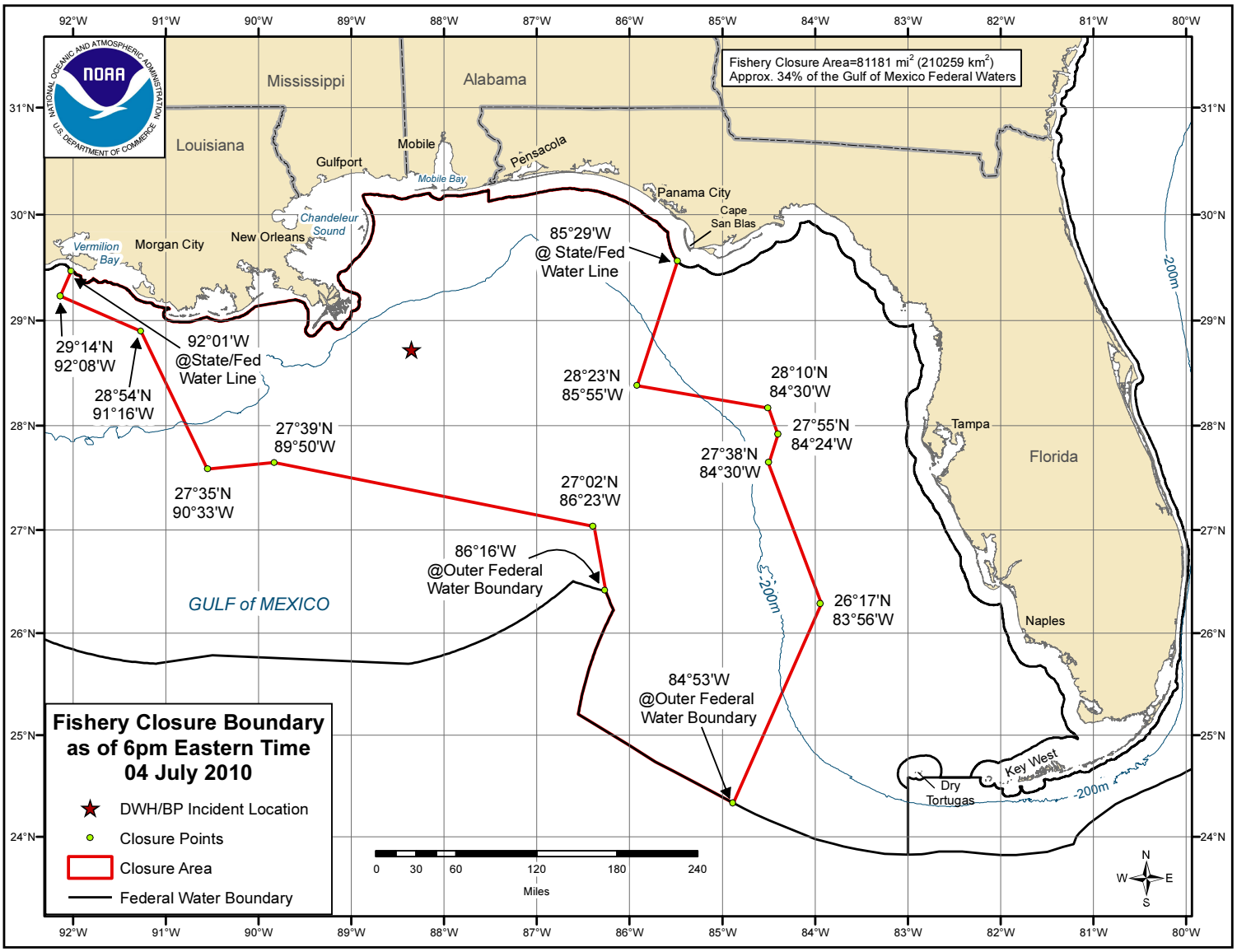
Version
2.1


Fishery Closure Area=81181 mi² (210259 km²)
Approx. 34% of the Gulf of Mexico Federal Waters
Mississippi
Alabama
Louisiana
Florida
Gulfport
Mobile
Mobile Bay
Pensacola
Panama City
Cape San Blas
Chandeleur Sound
New Orleans
Morgan City
Vermilion Bay
Tampa
Naples
Key West
Dry Tortugas
GULF of MEXICO
-200m
29°14'N 92°08'W
28°54'N 91°16'W
92°01'W @State/Fed Water Line
27°35'N 90°33'W
27°39'N 89°50'W
27°02'N 86°23'W
86°16'W @Outer Federal Water Boundary
28°23'N 85°55'W
85°29'W @ State/Fed Water Line
28°10'N 84°30'W
27°55'N 84°24'W
27°38'N 84°30'W
26°17'N 83°56'W
84°53'W @Outer Federal Water Boundary
Fishery Closure Boundary as of 6pm Eastern Time 04 July 2010
DWH/BP Incident Location
Closure Points
Closure Area
Federal Water Boundary
0 30 60 120 180 240
Miles
N
W
E
S

2010 Upcoming Events

July
July 20 – Joint Subcommittee on Aquaculture Meeting, Riverdale, MD
July 20-21 – NOAA Science Advisory Board Meeting, Sarasota, FL
July 27-29 – Sustainable Fisheries Conference, San Francisco, CA
July 27-29 – US-Mexico Science Meetings and Bilateral, Miami, FL

August
Aug 2-5 – Atlantic States Marine Fisheries Commission Meeting, Alexandria, VA
Aug 3 – Enforcement Summit, Washington, DC
Aug 6 – Gulf & South Atlantic Fisheries Foundation Board Mtg, New Orleans, LA
Aug 16-19 – Gulf of Mexico Council Meeting, Destin, FL
Aug 16-20 – North Pacific Council Meeting, Anchorage, AK
Aug 17-18 – National Fish & Wildlife Foundation Board Mtg, Jackson, WY
Aug 17-19 – Mid-Atlantic Council Meeting, Philadelphia, PA
Aug 20-22 – 8th International Conference on Recirculating Aquaculture, Roanoke, VA
Aug 21-25 – Pacific States Marine Fisheries Commission Annual Meeting, Girdwood, AK (www.psmfc.org)
Aug 23-26 – International Conference on the Collection and Interpretation of Fishery Dependent Information, Galway, Ireland
Aug 25 – Commissioning of NOAA Research Vessel *Bell Shimada*, Seattle, WA
Aug 31-Sept 2 – NOAA Fisheries Leadership Council, St. Petersburg, FL

September
Sept 6-10 – 3rd Global Fisheries Enforcement Training Workshop, Mozambique
Sept 7-10 - California and World Oceans Meeting, San Francisco, CA
Sept 7-11 – 1st World Seabird Conference, Victoria, BC, Canada
Sept 8-11 – Nat'l Association of State Aquaculture Coordinators, Branson, MO
Sept 11-16 – Pacific Council Meeting, Boise, ID
Sept 12-16 – American Fisheries Society Annual Meeting, Pittsburgh, PA
Sept 13-17 – South Atlantic Council Meeting, Charleston, SC
Sept 20-23- Pacific Coast Shellfish Growers Asso. Annual Mtg, Tacoma, WA
Sept 20-24 – ICES Annual Science Conference, Nantes, France
Sept 20-24 – North Atlantic Fisheries Organization Annual Mt, Dartmouth,Canada
Sept 23-Oct 1 – IATTC/AIDCP Annual Meeting, Antigua, Guatemala
Sept 28-30 – New England Council Meeting, Newport, RI

October
Oct 4-11 – North Pacific Council Meeting, Anchorage, AK
Oct 8-12 – 3rd APEC Oceans Ministerial Meeting, Lima, Peru
Oct 10 – 5th Annual Hawaii Fishing and Seafood Festival, Honolulu, HI
Oct 12-14 – Mid-Atlantic Council Meeting, Cape May, NJ
Oct 12-15 – Western Pacific Council Meeting, Honolulu, HI
Oct 12-15 – Sea Grant Week, New Orleans, LA
Oct 18-20 – ICCAT Advisory Committee Meeting, Silver Spring, MD
Oct 18-21 –Gulf States Marine Fisheries Commission Annual Mtg, Clearwater, FL
Oct 18-29 – 10th Mtg of the Conference of the Parties to the Convention on Biological Diversity, Nagoya, Japan
Oct 19-21 - Pacific Salmon Commission Executive Session, Kamloops, BC
Oct 19-21 – Marine Fisheries Advisory Committee Meeting, Washington, DC
Oct 21 – Joint Subcommittee on Aquaculture Meeting, Washington, DC
Oct 22-31 – PICES Annual Meeting, Portland, OR
Oct 25-28 – Gulf of Mexico Council Meeting, Baton Rouge, LA

November
Nov 1-5 – North Pacific Anadromous Fisheries Commission, Busan, Korea
Nov 3-9 – Pacific Council Meeting, Costa Mesa, CA
Nov 8-11 – Atlantic States Marine Fisheries Commission Meeting, Charleston, SC
Nov 9-10 – National Fish & Wildlife Foundation Board Meeting, Washington, DC
Nov 13-17 – Restore America's Estuaries National Conference on Coastal and Estuarine Habitat Restoration, Galveston, TX
Nov 14-17 – Energy & Fisheries Symposium, Seattle, WA
Nov 16-18 – New England Council Meeting, Brewster, MA
Nov 17-27 – ICCAT Annual Meeting, Paris, France
Nov 19-21 – Pacific Marine Expo, Seattle, WA

December
Dec 1-2 - 12th Flatfish Biology Conference, Westbrook, CT
http://www.mi.nmfs.gov/flatfishbiologyworkshop.html
Dec 1-3 - Northeastern Aquaculture Conference, Plymouth, MA
Dec 5-10 – South Atlantic Council Meeting, New Bern, NC
Dec 6-10 – Western & Central Pacific Fisheries Commission, Pohnpei, Micronesia
Dec 6-13 – North Pacific Council Meeting, Anchorage, AK
Dec 14-16 – Mid-Atlantic Council Meeting, Virginia Beach, VA

2011 Upcoming Events

January
Jan 10-14 - Pacific Salmon Commission Post-Season Meeting, Vancouver, BC
Jan 25-27 – New England Council Meeting, Portsmouth, NH
Jan 31-Feb 3 - Atlantic States Marine Fisheries Commission Meeting, Alex, VA
Jan 31-Feb 4 – FAO Committee on Fisheries, Rome, Italy

February
Feb 8-10 – Mid-Atlantic Council Meeting, TBD
Feb 14-18 - Pacific Salmon Commission 27th Annual Meeting, Portland, OR

March
Mar 3-5 – Maine Fishermen's Forum, Rockport, ME
Mar 5-10 – Pacific Council Meeting, Vancouver, WA
Mar 20-22 – Boston Seafood Show, Boston, MA

April
Apr 9-14 – Pacific Council Meeting, San Mateo, CA
Apr 12-14 – Mid-Atlantic Council Meeting,

May
May 2-5 – Atlantic States Marine Fisheries Commission Meeting, Alex, VA
May 16-20 – Council Coordinating Committee Meeting, Charleston, SC

June
June 7-9 – Mid-Atlantic Council Meeting, TBD
June 8-13 – Pacific Council Meeting, Spokane, WA
June 21-23 – New England Council Meeting, Portland, ME

July

August
Aug 1-4 - Atlantic States Marine Fisheries Commission Meeting, Alex, VA
Aug 9-11 – Mid-Atlantic Council Meeting, TBD

September
Sept 11-15 – American Fisheries Society Annual Meeting, Pittsburgh, PA
Sept 14-19 – Pacific Council Meeting, San Mateo, CA

Sept 27-29 – New England Council Meeting, Danvers, MA

October
Oct 11-13 – Mid-Atlantic Council Meeting, TBD
Oct 18-20 - Pacific Salmon Commission Executive Session, OR

November
Nov 2-7 - Pacific Council Meeting, Costa Mesa, CA
Nov 7-10 – Atlantic States Marine Fisheries Commission Meeting, Boston, MA
Nov 15-17 – New England Council Meeting, Newport, RI

December
Dec 13-15 – Mid-Atlantic Council Meeting, TBD

Please send in your 2010 and 2011 events to gloria.thompson@noaa.gov

F VIDEO NOTES – July 6, 2010

ACTION ITEMS

Next NOAA Fisheries Leadership Council Meeting (ACTION - ALL) - The next Leadership Council meeting will take place in St. Petersburg, Florida on August 31-Sept 2. The meeting will take place at the Hilton Bayfront, 331 1st Street South, St. Petersburg, with travel days on August 30th and September 3rd. A room block has been confirmed at the government rate of $101/night. The room block name is **"US Department of Commerce-NOAA Fisheries"** and is being held open until **July 30th.** Reservations can be made by calling 727-894-5000. A request for agenda items will be sent out in the near future.

ARRA II – Heads Up - In preparation for a possible second America Reinvestment and Recovery Act stimulus package, the Office of Habitat Conservation has been developing project suggestions for habitat restoration projects for potential inclusion on a list for NOAA's use in responding to potential legislative action. For other ideas or for further information contact: Lindsay Fullenkamp 301-713-2259x 132

INFORMATION ITEMS

New NOAA Fisheries SWC Operating Agreements - Three new operating agreements are now in place between the SWC and its respective NOAA Fisheries partners (SWR, NWC, and PIC). The documents create a roadmap for better coordination of interrelated programs for all federally-mandated species including marine mammals and sea turtles. The agreements call for the creation of joint teams to conduct ecosystem-wide planning for designated programs, including coordinating internal and external communications; leveraging resources such as budget, equipment, and staff; and meeting and reporting milestones.

Gulf of Mexico DWH Oil Spill Updates:

- NMFS is entering discussions this afternoon with the Florida Fish and Wildlife Commission regarding sampling activities off the Florida panhandle.
- An emergency rule to require TEDS in skimmer trawls in Mississippi and Alabama has been drafted but because the areas are currently closed to fishing due to the spill, the package is on hold.
- There is continuing intense public interest in impacts of the oil spill on sea turtles, especially (1) the non-use or misuse of TEDS; (2) turtle mortalities during oil burn activities; and (3) plans to relocate sea turtle nests to safer locations.
- The Fisheries Seafood Safety Program, led by John Stein, continues to process seafood for the purpose of ensuring the safety of seafood in the market place.
- SEC is seeking permission to conduct aerial synoptic surveys at 600 foot altitude. Currently, the weather hinders low level surveys.
- Chris Rilling of S&T is rotating into the NMFS POC for DWH issues and to support the front office. Brian Pawlak is rotating out of that role effective July 10th.

Marine Fisheries Advisory Committee (MAFAC) Meeting – MAFAC met June 29 through July 1, in Juneau, AK. The meeting convened to hear presentations and discuss findings and

recommendations on several topics, including the status of the Deepwater Horizon oil spill and NOAA actions including scientific activities, ensuring seafood safety, assessing ecological and economic impacts, declaration of federal fishery disasters, and conducting natural resource damage assessments. The agenda also included discussion of Protected Resources programs and regulatory responsibilities; development of the draft aquaculture policy; recreational fisheries engagement; NOAA strategic planning, and updates on NOAA's Catch Share Policy and budget developments. Click here to view the agenda and meeting materials.

Passamaquoddy Tribe in Maine – NMFS NER is meeting with the Passamaquoddy Tribe to discuss Tribal interests in issuing permits to pursue fisheries in the area. Tribal legal rights to fisheries resources are unclear, and in any case have not been exercised in the past 40 years.

DOD Relocation to Guam - PIRO continues to work with DOD on reciprocal comments on the Biological Opinion on the large DOD relocation from the Japanese islands of Okinawa to Guam. PIRO expects to provide comments on the final FEIS in late August.

Migratory Bird Treaty Act – PIRO discussions about implications of the Migratory Bird Treaty Act are also underway with the U.S. Fish and Wildlife Service.

Kobe II - The Kobe II Bycatch Workshop in Brisbane, Australia on 23-25 June "moved the ball forward" on methods and efforts to reduce bycatch in international fisheries. See http://www.ioseaturtles.org/messageboard_detail.php?id=138 for the agenda and background materials.

Microsoft Outlook

From: Lesley Stokes [LESLEY.STOKES@NOAA.GOV]
Sent: Tuesday, July 13, 2010 2:34 PM
To: Bonnie Ponwith; Theo Brainerd; Peter Thompson; Jim Bohnsack
Cc: Sheryan Epperly; Chris Sasso; Paul Richards; Lisa Belskis; Wendy Teas; Kate Mansfield; Lesley Stokes; Larisa Avens; Aleta Hohn; Joanne B Mcneill; April Goodman
Subject: Turtle Update - July 13, 2010 - Deepwater Horizon MC252

Attachments: Sea_Turtle_Strandings_and_Live_Captures_-_Deepwater_Horizon.xls; DWHMC252_Turtles20100713.pdf; MMST_Health_and_Stranding_Update_for_13_July_FINAL.doc; Mammal_Turtle_Data_12_July.xls; Mammal_Turtle_Data_12_July-SUMMARY.xls

Sea_Turtle_Strandings_and_Live... DWHMC252_Turtles20100713.pdf (... MMST_Health_and_Stranding_Upda... Mammal_Turtle_Data_12_July.xls... Mammal_Turtle_Data_12_July-SUM...

Wendy continues to coordinate the STSSN (see below and attached) and we received daily reports from the Wildlife Branch in Houma (see attached) and the daily map (attached).

Lisa is traveling back to Miami today.

The rest of the team was standing down. Paul is on AL until 7/14. Sheryan and Chris are returning to Miami today and will be back in the office on 7/14.

>From View message header detail Wendy.Teas@noaa.gov
Sent Monday, July 12, 2010 9:46 pm
To HoumaICC MMST <HoumaICC.MMST@noaa.gov> , MobileICC MMST <MobileICC.MMST@noaa.gov> , "Sheryan.Epperly" <Sheryan.Epperly@noaa.gov> , Bonnie Ponwith <Bonnie.Ponwith@noaa.gov> , Lisa Belskis <Lisa.Belskis@noaa.gov> , Chris Sasso <Chris.Sasso@noaa.gov> , Paul Richards <Paul.Richards@noaa.gov> , Brian Stacy <Brian.Stacy@noaa.gov> , "Karen.Mitchell" <Karen.Mitchell@noaa.gov> , _NMFS SER Emergency Consult <nmfs.ser.emergency.consult@noaa.gov> , Kristy Long <Kristy.Long@noaa.gov>
Cc
Bcc
Subject 7/12 Strandings and Live Capture Update - Non-oiled and Oiled Turtles - Deepwater Horizon

There were 6 strandings reported / verified today:
FL - 1 live green turtle, no oil, taken to Gulfarium for rehab AL - 0 MS - 3 dead Kemp's ridleys, none oiled LA - 2 turtles - 1 live Kemp's ridley, not oiled, apparent boat hit damage, taken to Audubon for rehab; 1 dead green turtle, not oiled

There was 1 live Kemp's ridley recovered by the on-water capture operation working out of Destin, FL - this turtle was taken to Gulf World for de-oiling and rehab.

I have not heard an update on how many turtles, if any, were captured today by the trawlers and/or dredges working on the LA berm project.

See attached Excel file for details.

VoO's used today:
MS - Capt Terry, Wildlife VoO out of Long Beach Harbor MS - Capt James Ryan, Wildlife VoO out of small boat harbor, docked at Schooner Dock

Summary Totals

	TOTAL Dolphins							
	Live			Dead				
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Date Totals	Released
Subtotal 30 Apr-31 May	0	0	0	1	31	0	32	0
Subtotal 1 Jun-30 Jun	2	3	0	2	17	2	26	1
1-Jul-10	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	1	0	1	0
3-Jul-10	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	1	1	0
6-Jul-10	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	1	1	0
9-Jul-10	0	0	0	0	1	0	1	0
10-Jul-10	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	1	1	0
12-Jul-10	0	0	0	0	0	0	0	0
Category Totals	2	3	0	3	50	5	63	1

Summary Totals

	TOTAL Whales						
	Live			Dead			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	1	1
1-Jul-10	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0
Category Totals	0	0	0	0	0	1	1

Summary Totals

	TOTAL Turtles							
	Live			Dead			Date Totals	Released
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending		
Subtotal 26 Apr-31 May	**12**	**17**	**0**	**1**	**82**	**153**	**265**	**4**
Subtotal 1 Jun-30 Jun	**90**	**35**	**0**	**10**	**0**	**195**	**330**	**0**
1-Jul-10	0	0	0	0	0	0	**0**	0
2-Jul-10	1	1	0	1	0	0	**3**	0
3-Jul-10	0	0	0	0	0	0	**0**	0
4-Jul-10	0	1	0	0	0	2	**3**	0
5-Jul-10	0	0	0	0	0	1	**1**	0
6-Jul-10	0	0	0	0	0	3	**3**	0
7-Jul-10	0	0	0	0	0	1	**1**	0
8-Jul-10	10	1	0	0	0	3	**14**	7
9-Jul-10	11	1	0	0	0	0	**12**	0
10-Jul-10	10	0	0	1	0	1	**12**	0
11-Jul-10	4	0	0	1	0	2	**7**	0
12-Jul-10	1	2	0	0	0	4	**7**	0
Category Totals	**139**	**58**	**0**	**14**	**82**	**365**	**658**	**11**

Summary Totals

	Turtles - Translocation of Gulf Nests			
	# of Nests		# of Hatchlings	
	Loggerhead	Kemp's Ridley	Loggerhead	Kemp's Ridley
Subtotal 26 Apr-31 May	**0**	**0**	**0**	**0**
Subtotal 1 Jun-30 Jun	**0**	**1**	**0**	**0**
1-Jul-10	0	0	0	0
2-Jul-10	0	0	0	0
3-Jul-10	0	0	0	0
4-Jul-10	0	0	0	0
5-Jul-10	0	0	0	0
6-Jul-10	0	0	0	0
7-Jul-10	0	0	0	0
8-Jul-10	0	0	0	0
9-Jul-10	2	0	0	0
10-Jul-10	0	0	0	0
11-Jul-10	0	0	0	22
12-Jul-10	6	0	0	0
TOTALS	8	1	0	22

Status Summary

	Dolphin Status	Whale Status	Turtle Status - Stranded	Turtle Status - Captured
Verified Animals				
Total animals collected	**63**	**1**	515	143
Total dead animals	58	1	457	4
Total live animals	5	0	58	139
Total live animals stranded that died in care	3	0	4	3
Total live released animals	1	0	11	0
Total live animals currently in rehabilitation	1	0	43	136
Oiling Status				
Total dead oiled animals	3	0	11	3
Total live oiled animals	2	0	10	129
Animal Necropsy Status				
Number collected and unable to perform necropsies (e.g., advanced decomposition)	28	0	7	
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	11	0	17	
Number of full necropsies performed	12	0	59	
Verified strandings but animals not collected due to stage of decomposition or unable to recover	8	1	46	
Carcasses to be necropsied, if decomposition stage warrants	2	0	339	

Oiling Criteria

Defined Categories of Stranded Marine Mammals/Sea Turtles During MC 252 Spill

1) Visibly Oiled
   a. Evidence of external oiling (live or dead animals); or
   b. Evidence of internal oiling on initial exam: Oil in oral cavity, nares or blowhole (live or dead animals); or
   c. Evidence of internal oiling on necropsy: Oil in esophagus, gastrointestinal tract and/or respiratory tract (dead animals).
2) Not Visibly Oiled: Do not meet criteria above. Note not visibly oiled does not imply cause of death nor whether this event impacted the animal.

Procedures for Determining Oiling Status in Marine Mammals or Sea Turtles

1) Upon report of stranded animal, designated members of the Wildlife Branch (trained to appropriate evidence collection and Chain of Custody procedure) will be dispatched to the site for initial evaluation.

2) All animals within the "designated spill area" will be immediately externally evaluated, sampled, and photographed following NOAA's "Marine Mammal Oil Spill Response Guidelines" or the established "Sea Turtle MS 252 Response Guidelines".
   a. All animals within a specified distance that affected mammals or turtles may travel or float after being affected (distance to be determined upon daily consultation with the Envt Unit within the Planning Section and the NRDA Unit) will be immediately externally evaluated and, if suspicious, will be externally sampled.
   b. Those animals not within or adjacent to the "designated spill area" should *not* be considered as part of this spill and not be accounted for in the spill documentation (but standard stranding procedures should be followed).

3) All stranded animals will be grossly evaluated by necropsy (cetacea at site of stranding, at the primary care facility, or at a pre-determined necropsy site if logistically feasible, sea turtles at the primary care facility or at a designated remote pathology center).
   a. For certain carcasses, such as turtles with open coelomic cavities or dolphins in advanced state of decomposition and no intact GI tract, it may not be possible to pathologically determine cause of death or pathologies and collect useable tissues. The sampling of these animals will be for the presence of external oil only.

4) Oiling status will be determined based on external and internal gross evaluation. NOTE THAT THE DETERMINATION OF OILING STATUS DOES NOT ESTABLISH SUB-APPARENT OIL EXPOSURE OR THE CAUSE OF DEATH. In fact, some gross pathological changes, such as respiratory damage or significant irritation to ocular tissues or mucous membranes, can be associated with oil exposure. The determination of these types of impacts must come from further evaluation of the samples and other evidence, such as histopathological evaluation of tissues and/or PAH analysis of the biological samples.

Summary Totals

	TOTAL Dolphins							
	Live			Dead				
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Date Totals	Released
Subtotal 30 Apr-31 May	0	0	0	1	31	0	32	0
Subtotal 1 Jun-30 Jun	2	3	0	2	17	2	26	1
1-Jul-10	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	1	0	1	0
3-Jul-10	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	1	1	0
6-Jul-10	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	1	1	0
9-Jul-10	0	0	0	0	1	0	1	0
10-Jul-10	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	1	1	0
12-Jul-10	0	0	0	0	0	0	0	0
Category Totals	2	3	0	3	50	5	63	1

Summary Totals

	TOTAL Whales						
	Live			Dead			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	1	1
1-Jul-10	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0
Category Totals	0	0	0	0	0	1	1

Summary Totals

	TOTAL Turtles							
	Live			Dead			Date Totals	Released
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending		
Subtotal 26 Apr-31 May	**12**	**17**	**0**	**1**	**82**	**153**	**265**	**4**
Subtotal 1 Jun-30 Jun	**90**	**35**	**0**	**10**	**0**	**195**	**330**	**0**
1-Jul-10	0	0	0	0	0	0	**0**	0
2-Jul-10	1	1	0	1	0	0	**3**	0
3-Jul-10	0	0	0	0	0	0	**0**	0
4-Jul-10	0	1	0	0	0	2	**3**	0
5-Jul-10	0	0	0	0	0	1	**1**	0
6-Jul-10	0	0	0	0	0	3	**3**	0
7-Jul-10	0	0	0	0	0	1	**1**	0
8-Jul-10	10	1	0	0	0	3	**14**	7
9-Jul-10	11	1	0	0	0	0	**12**	0
10-Jul-10	10	0	0	1	0	1	**12**	0
11-Jul-10	4	0	0	1	0	2	**7**	0
12-Jul-10	1	2	0	0	0	4	**7**	0
Category Totals	**139**	**58**	**0**	**14**	**82**	**365**	**658**	**11**

Summary Totals

	Turtles - Translocation of Gulf Nests			
	# of Nests		# of Hatchlings	
	Loggerhead	Kemp's Ridley	Loggerhead	Kemp's Ridley
Subtotal 26 Apr-31 May	**0**	**0**	**0**	**0**
Subtotal 1 Jun-30 Jun	**0**	**1**	**0**	**0**
1-Jul-10	0	0	0	0
2-Jul-10	0	0	0	0
3-Jul-10	0	0	0	0
4-Jul-10	0	0	0	0
5-Jul-10	0	0	0	0
6-Jul-10	0	0	0	0
7-Jul-10	0	0	0	0
8-Jul-10	0	0	0	0
9-Jul-10	2	0	0	0
10-Jul-10	0	0	0	0
11-Jul-10	0	0	0	22
12-Jul-10	6	0	0	0
TOTALS	8	1	0	22

Status Summary

	Dolphin Status	Whale Status	Turtle Status - Stranded	Turtle Status - Captured
Verified Animals				
Total animals collected	**63**	**1**	515	143
Total dead animals	58	1	457	4
Total live animals	5	0	58	139
Total live animals stranded that died in care	3	0	4	3
Total live released animals	1	0	11	0
Total live animals currently in rehabilitation	1	0	43	136
Oiling Status				
Total dead oiled animals	3	0	11	3
Total live oiled animals	2	0	10	129
Animal Necropsy Status				
Number collected and unable to perform necropsies (e.g., advanced decomposition)	28	0	7	
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	11	0	17	
Number of full necropsies performed	12	0	59	
Verified strandings but animals not collected due to stage of decomposition or unable to recover	8	1	46	
Carcasses to be necropsied, if decomposition stage warrants	2	0	339	

Dolphins

	Dolphins - ALABAMA							Dolphins - FLORIDA						
	Live			Dead				Live			Dead			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 26 Apr-31 May	0	0	0	0	3	0	0	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	1	0	0	0	0	2	1	1	2	0	0	1	0	0
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	1	0	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	1	0	0	0	3	3	1	1	2	0	0	1	0	0
Species Total	7							4						

Dolphins

	Dolphins - LOUISIANA							Dolphins - MISSISSIPPI							Daily Totals
	Live			Dead			Released	Live			Dead			Released	
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending		Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending		
Subtotal 26 Apr-31 May	0	0	0	1	20	0	0	0	0	0	0	8	0	0	32
Subtotal 1 Jun-30 Jun	0	1	0	1	11	0	0	0	0	0	1	5	0	0	26
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9-Jul-10	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
10-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
12-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	0	1	0	2	32	0	0	0	0	0	1	14	2	0	63
Species Total	35							17							

Whales

	Whales - ALABAMA						Whales - FLORIDA					
	Live			Dead			Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	0	0	0	0	0	0	0
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Species Total	**0**						**0**					

Whales

	Whales - LOUISIANA						Whales - MISSISSIPPI					
	Live			Dead			Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	0	0	0	0	0	0	0
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Species Total	**0**						**0**					

Whales

	Whales - Off-Shore						Daily Totals
	Live			Dead			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	1	1
1-Jul-10	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**1**	**1**
Species Total	**1**						

Turtles

	Turtles - ALABAMA							Turtles - FLORIDA						
	Live Strandings			Dead Strandings				Live Strandings			Dead Strandings			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 26 Apr-31 May	0	2	0	0	5	43	1	0	4	0	0	0	27	0
Subtotal 1 Jun-30 Jun	3	0	0	3	0	23	0	2	6	0	1	0	18	0
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul-10	1	0	0	1	0	0	0	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5-Jul-10	0	0	0	0	0	1	0	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0	0	1	0	0	0	0	0
9-Jul-10	1	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	1	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	1	0	1	0	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0	0	1	0	0	0	0	0
TOTALS	5	2	0	5	5	69	1	2	12	0	1	0	46	0
Species Total	86							61						

Turtles

	Turtles - LOUISIANA							Turtles - MISSISSIPPI						
	Live Strandings			Dead Strandings				Live Strandings			Dead Strandings			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 26 Apr-31 May	2	2	0	1	2	61	0	0	9	0	0	75	22	3
Subtotal 1 Jun-30 Jun	1	2	0	3	0	27	0	0	19	0	0	0	126	0
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul-10	0	1	0	0	0	1	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	3	0
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	3	7
9-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul-10	0	0	0	1	0	0	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	1	0
12-Jul-10	0	1	0	0	0	1	0	0	0	0	0	0	3	0
TOTALS	3	6	0	5	2	90	0	0	28	0	0	75	159	10
Species Total	106							262						

Turtles

	Turtles - Dedicated On-Water Turtle Surveys						Daily Totals
	Live Directed Captures			Dead Directed Captures			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 26 Apr-31 May	10	0	0	0	0	0	265
Subtotal 1 Jun-30 Jun	84	8	0	3	0	1	330
1-Jul-10							0
2-Jul-10	0	1	0	0	0	0	3
3-Jul-10							0
4-Jul-10							3
5-Jul-10	0	0	0	0	0	0	1
6-Jul-10	0	0	0	0	0	0	3
7-Jul-10	0	0	0	0	0	0	1
8-Jul-10	10	0	0	0	0	0	14
9-Jul-10	10	1	0	0	0	0	12
10-Jul-10	10	0	0	0	0	0	12
11-Jul-10	4	0	0	0	0	0	7
12-Jul-10	1	0	0	0	0	0	7
TOTALS	129	10	0	3	0	1	658
Species Total	143						

Update through July 12, 2010 (as of 1800)

Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period

- Increase of 6 turtle strandings (1 live in FL, 3 dead in MS, 1 live and 1 dead in LA).
- Increase of 1 oiled turtles captured during directed search efforts.
- Six loggerhead nests translocated from northern Gulf to east coast Florida.
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols.

Sea Turtles

Total Turtle Numbers (includes various corrections/edits from prior dates as data go through QA/QC; these corrections are not reflected in increase-decrease statements, those statements refer only to yesterday's stranding/capture events)

NOTE: Turtles captured in the COE/State of LA dredging project and associated trawler effort are not included in the numbers directly below, but have their own individual summary information following these summaries.

658 total sea turtles verified to date within the "designated spill area" (increase of 7 from July 12 report)

- 515 stranded* (increase of 6 from July 12 report)
  - 457 of the stranded were found dead (increase of 4 from July 12 report)
  - 58 of the stranded were found alive (increase of 2 from July 12 report)
    - 4 recovered alive but died in rehab (no change from July 12 report)
    - 11 turtles released alive (no change from July 12 report)
    - 43 live turtles in rehabilitation (increase of 2 from July 12 report)
- 143 turtles collected during directed turtle sampling efforts (increase of 1 from July 12 report)
  - 4 of the collected were found dead (no change from July 12 report)
  - 139 of the collected were found alive (increase of 1 from July 12 report)
    - 3 turtles recovered live that died in rehab (no change from July 12 report)
    - 0 turtles released alive (no change from July 12 report)
    - 136 live turtles in rehabilitation (increase of 1 from July 12 report)

* For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 457 dead stranded, 4 dead directed capture, and 7 that died in rehab):

- 7 assessed and unable to perform necropsies (i.e. advance decomposition) (no change from July 12 report)

Update through July 12, 2010 (as of 1800)

- 17 partial necropsies (e.g. due to scavenging or autolysis) (no change from July 12 report)
- 59 full necropsies performed (no change from July 12 report)
- 46 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from July 12 report)
- 339 carcasses to be necropsied, if decomposition stage warrants (increase of 4 from July 12 report)
- Of the initial 75 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. Further results are pending.

Information on Signs of Sea Turtle Oiling:

- To date, visible evidence of oil has been documented externally on 11 dead stranded sea turtle and 10 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 3 dead sea turtles and 129 live sea turtles captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 12 is 26.
- For comparison purposes, the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in the month of July (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-8 stranded sea turtles
    - Alabama: 1-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 7-29 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles since the inception of the oil spill; however, we do not believe this factor fully explains the increase.

COE/State of Louisiana Hopper Dredge Project and Associated Trawling for Turtles

- 63 sea turtles captured in trawlers working near the dredging site (increase of 11 from July 12 report)
    - 1 of the captured was dead (no change from July 12 report)
    - 62 of the captured were alive (increase of 11 from July 12 report)
        - 61 unoiled turtles released alive (increase of 11 from July 12 report)
        - 1 unoiled live turtle in rehabilitation (no change from July 12 report)

Marine Mammals

Total Mammal Numbers

64 total marine mammals have been verified to date (no change from July 12 report)

Update through July 12, 2010 (as of 1800)

- 63 dolphins have been verified to date within the "designated spill area" (no change from July 12 report)
  - 58 were dead stranded* dolphins (no change from July 12 report)
  - 5 were live stranded dolphins (no change from July 12 report)
    - 2 died shortly after stranding (no change from July 12 report)
    - 1 euthanized upon stranding (no change from July 12 report)
    - 1 stranded live and freed immediately (no change from July 12 report)
    - 1 live and in care (no change from July 12 report)
- 1 dead whale has been verified to date within the "designated spill area" (no change from July 12 report)
  - 1 was a dead stranded sperm whale (no change from July 12 report)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR
- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status (of the 58 dead stranded and 3 live stranded dolphins that died or were euthanized):

- 28 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 12 report)
- 11 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 12 report)
- 12 full necropsies performed (no change from July 12 report)
- 8 verified strandings but animals not collected due to stage of decomposition or unable to recover (no change from July 12 report)
- 2 carcass to be necropsied, if decomposition stage warrants (no change from July 12 report)
- Necropsy results are pending for all animals necropsied to date.

Whale Necropsy Status (of the 1 dead stranded):

- 0 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 12 report)
- 0 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 12 report)
- 0 full necropsies performed (no change from July 12 report)
- 1 verified stranding but animal not collected due to stage of decomposition or unable to recover (no change from July 12 report)
- 0 carcasses to be necropsied, if decomposition stage warrants (no change from July 12 report)

Deepwater Horizon MC252

Update through July 12, 2010 (as of 1800)

Information on Signs of Mammal Oiling:

- Dolphins: Five of the verified dolphins had evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to determine whether the three dead stranded animals were externally oiled pre- or post-mortem. All other necropsy findings are pending.
- Whales: The verified whale had no evidence of external oil.

Historical Dolphin Strandings

- The total number of dolphin strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 12 is 5.
- For comparison purposes, the number of dolphin strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in July (2003-2007) is as follows:
    - Louisiana: 0-2 stranded dolphins
    - Mississippi: 0-1 stranded dolphins
    - Alabama : 0-3 stranded dolphins
    - Florida panhandle: 0-1 stranded dolphins
- The total number of strandings during this event is higher than the number of marine mammal strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.

Historical Whale Strandings

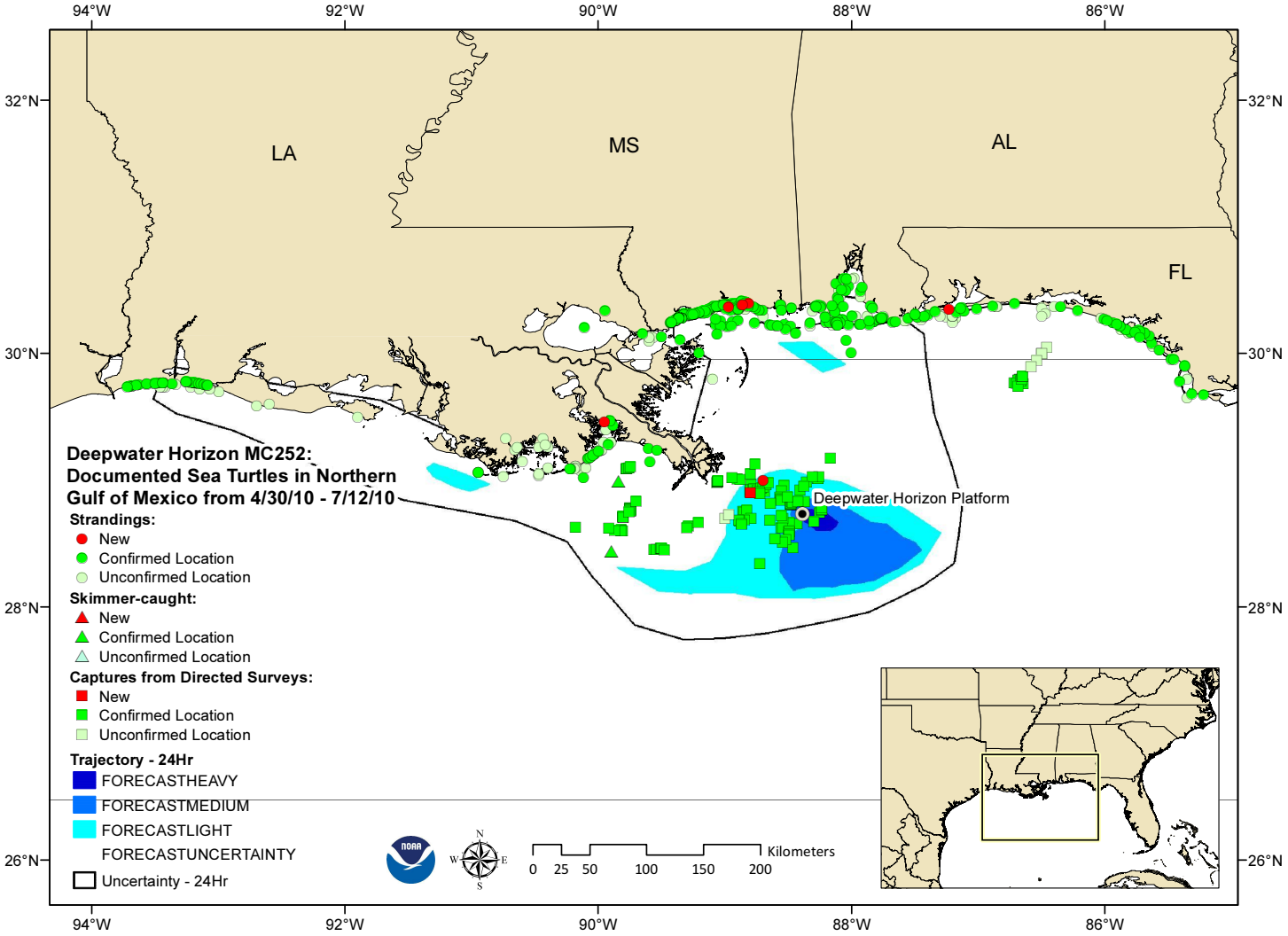
- The total number of whale strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 12 is 0.
- For comparison purposes, there are no records of stranded whales in the designated spill area for July (2003-2007).

<u>Summary of Action Plan Items:</u>

- On-water direct turtle capture operations under the Wildlife Branch were operational on July 12 out of Destin, FL and Venice, LA.
- Multiple discussions with Unified and Area Commands (including with NOAA SSCs) have occurred on the Gulf-wide observer program (maximum of 60 observers). A phased approach to the program has been developed. Movement on the contract is anticipated on July 12 either by BP or by USCG's Federal Fund. The Environmental Unit in the Planning section has been working with the Logistics Section Chief to initiate the contract. The Logistics Section Chief and Legal have been advised of the importance of this contract.
- The hopper dredges continue to operate in the borrow areas near the Chandeleur Islands and required relocation trawling continues, with 1 capture trawler and 2 open net trawlers (which are used to disturb animals but does not bring them on board). One sea turtle died during the capture trawler tows. A fourth trawler, which will be used to conduct

captures, is expected on site within 48 hours. No takes of turtles have been reported from the hopper dredges, only from the trawlers.

- In situ burn activities were conducted on July 12. Five observers were at sea with the burn task forces. Reports from the observers are pending.


94°W
92°W
90°W
88°W
86°W
32°N
30°N
28°N
26°N
LA
MS
AL
FL
Deepwater Horizon MC252:
Documented Sea Turtles in Northern
Gulf of Mexico from 4/30/10 - 7/12/10
Deepwater Horizon Platform
Strandings:
New
Confirmed Location
Unconfirmed Location
Skimmer-caught:
New
Confirmed Location
Unconfirmed Location
Captures from Directed Surveys:
New
Confirmed Location
Unconfirmed Location
Trajectory - 24Hr
FORECASTHEAVY
FORECASTMEDIUM
FORECASTLIGHT
FORECASTUNCERTAINTY
Uncertainty - 24Hr
N
W
E
S
0 25 50 100 150 200
Kilometers

Date	Stranding Reference	Species	ReportType	Condition	Disposition	Status	State
5/2/2010	MRC20100502-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/2/2010	MRC20100502-02	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	SNW20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	JMI20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	MPW20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	SNW20100504-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	SNW20100504-02	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	FXM20100504-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/5/2010	MPW20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/5/2010	MRC20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/6/2010	MPW20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/6/2010	MPW20100506-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/7/2010	MPW20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/7/2010	MPW20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/8/2010	ANR20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/8/2010	JMI20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/10/2010	JMI20100510-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/11/2010	MPW20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MPW20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MPW20100513-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/14/2010	LAJ20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/16/2010	LAJ20100516-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/17/2010	MRC20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MRC20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/19/2010	LAJ20100519-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/19/2010	JMI20100519-01	Lepidochelys kempii	Stranding	Alive	Released		AL
5/20/2010	LAJ20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL

5/20/2010	LAJ20100520-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/20/2010	LAJ20100520-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/21/2010	MPW20100521-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/22/2010	RLR20100522-01	Lepidochelys kempii	Stranding	Alive	Rehab-Died	Necropsied	AL
5/22/2010	JMI20100522-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/22/2010	JMI20100522-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/23/2010	JMI20100523-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/23/2010	JMI20100523-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/28/2010	20100528	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/29/2010	20100529	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/3/2010	JMI20100603-01	Caretta caretta	Stranding	Alive	Rehab	Rehab-IMMS	AL
6/4/2010	20100604	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/5/2010	RLR20100605-01	Eretmochelys imbricata	Stranding	Alive	Rehab	Rehab-IMMS	AL
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/6/2010	20100606	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/6/2010	20100606	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/7/2010	20100607	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/9/2010	20100609	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/11/2010	20100611	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/16/2010	20100616	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL

6/21/2010	20100621	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/21/2010	20100621	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/23/2010	20100623	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/25/2010	20100625	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
6/27/2010	20100627	Unknown	Stranding	Dead	Salvaged	Frozen-DI	AL
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/30/2010	20100630	Chelonia mydas	Stranding	Alive	Rehab	Rehab-IMMS	AL
7/2/2010	20100702	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
7/2/2010	20100702	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	AL
7/5/2010	20100705	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
7/9/2010	20100709	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	AL
7/10/2010	20100710	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
7/11/2010	20100711	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
7/11/2010	20100711	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
5/8/2010	NME20100508-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/8/2010	NME20100508-02	Caretta caretta	Stranding	Alive	Rehab-Died	Frozen-GV	FL
5/8/2010	NME20100508-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/10/2010	MEM20100510-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/11/2010	MAN20100511-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/12/2010	JWM20100512-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/13/2010	AVH20100513-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/14/2010	VEL20100514-01	Caretta caretta	Stranding	Alive	Rehab-Died	Frozen-GV	FL
5/14/2010	MEC20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/15/2010	NME20100515-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	NME20100517-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	MAN20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	MAN20100517-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	SSM20100517-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/18/2010	WAJ20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL

5/18/2010	JRJ20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/18/2010	CTS20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	NME20100519-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	NME20100519-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	MAN20100519-01	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
5/20/2010	WAJ20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	BAE20100520-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	20100520	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	MAN20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/21/2010	MAN20100521-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
5/24/2010	NME20100524-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/24/2010	GWG20100524-01	Caretta caretta	Stranding	Dead	Left on beach		FL
5/25/2010	NME20100525-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/27/2010	MJH20100527-01	Caretta caretta	Stranding	Dead	Buried		FL
5/28/2010	VXW20100528-01	Chelonia mydas	Stranding	Dead	Buried		FL
5/30/2010	NAD20100530-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/1/2010	NME20100601-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/6/2010	20100606	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/7/2010	NAD20100607-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/7/2010	NME20100607-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/9/2010	RAB20100609-01	Lepidochelys kempii	Stranding	Alive	Released		FL
6/10/2010	20100610	Eretmochelys imbricata	Stranding	Alive	Rehab	Rehab-GulfWorld	FL
6/11/2010	20100611	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/11/2010	20100611	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/12/2010	20100612	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
6/12/2010	20100612	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/12/2010	20100612	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/13/2010	20100613	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/14/2010	20100614	Caretta caretta	Stranding	Dead	Buried		FL
6/15/2010	20100615	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/16/2010	20100616	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/18/2010	20100618	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-GulfWorld	FL

6/22/2010	KEG20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/22/2010	NME20100622-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/22/2010	NME20100622-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/22/2010	20100622	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	FL
6/28/2010	SXH20100628-01	Chelonia mydas	Stranding	Alive	Rehab	Rehab-GulfWorld	FL
6/30/2010	20100630	Unknown	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/30/2010	20100630	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-NOAA	FL
7/4/2010	20100704	Chelonia mydas	Stranding	Dead	Salvaged	Taken to GV	FL
7/8/2010	20100708	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
5/1/2010	MJF20100504-01	Unknown	Stranding	Dead	Left on beach		LA
5/1/2010	MJF20100504-02	Unknown	Stranding	Dead	Left on beach		LA
5/3/2010	XXX20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/3/2010	20100503	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/5/2010	JAL20100505-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
5/7/2010	MXC20100507-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-05	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-06	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-07	Caretta caretta	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-08	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-09	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-10	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-11	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-12	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-13	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-14	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	GXP20100507-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen	LA
5/10/2010	CSE20100510-01	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/10/2010	CSE20100510-02	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/10/2010	MXC20100510-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA

5/10/2010	MXC20100510-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-05	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
5/11/2010	20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/11/2010	20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/12/2010	MXC20100512-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/12/2010	MXC20100512-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/12/2010	MXC20100512-03	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
5/12/2010	MXC20100512-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	MXT20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	JEB20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	MXC20100513-01	Eretmochelys imbricata	Stranding	Dead	Left on beach		LA
5/13/2010	MXC20100513-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/13/2010	20100513	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/14/2010	MXC20100514-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
5/16/2010	MXH20100516-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-05	Caretta caretta	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-06	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-07	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-08	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-09	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/17/2010	MXT20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/17/2010	AXL20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/18/2010	SDD20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/19/2010	20100519	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/20/2010	NXX20100520-01	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/22/2010	20100522	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/22/2010	20100522	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/23/2010	20100523	Unknown	Stranding	Dead	Salvaged	Frozen	LA

5/24/2010	20100524	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/24/2010	20100524	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/28/2010	20100528	Lepidochelys kempii	Skimmer	Alive	Rehab	Rehab-AOA	LA
5/29/2010	20100529	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/31/2010	20100531	Lepidochelys kempii	Skimmer	Alive	Rehab	Rehab-AOA	LA
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/7/2010	20100607	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/7/2010	20100607	Unknown	Stranding	Dead	Salvaged	Frozen	LA
6/8/2010	20100608	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/9/2010	20100609	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
6/9/2010	20100609	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/10/2010	20100610	Unknown	Stranding	Dead	Salvaged	Frozen	LA
6/12/2010	20100612	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/14/2010	20100614	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/15/2010	20100615	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/15/2010	20100615	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/17/2010	20100617	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
6/18/2010	20100618	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA

6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/21/2010	20100621	Caretta caretta	Stranding	Dead	Salvaged	Frozen	LA
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/25/2010	20100625	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-AOA	LA
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/27/2010	20100627	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/27/2010	20100627	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-will be trai	LA
7/4/2010	20100704	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Audubon	LA
7/4/2010	20100704	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-AOA	LA
7/10/2010	20100710	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-AOA	LA
4/26/2010	CNH20100426-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	CNH20100430-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	TTH20100430-01	Lepidochelys kempii	Stranding	Alive	Rehab-Died	Necropsied	MS
5/1/2010	KMF20100501-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	EXP20100501-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	KMF20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	KMF20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	KMF20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS

5/2/2010	MSB20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	EXP20100504-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/5/2010	WLH20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/5/2010	DKV20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	SXC20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JBT20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	CLM20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JBT20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	MMK20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	SAH20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JKM20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS

5/8/2010	SAH20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JNF20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JNF20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JKM20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	WLH20100510-01	Caretta caretta	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/10/2010	WLH20100510-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/10/2010	ZHS20100510-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/11/2010	BTN20100511-01	Caretta caretta	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/13/2010	JXS20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/13/2010	CNH20100514-01	Caretta caretta	Stranding	Dead	Left on beach		MS
5/14/2010	JNF20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/14/2010	JNF20100514-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/14/2010	SAH20100514-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/15/2010	LMJ20100515-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/15/2010	LMJ20100515-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/15/2010	JKM20100515-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/15/2010	JKM20100515-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/15/2010	KMM20100515-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/16/2010	EXJ20100516-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/18/2010	KPB20100518-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/18/2010	KPB20100518-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
5/18/2010	WLH20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/19/2010	MDH20100519-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/19/2010	MDH20100519-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/20/2010	TTH20100520-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS

5/20/2010	JNF20100520-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/20/2010	JNF20100520-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/21/2010	RDS20100521-01	Caretta caretta	Stranding	Dead	Left on beach		MS
5/21/2010	JNF20100521-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/21/2010	JNF20100521-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/22/2010	TTH20100522-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/24/2010	WLH20100524-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/24/2010	AJD20100524-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	JXB20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	CNH20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	WLH20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/27/2010	JBT20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/27/2010	JKM20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/27/2010	MJB20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/28/2010	JNF20100528-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/28/2010	RAW20100528-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/3/2010	CNH20100603-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/4/2010	DKV20100604-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	KMM20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	JRS20100608-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS

6/7/2010	WLH20100607-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	KMH20100607-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
6/8/2010	WLH20100608-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/8/2010	WLH20100608-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	WLH20100609-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	WLH20100609-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	WLH20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	WLH20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	TTH20100611-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/11/2010	KMH20100611-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/11/2010	WLH20100611-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS

6/11/2010	WLH20100611-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-09	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-10	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-11	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-12	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-13	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	CRS20100611-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	RCL20100612-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	CRS20100612-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	JKM20100612-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/13/2010	CRS20100613-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	CRS20100613-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	CRS20100613-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	LCB20100613-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	LCB20100613-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	JKM20100613-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/13/2010	JKM20100613-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/13/2010	JKM20100613-03	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/13/2010	JKM20100613-04	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/14/2010	WLH20100614-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/15/2010	LCB20100615-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS

6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-09	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS

6/21/2010	SKM20100621-10	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	TTJ20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	TTJ20100622-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	SKM20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/24/2010	SKM20100624-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/24/2010	SKM20100624-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/24/2010	TTJ20100624-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	TTJ20100625-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	SKM20100625-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	SKM20100625-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/26/2010	JKM20100626-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/26/2010	SKM20100626-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/26/2010	SKM20100626-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/26/2010	SKM20100626-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/27/2010	JKM20100627-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/27/2010	JKM20100627-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/28/2010	JKM20100628-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/28/2010	SKM20100628-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/28/2010	SKM20100628-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/6/2010	20100706	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/6/2010	20100706	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/6/2010	20100706	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/7/2010	20100707	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/8/2010	20100708	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/8/2010	20100708	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/8/2010	20100708	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/11/2010	20100711	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS

5/18/2010	BXW20100518-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
5/20/2010	MXT20100520-01	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA
5/20/2010	MXT20100520-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
5/31/2010	BAS20100531-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
5/31/2010	BAS20100531-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
5/31/2010	BAS20100531-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
5/31/2010	BAS20100531-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
5/31/2010	BAS20100531-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
5/31/2010	BAS20100531-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
5/31/2010	BAS20100531-07	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	BAS20100601-01	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?
6/1/2010	BAS20100601-02	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?
6/1/2010	BAS20100601-03	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?
6/1/2010	BAS20100601-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	BAS20100601-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	BAS20100601-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	BAS20100601-07	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	BAS20100601-08	Eretmochelys imbricata	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	BAS20100601-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	BAS20100601-10	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	XXX20100601-01	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied
6/1/2010	XXX20100601-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	XXX20100601-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	XXX20100601-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/1/2010	XXX20100601-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-01	Eretmochelys imbricata	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-05	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied
6/10/2010	BAS20100610-01	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied
6/10/2010	BAS20100610-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/10/2010	BAS20100610-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/10/2010	BAS20100610-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA

6/12/2010	BAS20100612-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-08	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-09	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	20100613	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	20100613	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-08	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-10	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-11	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-05	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-06	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-07	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-02	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA

6/16/2010	BAS20100616-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/18/2010	20100618	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/20/2010	20100620	Chelonia mydas	Directed Capture	Dead	Salvaged	Frozen
6/21/2010	MCT20100621-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-02	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-05	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-06	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-08	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-10	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/22/2010	BAS20100622-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/24/2010	BAS20100624-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/24/2010	BAS20100624-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/24/2010	BAS20100624-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/25/2010	BAS20100625-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-03	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon

6/27/2010	BAS20100627-04	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-06	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/2/2010	20100702	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Temp-Ft.Jackson
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Temp-Venice?
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/10/2010	20100710	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/10/2010	20100710	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon

7/10/2010	20100710	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/11/2010	20100711	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/11/2010	20100711	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/11/2010	20100711	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/11/2010	20100711	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/12/2010	20100712	Chelonia mydas	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Audubon	LA
7/12/2010	20100712	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-AOA	LA
7/12/2010	20100712	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	

Descriptive Location	Latitude	Longitude	External oil?	TempLocation	Stranding	New	Alive
"Lots of Sand Dunes" Condo, Baldwin Co	30.232019	-87.936861	N	No	Yes	N	N
eastern point of Dauphin Island	30.250125	-88.075553	N	No	Yes	N	N
Dauphin Island	30.248253	-88.125822	N	No	Yes	N	N
floating 2 miles North of Fort Gaines	30.268880	-88.071720	N	No	Yes	N	N
Dauphin Island	30.332274	-88.132595	N	No	Yes	N	N
Dauphin Island	30.248253	-88.125822	N	No	Yes	N	N
Mobile Bay, 4 miles south of Fowl River	30.395431	-88.107261	N	No	Yes	N	N
Mobile Bay, 7287 Bay Rd	30.552467	-88.123317	N	No	Yes	N	N
floating off of Bayou La Batre	30.368167	-88.278317	N	No	Yes	N	N
Coden	30.445639	-88.109028	N	No	Yes	N	N
Dauphin Island	30.250164	-88.162886	N	No	Yes	N	N
Donnie Grace, bay side	30.249856	-88.202100	N	No	Yes	N	N
outside Weeks Bay toward Fish River Reef	30.367914	-87.839833	N	No	Yes	N	N
18261 Scenic Hwy 98	30.492133	-87.929833	N	No	Yes	N	N
Dauphin Island	30.249450	-88.172633	N	No	Yes	N	N
Gulf Shores	30.253417	-87.823317	N	No	Yes	N	N
Bayou La Batre	30.381033	-88.267233	N	No	Yes	N	N
pier across from Fort Morgan Museum	30.230283	-88.023694	N	No	Yes	N	N
Baldwin Co	30.250570	-87.828960	N	No	Yes	N	N
Baldwin Co	30.228430	-87.861390	N	No	Yes	N	N
Baldwin Co	30.231160	-87.928990	N	No	Yes	N	N
200 yds SE of city pier	30.245610	-88.124230	N	No	Yes	N	N
Hwy 193 past Hwy 188, Mobile Co	30.370900	-88.109670	N	No	Yes	N	N
east of Dauphin Is public fishing pier on Sand Is	30.247186	-88.125303	N	No	Yes	N	N
Little Dauphin Is, north side	30.274270	-88.111150	N	No	Yes	N	N
Audubon Place beach	30.243830	-88.092890	N	No	Yes	N	N
bay side of Sand Island	30.227653	-88.113175	N	No	Yes	N	N
Coden	30.377883	-88.241517	N	No	Yes	N	N
Mobile Bay, 1 mile south of Fowl River	30.425728	-88.103975	N	No	Yes	N	N
Hwy 98 on county rd 1, near Pelican Island	30.378320	-87.851020	N	No	Yes	N	N
Dauphin Island	30.247530	-88.124480	N	No	Yes	N	N
mouth of Bayou La Batre, Mobile Bay	30.375000	-88.285000	N	No	Yes	N	Y
Dauphin Island, west end	30.386400	-88.560983	N	No	Yes	N	N

Dauphin Island, west end	30.386400	-88.560983	N	No	Yes	N	N
Coden	30.006272	-88.004007	N	No	Yes	N	N
Dauphin Island	30.244817	-88.114433	N	No	Yes	N	N
Bayou La Batre	30.381586	-88.257034	N	No	Yes	N	Y
floating near Bayou La Batre	30.376750	-88.258480	N	No	Yes	N	N
Mobile Bay	30.591497	-88.063306	N	No	Yes	N	N
Shore Rd of CR12	30.358870	-87.832670	N	No	Yes	N	N
Plash Island	30.282700	-87.751230	N	No	Yes	N	N
Dauphin Island	30.250000	-88.200000	N	Yes	Yes	N	N
Dauphin Island	30.270000	-88.150000	N	Yes	Yes	N	N
Mobile Bay	30.400000	-88.100000	N	Yes	Yes	N	N
Mobile Bay	30.500000	-88.100000	N	Yes	Yes	N	N
Mobile Bay	30.300000	-87.750000	N	Yes	Yes	N	N
west end of Dauphin Island	30.220000	-88.330000	N	Yes	Yes	N	N
Dauphin Island, bayside	30.260000	-88.110000	N	Yes	Yes	N	N
Mobile Bay	30.300000	-87.970000	N	Yes	Yes	N	N
floating in MS Sound near Coden Bayou	30.350000	-88.220000	N	Yes	Yes	N	N
floating in Perdido Pass near Orange Beach	30.278471	-87.555537	Y	No	Yes	N	Y
floating south of Coden	30.374000	-88.240000	N	Yes	Yes	N	N
East Beach, Baldwin County	30.248301	-87.676815	Y	No	Yes	N	Y
Bon Secour Bay	30.300000	-87.875000	N	Yes	Yes	N	N
W Dauphin Island	30.250000	-88.060000	N	Yes	Yes	N	N
floating off of Bayou La Batre	30.340000	-88.310000	N	Yes	Yes	N	N
Mobile Bay, east side	30.450000	-87.930000	N	Yes	Yes	N	N
Mobile Bay, west side	30.450000	-88.090000	N	Yes	Yes	N	N
Gulf Shores	30.251060	-87.653670	N	No	Yes	N	N
Bayou La Batre	30.366460	-88.244330	N	No	Yes	N	N
~100 ft from Fairhope Municipal Pier	30.525780	-87.917040	N	No	Yes	N	N
Orange Beach	30.260000	-87.570000	Y	Yes	Yes	N	N
floating in Mobile Bay, Mobile side of bay	30.600000	-87.980000	N	Yes	Yes	N	N
floating in Bon Secour Bay	30.267240	-87.787240	N	No	Yes	N	N
floating in Bon Secour Bay	30.280430	-87.766780	N	No	Yes	N	N
floating in Mobile Bay, SE of Gaillard Island	30.371770	-88.065410	N	No	Yes	N	N
floating in Mobile Bay, NE of Dauphin Is. Bridge	30.332983	-88.130400	N	No	Yes	N	N

floating in Mobile Bay, btwn Dog River Bridge and Gai	30.531760	-88.022900	N	No	Yes	N	N
floating in Mobile Bay, NE of Fort Morgan	30.298020	-87.997720	N	No	Yes	N	N
northern part of Mobile Bay	30.590000	-88.000000	N	Yes	Yes	N	N
Mobile Bay, west side near Dog River	30.530000	-88.070000	N	Yes	Yes	N	N
Orange Beach	30.260000	-87.580000	Y	Yes	Yes	N	N
Bon Secour Bay	30.25917	-87.86152	N	No	Yes	N	N
Bayou La Batre	30.370583	-88.2809	N	No	Yes	N	N
a bay 2mi N. of Dauphin Island (part of Mobile Bay)	30.290183	-88.208166	N	No	Yes	N	N
Bon Secour Bay	30.27595	-87.76513	N	No	Yes	N	N
200 yds off of Gilliard Island in Mobile Bay	30.49744	-88.04932	N	No	Yes	N	N
Secador industrial west in Mobile bay	30.50712	-88.0789	Y	No	Yes	N	N
Dauphin Island	30.23	-88.15	Y	Yes	Yes	N	Y
east part of Pelican Is, near Dauphin Is pier	30.2255	-88.1089	Y	No	Yes	N	N
floating 2 mi SW of Mobile Bay buoy, ~10 mi offshore	30.105	-88.04166	Y	No	Yes	N	Y
Orange Beach, Perdido Bay, just N of 31735 Shoalwat	30.29965	-87.4859	N	No	Yes	N	N
~1 mile N of west end of Dauphin Island, in bay	30.23985	-88.32628	Y	No	Yes	N	Y
~1 mi SE of Berkley Field Pier in Mobile Bay	30.59365	-88.0398	N	No	Yes	N	N
Bon Secour Bay, just S of Intercoastal channel	30.27726	-87.76435	N	No	Yes	N	N
Bon Secour Bay, near the Intercoastal channel	30.2849	-87.7642	Y	No	Yes	N	N
Panama City Beach	30.19650	-85.84358	N	No	Yes	N	N
Panama City Beach	30.2442	-85.93718	N	No	Yes	N	Y
Panama City Beach	30.16782	-85.794	N	No	Yes	N	N
Panama City Beach	30.21513	-85.87758	N	No	Yes	N	N
Pensacola Beach	30.32589	-87.17208	N	No	Yes	N	N
St. Joseph Peninsula State Park	29.77851	-85.40833	N	No	Yes	N	N
Perdido Key State Park	30.28801	-87.47814	N	No	Yes	N	N
East Walton County Beach, Orange St access	30.2724	-86.00381	N	No	Yes	N	Y
Naval Live Oaks (Headquarters), GUIS	30.36422	-87.12725	N	No	Yes	N	N
Tyndall AFB, Archery Rd beach, east of marina	30.08165	-85.62992	N	No	Yes	N	N
Panama City Beach	30.18925	-85.83112	N	No	Yes	N	N
Perdido Key area of Gulf Islands NS	30.30350	-87.39394	N	No	Yes	N	N
Santa Rosa area of Gulf Islands NS	30.35489	-87.01419	N	No	Yes	N	N
west Walton County	30.37170	-86.34960	N	No	Yes	N	N
Crooked Island east, Tyndall AFB	29.95664	-85.47378	N	No	Yes	N	N

Crooked Island west, Tyndall AFB	30.02786	-85.56911	N	No	Yes	N	N
Walton County, east of Draper Lake	30.34060	-86.21480	N	No	Yes	N	N
Panama City Beach	30.26268	-85.97958	N	No	Yes	N	N
St. Andrews Bay, Bunkers Cove at yacht club	30.14250	-85.64920	N	No	Yes	N	N
Pensacola Beach	30.33619	-87.11075	N	No	Yes	N	Y
Tyndall AFB, Crooked Island east at boardwalk	29.95634	-85.45734	N	No	Yes	N	N
St. Joe Beach	29.90192	-85.36683	N	No	Yes	N	N
Rosemary Beach, Walton County	30.28000	-86.03000	N	Yes	Yes	N	N
Naval Live Oaks, south beach on Santa Rosa sound	30.36074	-87.14003	N	No	Yes	N	N
Perdido Key	30.29619	-87.42647	N	No	Yes	N	Y
Panama City, Baypoint Marina Yacht Club	30.14352	-85.72778	N	No	Yes	N	N
Navarre Beach	30.37590	-86.88760	N	No	Yes	N	N
St. Andrews Bay	30.16385	-85.68565	N	No	Yes	N	N
Pensacola Naval Air Station, Trout Point Beach	30.33185	-87.34040	N	No	Yes	N	N
W Escambia County, inshore, floating	30.31250	-87.49710	N	No	Yes	N	N
Cape San Blas	29.68224	-85.31182	N	No	Yes	N	N
St. Andrews Bay, Sun Harbor Marina, Panama City	30.18415	-85.73262	N	No	Yes	N	N
Panama City Beach	30.16000	-85.81000	N	Yes	Yes	N	N
St. Vincent NWR	29.67590	-85.21767	N	No	Yes	N	N
Port of Panama City	30.17795	-85.72493	N	No	Yes	N	N
Pensacola	30.29000	-87.25000	N	Yes	Yes	N	Y
Panama City, Inlet Beach	30.19000	-85.87000	N	Yes	Yes	N	Y
West Miramar Beach	30.37000	-86.40000	N	Yes	Yes	N	N
Pensacola	30.30000	-87.30000	N	Yes	Yes	N	Y
Navarre Beach	30.37000	-86.85000	N	Yes	Yes	N	N
approx 1 mile off of Pensacola Beach	30.28000	-87.18000	Y	Yes	Yes	N	Y
Eglin AFB, just east of Navarre Beach	30.37000	-86.86000	N	Yes	Yes	N	N
Pensacola Beach	30.25000	-87.20000	N	Yes	Yes	N	N
Pensacola Beach	30.30000	-87.20000	N	Yes	Yes	N	N
Pensacola Beach	30.27000	-87.45000	N	Yes	Yes	N	N
approx 1 mile off of Destin	30.35800	-86.49900	N	Yes	Yes	N	Y
Port St. Joe, Mexico Beach	29.90475	-85.36946	N	No	Yes	N	N
Tyndall AFB	30.06000	-85.62000	N	Yes	Yes	N	N
floating in St. Joe Bay	29.80000	-85.35000	N	Yes	Yes	N	Y

Eglin AFB, 100 yds east of A-11	30.39469	-86.71058	N	No	Yes	N	N
Panama City, access 59 west of city pier	30.21607	-85.87965	N	No	Yes	N	N
Panama City, Navy base behind the dive school	30.17280	-85.75803	N	No	Yes	N	N
Pensacola	30.30000	-87.20000	N	Yes	Yes	N	N
offshore Destin area	30.32000	-86.47000	N	Yes	Yes	N	Y
St. Andrews Bay	30.14	-85.7	N	Yes	Yes	N	N
Panama City area	30.23488	-85.90698	Y	No	Yes	N	Y
Perdido Key	30.29	-87.43	Y	Yes	Yes	N	N
St. Andrews State Park	30.1297	-85.7242	N	No	Yes	N	N
Cape San Blas	29.65	-85.35	N	Yes	Yes	N	N
floating offshore Destin	30.3	-86.5	N	Yes	Yes	N	Y
Elmers Island	29.17027	-90.08316	N	No	Yes	N	N
Elmers Island	29.18166	-90.06428	N	No	Yes	N	N
Slidell area, Lake Borgne	30.13447	-89.50054	N	No	Yes	N	N
Grand Isle	29.24	-89.98	N	Yes	Yes	N	N
Elmers Island	29.17235	-90.07981	N	No	Yes	N	N
Rutherford Beach	29.76692	-93.16193	N	No	Yes	N	N
Rutherford Beach	29.76879	-93.17164	N	No	Yes	N	N
Rutherford Beach	29.76972	-93.17667	N	No	Yes	N	N
Rutherford Beach	29.77171	-93.18671	N	No	Yes	N	N
Rutherford Beach	29.7732	-93.19467	N	No	Yes	N	N
Rutherford Beach	29.77341	-93.19683	N	No	Yes	N	N
Rutherford Beach	29.77354	-93.19756	N	No	Yes	N	N
Rutherford Beach	29.77576	-93.21589	N	No	Yes	N	N
Rutherford Beach	29.77738	-93.2461	N	No	Yes	N	N
Rutherford Beach	29.77728	-93.25497	N	No	Yes	N	N
Rutherford Beach	29.77728	-93.25497	N	No	Yes	N	N
Rutherford Beach	29.76578	-93.15643	N	No	Yes	N	N
Rutherford Beach	29.76119	-93.13665	N	No	Yes	N	N
Rutherford Beach	29.75513	-93.11017	N	No	Yes	N	N
floating near Slidell - Rigolets Pass	30.1588	-89.6505	N	No	Yes	N	N
Elmers Island	29.18184	-90.06364	N	No	Yes	N	N
Grand Isle	29.20786	-90.03112	N	No	Yes	N	N
Holly Beach	29.76897	-93.4392	N	No	Yes	N	N

Holly Beach	29.76879	-93.43438	N	No	Yes	N	N
Holly Beach	29.76922	-93.45638	N	No	Yes	N	N
Holly Beach	29.76897	-93.48772	N	No	Yes	N	N
Holly Beach	29.76771	-93.50714	N	No	Yes	N	N
Constance Beach	29.76031	-93.56936	N	No	Yes	N	N
Fourchon Beach	29.11	-90.18	N	Yes	Yes	N	N
Fourchon Beach	29.11	-90.18	N	Yes	Yes	N	N
Mae's Beach	29.74595	-93.68512	N	No	Yes	N	N
Mae's Beach	29.74582	-93.68592	N	No	Yes	N	N
Mae's Beach	29.7423	-93.70653	N	No	Yes	N	Y
Grand Isle	30.1086	-89.3545	N	No	Yes	N	N
Grand Terre	29.209166	-90.029166	N	No	Yes	N	N
Grand Isle	29.28435	-89.92149	N	No	Yes	N	N
Holly Beach	29.74232	-93.7065	N	No	Yes	N	N
Holly Beach	29.76391	-93.36438	N	No	Yes	N	N
found floating, location?	29.23	-89.99	N	Yes	Yes	N	N
Mae's Beach	29.7424	-93.7062	N	No	Yes	N	Y
Long Beach	29.7534	-93.6293	N	No	Yes	N	N
Long Beach	29.7509	-93.6492	N	No	Yes	N	N
Mae's Beach	29.7396	-93.7208	N	No	Yes	N	N
Constance Beach	29.7605	-93.5674	N	No	Yes	N	N
Holly Beach	29.7683	-93.5018	N	No	Yes	N	N
Holly Beach	29.7689	-93.441	N	No	Yes	N	N
Rutherford Beach	29.7555	-93.1114	N	No	Yes	N	N
Rutherford Beach	29.7513	-93.0941	N	No	Yes	N	N
Rutherford Beach	29.7498	-93.0873	N	No	Yes	N	N
Bayou Rigaud, floating	29.14436	-89.59246	N	No	Yes	N	N
Lake Pontchartrain, floating	30.205	-90.11194	N	No	Yes	N	N
Fourchon Beach	29.09	-90.21566	N	No	Yes	N	N
near Cocodrie	29.24	-90.66	N	Yes	Yes	N	N
4 mi NE of Fishing Smack Bay	30.003805	-89.20633	N	No	Yes	N	N
Grand Isle Beach	29.24	-89.99	N	Yes	Yes	N	N
Empire Jetty Beach	29.25412	-89.60345	N	No	Yes	N	N
Grand Terre	29.28	-89.92	N	Yes	Yes	N	N

Bayou Terrebonne by Bayou La Fleur	29.26	-90.64	N	Yes	Yes	N	N
Lake Chien	29.33	-90.44	N	Yes	Yes	N	N
Bayou Trove	29.2386	-89.53792	N	No	Yes	N	N
Grand Isle State Park	29.24	-89.97	Y	Yes	Yes	N	N
Queen Bess Island	29.3	-89.96	N	Yes	Yes	N	N
Lake Felicity, North of Timbalier Island	29.26	-90.4	N	Yes	Yes	N	N
Lake Felicity, North of Timbalier Island	29.26	-90.47	N	Yes	Yes	N	N
Lake Felicity, North of Timbalier Island	29.28	-90.42	N	Yes	Yes	N	N
Grand Isle Beach	29.2	-90.04	N	Yes	Yes	N	N
skimmer found ~50 mi S of Louisiana coastline, broug	28.4375	-89.8958	Y	No	Skimmer	N	Y
Cameron Parish beach	29.76	-93.34	N	Yes	Yes	N	N
skimmer found ~17 mi offshore Grand Isle	28.9932	-89.8412	Y	No	Skimmer	N	Y
Timbalier Island	29.04	-90.47	N	Yes	Yes	N	N
floating just offshore western LA beaches	29.76	-93.46	N	Yes	Yes	N	N
western Louisiana beaches	29.74	-93.42	N	Yes	Yes	N	N
western Louisiana beaches	29.74	-93.44	N	Yes	Yes	N	N
western Louisiana beaches	29.74	-93.46	N	Yes	Yes	N	N
Coup A Bel Pass	29.3	-89.9	Y	Yes	Yes	N	N
Marsh Island	29.5	-91.9	N	Yes	Yes	N	N
Barataria Bay	29.4	-89.94	Y	Yes	Yes	N	N
north Barataria Bay	29.43308	-89.88585	Y	No	Yes	N	N
western Louisiana, nearshore waters	29.7	-93	N	Yes	Yes	N	Y
Fourchon Beach	29.08	-90.14	N	Yes	Yes	N	N
no location info - est location in Chandeleur Sound	29.8	-89.1	N	Yes	Yes	N	Y
Rutherford Beach	29.74	-93.22	N	Yes	Yes	N	N
Rutherford Beach	29.72	-93.15	N	Yes	Yes	N	N
Rutherford Beach	29.72	-93.07	N	Yes	Yes	N	N
Fourchon Beach	29.1	-90.1	N	Yes	Yes	N	N
Slidell area	30.13	-89.57	N	Yes	Yes	N	N
Rollover Bayou (W LA near Rockefeller Refuge)	29.59	-92.7	N	Yes	Yes	N	N
Rollover Bayou (W LA near Rockefeller Refuge)	29.6	-92.6	N	Yes	Yes	N	N
Whiskey Island chain, south of Cocodrie	29.03	-90.75	N	Yes	Yes	N	N
Timbalier Island area - floating?	29.05	-90.47	N	Yes	Yes	N	N
west of Bayou La Fourche, north of jetties at Port Fou	29.1	-90.18	N	Yes	Yes	N	N

Timbalier Bay	29.1	-90.4	N	Yes	Yes	N	N
Lake Borgne	30.1	-89.6	N	Yes	Yes	N	N
floating in Terrebonne Bay, ~4-5 mi S of Cocodrie	29.15	-90.6	N	Yes	Yes	N	N
floating in Houma navigational channel	29.33	-90.73	N	Yes	Yes	N	N
Fourchon Beach	29.09139	-90.22365	N	No	Yes	N	N
Racoon Island	29.06263	-90.94988	N	No	Yes	N	N
Racoon Island	29.0624	-90.94663	N	No	Yes	N	N
off shore S.E. Of Port Fourchon	29.01988	-90.11865	Y	No	Yes	N	Y
Grand Isle Beach	29.19899	-90.04115	N	No	Yes	N	N
Grand Isle Beach	29.22781	-90.00005	N	No	Yes	N	N
Rigolets Pass, near Slidell	30.13	-89.6	N	Yes	Yes	N	Y
Port Fourchon, on sandbar	29.09	-90.19	N	Yes	Yes	N	N
Bay Wilkinson	29.46985	-89.91005	Y	No	Yes	N	N
Bay St. Louis	30.30880	-89.32590	N	No	Yes	N	N
Bay St. Louis	30.29410	-89.34320	N	No	Yes	N	N
Waveland	30.26410	-89.39200	N	No	Yes	N	N
Waveland	30.27260	-89.37750	N	No	Yes	N	N
Waveland	30.27360	-89.37640	N	No	Yes	N	N
Long Beach	30.34780	-89.13900	N	No	Yes	N	Y
Pass Christian	30.31481	-89.24207	N	No	Yes	N	N
Pass Christian	30.31071	-89.25556	N	No	Yes	N	N
Pass Christian	30.31460	-89.24252	N	No	Yes	N	N
Pass Christian	30.31080	-89.25728	N	No	Yes	N	N
Pass Christian	30.31295	-89.24477	N	No	Yes	N	N
Pass Christian	30.31082	-89.25535	N	No	Yes	N	N
Ocean Springs	30.40980	-88.84080	N	No	Yes	N	N
Bay St. Louis	30.31900	-89.32230	N	No	Yes	N	N
Waveland	30.28830	-89.36000	N	No	Yes	N	N
Waveland	30.28680	-89.36260	N	No	Yes	N	N
Pass Christian	30.30650	-89.26858	N	No	Yes	N	N
Pass Christian	30.30725	-89.26653	N	No	Yes	N	N
Bay St. Louis	30.30562	-89.32865	N	No	Yes	N	N
Pass Christian	30.32834	-89.19923	N	No	Yes	N	N
Pass Christian	30.30529	-89.27249	N	No	Yes	N	N

Pass Christian	30.32620	-89.20892	N	No	Yes	N	N
Pass Christian	30.32460	-89.21450	N	No	Yes	N	N
Biloxi	30.39289	-88.94716	N	No	Yes	N	N
Waveland	30.28865	-89.35290	N	No	Yes	N	N
Pass Christian	30.32824	-89.19985	N	No	Yes	N	N
Pass Christian	30.33144	-89.18568	N	No	Yes	N	N
Pass Christian	30.32144	-89.22351	N	No	Yes	N	N
Pass Christian	30.30750	-89.26659	N	No	Yes	N	N
Bay St. Louis	30.31558	-89.29004	N	No	Yes	N	N
Pass Christian	30.30525	-89.27421	N	No	Yes	N	N
Pass Christian	30.30989	-89.25963	N	No	Yes	N	N
Waveland	30.26362	-89.39346	N	No	Yes	N	N
Waveland	30.28670	-89.36321	N	No	Yes	N	N
Gulfport	30.35567	-89.11807	N	No	Yes	N	N
Waveland	30.24120	-89.42470	N	No	Yes	N	N
Gulfport	30.36948	-89.07825	N	No	Yes	N	N
Biloxi	30.39169	-88.95027	N	No	Yes	N	N
Biloxi	30.39271	-88.87608	N	No	Yes	N	N
Waveland	30.27834	-89.37222	N	No	Yes	N	N
Gulfport	30.37689	-89.04778	N	No	Yes	N	N
Waveland	30.27006	-89.38032	N	No	Yes	N	N
Bay St. Louis	30.30022	-89.33346	N	No	Yes	N	N
Pass Christian	30.32762	-89.20251	N	No	Yes	N	N
floating N of Ship Island	30.25080	-88.94120	N	No	Yes	N	N
Waveland	30.25685	-89.41499	N	No	Yes	N	N
Waveland	30.26483	-89.39040	N	No	Yes	N	N
Waveland	30.26471	-89.39070	N	No	Yes	N	N
Pass Christian, floating by Henderson Point	30.30320	-89.29570	N	No	Yes	N	N
Waveland	30.28749	-89.36136	N	No	Yes	N	N
Waveland	30.28790	-89.36065	N	No	Yes	N	N
Gulfport	30.36129	-89.10089	N	No	Yes	N	N
Long Beach	30.33749	-89.16818	N	No	Yes	N	N
Pass Christian	30.32775	-89.20048	N	No	Yes	N	N
Pass Christian	30.31166	-89.25018	N	No	Yes	N	N

Pass Christian	30.30335	-89.28335	N	No	Yes	N	N
Waveland	30.28267	-89.36761	N	No	Yes	N	N
Biloxi	30.39147	-88.95452	N	No	Yes	N	N
Biloxi	30.39385	-88.91407	N	No	Yes	N	N
Horn Island	30.22831	-88.64799	N	No	Yes	N	N
Pass Christian	30.31300	-89.24830	N	No	Yes	N	N
Pass Christian	30.31190	-89.29050	N	No	Yes	N	N
Gulfport	30.38250	-89.02280	N	No	Yes	N	N
Gulfport	30.38150	-89.02610	N	No	Yes	N	N
floating ~1/2 mile south of Biloxi bridge	30.38960	-88.84190	N	No	Yes	N	N
Waveland Beach at Nicholson Ave	30.29410	-89.35910	N	No	Yes	N	N
Pass Christian	30.32320	-89.21840	N	No	Yes	N	N
Gulfport Beach	30.35582	-89.11698	N	No	Yes	N	N
Gulfport Beach	30.33215	-89.18207	N	No	Yes	N	N
Lakeshore/Waveland	30.25117	-89.42138	N	No	Yes	N	N
Bay St. Louis	30.29545	-89.34080	N	No	Yes	N	N
Waveland	30.26715	-89.38553	N	No	Yes	N	N
Bay St. Louis	30.30980	-89.32553	N	No	Yes	N	N
West Ship Island	30.2115	-88.98480	N	No	Yes	N	N
Waveland	30.28248	-89.36733	N	No	Yes	N	N
Pass Christian	30.31406	-89.24347	N	No	Yes	N	N
Gulfport	30.37421	-89.04382	N	No	Yes	N	Y
Bay St. Louis	30.30883	-89.32583	N	No	Yes	N	N
Waveland	30.27683	-89.37367	N	No	Yes	N	N
Waveland	30.28064	-89.36495	N	No	Yes	N	Y
Waveland	30.28127	-89.36557	N	No	Yes	N	Y
Pascagoula Beach	30.3433	-88.55500	N	No	Yes	N	N
Waveland	30.27234	-89.37753	N	No	Yes	N	N
SE Horn Island	30.2207	-88.59330	N	No	Yes	N	N
southside Cat Island	30.2283	-89.07330	N	No	Yes	N	N
Pass Christian	30.31352	-89.24396	N	No	Yes	N	N
Bellefontaine Beach	30.3433	-88.70330	N	No	Yes	N	N
water south of Cadet Point, Biloxi	30.3877	-88.85890	N	No	Yes	N	N
Waveland	30.28063	-89.36495	N	No	Yes	N	Y

Biloxi Bay	30.40980	-88.86906	N	No	Yes	N	N
Biloxi Bay	30.40980	-88.86906	N	No	Yes	N	N
Horn Island, ~3000' from W end	30.2398	-88.76870	N	No	Yes	N	N
Waveland	30.28655	-89.36330	N	No	Yes	N	N
Pass Christian	30.30725	-89.26660	N	No	Yes	N	N
Waveland	30.28063	-89.36495	N	No	Yes	N	Y
Long Beach	30.33743	-89.16837	N	No	Yes	N	N
Biloxi Beach	30.39154	-88.95600	N	No	Yes	N	N
north side of Horn Island	30.22307	-88.62952	N	No	Yes	N	N
Bangs Lake off of Pascagoula	30.3588	-88.47300	N	No	Yes	N	N
Biloxi, Back Bay	30.40079	-88.85896	N	No	Yes	N	N
Ocean Springs, McPherson Pier	30.40397	-88.83031	N	No	Yes	N	Y
Waveland	30.28063	-89.36495	N	No	Yes	N	Y
Ocean Springs	30.40397	-88.83031	N	No	Yes	N	Y
Biloxi, near Palace Casino	30.3959	-88.85830	N	No	Yes	N	N
Ocean Springs	30.40397	-88.83031	N	No	Yes	N	Y
Ocean Springs	30.4075	-88.83540	N	No	Yes	N	N
Gulfport	30.35487	-89.12191	N	No	Yes	N	N
Waveland	30.26605	-89.38722	N	No	Yes	N	N
Long Beach	30.34084	-89.15894	N	No	Yes	N	N
Biloxi, near harbor	30.39268	-88.88209	N	No	Yes	N	N
Gautier / Belle Fontaine Beach	30.3457	-88.74080	N	No	Yes	N	N
Biloxi	30.39158	-88.94994	N	No	Yes	N	N
Biloxi	30.39184	-88.94596	N	No	Yes	N	N
Biloxi	30.39183	-88.94596	N	No	Yes	N	N
Biloxi	30.39184	-88.94576	N	No	Yes	N	N
Biloxi	30.39262	-88.93246	N	No	Yes	N	N
Biloxi Beach	30.3932	-88.90645	N	No	Yes	N	N
Biloxi Beach	30.39353	-88.92310	N	No	Yes	N	N
Biloxi Beach	30.39382	-88.91889	N	No	Yes	N	N
Biloxi Beach	30.39375	-88.92016	N	No	Yes	N	N
Biloxi Beach	30.39108	-88.96432	N	No	Yes	N	N
Biloxi Beach	30.38968	-88.97850	N	No	Yes	N	N
Ocean Springs / Belle Fontaine Beach	30.34316	-88.72950	N	No	Yes	N	N

Gulfport Beach	30.3597	-89.10686	N	No	Yes	N	N
Biloxi Beach	30.3938	-88.91200	N	No	Yes	N	N
Gulfport Beach	30.37834	-89.04083	N	No	Yes	N	N
Gulfport Beach	30.38538	-89.01003	N	No	Yes	N	N
Gulfport Beach	30.37825	-89.04118	N	No	Yes	N	N
Gulfport Beach	30.3844	-89.01535	N	No	Yes	N	N
Biloxi Beach	30.38942	-88.98023	N	No	Yes	N	N
Biloxi Beach	30.39028	-88.97433	N	No	Yes	N	N
Biloxi Beach	30.39357	-88.89623	N	No	Yes	N	N
Gulfport Beach	30.3831	-89.0192	N	No	Yes	N	N
Biloxi Beach	30.3914	-89.0069	N	No	Yes	N	N
Biloxi Beach	30.39	-88.9756	N	No	Yes	N	N
Biloxi Beach	30.3875	-88.9942	N	No	Yes	N	N
Biloxi Beach	30.3889	-88.9847	N	No	Yes	N	N
Gulfport Beach	30.37058	-89.0742	N	No	Yes	N	N
Gulfport Beach	30.3706	-89.07417	N	No	Yes	N	N
Gulfport Beach	30.37131	-89.07161	N	No	Yes	N	N
Gulfport Beach	30.37158	-89.07066	N	No	Yes	N	N
Gulfport Beach	30.3768	-89.07045	N	No	Yes	N	N
Gulfport Beach	30.37262	-89.06721	N	No	Yes	N	N
Gulfport	30.38075	-89.02951	N	No	Yes	N	N
Gulfport	30.38097	-89.02944	N	No	Yes	N	N
Gulfport	30.38048	-89.03049	N	No	Yes	N	N
Gulfport	30.38016	-89.03156	N	No	Yes	N	N
Biloxi	30.3799	-89.03266	N	No	Yes	N	N
Biloxi	30.38032	-89.03104	N	No	Yes	N	N
Gulfport Beach	30.37746	-89.0433	N	No	Yes	N	N
Gulfport Beach	30.37819	-89.0416	N	No	Yes	N	N
Waveland	30.2806	-89.3449	N	No	Yes	N	Y
Biloxi, Acadia Ave	30.39277	-88.9312	N	No	Yes	N	Y
Gulfport Beach	30.37819	-89.0416	N	No	Yes	N	N
Gulfport Beach	30.37819	-89.0416	N	No	Yes	N	N
Gulfport Beach	30.37843	-89.0413	N	No	Yes	N	N
Gulfport Beach	30.37837	-89.04101	N	No	Yes	N	N

Gulfport Beach	30.37457	-89.0563	N	No	Yes	N	N
Gulfport Beach	30.37456	-89.05634	N	No	Yes	N	N
Biloxi Beach	30.3887	-88.98878	N	No	Yes	N	N
Biloxi Beach	30.38877	-88.98797	N	No	Yes	N	N
Biloxi Beach	30.38877	-88.98797	N	No	Yes	N	N
Biloxi Beach	30.38886	-88.9741	N	No	Yes	N	N
Biloxi Beach	30.38886	-88.98734	N	No	Yes	N	N
Pass Christian Beach	30.32762	-89.20251	N	No	Yes	N	N
Gulfport Beach	30.38188	-89.02495	N	No	Yes	N	N
Gulfport Beach	30.38393	-89.01701	N	No	Yes	N	N
Gulfport Beach	30.38583	-89.00827	N	No	Yes	N	N
Biloxi Beach	30.39357	-88.89818	N	No	Yes	N	N
Biloxi Beach	30.39182	-88.94774	N	No	Yes	N	N
Biloxi Beach	30.39328	-88.92583	N	No	Yes	N	N
Biloxi Beach	30.37561	-89.09052	N	No	Yes	N	N
Biloxi Beach	30.37571	-89.05148	N	No	Yes	N	N
Biloxi Beach	30.38738	-89	N	No	Yes	N	N
Biloxi Beach	30.38746	-88.99895	N	No	Yes	N	N
near Horn Island - floating?	30.2333	-88.53093	N	No	Yes	N	N
floating off of Gulfport	30.32007	-89.17917	N	No	Yes	N	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	N	Y
Biloxi Beach	30.39383	-88.91076	N	No	Yes	N	N
Biloxi Beach	30.39167	-88.89817	N	No	Yes	N	N
Biloxi Beach	30.39383	-88.91895	N	No	Yes	N	N
Gulfport Beach	30.37125	-89.07175	N	No	Yes	N	N
west side of Deer Island, Biloxi	30.26278	-88.89885	N	No	Yes	N	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	N	Y
Waveland Pier	30.2806	-89.3449	N	No	Yes	N	Y
Waveland Pier	30.2806	-89.3449	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Biloxi Beach	30.38722	-89.00137	N	No	Yes	N	N
Ocean Springs	30.3603	-88.7642	N	No	Yes	N	N
Ocean Springs	30.369965	-88.779549	N	No	Yes	N	N
Biloxi	30.392	-88.87	N	No	Yes	N	N

Long Beach	30.35226	-89.12932	N	No	Yes	N	N
Long Beach, Jeff Davis Ave	30.3437	-89.1498	N	No	Yes	N	N
Long Beach	30.3397	-89.94848	N	No	Yes	N	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
3 Oaks Bayou (Bayou Caddy), outside Waveland	30.24575	-89.43206	N	No	Yes	N	N
Pass Christian	30.32465	-89.2142	N	No	Yes	N	N
Long Beach	30.33843	-89.16594	N	No	Yes	N	N
Long Beach	30.34897	-89.13697	N	No	Yes	N	N
floating off of NE corner of Ship Island	30.22236	-88.94848	N	No	Yes	N	N
floating off NE coast of Cat Island	30.2596	-89.037	N	No	Yes	N	N
floating east Cat Island	30.2211	-89.0336	N	No	Yes	N	N
in MS Sound ~2 mi offshore Biloxi, brought in to Ocea	30.368	-88.958	N	No	Yes	N	Y
Deer Island, Biloxi Harbor	30.21851	-88.48135	N	No	Yes	N	N
Biloxi Harbor	30.19418	-88.52193	N	No	Yes	N	N
Biloxi Harbor, NW end Horn Island	30.16057	-88.44111	N	No	Yes	N	N
Gulfport Harbor	30.1523	-89.0633	N	No	Yes	N	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
floating off of Biloxi	30.37	-88.92	N	Yes	Yes	N	N
floating off of Biloxi	30.365	-88.89	N	Yes	Yes	N	N
floating off of Biloxi	30.36	-88.86	N	Yes	Yes	N	N
floating off of Biloxi	30.35	-88.84	N	Yes	Yes	N	N
floating off of Biloxi Beach	30.3505	-88.9066	N	No	Yes	N	N
floating off of Biloxi Beach	30.389	-88.8865	N	No	Yes	N	N
floating off of Biloxi Beach	30.3531	-88.937	N	No	Yes	N	N
floating off of Biloxi Beach	30.3379	-88.9542	N	No	Yes	N	N
floating off of Cat Island, Long Beach	30.2736	-89.0744	N	No	Yes	N	N
floating off of Biloxi Beach	30.3498	-88.892	N	No	Yes	N	N
floating off of Biloxi Beach	30.3651	-88.8896	N	No	Yes	N	N
floating off of Biloxi Beach	30.3667	-88.8944	N	No	Yes	N	N
floating off of Biloxi Beach	30.356	-88.9961	N	No	Yes	N	N

floating off of Biloxi Beach	30.356	-88.898	N	No	Yes	N	N
Biloxi Beach	30.38757	-88.99525	N	No	Yes	N	N
Gulfport Beach	30.37807	-89.04175	N	No	Yes	N	N
Ocean Springs	30.40376	-88.82699	N	No	Yes	N	N
Long Beach	30.34	-89.16059	N	No	Yes	N	N
Gulfport	30.37314	-89.0655	N	No	Yes	N	N
Biloxi Beach	30.38498	-89.01112	N	No	Yes	N	N
floating off of Long Beach	30.32185	-89.1497	N	No	Yes	N	N
floating in Back Bay of Biloxi	30.41678	-88.86855	N	No	Yes	N	N
Bay St. Louis, on beach, Lakeshore area	30.24835	-89.42323	N	No	Yes	N	N
Biloxi Beach	30.38	-88.89	N	Yes	Yes	N	N
floating off of Jackson County	30.3	-88.7	N	Yes	Yes	N	N
Ocean Springs Pier, Jackson County	30.40398	-88.82962	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Harrison County	30.37537	-88.81745	N	No	Yes	N	N
Harrison County	30.37762	-88.1543	N	No	Yes	N	N
Jackson County	30.40048	-88.84228	N	No	Yes	N	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Pass Christian	30.34114	-89.15825	N	No	Yes	N	N
Long Beach	30.32659	-89.2067	N	No	Yes	N	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Bay St. Louis	30.3	-89.3	N	Yes	Yes	N	N
Long Beach	30.33	-89.16	N	Yes	Yes	N	N
Long Beach	30.345	-89.1	N	Yes	Yes	N	N
Bay St. Louis	30.24918	-89.42303	N	No	Yes	N	N
Pass Christian	30.31637	-89.23715	N	No	Yes	N	N
Pass Christian, on beach	30.31161	-89.25247	N	No	Yes	N	N
floating off of Biloxi	30.39065	-88.87007	N	No	Yes	N	N
floating off west end of Deer Island, near Biloxi	30.38	-88.89	N	Yes	Yes	N	N
floating off west end of Deer Island, near Biloxi	30.375	-88.87	N	Yes	Yes	N	N
floating by Biloxi Schooner Pier	30.39	-88.87	N	Yes	Yes	N	N
floating ~1 mi offshore of Mississippi Coliseum	30.21919	-88.58492	N	No	Yes	N	N

Directed Capture	28.4665	-88.46116	Y	No	No	N	Y
Directed Capture	28.96778	-88.79333	Y	No	No	N	Y
Directed Capture	28.90722	-88.80167	Y	No	No	N	Y
Directed Capture	28.9597	-88.5342	Y	No	No	N	Y
Directed Capture	28.9182	-88.5552	Y	No	No	N	Y
Directed Capture	28.865	-88.5658	Y	No	No	N	Y
Directed Capture	28.8538	-88.5617	Y	No	No	N	Y
Directed Capture	28.847	-88.5588	Y	No	No	N	Y
Directed Capture	28.8405	-88.5557	Y	No	No	N	Y
Directed Capture	28.6573	-88.4313	Y	No	No	N	Y
Directed Capture	28.8045	-88.4771	Y	No	No	N	Y
Directed Capture	28.804483	-88.4771	Y	No	No	N	Y
Directed Capture	28.80725	-88.47808	Y	No	No	N	Y
Directed Capture	28.813483	-88.480383	Y	No	No	N	Y
Directed Capture	28.81535	-88.479233	Y	No	No	N	Y
Directed Capture	28.81669	-88.47803	Y	No	No	N	Y
Directed Capture	28.828083	-88.37115	Y	No	No	N	Y
Directed Capture	28.829617	-88.471267	Y	No	No	N	Y
Directed Capture	28.826867	-88.464933	Y	No	No	N	Y
Directed Capture	28.834317	-88.42455	Y	No	No	N	Y
Directed Capture - LDWF	29.09	-89.78	Y	No	No	N	N
Directed Capture - LDWF	29.0919	-89.7781	Y	No	No	N	Y
Directed Capture - LDWF	29.0932	-89.7747	Y	No	No	N	Y
Directed Capture - LDWF	29.0998	-89.7574	Y	No	No	N	Y
Directed Capture - LDWF	29.1065	-89.748	Y	No	No	N	Y
Directed Capture	29.01025	-88.26369	Y	No	No	N	Y
Directed Capture	29.01025	-88.26369	Y	No	No	N	Y
Directed Capture	29.01025	-88.26369	Y	No	No	N	Y
Directed Capture	29.02569	-88.25586	Y	No	No	N	Y
Directed Capture	29.17372	-88.16519	Y	No	No	N	N
Directed Capture	28.7538	-88.85602	Y	No	No	N	N
Directed Capture	28.75114	-88.84875	Y	No	No	N	Y
Directed Capture	28.62252	-88.55688	Y	No	No	N	Y
Directed Capture	28.76398	-88.82482	Y	No	No	N	Y

Directed Capture	28.66965	-88.49193	Y	No	No	N	Y
Directed Capture	28.91208	-88.68748	Y	No	No	N	Y
Directed Capture	28.70114	-88.53979	Y	No	No	N	Y
Directed Capture	28.92108	-88.7991	Y	No	No	N	Y
Directed Capture	28.92094	-88.79822	Y	No	No	N	Y
Directed Capture	28.92891	-88.77321	Y	No	No	N	Y
Directed Capture	28.928	-88.7701	Y	No	No	N	Y
Directed Capture	28.92558	-88.74215	Y	No	No	N	Y
Directed Capture	28.93916	-88.71402	Y	No	No	N	Y
Directed Capture	28.94739	-88.70053	Y	No	No	N	Y
Directed Capture	28.96491	-88.67766	Y	No	No	N	Y
Directed Capture	28.98004	-88.65568	Y	No	No	N	Y
Directed Capture - LDWF	28.72474	-88.55243	Y	No	No	N	Y
Directed Capture - LDWF	28.81743	-88.63998	Y	No	No	N	Y
Directed Capture	28.62361	-88.54351	Y	No	No	N	Y
Directed Capture	28.60264	-88.49568	Y	No	No	N	Y
Directed Capture	28.59733	-88.49236	Y	No	No	N	Y
Directed Capture	28.59501	-88.49054	Y	No	No	N	Y
Directed Capture	28.57604	-88.49573	Y	No	No	N	Y
Directed Capture	28.57271	-88.49434	Y	No	No	N	Y
Directed Capture	28.56876	-88.49416	Y	No	No	N	Y
Directed Capture	28.52956	-88.51617	Y	No	No	N	Y
Directed Capture	28.50794	-88.54434	Y	No	No	N	Y
Directed Capture	28.53647	-88.60338	Y	No	No	N	Y
Directed Capture	28.69822	-88.79404	Y	No	No	N	Y
Directed Capture	28.90896	-88.72726	Y	No	No	N	Y
Directed Capture	28.6881	-88.84448	Y	No	No	N	Y
Directed Capture	28.67472	-88.88646	Y	No	No	N	Y
Directed Capture	28.68382	-88.88902	Y	No	No	N	Y
Directed Capture	28.8945	-88.72223	Y	No	No	N	Y
Directed Capture	28.6575	-88.87042	Y	No	No	N	Y
Directed Capture	28.65178	-88.86879	Y	No	No	N	Y
Directed Capture	28.6833	-88.64572	Y	No	No	N	Y
Directed Capture	28.74405	-88.2535	Y	No	No	N	Y

Directed Capture	28.7637	-88.23549	Y	No	No	N	Y
Directed Capture	28.7666	-88.23471	Y	No	No	N	Y
Directed Capture	28.78214	-88.23679	Y	No	No	N	Y
Directed Capture	28.87021	-88.50445	Y	No	No	N	Y
Directed Capture - LDWF	28.67327	-88.29708	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.71517	-89.80517	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.714	-89.806	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.714	-89.806	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.709	-89.80267	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.70783	-89.80433	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.70783	-89.80433	Y	No	No	N	Y
Directed Capture - LDWF, floating ~50 miles offshore	28.62647	-90.18168	N	No	No	N	N
Directed Capture - LDWF, floating ~35 miles offshore	28.78182	-89.7506	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.77712	-89.74897	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.77405	-89.74953	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.76734	-89.747	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.76683	-89.7453	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.76467	-89.74487	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.76212	-89.74383	Y	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.75873	-89.74536	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.75897	-89.74525	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.7489	-89.75946	Y	No	No	N	Y
Directed Capture	28.34139	-88.72183	Y	No	No	N	Y
Directed Capture	28.92028	-88.40833	Y	No	No	N	Y
Directed Capture	28.98478	-88.35519	Y	No	No	N	Y
Directed Capture	29.02858	-88.30956	Y	No	No	N	Y
Directed Capture	28.95217	-88.37383	Y	No	No	N	Y
Directed Capture	29.00767	-88.90133	Y	No	No	N	Y
Directed Capture	29.00914	-88.88017	Y	No	No	N	Y
Directed Capture	29.05264	-88.79911	Y	No	No	N	Y
Directed Capture	29.13067	-88.76469	Y	No	No	N	Y
Directed Capture	28.97922	-89.06208	Y	No	No	N	Y
Directed Capture	28.98544	-89.05781	Y	No	No	N	Y
Directed Capture	28.98914	-89.05772	Y	No	No	N	Y

Directed Capture	28.99314	-89.05647	Y	No	No	N	Y
Directed Capture	28.99411	-89.05583	Y	No	No	N	Y
Directed Capture	28.99439	-89.05569	Y	No	No	N	Y
Directed Capture	29.01933	-88.94467	Y	No	No	N	Y
Directed Capture	28.83391	-89.70232	N	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.77967	-86.6597	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.76232	-86.64677	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.78245	-86.66177	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.79148	-86.66885	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.79648	-86.67315	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.79063	-86.68507	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.79198	-86.6845	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.76888	-86.71662	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.76633	-86.69712	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.78413	-86.6638	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.74103	-86.68613	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.798	-86.65583	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.8186	-86.64862	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.82193	-86.64973	Y	No	No	N	Y
Directed Capture - LDWF, approx 50 mi S of Grand Isl	28.60669	-89.81942	Y	No	No	N	Y
Directed Capture - LDWF, approx 50 mi S of Grand Isl	28.60237	-89.80797	Y	No	No	N	Y
Directed Capture - LDWF, approx 50 mi S of Grand Isl	28.5988	-89.82002	Y	No	No	N	Y
Directed Capture - LDWF, approx 50 mi S of Grand Isl	28.60407	-89.86728	Y	No	No	N	Y
Directed Capture - LDWF, approx 50 mi S of Grand Isl	28.62131	-89.91562	Y	No	No	N	Y
Directed Capture - BirdTeam - location? Off of LA	28.7	-89	Y	Yes	No	N	Y
Directed Capture - LDWF - location? Off of LA	28.73	-88.97	N	Yes	No	N	Y
Directed Capture, off of Destin, FL	30	-86.5	Y	Yes	No	N	Y
Directed Capture, off of Venice, LA	28.45497	-89.56168	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.45473	-89.54215	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.46103	-89.50808	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.4621	-89.50258	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.46322	-89.50012	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.45018	-89.47792	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.64048	-89.28675	Y	No	No	N	Y

Directed Capture, off of Venice, LA	28.62377	-89.3015	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.66903	-89.20977	Y	No	No	N	Y
Directed Capture, off of Destin, FL	30.05	-86.46	Y	Yes	No	N	Y
Directed Capture, off of Destin, FL	30	-86.5	Y	Yes	No	N	Y
Directed Capture, off of Destin, FL	29.95	-86.54	Y	Yes	No	N	Y
Directed Capture, off of Destin, FL	29.9	-86.58	Y	Yes	No	N	Y
Grand Bay, near Pensacola			N	Yes	Yes	Y	Y
Cat Island	30.36698	-88.97193	N	No	Yes	Y	N
East Beach, Davis Bayou	30.39609	-88.81237	N	No	Yes	Y	N
inside Point Cadet Harbor, N side of seawall			N	Yes	Yes	Y	N
N Barataria Bay, in canal off of Wilkinson Canal	29.46278	-89.95111	N	No	Yes	Y	Y
location? Off of LA			N	Yes	Yes	Y	N
Directed Capture, off of Venice, LA			Y	Yes	No	Y	Y

Symbol	Confirmed	Log #	Comments
C	Y		outside of area of concern
C	Y		outside of area of concern
C	Y		outside of area of concern
C	Y		outside of area of concern
C	Y		outside of area of concern
C	Y		outside of area of concern
C	Y		outside of area of concern
C	Y		outside of area of concern
C	Y	D-0002 BSNWR	
C	Y	D-0001 BSNWR	
C	Y	D-0003 BSNWR	
C	Y	D-0004 BSNWR	
C	Y	D-0005 BSNWR	
C	Y	D-0006 BSNWR	
C	Y	D-0007 BSNWR	
C	Y	D-0008 BSNWR	
C	Y	D-0009 BSNWR	
C	Y	D-0010 BSNWR	
C	Y	D-0015 BSNWR	
C	Y	D-0014 BSNWR	
C	Y	D-0011 BSNWR	
C	Y	D-0012 BSNWR	
C	Y	D-0013 BSNWR	
C	Y	D-0016 BSNWR	
C	Y	D-0017 BSNWR	dried carcass
C	Y	D-0018 BSNWR	
C	Y	D-0019 BSNWR	
C	Y	D-0020 BSNWR	
C	Y	D-0021 BSNWR	
C	Y	D-0023 BSNWR	
C	Y	D-0022 BSNWR	
C	Y	L-0001 BSNWR	
C	Y	D-0024 BSNWR	

C	Y	D-0025 BSNWR	
C	Y	D-0026 BSNWR	
C	Y	D-0027 BSNWR	
C	Y	L-0007 IMMS	emaciated; taken to IMMS for rehab; died 5/25, shipped to UF for necropsy
C	Y	D-0028 BSNWR	
C	Y	D-0029 BSNWR	
C	Y	D-0030 BSNWR	
C	Y	D-0031 BSNWR	
U	N		
U	N		
U	N		
U	N		
U	N		
U	N		
U	N		
U	N		
U	N		
C	Y	L-0012 IMMS	found floating next to boom; externally oiled turtle; taken to IMMS for rehab
U	N		
C	Y	L-0013 IMMS	externally oiled turtle; taken to IMMS for rehab
U	N		
U	N		too decomposed for necropsy
U	N		
U	N		
U	N		
C	Y		parts only - head, guts and 1 flipper
C	Y		
C	Y		
U	N		
U	N		
C	Y		
C	Y		
C	Y		
C	Y		

C	Y	
C	Y	
U	N	
U	N	
U	N	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	only back flippers and a bit of carapace
C	Y	
U	N	
C	Y	
C	Y	
C	Y	
C	Y	older damage to carapace, scrape on head and possible constriction to LRF
C	Y	
C	Y	
C	Y	
C	Y	very emaciated, missing part of RRF
C	Y	very emaciated; taken to Gulf World, died soon after recovery
C	Y	no head, flippers or internal organs
C	Y	brown algae on carapace; some small barnacles on skin; adult female
C	Y	prop damage to right side of carapace
C	Y	no wounds; barnacles and algae on carapace; adult male
C	Y	missing notch from right side carapace; barnacle and algae growth
C	Y	barnacles on carapace and flippers; taken to Gulf World, died same day
C	Y	apparent piece of metal in ventral LFF near insertion
C	Y	dried carcass; little skin remaining, bones visible
C	Y	no head or front flippers, shark bites
C	Y	missing both front flippers and lrf
C	Y	carapace completely covered w/barnacles and algae; adult female
C	Y	emaciated, lots of barnacles, damage to base of front flippers and neck
C	Y	

C	Y	
C	Y	in pieces, decomposed
C	Y	carapace broken, pieces missing
C	Y	skin and scutes peeling
C	Y	numerous barnacles and light algae on carapace; taken to Gulfarium
C	Y	old wound to posterior marginals; scutes peeling
C	Y	posterior carapace gone; plastron missing; falling apart, nasty
U	N	
C	Y	apparent skeg/prop damage to center carapace
C	Y	caught on hook and line, hook in throat; taken to Gulfarium
C	Y	prop wounds to right posterior carapace; heavy barnacles,small barnacles on skin
C	Y	2 apparent prop wounds across carapace
C	Y	skin and scutes peeling, very decomposed
C	Y	fishing line entangled around neck
C	Y	no head or flippers; damage to carapace - likely prop
C	Y	missing skull; carapace bones disarticulating due to decomp
C	Y	missing head and LFF, possible shark bites; gashes on plastron
U	N	
C	Y	carapace bones disarticulating due to decomp
C	Y	dried carcass; carapace broken across posterior; portions missing
U	N	caught on hook and line, hook removed and turtle released
U	N	
U	N	
U	N	
U	N	
U	N	caught by relocation trawler; ~50% coverage of thin oil sheen, also sheen in mouth
U	N	
U	N	
U	N	in pieces due to decomp, unable to salvage
U	N	
U	N	caught by relocation trawler; observer thought oiled, Gulfarium said algae
C	Y	
U	N	
U	N	

C	Y	wound/damage to throat area
C	Y	
C	Y	
U	N	
U	N	caught by relocation trawler; Gulfarium said not oiled
U	N	
C	Y	
U	N	
C	Y	
U	N	adult female, died on nesting beach, apparent shark bites around tail area
U	N	unable to dive, covered with algae
C	Y	
C	Y	
C	Y	
U	N	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	parts only
C	Y	
C	Y	

C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
U	N	
U	N	
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	taken to AOA for rehab
C	Y	
C	Y	
C	Y	
C	Y	swab sample taken
C	Y	swab sample taken
U	N	
C	Y	taken to AOA for rehab
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	
C	Y	
C	Y	
U	N	
C	Y	
U	N	
C	Y	
U	N	

U	N	
U	N	
C	Y	
U	N	
U	N	partial carcass, pieces only
U	N	
U	N	
U	N	
U	N	
C	Y	
U	N	
C	Y	
U	N	
U	N	
U	N	
U	N	
U	N	
U	N	
U	N	
U	N	
C	Y	
U	N	
U	N	
U	N	
U	N	
U	N	
U	N	
U	N	
U	N	
U	N	
U	N	
U	N	
U	N	

U	N		
U	N		
U	N		
U	N		
C	Y		
C	Y		Severely decomposed, on beach
C	Y		Severely decomposed, on beach
C	Y		
C	Y		
C	Y		
U	N		
U	N		
C	Y		
C	Y	D-0029 IMMS	
C	Y	D-0030 IMMS	
C	Y	D-0031 IMMS	
C	Y	D-0032 IMMS	
C	Y	D-0033 IMMS	
C	Y	L-0001 IMMS	taken to IMMS, died in rehab, frozen for necropsy
C	Y	D-0001 IMMS	
C	Y	D-0002 IMMS	
C	Y	D-0003 IMMS	
C	Y	D-0004 IMMS	
C	Y	D-0005 IMMS	
C	Y	D-0006 IMMS	
C	Y	D-0034 IMMS	
C	Y	D-0007 IMMS	
C	Y	D-0008 IMMS	
C	Y	D-0009 IMMS	
C	Y	D-0010 IMMS	
C	Y	D-0011 IMMS	
C	Y	D-0012 IMMS	
C	Y	D-0013 IMMS	
C	Y	D-0014 IMMS	

C	Y	D-0015 IMMS	
C	Y	D-0016 IMMS	
C	Y	D-0017 IMMS	
C	Y	D-0018 IMMS	
C	Y	D-0019 IMMS	
C	Y	D-0020 IMMS	
C	Y	D-0021 IMMS	
C	Y	D-0022 IMMS	
C	Y	D-0023 IMMS	
C	Y	D-0024 IMMS	
C	Y	D-0025 IMMS	
C	Y	D-0026 IMMS	
C	Y	D-0027 IMMS	
C	Y	D-0028 IMMS	
C	Y	D-0035 IMMS	
C	Y	D-0036 IMMS	
C	Y	D-0037 IMMS	
C	Y	D-0038 IMMS	
C	Y	D-0039 IMMS	
C	Y	D-0040 IMMS	
C	Y	D-0041 IMMS	
C	Y	D-0042 IMMS	
C	Y	D-0043 IMMS	
C	Y	D-0044 IMMS	
C	Y	D-0045 IMMS	
C	Y	D-0046 IMMS	
C	Y	D-0047 IMMS	carcass in two pieces
C	Y	D-0048 IMMS	
C	Y	D-0049 IMMS	
C	Y	D-0050 IMMS	
C	Y	D-0051 IMMS	
C	Y	D-0052 IMMS	
C	Y	D-0053 IMMS	
C	Y	D-0054 IMMS	

C	Y	D-0055 IMMS	
C	Y	D-0056 IMMS	
C	Y	D-0057 IMMS	
C	Y	D-0058 IMMS	
C	Y	D-0063 IMMS	Decapitated, missing portions of flippers due to decomp; first reported on 5/8
C	Y	D-0059 IMMS	
C	Y	D-0060 IMMS	
C	Y	D-0061 IMMS	
C	Y	D-0062 IMMS	
C	Y	D-0064 IMMS	
C	Y	D-0065 IMMS	
C	Y	D-0066 IMMS	
C	Y	D-0067 IMMS	
C	Y	D-0068 IMMS	
C	Y	D-0069 IMMS	
C	Y	D-0070 IMMS	
C	Y	D-0071 IMMS	
C	Y	D-0072 IMMS	
C	Y	D-0085 IMMS	field necropsy on beach; damaged LFF, carapace covered in barnacles; first rep 5/13
C	Y	D-0073 IMMS	
C	Y	D-0074 IMMS	
C	Y	L-0002 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	Y	D-0075 IMMS	
C	Y	D-0076 IMMS	carapace cracked/broken
C	Y	L-0003 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	Y	L-0004 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	Y	D-0086 IMMS	"chopped up", likely prop wounds to carapace
C	Y	D-0077 IMMS	red slimy substance covering carapace
C	Y	D-0087 IMMS	skeletal remains
C	Y	D-0088 IMMS	skeletal remains
C	Y	D-0078 IMMS	
C	Y	D-0089 IMMS	
C	Y	D-0090 IMMS	floating, picked up by NPS
C	Y	L-0005 IMMS	incidentally captured on hook and line; taken to IMMS for rehab

C	Y	D-0079 IMMS	carapace only
C	Y	D-0080 IMMS	carapace only
C	Y	D-0091 IMMS	sample taken and logged, carcass painted and left on beach
C	Y	D-0081 IMMS	
C	Y	D-0082 IMMS	
C	Y	L-0006 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	Y	D-0083 IMMS	
C	Y	D-0092 IMMS	possible loggerhead, unsure of species ID
C	Y	D-0093 IMMS	
C	Y	D-0094 IMMS	carcass in plastic bag before oil swab taken
C	Y	D-0084 IMMS	rear portion of carcass missing
C	Y	L-0008 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	Y	L-0009 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	Y	L-0010 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	Y	D-0095 IMMS	carcass in plastic bag before oil swab taken; severe prop damage
C	Y	L-0011 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	Y	D-0161 IMMS	
C	Y	D-0096 IMMS	mangled caudal half of carcass
C	Y	D-0097 IMMS	
C	Y	D-0098 IMMS	
C	Y	D-0099 IMMS	old injury to edge of carapace
C	Y	D-0162 IMMS	
C	Y	D-0100 IMMS	
C	Y	D-0101 IMMS	
C	Y	D-0102 IMMS	
C	Y	D-0103 IMMS	
C	Y	D-0104 IMMS	
C	Y	D-0105 IMMS	scrapes along plastron
C	Y	D-0106 IMMS	missing right edge of carapace, advanced decomp
C	Y	D-0107 IMMS	
C	Y	D-0108 IMMS	extra costal scute on L side
C	Y	D-0109 IMMS	edges of marginal scutes broken, postmortem
C	Y	D-0110 IMMS	extra vertebral scute
C	Y	D-0163 IMMS	

C	Y	D-0112 IMMS	
C	Y	D-0111 IMMS	
C	Y	D-0113 IMMS	
C	Y	D-0114 IMMS	
C	Y	D-0118 IMMS	severely mangled, no accurate meas possible
C	Y	D-0119 IMMS	black substance in mouth
C	Y	D-0115 IMMS	
C	Y	D-0116 IMMS	
C	Y	D-0117 IMMS	
C	Y	D-0120 IMMS	
C	Y	D-0121 IMMS	
C	Y	D-0122 IMMS	
C	Y	D-0123 IMMS	
C	Y	D-0124 IMMS	
C	Y	D-0125 IMMS	
C	Y	D-0126 IMMS	
C	Y	D-0127 IMMS	
C	Y	D-0128 IMMS	
C	Y	D-0129 IMMS	
C	Y	D-0130 IMMS	
C	Y	D-0164 IMMS	
C	Y	D-0165 IMMS	
C	Y	D-0166 IMMS	
C	Y	D-0167 IMMS	
C	Y	D-0168 IMMS	
C	Y	D-0169 IMMS	
C	Y	D-0131 IMMS	
C	Y	D-0132 IMMS	
C	Y	L-0015 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	Y	L-0014 IMMS	washed ashore alive
C	Y	D-0133 IMMS	
C	Y	D-0134 IMMS	
C	Y	D-0135 IMMS	
C	Y	D-0136 IMMS	

C	Y	D-0137 IMMS	
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C	Y	D-0146 IMMS	
C	Y	D-0147 IMMS	
C	Y	D-0155 IMMS	
C	Y	D-0148 IMMS	
C	Y	D-0149 IMMS	
C	Y	D-0150 IMMS	
C	Y	D-0151 IMMS	
C	Y	D-0152 IMMS	
C	Y	D-0153 IMMS	
C	Y	D-0154 IMMS	
C	Y	D-0172 IMMS	
C	Y	L-0016 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	Y	D-0156 IMMS	
C	Y	D-0157 IMMS	
C	Y	D-0158 IMMS	
C	Y	D-0159 IMMS	
C	Y	D-0170 IMMS	
C	Y	L-0017 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	Y	L-0018 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	Y	L-0019 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	Y	L-0020 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
C	Y	D-0160 IMMS	
C	Y	D-0171 IMMS	
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C	Y	incidentally captured on hook and line; taken to IMMS for rehab
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C	Y	incidentally captured on hook and line; taken to IMMS for rehab, hook ingested
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C	Y	only RRF present, head missing, most internal organs gone
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Date	Stranding Referen	Species	ReportType	Condition	Disposition	Status
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Comatose	Rehab	Rehab-IMMS
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Lepidochelys kem	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
		Lepidochelys kem	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Alive	Released	
		Caretta caretta	Trawl Capture	Dead	Salvaged	IMMS-GV
		Unknown	Trawl Capture	Alive	Released	
		Unknown	Trawl Capture	Alive	Released	
		Unknown	Trawl Capture	Alive	Released	
		Unknown	Trawl Capture	Alive	Released	
########		Caretta caretta	Trawl Capture	Alive	Released	
########		Caretta caretta	Trawl Capture	Alive	Released	
########		Caretta caretta	Trawl Capture	Alive	Released	
########		Caretta caretta	Trawl Capture	Alive	Released	

########	Caretta caretta	Trawl Capture	Alive	Released
########	Caretta caretta	Trawl Capture	Alive	Released
########	Caretta caretta	Trawl Capture	Alive	Released
########	Caretta caretta	Trawl Capture	Alive	Released
########	Caretta caretta	Trawl Capture	Alive	Released
########	Caretta caretta	Trawl Capture	Alive	Released
########	Caretta caretta	Trawl Capture	Alive	Released

State	Descriptive Location	Latitude	Longitude	External oil?	TempLocation	Stranding
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No

off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No

New	Alive	Symbol	Log #	Comments	Time Captured	Swab or Oil Sample?
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
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Yes	N					
Yes	Y					
Yes	Y					
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Yes	Y
Yes	Y
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Yes	Y
Yes	Y
Yes	Y
Yes	Y

Release Latitude	Release Longitude	Flipper Tag Numbers	FT Applied or Recap?	PIT Tag Number

PT Applied or Recap?

Microsoft Outlook

From: Sheryan Epperly [Sheryan.Epperly@noaa.gov]

Sent: Wednesday, July 14, 2010 2:34 PM

To: Bonnie Ponwith; Theo Brainerd; Peter Thompson; Jim Bohnsack

Cc: Chris Sasso; Wendy Teas; Lisa Belskis; Lesley Stokes; Paul Richards; Kate L. Mansfield; Joanne B Mcneill; Larisa Avens; April Goodman

Subject: Turtle Update - July 14, 2010 - Deepwater Horizon MC232

Attachments: Sea Turtle Strandings and Live Captures - Deepwater Horizon.xls; DWHMC252_Turtles20100714.pdf; Mammal_Turtle_Data_13_July-SUMMARY.xls; Mammal_Turtle_Data_13_July.xls; MMST_Health_and_Stranding_Update_for_14_July_FINAL.doc

Wendy continues to coordinate the STSSN (see below and attached) and we receive daily reports and maps from the Wildlife Branch (see attached).

The rest of the team is now back in town and all were standing down.

-------- Original Message --------
Subject: 7/13 Strandings and Live Capture Update - Non-oiled and Oiled Turtles - Deepwater Horizon
Date: Tue, 13 Jul 2010 22:01:59 -0400
From: Wendy.Teas@noaa.gov
To: HoumaICC MMST <HoumaICC.MMST@noaa.gov>, MobileICC MMST <MobileICC.MMST@noaa.gov>, "Sheryan.Epperly" <Sheryan.Epperly@noaa.gov>, Bonnie Ponwith <Bonnie.Ponwith@noaa.gov>, Lisa Belskis <Lisa.Belskis@noaa.gov>, Chris Sasso <Chris.Sasso@noaa.gov>, Paul Richards <Paul.Richards@noaa.gov>, Brian Stacy <Brian.Stacy@noaa.gov>, "Karen.Mitchell" <Karen.Mitchell@noaa.gov>, _NMFS SER Emergency Consult <nmfs.ser.emergency.consult@noaa.gov>, Kristy Long <Kristy.Long@noaa.gov>

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There were no turtles reported / verified today.

There were 2 late reports from yesterday (7/12):
FL - 1 dead loggerhead, no oil
MS - 1 dead Kemp's ridley, no oil

The live capture team out of Venice, LA went out but did not find any
turtles.  The live capture team out of Destin, FL did not go out today.

I have not heard an update today regarding trawl / dredge captures on
the berm building project in LA.  As of late last night, there had
been
a total of 59 turtles captured by trawlers working on this project.

See attached Excel file for details.

One VoO was used today:
MS - Capt James Ryan Alexander, Wildlife VoO out of small boat harbor
```

Update through July 13, 2010 (as of 1800)

Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period

- Increase of 2 turtle strandings (1 dead in FL, 1 dead in MS, both late reports from 7/12).
- Increase of 34 hatchlings released from nests translocated from northern Gulf to east coast Florida.
- No dolphin strandings reported.
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols.

Sea Turtles

Total Turtle Numbers (includes various corrections/edits from prior dates as data go through QA/QC; these corrections are not reflected in increase-decrease statements, those statements refer only to yesterday's stranding/capture events)

NOTE: Turtles captured in the COE/State of LA dredging project and associated trawler effort are not included in the numbers directly below, but have their own individual summary information following these summaries.

660 total sea turtles verified to date within the "designated spill area" (increase of 2 from July 13 report)

- 517 stranded* (increase of 2 from July 13 report)
  - 459 of the stranded were found dead (increase of 2 from July 13 report)
  - 58 of the stranded were found alive (no change from July 13 report)
    - 4 recovered alive but died in rehab (no change from July 13 report)
    - 11 turtles released alive (no change from July 13 report)
    - 43 live turtles in rehabilitation (no change from July 13 report)
- 143 turtles collected during directed turtle sampling efforts (no change from July 13 report)
  - 4 of the collected were found dead (no change from July 13 report)
  - 139 of the collected were found alive (no change from July 13 report)
    - 3 turtles recovered live that died in rehab (no change from July 13 report)
    - 0 turtles released alive (no change from July 13 report)
    - 136 live turtles in rehabilitation (no change from July 13 report)

* For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 459 dead stranded, 4 dead directed capture, and 7 that died in rehab):

Update through July 13, 2010 (as of 1800)

- 14 assessed and unable to perform necropsies (i.e. advance decomposition) (increase of 7 from July 13 report)
- 24 partial necropsies (e.g. due to scavenging or autolysis) (increase of 7 from July 13 report)
- 106 full necropsies performed (increase of 47 from July 13 report)
- 46 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from July 13 report)
- 280 carcasses to be necropsied, if decomposition stage warrants (increase of 2, decrease of 61; net decrease of 59 from July 13 report)
- Of the initial 75 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. Further results are pending.

Information on Signs of Sea Turtle Oiling:

- To date, visible evidence of oil has been documented externally on 11 dead stranded sea turtle and 10 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 3 dead sea turtles and 129 live sea turtles captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 13 is 28.
- For comparison purposes, the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in the month of July (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-8 stranded sea turtles
    - Alabama: 1-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 7-29 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles since the inception of the oil spill; however, we do not believe this factor fully explains the increase.

COE/State of Louisiana Hopper Dredge Project and Associated Trawling for Turtles

- 63 sea turtles captured in trawlers working near the dredging site (increase of 11 from July 13 report)
    - 1 of the captured was dead (no change from July 13 report)
    - 62 of the captured were alive (increase of 11 from July 13 report)
        - 61 unoiled turtles released alive (increase of 11 from July 13 report)
        - 1 unoiled live turtle in rehabilitation (no change from July 13 report)

Marine Mammals

Deepwater Horizon MC252

Update through July 13, 2010 (as of 1800)

Total Mammal Numbers

64 total marine mammals have been verified to date (no change from July 13 report)

- 63 dolphins have been verified to date within the "designated spill area" (no change from July 13 report)
  - 58 were dead stranded* dolphins (no change from July 13 report)
  - 5 were live stranded dolphins (no change from July 13 report)
    - 2 died shortly after stranding (no change from July 13 report)
    - 1 euthanized upon stranding (no change from July 13 report)
    - 1 stranded live and freed immediately (no change from July 13 report)
    - 1 live and in care (no change from July 13 report)
- 1 dead whale has been verified to date within the "designated spill area" (no change from July 13 report)
  - 1 was a dead stranded sperm whale (no change from July 13 report)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR
- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status (of the 58 dead stranded and 3 live stranded dolphins that died or were euthanized):

- 28 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 13 report)
- 11 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 13 report)
- 13 full necropsies performed (increase of 1 from July 13 report)
- 8 verified strandings but animals not collected due to stage of decomposition or unable to recover (no change from July 13 report)
- 1 carcass to be necropsied, if decomposition stage warrants (decrease of 1 from July 13 report)
- Necropsy results are pending for all animals necropsied to date.

Whale Necropsy Status (of the 1 dead stranded):

- 0 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 13 report)
- 0 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 13 report)
- 0 full necropsies performed (no change from July 13 report)
- 1 verified stranding but animal not collected due to stage of decomposition or unable to recover (no change from July 13 report)

Update through July 13, 2010 (as of 1800)

- 0 carcasses to be necropsied, if decomposition stage warrants (no change from July 13 report)

Information on Signs of Mammal Oiling:

- Dolphins: Five of the verified dolphins had evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to determine whether the three dead stranded animals were externally oiled pre- or post-mortem. All other necropsy findings are pending.
- Whales: The verified whale had no evidence of external oil.

Historical Dolphin Strandings

- The total number of dolphin strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 13 is 5.
- For comparison purposes, the number of dolphin strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in July (2003-2007) is as follows:
    - Louisiana: 0-2 stranded dolphins
    - Mississippi: 0-1 stranded dolphins
    - Alabama : 0-3 stranded dolphins
    - Florida panhandle: 0-1 stranded dolphins
- The total number of strandings during this event is higher than the number of marine mammal strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.

Historical Whale Strandings

- The total number of whale strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 13 is 0.
- For comparison purposes, there are no records of stranded whales in the designated spill area for July (2003-2007).

<u>Summary of Action Plan Items:</u>

- On-water direct turtle capture operations under the Wildlife Branch were operational on July 13 out of Venice, LA but not operational out of Destin, FL due to prohibitions of operations by BP due to weather.
- Multiple discussions with Unified and Area Commands (including with NOAA SSCs) have occurred on the Gulf-wide observer program (maximum of 60 observers). A phased approach to the program has been developed. The Houma Environmental Unit has been working with the Logistics Section to initiate a Master Services Agreement. This agreement will allow task orders to be placed for observers as needed. The first request will be for 20 observers. BP has asked that, after the first 20 observers are in place, local qualified individuals and crew members be trained as appropriate to help with observations, given the language in the Best Management Practices. This will be

implemented as feasible, with the option remaining to request more professional observers if the need exists.

- The hopper dredges continue to operate in the borrow areas near the Chandeleur Islands and required relocation trawling continues, with 1 capture trawler and 2 open net trawlers (which are used to disturb animals but does not bring them on board). One sea turtle died during the capture trawler tows. A fourth trawler, which will be used to conduct captures, is expected on site within 24 hours. No takes of turtles have been reported from the hopper dredges, only from the trawlers.
- In situ burn activities were conducted on July 13. Five observers were at sea with the burn task forces. Reports from the observers are pending.
- The JIC is planning a virtual media event for the press on Friday July 16 with in-person agency experts in New Orleans, LA. Sea turtle staff continue to conduct many interviews for various print media at the request of the JIC and NOAA Public Affairs.

Oiling Criteria

Defined Categories of Stranded Marine Mammals/Sea Turtles During MC 252 Spill

1) Visibly Oiled
   a. Evidence of external oiling (live or dead animals); or
   b. Evidence of internal oiling on initial exam: Oil in oral cavity, nares or blowhole (live or dead animals); or
   c. Evidence of internal oiling on necropsy: Oil in esophagus, gastrointestinal tract and/or respiratory tract (dead animals).
2) Not Visibly Oiled: Do not meet criteria above. Note not visibly oiled does not imply cause of death nor whether this event impacted the animal.

Procedures for Determining Oiling Status in Marine Mammals or Sea Turtles

1) Upon report of stranded animal, designated members of the Wildlife Branch (trained to appropriate evidence collection and Chain of Custody procedure) will be dispatched to the site for initial evaluation.

2) All animals within the "designated spill area" will be immediately externally evaluated, sampled, and photographed following NOAA's "Marine Mammal Oil Spill Response Guidelines" or the established "Sea Turtle MS 252 Response Guidelines".
   a. All animals within a specified distance that affected mammals or turtles may travel or float after being affected (distance to be determined upon daily consultation with the Envt Unit within the Planning Section and the NRDA Unit) will be immediately externally evaluated and, if suspicious, will be externally sampled.
   b. Those animals not within or adjacent to the "designated spill area" should *not* be considered as part of this spill and not be accounted for in the spill documentation (but standard stranding procedures should be followed).

3) All stranded animals will be grossly evaluated by necropsy (cetacea at site of stranding, at the primary care facility, or at a pre-determined necropsy site if logistically feasible, sea turtles at the primary care facility or at a designated remote pathology center).
   a. For certain carcasses, such as turtles with open coelomic cavities or dolphins in advanced state of decomposition and no intact GI tract, it may not be possible to pathologically determine cause of death or pathologies and collect useable tissues. The sampling of these animals will be for the presence of external oil only.

4) Oiling status will be determined based on external and internal gross evaluation. NOTE THAT THE DETERMINATION OF OILING STATUS DOES NOT ESTABLISH SUB-APPARENT OIL EXPOSURE OR THE CAUSE OF DEATH. In fact, some gross pathological changes, such as respiratory damage or significant irritation to ocular tissues or mucous membranes, can be associated with oil exposure. The determination of these types of impacts must come from further evaluation of the samples and other evidence, such as histopathological evaluation of tissues and/or PAH analysis of the biological samples.

Summary Totals

	TOTAL Dolphins							
	Live			Dead				
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Date Totals	Released
Subtotal 30 Apr-31 May	0	0	0	1	31	0	32	0
Subtotal 1 Jun-30 Jun	2	3	0	2	17	2	26	1
1-Jul-10	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	1	0	1	0
3-Jul-10	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	1	1	0
6-Jul-10	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	1	1	0
9-Jul-10	0	0	0	0	1	0	1	0
10-Jul-10	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	1	1	0
12-Jul-10	0	0	0	0	0	0	0	0
13-Jul-10	0	0	0	0	0	0	0	0
Category Totals	2	3	0	3	50	5	63	1

Summary Totals

	TOTAL Whales						
	Live			Dead			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	1	1
1-Jul-10	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0
13-Jul-10	0	0	0	0	0	0	0
Category Totals	0	0	0	0	0	1	1

Summary Totals

	TOTAL Turtles							
	Live			Dead			Date Totals	Released
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending		
Subtotal 26 Apr-31 May	**12**	**17**	**0**	**1**	**82**	**153**	**265**	**4**
Subtotal 1 Jun-30 Jun	**90**	**35**	**0**	**10**	**0**	**195**	**330**	**0**
1-Jul-10	0	0	0	0	0	0	**0**	0
2-Jul-10	1	1	0	1	0	0	**3**	0
3-Jul-10	0	0	0	0	0	0	**0**	0
4-Jul-10	0	1	0	0	0	2	**3**	0
5-Jul-10	0	0	0	0	0	1	**1**	0
6-Jul-10	0	0	0	0	0	3	**3**	0
7-Jul-10	0	0	0	0	0	1	**1**	0
8-Jul-10	10	1	0	0	0	3	**14**	7
9-Jul-10	11	1	0	0	0	0	**12**	0
10-Jul-10	10	0	0	1	0	1	**12**	0
11-Jul-10	4	0	0	1	0	2	**7**	0
12-Jul-10	1	2	0	0	0	6	**9**	0
13-Jul-10	0	0	0	0	0	0	**0**	0
Category Totals	**139**	**58**	**0**	**14**	**82**	**367**	**660**	**11**

Summary Totals

	Turtles - Translocation of Gulf Nests			
	# of Nests		# of Hatchlings	
	Loggerhead	Kemp's Ridley	Loggerhead	Kemp's Ridley
Subtotal 26 Apr-31 May	**0**	**0**	**0**	**0**
Subtotal 1 Jun-30 Jun	**0**	**1**	**0**	**0**
1-Jul-10	0	0	0	0
2-Jul-10	0	0	0	0
3-Jul-10	0	0	0	0
4-Jul-10	0	0	0	0
5-Jul-10	0	0	0	0
6-Jul-10	0	0	0	0
7-Jul-10	0	0	0	0
8-Jul-10	0	0	0	0
9-Jul-10	2	0	0	0
10-Jul-10	0	0	0	0
11-Jul-10	0	0	0	22
12-Jul-10	6	0	0	0
13-Jul-10	0	0	0	34
TOTALS	8	1	0	56

Status Summary

	Dolphin Status	Whale Status	Turtle Status - Stranded	Turtle Status - Captured
Verified Animals				
Total animals collected	**63**	**1**	517	143
Total dead animals	58	1	459	4
Total live animals	5	0	58	139
Total live animals stranded that died in care	3	0	4	3
Total live released animals	1	0	11	0
Total live animals currently in rehabilitation	1	0	43	136
Oiling Status				
Total dead oiled animals	3	0	11	3
Total live oiled animals	2	0	10	129
Animal Necropsy Status				
Number collected and unable to perform necropsies (e.g., advanced decomposition)	28	0	14	
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	11	0	24	
Number of full necropsies performed	12	0	106	
Verified strandings but animals not collected due to stage of decomposition or unable to recover	8	1	46	
Carcasses to be necropsied, if decomposition stage warrants	2	0	280	

Dolphins

	Dolphins - ALABAMA							Dolphins - FLORIDA						
	Live			Dead				Live			Dead			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 26 Apr-31 May	0	0	0	0	3	0	0	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	1	0	0	0	0	2	1	1	2	0	0	1	0	0
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	1	0	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	1	0	0	0	3	3	1	1	2	0	0	1	0	0
Species Total	7							4						

Dolphins

	Dolphins - LOUISIANA							Dolphins - MISSISSIPPI							Daily Totals
	Live			Dead			Released	Live			Dead			Released	
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending		Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending		
Subtotal 26 Apr-31 May	0	0	0	1	20	0	0	0	0	0	0	8	0	0	**32**
Subtotal 1 Jun-30 Jun	0	1	0	1	11	0	0	0	0	0	1	5	0	0	**26**
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2-Jul-10	0	0	0	0	0	0	0	0	0	0	0	1	0	0	**1**
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
4-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	**1**
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
8-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
9-Jul-10	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
10-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
11-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	**1**
12-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
13-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
TOTALS	0	1	0	2	32	0	0	0	0	0	1	14	2	0	**63**
Species Total	35							17							

Whales

	Whales - ALABAMA						Whales - FLORIDA					
	Live			Dead			Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	0	0	0	0	0	0	0
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
13-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Species Total	**0**						**0**					

Whales

	Whales - LOUISIANA						Whales - MISSISSIPPI					
	Live			Dead			Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	0	0	0	0	0	0	0
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
13-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Species Total	**0**						**0**					

Whales

	Whales - Off-Shore						Daily Totals
	Live			Dead			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	1	1
1-Jul-10	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0
13-Jul-10	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**1**	**1**
Species Total	**1**						

Turtles

	Turtles - ALABAMA							Turtles - FLORIDA						
	Live Strandings			Dead Strandings				Live Strandings			Dead Strandings			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 26 Apr-31 May	0	2	0	0	5	43	1	0	4	0	0	0	27	0
Subtotal 1 Jun-30 Jun	3	0	0	3	0	23	0	2	6	0	1	0	18	0
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul-10	1	0	0	1	0	0	0	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5-Jul-10	0	0	0	0	0	1	0	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0	0	1	0	0	0	0	0
9-Jul-10	1	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	1	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	1	0	1	0	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0	0	1	0	0	0	1	0
13-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	5	2	0	5	5	69	1	2	12	0	1	0	47	0
Species Total	86							62						

Turtles

	Turtles - LOUISIANA							Turtles - MISSISSIPPI						
	Live Strandings			Dead Strandings				Live Strandings			Dead Strandings			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 26 Apr-31 May	2	2	0	1	2	61	0	0	9	0	0	75	22	3
Subtotal 1 Jun-30 Jun	1	2	0	3	0	27	0	0	19	0	0	0	126	0
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul-10	0	1	0	0	0	1	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	3	0
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	3	7
9-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul-10	0	0	0	1	0	0	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	1	0
12-Jul-10	0	1	0	0	0	1	0	0	0	0	0	0	4	0
13-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	3	6	0	5	2	90	0	0	28	0	0	75	160	10
Species Total	106							263						

Turtles

	Turtles - Dedicated On-Water Turtle Surveys						Daily Totals
	Live Directed Captures			Dead Directed Captures			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 26 Apr-31 May	10	0	0	0	0	0	265
Subtotal 1 Jun-30 Jun	84	8	0	3	0	1	330
1-Jul-10							0
2-Jul-10	0	1	0	0	0	0	3
3-Jul-10							0
4-Jul-10							3
5-Jul-10	0	0	0	0	0	0	1
6-Jul-10	0	0	0	0	0	0	3
7-Jul-10	0	0	0	0	0	0	1
8-Jul-10	10	0	0	0	0	0	14
9-Jul-10	10	1	0	0	0	0	12
10-Jul-10	10	0	0	0	0	0	12
11-Jul-10	4	0	0	0	0	0	7
12-Jul-10	1	0	0	0	0	0	9
13-Jul-10	0	0	0	0	0	0	0
TOTALS	129	10	0	3	0	1	660
Species Total	143						

Summary Totals

	TOTAL Dolphins							
	Live			Dead				
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Date Totals	Released
Subtotal 30 Apr-31 May	0	0	0	1	31	0	32	0
Subtotal 1 Jun-30 Jun	2	3	0	2	17	2	26	1
1-Jul-10	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	1	0	1	0
3-Jul-10	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	1	1	0
6-Jul-10	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	1	1	0
9-Jul-10	0	0	0	0	1	0	1	0
10-Jul-10	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	1	1	0
12-Jul-10	0	0	0	0	0	0	0	0
13-Jul-10	0	0	0	0	0	0	0	0
Category Totals	2	3	0	3	50	5	63	1

Summary Totals

	TOTAL Whales						
	Live			Dead			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	1	1
1-Jul-10	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0
13-Jul-10	0	0	0	0	0	0	0
Category Totals	0	0	0	0	0	1	1

Summary Totals

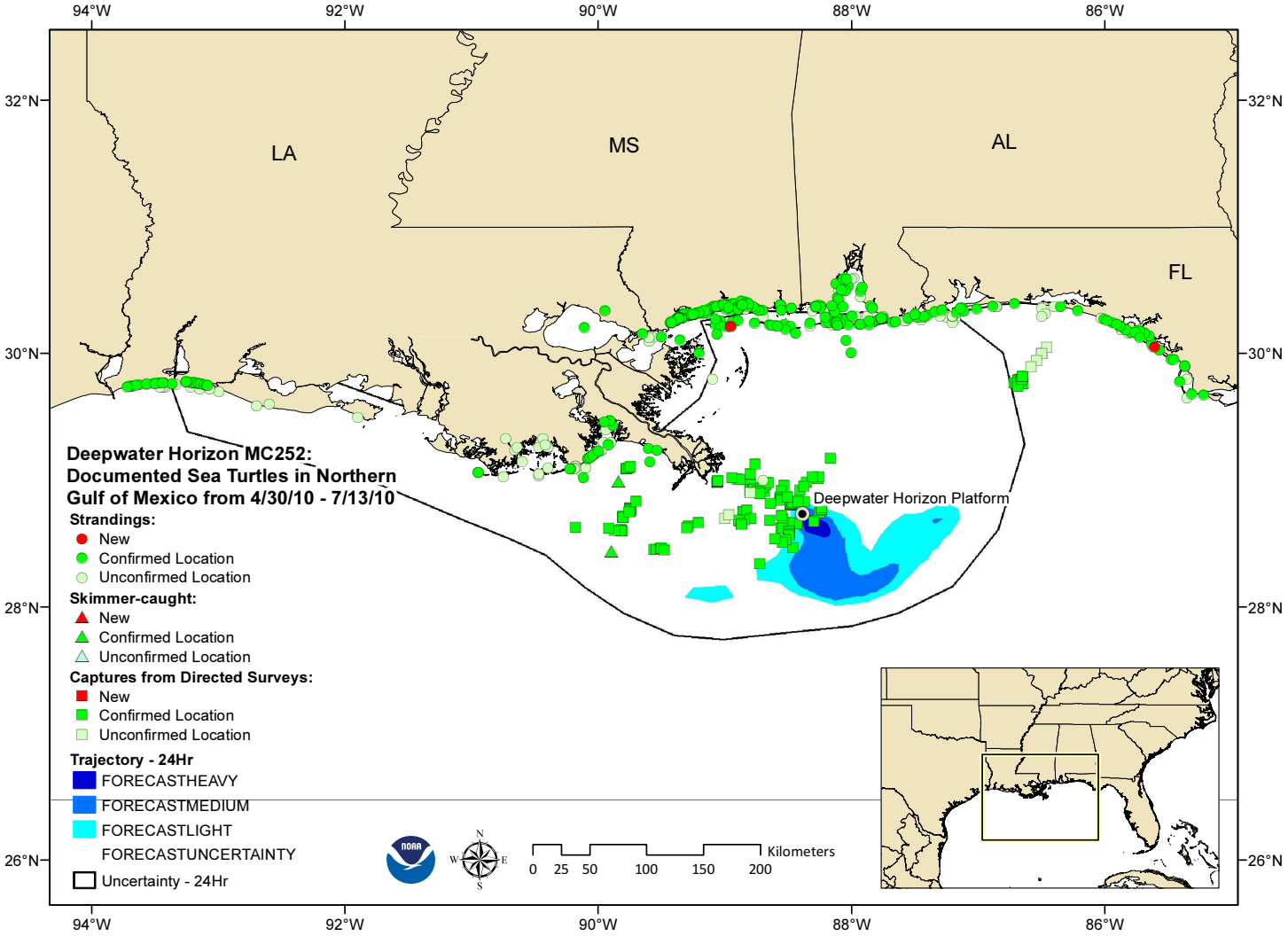
	TOTAL Turtles							
	Live			Dead			Date Totals	Released
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending		
Subtotal 26 Apr-31 May	**12**	**17**	**0**	**1**	**82**	**153**	**265**	**4**
Subtotal 1 Jun-30 Jun	**90**	**35**	**0**	**10**	**0**	**195**	**330**	**0**
1-Jul-10	0	0	0	0	0	0	**0**	0
2-Jul-10	1	1	0	1	0	0	**3**	0
3-Jul-10	0	0	0	0	0	0	**0**	0
4-Jul-10	0	1	0	0	0	2	**3**	0
5-Jul-10	0	0	0	0	0	1	**1**	0
6-Jul-10	0	0	0	0	0	3	**3**	0
7-Jul-10	0	0	0	0	0	1	**1**	0
8-Jul-10	10	1	0	0	0	3	**14**	7
9-Jul-10	11	1	0	0	0	0	**12**	0
10-Jul-10	10	0	0	1	0	1	**12**	0
11-Jul-10	4	0	0	1	0	2	**7**	0
12-Jul-10	1	2	0	0	0	6	**9**	0
13-Jul-10	0	0	0	0	0	0	**0**	0
Category Totals	**139**	**58**	**0**	**14**	**82**	**367**	**660**	**11**

Summary Totals

	Turtles - Translocation of Gulf Nests			
	# of Nests		# of Hatchlings	
	Loggerhead	Kemp's Ridley	Loggerhead	Kemp's Ridley
Subtotal 26 Apr-31 May	**0**	**0**	**0**	**0**
Subtotal 1 Jun-30 Jun	**0**	**1**	**0**	**0**
1-Jul-10	0	0	0	0
2-Jul-10	0	0	0	0
3-Jul-10	0	0	0	0
4-Jul-10	0	0	0	0
5-Jul-10	0	0	0	0
6-Jul-10	0	0	0	0
7-Jul-10	0	0	0	0
8-Jul-10	0	0	0	0
9-Jul-10	2	0	0	0
10-Jul-10	0	0	0	0
11-Jul-10	0	0	0	22
12-Jul-10	6	0	0	0
13-Jul-10	0	0	0	34
TOTALS	8	1	0	56

Status Summary

	Dolphin Status	Whale Status	Turtle Status - Stranded	Turtle Status - Captured
Verified Animals				
Total animals collected	**63**	**1**	517	143
Total dead animals	58	1	459	4
Total live animals	5	0	58	139
Total live animals stranded that died in care	3	0	4	3
Total live released animals	1	0	11	0
Total live animals currently in rehabilitation	1	0	43	136
Oiling Status				
Total dead oiled animals	3	0	11	3
Total live oiled animals	2	0	10	129
Animal Necropsy Status				
Number collected and unable to perform necropsies (e.g., advanced decomposition)	28	0	14	
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	11	0	24	
Number of full necropsies performed	12	0	106	
Verified strandings but animals not collected due to stage of decomposition or unable to recover	8	1	46	
Carcasses to be necropsied, if decomposition stage warrants	2	0	280	


94°W
92°W
90°W
88°W
86°W
32°N
30°N
28°N
26°N
LA
MS
AL
FL
Deepwater Horizon MC252:
Documented Sea Turtles in Northern
Gulf of Mexico from 4/30/10 - 7/13/10
Deepwater Horizon Platform
Strandings:
New
Confirmed Location
Unconfirmed Location
Skimmer-caught:
New
Confirmed Location
Unconfirmed Location
Captures from Directed Surveys:
New
Confirmed Location
Unconfirmed Location
Trajectory - 24Hr
FORECASTHEAVY
FORECASTMEDIUM
FORECASTLIGHT
FORECASTUNCERTAINTY
Uncertainty - 24Hr
N
W
E
S
0 25 50 100 150 200
Kilometers

Date	Stranding Reference	Species	ReportType	Condition	Disposition	Status	State
5/2/2010	MRC20100502-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/2/2010	MRC20100502-02	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	SNW20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	JMI20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	MPW20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	SNW20100504-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	SNW20100504-02	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	FXM20100504-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/5/2010	MPW20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/5/2010	MRC20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/6/2010	MPW20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/6/2010	MPW20100506-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/7/2010	MPW20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/7/2010	MPW20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/8/2010	ANR20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/8/2010	JMI20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/10/2010	JMI20100510-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/11/2010	MPW20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MPW20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MPW20100513-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/14/2010	LAJ20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/16/2010	LAJ20100516-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/17/2010	MRC20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MRC20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/19/2010	LAJ20100519-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/19/2010	JMI20100519-01	Lepidochelys kempii	Stranding	Alive	Released		AL
5/20/2010	LAJ20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL

5/20/2010	LAJ20100520-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/20/2010	LAJ20100520-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/21/2010	MPW20100521-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/22/2010	RLR20100522-01	Lepidochelys kempii	Stranding	Alive	Rehab-Died	Necropsied	AL
5/22/2010	JMI20100522-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/22/2010	JMI20100522-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/23/2010	JMI20100523-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/23/2010	JMI20100523-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/28/2010	20100528	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/29/2010	20100529	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/3/2010	JMI20100603-01	Caretta caretta	Stranding	Alive	Rehab	Rehab-IMMS	AL
6/4/2010	20100604	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/5/2010	RLR20100605-01	Eretmochelys imbricata	Stranding	Alive	Rehab	Rehab-IMMS	AL
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/6/2010	20100606	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/6/2010	20100606	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/7/2010	20100607	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/9/2010	20100609	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/11/2010	20100611	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/16/2010	20100616	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL

6/21/2010	20100621	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/21/2010	20100621	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/23/2010	20100623	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/25/2010	20100625	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
6/27/2010	20100627	Unknown	Stranding	Dead	Salvaged	Frozen-DI	AL
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/30/2010	20100630	Chelonia mydas	Stranding	Alive	Rehab	Rehab-IMMS	AL
7/2/2010	20100702	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
7/2/2010	20100702	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	AL
7/5/2010	20100705	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
7/9/2010	20100709	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	AL
7/10/2010	20100710	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
7/11/2010	20100711	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
7/11/2010	20100711	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
5/8/2010	NME20100508-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/8/2010	NME20100508-02	Caretta caretta	Stranding	Alive	Rehab-Died	Frozen-GV	FL
5/8/2010	NME20100508-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/10/2010	MEM20100510-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/11/2010	MAN20100511-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/12/2010	JWM20100512-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/13/2010	AVH20100513-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/14/2010	VEL20100514-01	Caretta caretta	Stranding	Alive	Rehab-Died	Frozen-GV	FL
5/14/2010	MEC20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/15/2010	NME20100515-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	NME20100517-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	MAN20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	MAN20100517-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	SSM20100517-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/18/2010	WAJ20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL

5/18/2010	JRJ20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/18/2010	CTS20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	NME20100519-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	NME20100519-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	MAN20100519-01	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
5/20/2010	WAJ20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	BAE20100520-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	20100520	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	MAN20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/21/2010	MAN20100521-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
5/24/2010	NME20100524-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/24/2010	GWG20100524-01	Caretta caretta	Stranding	Dead	Left on beach		FL
5/25/2010	NME20100525-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/27/2010	MJH20100527-01	Caretta caretta	Stranding	Dead	Buried		FL
5/28/2010	VXW20100528-01	Chelonia mydas	Stranding	Dead	Buried		FL
5/30/2010	NAD20100530-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/1/2010	NME20100601-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/6/2010	20100606	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/7/2010	NAD20100607-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/7/2010	NME20100607-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/9/2010	RAB20100609-01	Lepidochelys kempii	Stranding	Alive	Released		FL
6/10/2010	20100610	Eretmochelys imbricata	Stranding	Alive	Rehab	Rehab-GulfWorld	FL
6/11/2010	20100611	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/11/2010	20100611	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/12/2010	20100612	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
6/12/2010	20100612	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/12/2010	20100612	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/13/2010	20100613	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/14/2010	20100614	Caretta caretta	Stranding	Dead	Buried		FL
6/15/2010	20100615	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/16/2010	20100616	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/18/2010	20100618	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-GulfWorld	FL

6/22/2010	KEG20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/22/2010	NME20100622-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/22/2010	NME20100622-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/22/2010	20100622	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	FL
6/28/2010	SXH20100628-01	Chelonia mydas	Stranding	Alive	Rehab	Rehab-GulfWorld	FL
6/30/2010	20100630	Unknown	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/30/2010	20100630	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-NOAA	FL
7/4/2010	20100704	Chelonia mydas	Stranding	Dead	Salvaged	Taken to GV	FL
7/8/2010	20100708	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
7/12/2010	20100712	Chelonia mydas	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
5/1/2010	MJF20100504-01	Unknown	Stranding	Dead	Left on beach		LA
5/1/2010	MJF20100504-02	Unknown	Stranding	Dead	Left on beach		LA
5/3/2010	XXX20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/3/2010	20100503	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/5/2010	JAL20100505-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
5/7/2010	MXC20100507-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-05	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-06	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-07	Caretta caretta	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-08	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-09	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-10	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-11	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-12	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-13	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-14	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	GXP20100507-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen	LA
5/10/2010	CSE20100510-01	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/10/2010	CSE20100510-02	Unknown	Stranding	Dead	Salvaged	Frozen	LA

5/10/2010	MXC20100510-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-05	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
5/11/2010	20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/11/2010	20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/12/2010	MXC20100512-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/12/2010	MXC20100512-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/12/2010	MXC20100512-03	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
5/12/2010	MXC20100512-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	MXT20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	JEB20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	MXC20100513-01	Eretmochelys imbricata	Stranding	Dead	Left on beach		LA
5/13/2010	MXC20100513-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/13/2010	20100513	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/14/2010	MXC20100514-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
5/16/2010	MXH20100516-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-05	Caretta caretta	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-06	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-07	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-08	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-09	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/17/2010	MXT20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/17/2010	AXL20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/18/2010	SDD20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/19/2010	20100519	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/20/2010	NXX20100520-01	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/22/2010	20100522	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/22/2010	20100522	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA

5/23/2010	20100523	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/24/2010	20100524	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/24/2010	20100524	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/28/2010	20100528	Lepidochelys kempii	Skimmer	Alive	Rehab	Rehab-AOA	LA
5/29/2010	20100529	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/31/2010	20100531	Lepidochelys kempii	Skimmer	Alive	Rehab	Rehab-AOA	LA
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/7/2010	20100607	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/7/2010	20100607	Unknown	Stranding	Dead	Salvaged	Frozen	LA
6/8/2010	20100608	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/9/2010	20100609	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
6/9/2010	20100609	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/10/2010	20100610	Unknown	Stranding	Dead	Salvaged	Frozen	LA
6/12/2010	20100612	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/14/2010	20100614	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/15/2010	20100615	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/15/2010	20100615	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/17/2010	20100617	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA

6/18/2010	20100618	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/21/2010	20100621	Caretta caretta	Stranding	Dead	Salvaged	Frozen	LA
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/25/2010	20100625	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-AOA	LA
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/27/2010	20100627	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/27/2010	20100627	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-will be trai	LA
7/4/2010	20100704	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Audubon	LA
7/4/2010	20100704	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-AOA	LA
7/10/2010	20100710	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-AOA	LA
7/12/2010	20100712	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Audubon	LA
7/12/2010	20100712	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-AOA	LA
4/26/2010	CNH20100426-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	CNH20100430-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	TTH20100430-01	Lepidochelys kempii	Stranding	Alive	Rehab-Died	Necropsied	MS
5/1/2010	KMF20100501-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	EXP20100501-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	KMF20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	KMF20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS

5/2/2010	KMF20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	EXP20100504-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/5/2010	WLH20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/5/2010	DKV20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	SXC20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JBT20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	CLM20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JBT20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS

5/8/2010	MMK20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	SAH20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JKM20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	SAH20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JNF20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JNF20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JKM20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	WLH20100510-01	Caretta caretta	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/10/2010	WLH20100510-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/10/2010	ZHS20100510-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/11/2010	BTN20100511-01	Caretta caretta	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/13/2010	JXS20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/13/2010	CNH20100514-01	Caretta caretta	Stranding	Dead	Left on beach		MS
5/14/2010	JNF20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/14/2010	JNF20100514-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/14/2010	SAH20100514-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Mote	MS
5/15/2010	LMJ20100515-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/15/2010	LMJ20100515-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/15/2010	JKM20100515-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
5/15/2010	JKM20100515-02	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
5/15/2010	KMM20100515-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/16/2010	EXJ20100516-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/18/2010	KPB20100518-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/18/2010	KPB20100518-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
5/18/2010	WLH20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS

5/19/2010	MDH20100519-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/19/2010	MDH20100519-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/20/2010	TTH20100520-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
5/20/2010	JNF20100520-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/20/2010	JNF20100520-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/21/2010	RDS20100521-01	Caretta caretta	Stranding	Dead	Left on beach		MS
5/21/2010	JNF20100521-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/21/2010	JNF20100521-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/22/2010	TTH20100522-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
5/24/2010	WLH20100524-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/24/2010	AJD20100524-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	JXB20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	CNH20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	WLH20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/27/2010	JBT20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Disney	MS
5/27/2010	JKM20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/27/2010	MSB20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Disney	MS
5/28/2010	JNF20100528-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/28/2010	RAW20100528-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/3/2010	CNH20100603-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/4/2010	DKV20100604-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	KMM20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS

6/6/2010	JBT20100606-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	JRS20100608-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	WLH20100607-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	KMH20100607-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
6/8/2010	WLH20100608-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/8/2010	WLH20100608-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	WLH20100609-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	WLH20100609-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	WLH20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	WLH20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	TTH20100611-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
6/11/2010	KMH20100611-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/11/2010	WLH20100611-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS

6/11/2010	WLH20100611-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-09	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-10	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-11	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-12	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-13	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	CRS20100611-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	RCL20100612-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	CRS20100612-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	JKM20100612-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
6/13/2010	CRS20100613-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	CRS20100613-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	CRS20100613-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	LCB20100613-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	LCB20100613-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	JKM20100613-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-SeaWorld	MS
6/13/2010	JKM20100613-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-SeaWorld	MS
6/13/2010	JKM20100613-03	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-SeaWorld	MS
6/13/2010	JKM20100613-04	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
6/14/2010	WLH20100614-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS

6/15/2010	LCB20100615-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	WLH20100617-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-SeaWorld	MS
6/17/2010	JBT20100617-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/17/2010	JBT20100617-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	TTJ20100619-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	SLE20100620-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
6/20/2010	JKM20100620-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/20/2010	MSB20100620-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS

6/21/2010	SKM20100621-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-09	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-10	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	TTJ20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	TTJ20100622-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	SKM20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/24/2010	SKM20100624-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/24/2010	SKM20100624-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/24/2010	TTJ20100624-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	TTJ20100625-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	SKM20100625-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	SKM20100625-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/26/2010	JKM20100626-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/26/2010	SKM20100626-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/26/2010	SKM20100626-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/26/2010	SKM20100626-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/27/2010	JKM20100627-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/27/2010	JKM20100627-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/28/2010	JKM20100628-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/28/2010	SKM20100628-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/28/2010	SKM20100628-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/6/2010	20100706	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/6/2010	20100706	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/6/2010	20100706	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/7/2010	20100707	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/8/2010	20100708	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS

7/8/2010	20100708	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/8/2010	20100708	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/11/2010	20100711	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
5/18/2010	BXW20100518-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/20/2010	MXT20100520-01	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA	
5/20/2010	MXT20100520-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-07	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-01	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-02	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-03	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-07	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-08	Eretmochelys imbricata	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-10	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	XXX20100601-01	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied	
6/1/2010	XXX20100601-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	XXX20100601-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	XXX20100601-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	XXX20100601-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/6/2010	BAS20100606-01	Eretmochelys imbricata	Directed Capture	Alive	Rehab	Rehab-AOA	
6/6/2010	BAS20100606-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/6/2010	BAS20100606-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	

6/6/2010	BAS20100606-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-05	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied
6/10/2010	BAS20100610-01	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied
6/10/2010	BAS20100610-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/10/2010	BAS20100610-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/10/2010	BAS20100610-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-08	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-09	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	20100613	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	20100613	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-08	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-10	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-11	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA

6/15/2010	BAS20100615-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-05	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-06	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-07	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-02	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/18/2010	20100618	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/20/2010	20100620	Chelonia mydas	Directed Capture	Dead	Salvaged	Frozen
6/21/2010	MCT20100621-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-02	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-05	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-06	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-08	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-10	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/22/2010	BAS20100622-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/24/2010	BAS20100624-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/24/2010	BAS20100624-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/24/2010	BAS20100624-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/25/2010	BAS20100625-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon

6/26/2010	BAS20100626-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-03	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-04	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-06	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/2/2010	20100702	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Temp-Ft.Jackson
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Temp-Venice?
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon

7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/11/2010	20100711	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/11/2010	20100711	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/11/2010	20100711	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/11/2010	20100711	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/12/2010	20100712	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/12/2010	20100712	Caretta caretta	Stranding	Dead	Salvaged	Frozen-NOAA	FL
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS

Descriptive Location	Latitude	Longitude	External oil?	TempLocation	Stranding	New	Alive
"Lots of Sand Dunes" Condo, Baldwin Co	30.232019	-87.936861	N	No	Yes	N	N
eastern point of Dauphin Island	30.250125	-88.075553	N	No	Yes	N	N
Dauphin Island	30.248253	-88.125822	N	No	Yes	N	N
floating 2 miles North of Fort Gaines	30.268880	-88.071720	N	No	Yes	N	N
Dauphin Island	30.332274	-88.132595	N	No	Yes	N	N
Dauphin Island	30.248253	-88.125822	N	No	Yes	N	N
Mobile Bay, 4 miles south of Fowl River	30.395431	-88.107261	N	No	Yes	N	N
Mobile Bay, 7287 Bay Rd	30.552467	-88.123317	N	No	Yes	N	N
floating off of Bayou La Batre	30.368167	-88.278317	N	No	Yes	N	N
Coden	30.445639	-88.109028	N	No	Yes	N	N
Dauphin Island	30.250164	-88.162886	N	No	Yes	N	N
Donnie Grace, bay side	30.249856	-88.202100	N	No	Yes	N	N
outside Weeks Bay toward Fish River Reef	30.367914	-87.839833	N	No	Yes	N	N
18261 Scenic Hwy 98	30.492133	-87.929833	N	No	Yes	N	N
Dauphin Island	30.249450	-88.172633	N	No	Yes	N	N
Gulf Shores	30.253417	-87.823317	N	No	Yes	N	N
Bayou La Batre	30.381033	-88.267233	N	No	Yes	N	N
pier across from Fort Morgan Museum	30.230283	-88.023694	N	No	Yes	N	N
Baldwin Co	30.250570	-87.828960	N	No	Yes	N	N
Baldwin Co	30.228430	-87.861390	N	No	Yes	N	N
Baldwin Co	30.231160	-87.928990	N	No	Yes	N	N
200 yds SE of city pier	30.245610	-88.124230	N	No	Yes	N	N
Hwy 193 past Hwy 188, Mobile Co	30.370900	-88.109670	N	No	Yes	N	N
east of Dauphin Is public fishing pier on Sand Is	30.247186	-88.125303	N	No	Yes	N	N
Little Dauphin Is, north side	30.274270	-88.111150	N	No	Yes	N	N
Audubon Place beach	30.243830	-88.092890	N	No	Yes	N	N
bay side of Sand Island	30.227653	-88.113175	N	No	Yes	N	N
Coden	30.377883	-88.241517	N	No	Yes	N	N
Mobile Bay, 1 mile south of Fowl River	30.425728	-88.103975	N	No	Yes	N	N
Hwy 98 on county rd 1, near Pelican Island	30.378320	-87.851020	N	No	Yes	N	N
Dauphin Island	30.247530	-88.124480	N	No	Yes	N	N
mouth of Bayou La Batre, Mobile Bay	30.375000	-88.285000	N	No	Yes	N	Y
Dauphin Island, west end	30.386400	-88.560983	N	No	Yes	N	N

Dauphin Island, west end	30.386400	-88.560983	N	No	Yes	N	N
Coden	30.006272	-88.004007	N	No	Yes	N	N
Dauphin Island	30.244817	-88.114433	N	No	Yes	N	N
Bayou La Batre	30.381586	-88.257034	N	No	Yes	N	Y
floating near Bayou La Batre	30.376750	-88.258480	N	No	Yes	N	N
Mobile Bay	30.591497	-88.063306	N	No	Yes	N	N
Shore Rd of CR12	30.358870	-87.832670	N	No	Yes	N	N
Plash Island	30.282700	-87.751230	N	No	Yes	N	N
Dauphin Island	30.250000	-88.200000	N	Yes	Yes	N	N
Dauphin Island	30.270000	-88.150000	N	Yes	Yes	N	N
Mobile Bay	30.400000	-88.100000	N	Yes	Yes	N	N
Mobile Bay	30.500000	-88.100000	N	Yes	Yes	N	N
Mobile Bay	30.300000	-87.750000	N	Yes	Yes	N	N
west end of Dauphin Island	30.220000	-88.330000	N	Yes	Yes	N	N
Dauphin Island, bayside	30.260000	-88.110000	N	Yes	Yes	N	N
Mobile Bay	30.300000	-87.970000	N	Yes	Yes	N	N
floating in MS Sound near Coden Bayou	30.350000	-88.220000	N	Yes	Yes	N	N
floating in Perdido Pass near Orange Beach	30.278471	-87.555537	Y	No	Yes	N	Y
floating south of Coden	30.374000	-88.240000	N	Yes	Yes	N	N
East Beach, Baldwin County	30.248301	-87.676815	Y	No	Yes	N	Y
Bon Secour Bay	30.300000	-87.875000	N	Yes	Yes	N	N
W Dauphin Island	30.250000	-88.060000	N	Yes	Yes	N	N
floating off of Bayou La Batre	30.340000	-88.310000	N	Yes	Yes	N	N
Mobile Bay, east side	30.450000	-87.930000	N	Yes	Yes	N	N
Mobile Bay, west side	30.450000	-88.090000	N	Yes	Yes	N	N
Gulf Shores	30.251060	-87.653670	N	No	Yes	N	N
Bayou La Batre	30.366460	-88.244330	N	No	Yes	N	N
~100 ft from Fairhope Municipal Pier	30.525780	-87.917040	N	No	Yes	N	N
Orange Beach	30.260000	-87.570000	Y	Yes	Yes	N	N
floating in Mobile Bay, Mobile side of bay	30.600000	-87.980000	N	Yes	Yes	N	N
floating in Bon Secour Bay	30.267240	-87.787240	N	No	Yes	N	N
floating in Bon Secour Bay	30.280430	-87.766780	N	No	Yes	N	N
floating in Mobile Bay, SE of Gaillard Island	30.371770	-88.065410	N	No	Yes	N	N
floating in Mobile Bay, NE of Dauphin Is. Bridge	30.332983	-88.130400	N	No	Yes	N	N

floating in Mobile Bay, btwn Dog River Bridge and Gai	30.531760	-88.022900	N	No	Yes	N	N
floating in Mobile Bay, NE of Fort Morgan	30.298020	-87.997720	N	No	Yes	N	N
northern part of Mobile Bay	30.590000	-88.000000	N	Yes	Yes	N	N
Mobile Bay, west side near Dog River	30.530000	-88.070000	N	Yes	Yes	N	N
Orange Beach	30.260000	-87.580000	Y	Yes	Yes	N	N
Bon Secour Bay	30.25917	-87.86152	N	No	Yes	N	N
Bayou La Batre	30.370583	-88.2809	N	No	Yes	N	N
a bay 2mi N. of Dauphin Island (part of Mobile Bay)	30.290183	-88.208166	N	No	Yes	N	N
Bon Secour Bay	30.27595	-87.76513	N	No	Yes	N	N
200 yds off of Gilliard Island in Mobile Bay	30.49744	-88.04932	N	No	Yes	N	N
Secador industrial west in Mobile bay	30.50712	-88.0789	Y	No	Yes	N	N
Dauphin Island	30.23	-88.15	Y	Yes	Yes	N	Y
east part of Pelican Is, near Dauphin Is pier	30.2255	-88.1089	Y	No	Yes	N	N
floating 2 mi SW of Mobile Bay buoy, ~10 mi offshore	30.105	-88.04166	Y	No	Yes	N	Y
Orange Beach, Perdido Bay, just N of 31735 Shoalwat	30.29965	-87.4859	N	No	Yes	N	N
~1 mile N of west end of Dauphin Island, in bay	30.23985	-88.32628	Y	No	Yes	N	Y
~1 mi SE of Berkley Field Pier in Mobile Bay	30.59365	-88.0398	N	No	Yes	N	N
Bon Secour Bay, just S of Intercoastal channel	30.27726	-87.76435	N	No	Yes	N	N
Bon Secour Bay, near the Intercoastal channel	30.2849	-87.7642	Y	No	Yes	N	N
Panama City Beach	30.19650	-85.84358	N	No	Yes	N	N
Panama City Beach	30.2442	-85.93718	N	No	Yes	N	Y
Panama City Beach	30.16782	-85.794	N	No	Yes	N	N
Panama City Beach	30.21513	-85.87758	N	No	Yes	N	N
Pensacola Beach	30.32589	-87.17208	N	No	Yes	N	N
St. Joseph Peninsula State Park	29.77851	-85.40833	N	No	Yes	N	N
Perdido Key State Park	30.28801	-87.47814	N	No	Yes	N	N
East Walton County Beach, Orange St access	30.2724	-86.00381	N	No	Yes	N	Y
Naval Live Oaks (Headquarters), GUIS	30.36422	-87.12725	N	No	Yes	N	N
Tyndall AFB, Archery Rd beach, east of marina	30.08165	-85.62992	N	No	Yes	N	N
Panama City Beach	30.18925	-85.83112	N	No	Yes	N	N
Perdido Key area of Gulf Islands NS	30.30350	-87.39394	N	No	Yes	N	N
Santa Rosa area of Gulf Islands NS	30.35489	-87.01419	N	No	Yes	N	N
west Walton County	30.37170	-86.34960	N	No	Yes	N	N
Crooked Island east, Tyndall AFB	29.95664	-85.47378	N	No	Yes	N	N

Crooked Island west, Tyndall AFB	30.02786	-85.56911	N	No	Yes	N	N
Walton County, east of Draper Lake	30.34060	-86.21480	N	No	Yes	N	N
Panama City Beach	30.26268	-85.97958	N	No	Yes	N	N
St. Andrews Bay, Bunkers Cove at yacht club	30.14250	-85.64920	N	No	Yes	N	N
Pensacola Beach	30.33619	-87.11075	N	No	Yes	N	Y
Tyndall AFB, Crooked Island east at boardwalk	29.95634	-85.45734	N	No	Yes	N	N
St. Joe Beach	29.90192	-85.36683	N	No	Yes	N	N
Rosemary Beach, Walton County	30.28000	-86.03000	N	Yes	Yes	N	N
Naval Live Oaks, south beach on Santa Rosa sound	30.36074	-87.14003	N	No	Yes	N	N
Perdido Key	30.29619	-87.42647	N	No	Yes	N	Y
Panama City, Baypoint Marina Yacht Club	30.14352	-85.72778	N	No	Yes	N	N
Navarre Beach	30.37590	-86.88760	N	No	Yes	N	N
St. Andrews Bay	30.16385	-85.68565	N	No	Yes	N	N
Pensacola Naval Air Station, Trout Point Beach	30.33185	-87.34040	N	No	Yes	N	N
W Escambia County, inshore, floating	30.31250	-87.49710	N	No	Yes	N	N
Cape San Blas	29.68224	-85.31182	N	No	Yes	N	N
St. Andrews Bay, Sun Harbor Marina, Panama City	30.18415	-85.73262	N	No	Yes	N	N
Panama City Beach	30.16000	-85.81000	N	Yes	Yes	N	N
St. Vincent NWR	29.67590	-85.21767	N	No	Yes	N	N
Port of Panama City	30.17795	-85.72493	N	No	Yes	N	N
Pensacola	30.29000	-87.25000	N	Yes	Yes	N	Y
Panama City, Inlet Beach	30.19000	-85.87000	N	Yes	Yes	N	Y
West Miramar Beach	30.37000	-86.40000	N	Yes	Yes	N	N
Pensacola	30.30000	-87.30000	N	Yes	Yes	N	Y
Navarre Beach	30.37000	-86.85000	N	Yes	Yes	N	N
approx 1 mile off of Pensacola Beach	30.28000	-87.18000	Y	Yes	Yes	N	Y
Eglin AFB, just east of Navarre Beach	30.37000	-86.86000	N	Yes	Yes	N	N
Pensacola Beach	30.25000	-87.20000	N	Yes	Yes	N	N
Pensacola Beach	30.30000	-87.20000	N	Yes	Yes	N	N
Pensacola Beach	30.27000	-87.45000	N	Yes	Yes	N	N
approx 1 mile off of Destin	30.35800	-86.49900	N	Yes	Yes	N	Y
Port St. Joe, Mexico Beach	29.90475	-85.36946	N	No	Yes	N	N
Tyndall AFB	30.06000	-85.62000	N	Yes	Yes	N	N
floating in St. Joe Bay	29.80000	-85.35000	N	Yes	Yes	N	Y

Eglin AFB, 100 yds east of A-11	30.39469	-86.71058	N	No	Yes	N	N
Panama City, access 59 west of city pier	30.21607	-85.87965	N	No	Yes	N	N
Panama City, Navy base behind the dive school	30.17280	-85.75803	N	No	Yes	N	N
Pensacola	30.30000	-87.20000	N	Yes	Yes	N	N
offshore Destin area	30.32000	-86.47000	N	Yes	Yes	N	Y
St. Andrews Bay	30.14	-85.7	N	Yes	Yes	N	N
Panama City area	30.23488	-85.90698	Y	No	Yes	N	Y
Perdido Key	30.29	-87.43	Y	Yes	Yes	N	N
St. Andrews State Park	30.1297	-85.7242	N	No	Yes	N	N
Cape San Blas	29.65	-85.35	N	Yes	Yes	N	N
floating offshore Destin	30.3	-86.5	N	Yes	Yes	N	Y
Grand Bay, near Pensacola	30.346239	-87.285679	N	No	Yes	N	Y
Elmers Island	29.17027	-90.08316	N	No	Yes	N	N
Elmers Island	29.18166	-90.06428	N	No	Yes	N	N
Slidell area, Lake Borgne	30.13447	-89.50054	N	No	Yes	N	N
Grand Isle	29.24	-89.98	N	Yes	Yes	N	N
Elmers Island	29.17235	-90.07981	N	No	Yes	N	N
Rutherford Beach	29.76692	-93.16193	N	No	Yes	N	N
Rutherford Beach	29.76879	-93.17164	N	No	Yes	N	N
Rutherford Beach	29.76972	-93.17667	N	No	Yes	N	N
Rutherford Beach	29.77171	-93.18671	N	No	Yes	N	N
Rutherford Beach	29.7732	-93.19467	N	No	Yes	N	N
Rutherford Beach	29.77341	-93.19683	N	No	Yes	N	N
Rutherford Beach	29.77354	-93.19756	N	No	Yes	N	N
Rutherford Beach	29.77576	-93.21589	N	No	Yes	N	N
Rutherford Beach	29.77738	-93.2461	N	No	Yes	N	N
Rutherford Beach	29.77728	-93.25497	N	No	Yes	N	N
Rutherford Beach	29.77728	-93.25497	N	No	Yes	N	N
Rutherford Beach	29.76578	-93.15643	N	No	Yes	N	N
Rutherford Beach	29.76119	-93.13665	N	No	Yes	N	N
Rutherford Beach	29.75513	-93.11017	N	No	Yes	N	N
floating near Slidell - Rigolets Pass	30.1588	-89.6505	N	No	Yes	N	N
Elmers Island	29.18184	-90.06364	N	No	Yes	N	N
Grand Isle	29.20786	-90.03112	N	No	Yes	N	N

Holly Beach	29.76897	-93.4392	N	No	Yes	N	N
Holly Beach	29.76879	-93.43438	N	No	Yes	N	N
Holly Beach	29.76922	-93.45638	N	No	Yes	N	N
Holly Beach	29.76897	-93.48772	N	No	Yes	N	N
Holly Beach	29.76771	-93.50714	N	No	Yes	N	N
Constance Beach	29.76031	-93.56936	N	No	Yes	N	N
Fourchon Beach	29.11	-90.18	N	Yes	Yes	N	N
Fourchon Beach	29.11	-90.18	N	Yes	Yes	N	N
Mae's Beach	29.74595	-93.68512	N	No	Yes	N	N
Mae's Beach	29.74582	-93.68592	N	No	Yes	N	N
Mae's Beach	29.7423	-93.70653	N	No	Yes	N	Y
Grand Isle	30.1086	-89.3545	N	No	Yes	N	N
Grand Terre	29.209166	-90.029166	N	No	Yes	N	N
Grand Isle	29.28435	-89.92149	N	No	Yes	N	N
Holly Beach	29.74232	-93.7065	N	No	Yes	N	N
Holly Beach	29.76391	-93.36438	N	No	Yes	N	N
found floating, location?	29.23	-89.99	N	Yes	Yes	N	N
Mae's Beach	29.7424	-93.7062	N	No	Yes	N	Y
Long Beach	29.7534	-93.6293	N	No	Yes	N	N
Long Beach	29.7509	-93.6492	N	No	Yes	N	N
Mae's Beach	29.7396	-93.7208	N	No	Yes	N	N
Constance Beach	29.7605	-93.5674	N	No	Yes	N	N
Holly Beach	29.7683	-93.5018	N	No	Yes	N	N
Holly Beach	29.7689	-93.441	N	No	Yes	N	N
Rutherford Beach	29.7555	-93.1114	N	No	Yes	N	N
Rutherford Beach	29.7513	-93.0941	N	No	Yes	N	N
Rutherford Beach	29.7498	-93.0873	N	No	Yes	N	N
Bayou Rigaud, floating	29.14436	-89.59246	N	No	Yes	N	N
Lake Pontchartrain, floating	30.205	-90.11194	N	No	Yes	N	N
Fourchon Beach	29.09	-90.21566	N	No	Yes	N	N
near Cocodrie	29.24	-90.66	N	Yes	Yes	N	N
4 mi NE of Fishing Smack Bay	30.003805	-89.20633	N	No	Yes	N	N
Grand Isle Beach	29.24	-89.99	N	Yes	Yes	N	N
Empire Jetty Beach	29.25412	-89.60345	N	No	Yes	N	N

Grand Terre	29.28	-89.92	N	Yes	Yes	N	N
Bayou Terrebonne by Bayou La Fleur	29.26	-90.64	N	Yes	Yes	N	N
Lake Chien	29.33	-90.44	N	Yes	Yes	N	N
Bayou Trove	29.2386	-89.53792	N	No	Yes	N	N
Grand Isle State Park	29.24	-89.97	Y	Yes	Yes	N	N
Queen Bess Island	29.3	-89.96	N	Yes	Yes	N	N
Lake Felicity, North of Timbalier Island	29.26	-90.4	N	Yes	Yes	N	N
Lake Felicity, North of Timbalier Island	29.26	-90.47	N	Yes	Yes	N	N
Lake Felicity, North of Timbalier Island	29.28	-90.42	N	Yes	Yes	N	N
Grand Isle Beach	29.2	-90.04	N	Yes	Yes	N	N
skimmer found ~50 mi S of Louisiana coastline, broug	28.4375	-89.8958	Y	No	Skimmer	N	Y
Cameron Parish beach	29.76	-93.34	N	Yes	Yes	N	N
skimmer found ~17 mi offshore Grand Isle	28.9932	-89.8412	Y	No	Skimmer	N	Y
Timbalier Island	29.04	-90.47	N	Yes	Yes	N	N
floating just offshore western LA beaches	29.76	-93.46	N	Yes	Yes	N	N
western Louisiana beaches	29.74	-93.42	N	Yes	Yes	N	N
western Louisiana beaches	29.74	-93.44	N	Yes	Yes	N	N
western Louisiana beaches	29.74	-93.46	N	Yes	Yes	N	N
Coup A Bel Pass	29.3	-89.9	Y	Yes	Yes	N	N
Marsh Island	29.5	-91.9	N	Yes	Yes	N	N
Barataria Bay	29.4	-89.94	Y	Yes	Yes	N	N
north Barataria Bay	29.43308	-89.88585	Y	No	Yes	N	N
western Louisiana, nearshore waters	29.7	-93	N	Yes	Yes	N	Y
Fourchon Beach	29.08	-90.14	N	Yes	Yes	N	N
no location info - est location in Chandeleur Sound	29.8	-89.1	N	Yes	Yes	N	Y
Rutherford Beach	29.74	-93.22	N	Yes	Yes	N	N
Rutherford Beach	29.72	-93.15	N	Yes	Yes	N	N
Rutherford Beach	29.72	-93.07	N	Yes	Yes	N	N
Fourchon Beach	29.1	-90.1	N	Yes	Yes	N	N
Slidell area	30.13	-89.57	N	Yes	Yes	N	N
Rollover Bayou (W LA near Rockefeller Refuge)	29.59	-92.7	N	Yes	Yes	N	N
Rollover Bayou (W LA near Rockefeller Refuge)	29.6	-92.6	N	Yes	Yes	N	N
Whiskey Island chain, south of Cocodrie	29.03	-90.75	N	Yes	Yes	N	N
Timbalier Island area - floating?	29.05	-90.47	N	Yes	Yes	N	N

west of Bayou La Fourche, north of jetties at Port Fou	29.1	-90.18	N	Yes	Yes	N	N
Timbalier Bay	29.1	-90.4	N	Yes	Yes	N	N
Lake Borgne	30.1	-89.6	N	Yes	Yes	N	N
floating in Terrebonne Bay, ~4-5 mi S of Cocodrie	29.15	-90.6	N	Yes	Yes	N	N
floating in Houma navigational channel	29.33	-90.73	N	Yes	Yes	N	N
Fourchon Beach	29.09139	-90.22365	N	No	Yes	N	N
Racoon Island	29.06263	-90.94988	N	No	Yes	N	N
Racoon Island	29.0624	-90.94663	N	No	Yes	N	N
off shore S.E. Of Port Fourchon	29.01988	-90.11865	Y	No	Yes	N	Y
Grand Isle Beach	29.19899	-90.04115	N	No	Yes	N	N
Grand Isle Beach	29.22781	-90.00005	N	No	Yes	N	N
Rigolets Pass, near Slidell	30.13	-89.6	N	Yes	Yes	N	Y
Port Fourchon, on sandbar	29.09	-90.19	N	Yes	Yes	N	N
Bay Wilkinson	29.46985	-89.91005	Y	No	Yes	N	N
N Barataria Bay, in canal off of Wilkinson Canal	29.46278	-89.95111	N	No	Yes	N	Y
location? Off of LA	29	-88.7	N	Yes	Yes	N	N
Bay St. Louis	30.30880	-89.32590	N	No	Yes	N	N
Bay St. Louis	30.29410	-89.34320	N	No	Yes	N	N
Waveland	30.26410	-89.39200	N	No	Yes	N	N
Waveland	30.27260	-89.37750	N	No	Yes	N	N
Waveland	30.27360	-89.37640	N	No	Yes	N	N
Long Beach	30.34780	-89.13900	N	No	Yes	N	Y
Pass Christian	30.31481	-89.24207	N	No	Yes	N	N
Pass Christian	30.31071	-89.25556	N	No	Yes	N	N
Pass Christian	30.31460	-89.24252	N	No	Yes	N	N
Pass Christian	30.31080	-89.25728	N	No	Yes	N	N
Pass Christian	30.31295	-89.24477	N	No	Yes	N	N
Pass Christian	30.31082	-89.25535	N	No	Yes	N	N
Ocean Springs	30.40980	-88.84080	N	No	Yes	N	N
Bay St. Louis	30.31900	-89.32230	N	No	Yes	N	N
Waveland	30.28830	-89.36000	N	No	Yes	N	N
Waveland	30.28680	-89.36260	N	No	Yes	N	N
Pass Christian	30.30650	-89.26858	N	No	Yes	N	N
Pass Christian	30.30725	-89.26653	N	No	Yes	N	N

Bay St. Louis	30.30562	-89.32865	N	No	Yes	N	N
Pass Christian	30.32834	-89.19923	N	No	Yes	N	N
Pass Christian	30.30529	-89.27249	N	No	Yes	N	N
Pass Christian	30.32620	-89.20892	N	No	Yes	N	N
Pass Christian	30.32460	-89.21450	N	No	Yes	N	N
Biloxi	30.39289	-88.94716	N	No	Yes	N	N
Waveland	30.28865	-89.35290	N	No	Yes	N	N
Pass Christian	30.32824	-89.19985	N	No	Yes	N	N
Pass Christian	30.33144	-89.18568	N	No	Yes	N	N
Pass Christian	30.32144	-89.22351	N	No	Yes	N	N
Pass Christian	30.30750	-89.26659	N	No	Yes	N	N
Bay St. Louis	30.31558	-89.29004	N	No	Yes	N	N
Pass Christian	30.30525	-89.27421	N	No	Yes	N	N
Pass Christian	30.30989	-89.25963	N	No	Yes	N	N
Waveland	30.26362	-89.39346	N	No	Yes	N	N
Waveland	30.28670	-89.36321	N	No	Yes	N	N
Gulfport	30.35567	-89.11807	N	No	Yes	N	N
Waveland	30.24120	-89.42470	N	No	Yes	N	N
Gulfport	30.36948	-89.07825	N	No	Yes	N	N
Biloxi	30.39169	-88.95027	N	No	Yes	N	N
Biloxi	30.39271	-88.87608	N	No	Yes	N	N
Waveland	30.27834	-89.37222	N	No	Yes	N	N
Gulfport	30.37689	-89.04778	N	No	Yes	N	N
Waveland	30.27006	-89.38032	N	No	Yes	N	N
Bay St. Louis	30.30022	-89.33346	N	No	Yes	N	N
Pass Christian	30.32762	-89.20251	N	No	Yes	N	N
floating N of Ship Island	30.25080	-88.94120	N	No	Yes	N	N
Waveland	30.25685	-89.41499	N	No	Yes	N	N
Waveland	30.26483	-89.39040	N	No	Yes	N	N
Waveland	30.26471	-89.39070	N	No	Yes	N	N
Pass Christian, floating by Henderson Point	30.30320	-89.29570	N	No	Yes	N	N
Waveland	30.28749	-89.36136	N	No	Yes	N	N
Waveland	30.28790	-89.36065	N	No	Yes	N	N
Gulfport	30.36129	-89.10089	N	No	Yes	N	N

Long Beach	30.33749	-89.16818	N	No	Yes	N	N
Pass Christian	30.32775	-89.20048	N	No	Yes	N	N
Pass Christian	30.31166	-89.25018	N	No	Yes	N	N
Pass Christian	30.30335	-89.28335	N	No	Yes	N	N
Waveland	30.28267	-89.36761	N	No	Yes	N	N
Biloxi	30.39147	-88.95452	N	No	Yes	N	N
Biloxi	30.39385	-88.91407	N	No	Yes	N	N
Horn Island	30.22831	-88.64799	N	No	Yes	N	N
Pass Christian	30.31300	-89.24830	N	No	Yes	N	N
Pass Christian	30.31190	-89.29050	N	No	Yes	N	N
Gulfport	30.38250	-89.02280	N	No	Yes	N	N
Gulfport	30.38150	-89.02610	N	No	Yes	N	N
floating ~1/2 mile south of Biloxi bridge	30.38960	-88.84190	N	No	Yes	N	N
Waveland Beach at Nicholson Ave	30.29410	-89.35910	N	No	Yes	N	N
Pass Christian	30.32320	-89.21840	N	No	Yes	N	N
Gulfport Beach	30.35582	-89.11698	N	No	Yes	N	N
Gulfport Beach	30.33215	-89.18207	N	No	Yes	N	N
Lakeshore/Waveland	30.25117	-89.42138	N	No	Yes	N	N
Bay St. Louis	30.29545	-89.34080	N	No	Yes	N	N
Waveland	30.26715	-89.38553	N	No	Yes	N	N
Bay St. Louis	30.30980	-89.32553	N	No	Yes	N	N
West Ship Island	30.2115	-88.98480	N	No	Yes	N	N
Waveland	30.28248	-89.36733	N	No	Yes	N	N
Pass Christian	30.31406	-89.24347	N	No	Yes	N	N
Gulfport	30.37421	-89.04382	N	No	Yes	N	Y
Bay St. Louis	30.30883	-89.32583	N	No	Yes	N	N
Waveland	30.27683	-89.37367	N	No	Yes	N	N
Waveland	30.28064	-89.36495	N	No	Yes	N	Y
Waveland	30.28127	-89.36557	N	No	Yes	N	Y
Pascagoula Beach	30.3433	-88.55500	N	No	Yes	N	N
Waveland	30.27234	-89.37753	N	No	Yes	N	N
SE Horn Island	30.2207	-88.59330	N	No	Yes	N	N
southside Cat Island	30.2283	-89.07330	N	No	Yes	N	N
Pass Christian	30.31352	-89.24396	N	No	Yes	N	N

Bellefontaine Beach	30.3433	-88.70330	N	No	Yes	N	N
water south of Cadet Point, Biloxi	30.3877	-88.85890	N	No	Yes	N	N
Waveland	30.28063	-89.36495	N	No	Yes	N	Y
Biloxi Bay	30.40980	-88.86906	N	No	Yes	N	N
Biloxi Bay	30.40980	-88.86906	N	No	Yes	N	N
Horn Island, ~3000' from W end	30.2398	-88.76870	N	No	Yes	N	N
Waveland	30.28655	-89.36330	N	No	Yes	N	N
Pass Christian	30.30725	-89.26660	N	No	Yes	N	N
Waveland	30.28063	-89.36495	N	No	Yes	N	Y
Long Beach	30.33743	-89.16837	N	No	Yes	N	N
Biloxi Beach	30.39154	-88.95600	N	No	Yes	N	N
north side of Horn Island	30.22307	-88.62952	N	No	Yes	N	N
Bangs Lake off of Pascagoula	30.3588	-88.47300	N	No	Yes	N	N
Biloxi, Back Bay	30.40079	-88.85896	N	No	Yes	N	N
Ocean Springs, McPherson Pier	30.40397	-88.83031	N	No	Yes	N	Y
Waveland	30.28063	-89.36495	N	No	Yes	N	Y
Ocean Springs	30.40397	-88.83031	N	No	Yes	N	Y
Biloxi, near Palace Casino	30.3959	-88.85830	N	No	Yes	N	N
Ocean Springs	30.40397	-88.83031	N	No	Yes	N	Y
Ocean Springs	30.4075	-88.83540	N	No	Yes	N	N
Gulfport	30.35487	-89.12191	N	No	Yes	N	N
Waveland	30.26605	-89.38722	N	No	Yes	N	N
Long Beach	30.34084	-89.15894	N	No	Yes	N	N
Biloxi, near harbor	30.39268	-88.88209	N	No	Yes	N	N
Gautier / Belle Fontaine Beach	30.3457	-88.74080	N	No	Yes	N	N
Biloxi	30.39158	-88.94994	N	No	Yes	N	N
Biloxi	30.39184	-88.94596	N	No	Yes	N	N
Biloxi	30.39183	-88.94596	N	No	Yes	N	N
Biloxi	30.39184	-88.94576	N	No	Yes	N	N
Biloxi	30.39262	-88.93246	N	No	Yes	N	N
Biloxi Beach	30.3932	-88.90645	N	No	Yes	N	N
Biloxi Beach	30.39353	-88.92310	N	No	Yes	N	N
Biloxi Beach	30.39382	-88.91889	N	No	Yes	N	N
Biloxi Beach	30.39375	-88.92016	N	No	Yes	N	N

Biloxi Beach	30.39108	-88.96432	N	No	Yes	N	N
Biloxi Beach	30.38968	-88.97850	N	No	Yes	N	N
Ocean Springs / Belle Fontaine Beach	30.34316	-88.72950	N	No	Yes	N	N
Gulfport Beach	30.3597	-89.10686	N	No	Yes	N	N
Biloxi Beach	30.3938	-88.91200	N	No	Yes	N	N
Gulfport Beach	30.37834	-89.04083	N	No	Yes	N	N
Gulfport Beach	30.38538	-89.01003	N	No	Yes	N	N
Gulfport Beach	30.37825	-89.04118	N	No	Yes	N	N
Gulfport Beach	30.3844	-89.01535	N	No	Yes	N	N
Biloxi Beach	30.38942	-88.98023	N	No	Yes	N	N
Biloxi Beach	30.39028	-88.97433	N	No	Yes	N	N
Biloxi Beach	30.39357	-88.89623	N	No	Yes	N	N
Gulfport Beach	30.3831	-89.0192	N	No	Yes	N	N
Biloxi Beach	30.3914	-89.0069	N	No	Yes	N	N
Biloxi Beach	30.39	-88.9756	N	No	Yes	N	N
Biloxi Beach	30.3875	-88.9942	N	No	Yes	N	N
Biloxi Beach	30.3889	-88.9847	N	No	Yes	N	N
Gulfport Beach	30.37058	-89.0742	N	No	Yes	N	N
Gulfport Beach	30.3706	-89.07417	N	No	Yes	N	N
Gulfport Beach	30.37131	-89.07161	N	No	Yes	N	N
Gulfport Beach	30.37158	-89.07066	N	No	Yes	N	N
Gulfport Beach	30.3768	-89.07045	N	No	Yes	N	N
Gulfport Beach	30.37262	-89.06721	N	No	Yes	N	N
Gulfport	30.38075	-89.02951	N	No	Yes	N	N
Gulfport	30.38097	-89.02944	N	No	Yes	N	N
Gulfport	30.38048	-89.03049	N	No	Yes	N	N
Gulfport	30.38016	-89.03156	N	No	Yes	N	N
Biloxi	30.3799	-89.03266	N	No	Yes	N	N
Biloxi	30.38032	-89.03104	N	No	Yes	N	N
Gulfport Beach	30.37746	-89.0433	N	No	Yes	N	N
Gulfport Beach	30.37819	-89.0416	N	No	Yes	N	N
Waveland	30.2806	-89.3449	N	No	Yes	N	Y
Biloxi, Acadia Ave	30.39277	-88.9312	N	No	Yes	N	Y
Gulfport Beach	30.37819	-89.0416	N	No	Yes	N	N

Gulfport Beach	30.37819	-89.0416	N	No	Yes	N	N
Gulfport Beach	30.37843	-89.0413	N	No	Yes	N	N
Gulfport Beach	30.37837	-89.04101	N	No	Yes	N	N
Gulfport Beach	30.37457	-89.0563	N	No	Yes	N	N
Gulfport Beach	30.37456	-89.05634	N	No	Yes	N	N
Biloxi Beach	30.3887	-88.98878	N	No	Yes	N	N
Biloxi Beach	30.38877	-88.98797	N	No	Yes	N	N
Biloxi Beach	30.38877	-88.98797	N	No	Yes	N	N
Biloxi Beach	30.38886	-88.9741	N	No	Yes	N	N
Biloxi Beach	30.38886	-88.98734	N	No	Yes	N	N
Pass Christian Beach	30.32762	-89.20251	N	No	Yes	N	N
Gulfport Beach	30.38188	-89.02495	N	No	Yes	N	N
Gulfport Beach	30.38393	-89.01701	N	No	Yes	N	N
Gulfport Beach	30.38583	-89.00827	N	No	Yes	N	N
Biloxi Beach	30.39357	-88.89818	N	No	Yes	N	N
Biloxi Beach	30.39182	-88.94774	N	No	Yes	N	N
Biloxi Beach	30.39328	-88.92583	N	No	Yes	N	N
Biloxi Beach	30.37561	-89.09052	N	No	Yes	N	N
Biloxi Beach	30.37571	-89.05148	N	No	Yes	N	N
Biloxi Beach	30.38738	-89	N	No	Yes	N	N
Biloxi Beach	30.38746	-88.99895	N	No	Yes	N	N
near Horn Island - floating?	30.2333	-88.53093	N	No	Yes	N	N
floating off of Gulfport	30.32007	-89.17917	N	No	Yes	N	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	N	Y
Biloxi Beach	30.39383	-88.91076	N	No	Yes	N	N
Biloxi Beach	30.39167	-88.89817	N	No	Yes	N	N
Biloxi Beach	30.39383	-88.91895	N	No	Yes	N	N
Gulfport Beach	30.37125	-89.07175	N	No	Yes	N	N
west side of Deer Island, Biloxi	30.26278	-88.89885	N	No	Yes	N	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	N	Y
Waveland Pier	30.2806	-89.3449	N	No	Yes	N	Y
Waveland Pier	30.2806	-89.3449	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Biloxi Beach	30.38722	-89.00137	N	No	Yes	N	N

Ocean Springs	30.3603	-88.7642	N	No	Yes	N	N
Ocean Springs	30.369965	-88.779549	N	No	Yes	N	N
Biloxi	30.392	-88.87	N	No	Yes	N	N
Long Beach	30.35226	-89.12932	N	No	Yes	N	N
Long Beach, Jeff Davis Ave	30.3437	-89.1498	N	No	Yes	N	N
Long Beach	30.3397	-89.94848	N	No	Yes	N	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
3 Oaks Bayou (Bayou Caddy), outside Waveland	30.24575	-89.43206	N	No	Yes	N	N
Pass Christian	30.32465	-89.2142	N	No	Yes	N	N
Long Beach	30.33843	-89.16594	N	No	Yes	N	N
Long Beach	30.34897	-89.13697	N	No	Yes	N	N
floating off of NE corner of Ship Island	30.22236	-88.94848	N	No	Yes	N	N
floating off NE coast of Cat Island	30.2596	-89.037	N	No	Yes	N	N
floating east Cat Island	30.2211	-89.0336	N	No	Yes	N	N
in MS Sound ~2 mi offshore Biloxi, brought in to Ocea	30.368	-88.958	N	No	Yes	N	Y
Deer Island, Biloxi Harbor	30.21851	-88.48135	N	No	Yes	N	N
Biloxi Harbor	30.19418	-88.52193	N	No	Yes	N	N
Biloxi Harbor, NW end Horn Island	30.16057	-88.44111	N	No	Yes	N	N
Gulfport Harbor	30.1523	-89.0633	N	No	Yes	N	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
floating off of Biloxi	30.37	-88.92	N	Yes	Yes	N	N
floating off of Biloxi	30.365	-88.89	N	Yes	Yes	N	N
floating off of Biloxi	30.36	-88.86	N	Yes	Yes	N	N
floating off of Biloxi	30.35	-88.84	N	Yes	Yes	N	N
floating off of Biloxi Beach	30.3505	-88.9066	N	No	Yes	N	N
floating off of Biloxi Beach	30.389	-88.8865	N	No	Yes	N	N
floating off of Biloxi Beach	30.3531	-88.937	N	No	Yes	N	N
floating off of Biloxi Beach	30.3379	-88.9542	N	No	Yes	N	N
floating off of Cat Island, Long Beach	30.2736	-89.0744	N	No	Yes	N	N
floating off of Biloxi Beach	30.3498	-88.892	N	No	Yes	N	N

floating off of Biloxi Beach	30.3651	-88.8896	N	No	Yes	N	N
floating off of Biloxi Beach	30.3667	-88.8944	N	No	Yes	N	N
floating off of Biloxi Beach	30.356	-88.9961	N	No	Yes	N	N
floating off of Biloxi Beach	30.356	-88.898	N	No	Yes	N	N
Biloxi Beach	30.38757	-88.99525	N	No	Yes	N	N
Gulfport Beach	30.37807	-89.04175	N	No	Yes	N	N
Ocean Springs	30.40376	-88.82699	N	No	Yes	N	N
Long Beach	30.34	-89.16059	N	No	Yes	N	N
Gulfport	30.37314	-89.0655	N	No	Yes	N	N
Biloxi Beach	30.38498	-89.01112	N	No	Yes	N	N
floating off of Long Beach	30.32185	-89.1497	N	No	Yes	N	N
floating in Back Bay of Biloxi	30.41678	-88.86855	N	No	Yes	N	N
Bay St. Louis, on beach, Lakeshore area	30.24835	-89.42323	N	No	Yes	N	N
Biloxi Beach	30.38	-88.89	N	Yes	Yes	N	N
floating off of Jackson County	30.3	-88.7	N	Yes	Yes	N	N
Ocean Springs Pier, Jackson County	30.40398	-88.82962	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Harrison County	30.37537	-88.81745	N	No	Yes	N	N
Harrison County	30.37762	-88.1543	N	No	Yes	N	N
Jackson County	30.40048	-88.84228	N	No	Yes	N	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Pass Christian	30.34114	-89.15825	N	No	Yes	N	N
Long Beach	30.32659	-89.2067	N	No	Yes	N	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Bay St. Louis	30.3	-89.3	N	Yes	Yes	N	N
Long Beach	30.33	-89.16	N	Yes	Yes	N	N
Long Beach	30.345	-89.1	N	Yes	Yes	N	N
Bay St. Louis	30.24918	-89.42303	N	No	Yes	N	N
Pass Christian	30.31637	-89.23715	N	No	Yes	N	N
Pass Christian, on beach	30.31161	-89.25247	N	No	Yes	N	N
floating off of Biloxi	30.39065	-88.87007	N	No	Yes	N	N
floating off west end of Deer Island, near Biloxi	30.38	-88.89	N	Yes	Yes	N	N

floating off west end of Deer Island, near Biloxi	30.375	-88.87	N	Yes	Yes	N	N
floating by Biloxi Schooner Pier	30.39	-88.87	N	Yes	Yes	N	N
floating ~1 mi offshore of Mississippi Coliseum	30.21919	-88.58492	N	No	Yes	N	N
Cat Island	30.36698	-88.97193	N	No	Yes	N	N
East Beach, Davis Bayou	30.39609	-88.81237	N	No	Yes	N	N
inside Point Cadet Harbor, N side of seawall	30.38839	-88.85983	N	No	Yes	N	N
Directed Capture	28.4665	-88.46116	Y	No	No	N	Y
Directed Capture	28.96778	-88.79333	Y	No	No	N	Y
Directed Capture	28.90722	-88.80167	Y	No	No	N	Y
Directed Capture	28.9597	-88.5342	Y	No	No	N	Y
Directed Capture	28.9182	-88.5552	Y	No	No	N	Y
Directed Capture	28.865	-88.5658	Y	No	No	N	Y
Directed Capture	28.8538	-88.5617	Y	No	No	N	Y
Directed Capture	28.847	-88.5588	Y	No	No	N	Y
Directed Capture	28.8405	-88.5557	Y	No	No	N	Y
Directed Capture	28.6573	-88.4313	Y	No	No	N	Y
Directed Capture	28.8045	-88.4771	Y	No	No	N	Y
Directed Capture	28.804483	-88.4771	Y	No	No	N	Y
Directed Capture	28.80725	-88.47808	Y	No	No	N	Y
Directed Capture	28.813483	-88.480383	Y	No	No	N	Y
Directed Capture	28.81535	-88.479233	Y	No	No	N	Y
Directed Capture	28.81669	-88.47803	Y	No	No	N	Y
Directed Capture	28.828083	-88.37115	Y	No	No	N	Y
Directed Capture	28.829617	-88.471267	Y	No	No	N	Y
Directed Capture	28.826867	-88.464933	Y	No	No	N	Y
Directed Capture	28.834317	-88.42455	Y	No	No	N	Y
Directed Capture - LDWF	29.09	-89.78	Y	No	No	N	N
Directed Capture - LDWF	29.0919	-89.7781	Y	No	No	N	Y
Directed Capture - LDWF	29.0932	-89.7747	Y	No	No	N	Y
Directed Capture - LDWF	29.0998	-89.7574	Y	No	No	N	Y
Directed Capture - LDWF	29.1065	-89.748	Y	No	No	N	Y
Directed Capture	29.01025	-88.26369	Y	No	No	N	Y
Directed Capture	29.01025	-88.26369	Y	No	No	N	Y
Directed Capture	29.01025	-88.26369	Y	No	No	N	Y

Directed Capture	29.02569	-88.25586	Y	No	No	N	Y
Directed Capture	29.17372	-88.16519	Y	No	No	N	N
Directed Capture	28.7538	-88.85602	Y	No	No	N	N
Directed Capture	28.75114	-88.84875	Y	No	No	N	Y
Directed Capture	28.62252	-88.55688	Y	No	No	N	Y
Directed Capture	28.76398	-88.82482	Y	No	No	N	Y
Directed Capture	28.66965	-88.49193	Y	No	No	N	Y
Directed Capture	28.91208	-88.68748	Y	No	No	N	Y
Directed Capture	28.70114	-88.53979	Y	No	No	N	Y
Directed Capture	28.92108	-88.7991	Y	No	No	N	Y
Directed Capture	28.92094	-88.79822	Y	No	No	N	Y
Directed Capture	28.92891	-88.77321	Y	No	No	N	Y
Directed Capture	28.928	-88.7701	Y	No	No	N	Y
Directed Capture	28.92558	-88.74215	Y	No	No	N	Y
Directed Capture	28.93916	-88.71402	Y	No	No	N	Y
Directed Capture	28.94739	-88.70053	Y	No	No	N	Y
Directed Capture	28.96491	-88.67766	Y	No	No	N	Y
Directed Capture	28.98004	-88.65568	Y	No	No	N	Y
Directed Capture - LDWF	28.72474	-88.55243	Y	No	No	N	Y
Directed Capture - LDWF	28.81743	-88.63998	Y	No	No	N	Y
Directed Capture	28.62361	-88.54351	Y	No	No	N	Y
Directed Capture	28.60264	-88.49568	Y	No	No	N	Y
Directed Capture	28.59733	-88.49236	Y	No	No	N	Y
Directed Capture	28.59501	-88.49054	Y	No	No	N	Y
Directed Capture	28.57604	-88.49573	Y	No	No	N	Y
Directed Capture	28.57271	-88.49434	Y	No	No	N	Y
Directed Capture	28.56876	-88.49416	Y	No	No	N	Y
Directed Capture	28.52956	-88.51617	Y	No	No	N	Y
Directed Capture	28.50794	-88.54434	Y	No	No	N	Y
Directed Capture	28.53647	-88.60338	Y	No	No	N	Y
Directed Capture	28.69822	-88.79404	Y	No	No	N	Y
Directed Capture	28.90896	-88.72726	Y	No	No	N	Y
Directed Capture	28.6881	-88.84448	Y	No	No	N	Y
Directed Capture	28.67472	-88.88646	Y	No	No	N	Y

Directed Capture	28.68382	-88.88902	Y	No	No	N	Y
Directed Capture	28.8945	-88.72223	Y	No	No	N	Y
Directed Capture	28.6575	-88.87042	Y	No	No	N	Y
Directed Capture	28.65178	-88.86879	Y	No	No	N	Y
Directed Capture	28.6833	-88.64572	Y	No	No	N	Y
Directed Capture	28.74405	-88.2535	Y	No	No	N	Y
Directed Capture	28.7637	-88.23549	Y	No	No	N	Y
Directed Capture	28.7666	-88.23471	Y	No	No	N	Y
Directed Capture	28.78214	-88.23679	Y	No	No	N	Y
Directed Capture	28.87021	-88.50445	Y	No	No	N	Y
Directed Capture - LDWF	28.67327	-88.29708	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.71517	-89.80517	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.714	-89.806	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.714	-89.806	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.709	-89.80267	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.70783	-89.80433	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.70783	-89.80433	Y	No	No	N	Y
Directed Capture - LDWF, floating ~50 miles offshore	28.62647	-90.18168	N	No	No	N	N
Directed Capture - LDWF, floating ~35 miles offshore	28.78182	-89.7506	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.77712	-89.74897	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.77405	-89.74953	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.76734	-89.747	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.76683	-89.7453	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.76467	-89.74487	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.76212	-89.74383	Y	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.75873	-89.74536	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.75897	-89.74525	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.7489	-89.75946	Y	No	No	N	Y
Directed Capture	28.34139	-88.72183	Y	No	No	N	Y
Directed Capture	28.92028	-88.40833	Y	No	No	N	Y
Directed Capture	28.98478	-88.35519	Y	No	No	N	Y
Directed Capture	29.02858	-88.30956	Y	No	No	N	Y
Directed Capture	28.95217	-88.37383	Y	No	No	N	Y
Directed Capture	29.00767	-88.90133	Y	No	No	N	Y

Directed Capture	29.00914	-88.88017	Y	No	No	N	Y
Directed Capture	29.05264	-88.79911	Y	No	No	N	Y
Directed Capture	29.13067	-88.76469	Y	No	No	N	Y
Directed Capture	28.97922	-89.06208	Y	No	No	N	Y
Directed Capture	28.98544	-89.05781	Y	No	No	N	Y
Directed Capture	28.98914	-89.05772	Y	No	No	N	Y
Directed Capture	28.99314	-89.05647	Y	No	No	N	Y
Directed Capture	28.99411	-89.05583	Y	No	No	N	Y
Directed Capture	28.99439	-89.05569	Y	No	No	N	Y
Directed Capture	29.01933	-88.94467	Y	No	No	N	Y
Directed Capture	28.83391	-89.70232	N	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.77967	-86.6597	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.76232	-86.64677	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.78245	-86.66177	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.79148	-86.66885	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.79648	-86.67315	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.79063	-86.68507	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.79198	-86.6845	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.76888	-86.71662	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.76633	-86.69712	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.78413	-86.6638	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.74103	-86.68613	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.798	-86.65583	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.8186	-86.64862	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.82193	-86.64973	Y	No	No	N	Y
Directed Capture - LDWF, approx 50 mi S of Grand Isl	28.60669	-89.81942	Y	No	No	N	Y
Directed Capture - LDWF, approx 50 mi S of Grand Isl	28.60237	-89.80797	Y	No	No	N	Y
Directed Capture - LDWF, approx 50 mi S of Grand Isl	28.5988	-89.82002	Y	No	No	N	Y
Directed Capture - LDWF, approx 50 mi S of Grand Isl	28.60407	-89.86728	Y	No	No	N	Y
Directed Capture - LDWF, approx 50 mi S of Grand Isl	28.62131	-89.91562	Y	No	No	N	Y
Directed Capture - BirdTeam - location? Off of LA	28.7	-89	Y	Yes	No	N	Y
Directed Capture - LDWF - location? Off of LA	28.73	-88.97	N	Yes	No	N	Y
Directed Capture, off of Destin, FL	30	-86.5	Y	Yes	No	N	Y
Directed Capture, off of Venice, LA	28.45497	-89.56168	Y	No	No	N	Y

Directed Capture, off of Venice, LA	28.45473	-89.54215	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.46103	-89.50808	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.4621	-89.50258	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.46322	-89.50012	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.45018	-89.47792	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.64048	-89.28675	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.62377	-89.3015	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.66903	-89.20977	Y	No	No	N	Y
Directed Capture, off of Destin, FL	30.05	-86.46	Y	Yes	No	N	Y
Directed Capture, off of Destin, FL	30	-86.5	Y	Yes	No	N	Y
Directed Capture, off of Destin, FL	29.95	-86.54	Y	Yes	No	N	Y
Directed Capture, off of Destin, FL	29.9	-86.58	Y	Yes	No	N	Y
Directed Capture, off of Venice, LA	28.9	-88.8	Y	Yes	No	N	Y
Tyndall AFB	30.05625	-85.60641	N	No	Yes	Y	N
Ship Island, ~1 mile east of pier	30.21271	-88.95624	N	No	Yes	Y	N

Symbol	Confirmed	Log #	Comments	Date Released
C	Y		outside of area of concern	
C	Y		outside of area of concern	
C	Y		outside of area of concern	
C	Y		outside of area of concern	
C	Y		outside of area of concern	
C	Y		outside of area of concern	
C	Y		outside of area of concern	
C	Y		outside of area of concern	
C	Y	D-0002 BSNWR		
C	Y	D-0001 BSNWR		
C	Y	D-0003 BSNWR		
C	Y	D-0004 BSNWR		
C	Y	D-0005 BSNWR		
C	Y	D-0006 BSNWR		
C	Y	D-0007 BSNWR		
C	Y	D-0008 BSNWR		
C	Y	D-0009 BSNWR		
C	Y	D-0010 BSNWR		
C	Y	D-0015 BSNWR		
C	Y	D-0014 BSNWR		
C	Y	D-0011 BSNWR		
C	Y	D-0012 BSNWR		
C	Y	D-0013 BSNWR		
C	Y	D-0016 BSNWR		
C	Y	D-0017 BSNWR	dried carcass	
C	Y	D-0018 BSNWR		
C	Y	D-0019 BSNWR		
C	Y	D-0020 BSNWR		
C	Y	D-0021 BSNWR		
C	Y	D-0023 BSNWR		
C	Y	D-0022 BSNWR		
C	Y	L-0001 BSNWR		
C	Y	D-0024 BSNWR		

C	Y	D-0025 BSNWR	
C	Y	D-0026 BSNWR	
C	Y	D-0027 BSNWR	
C	Y	L-0007 IMMS	emaciated; taken to IMMS for rehab; died 5/25, shipped to UF for necropsy
C	Y	D-0028 BSNWR	
C	Y	D-0029 BSNWR	
C	Y	D-0030 BSNWR	
C	Y	D-0031 BSNWR	
U	N		
U	N		
U	N		
U	N		
U	N		
U	N		
U	N		
U	N		
U	N		
C	Y	L-0012 IMMS	found floating next to boom; externally oiled turtle; taken to IMMS for rehab
U	N		
C	Y	L-0013 IMMS	externally oiled turtle; taken to IMMS for rehab
U	N		
U	N		too decomposed for necropsy
U	N		
U	N		
U	N		
C	Y		parts only - head, guts and 1 flipper
C	Y		
C	Y		
U	N		
U	N		
C	Y		
C	Y		
C	Y		
C	Y		

C	Y	
C	Y	
U	N	
U	N	
U	N	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	only back flippers and a bit of carapace
C	Y	
U	N	
C	Y	
C	Y	
C	Y	
C	Y	older damage to carapace, scrape on head and possible constriction to LRF
C	Y	
C	Y	
C	Y	
C	Y	very emaciated, missing part of RRF
C	Y	very emaciated; taken to Gulf World, died soon after recovery
C	Y	no head, flippers or internal organs
C	Y	brown algae on carapace; some small barnacles on skin; adult female
C	Y	prop damage to right side of carapace
C	Y	no wounds; barnacles and algae on carapace; adult male
C	Y	missing notch from right side carapace; barnacle and algae growth
C	Y	barnacles on carapace and flippers; taken to Gulf World, died same day
C	Y	apparent piece of metal in ventral LFF near insertion
C	Y	dried carcass; little skin remaining, bones visible
C	Y	no head or front flippers, shark bites
C	Y	missing both front flippers and lrf
C	Y	carapace completely covered w/barnacles and algae; adult female
C	Y	emaciated, lots of barnacles, damage to base of front flippers and neck
C	Y	

C	Y	
C	Y	in pieces, decomposed
C	Y	carapace broken, pieces missing
C	Y	skin and scutes peeling
C	Y	numerous barnacles and light algae on carapace; taken to Gulfarium
C	Y	old wound to posterior marginals; scutes peeling
C	Y	posterior carapace gone; plastron missing; falling apart, nasty
U	N	
C	Y	apparent skeg/prop damage to center carapace
C	Y	caught on hook and line, hook in throat; taken to Gulfarium
C	Y	prop wounds to right posterior carapace; heavy barnacles,small barnacles on skin
C	Y	2 apparent prop wounds across carapace
C	Y	skin and scutes peeling, very decomposed
C	Y	fishing line entangled around neck
C	Y	no head or flippers; damage to carapace - likely prop
C	Y	missing skull; carapace bones disarticulating due to decomp
C	Y	missing head and LFF, possible shark bites; gashes on plastron
U	N	
C	Y	carapace bones disarticulating due to decomp
C	Y	dried carcass; carapace broken across posterior; portions missing
U	N	caught on hook and line, hook removed and turtle released
U	N	
U	N	
U	N	
U	N	
U	N	caught by relocation trawler; ~50% coverage of thin oil sheen, also sheen in mouth
U	N	
U	N	
U	N	in pieces due to decomp, unable to salvage
U	N	
U	N	caught by relocation trawler; observer thought oiled, Gulfarium said algae
C	Y	
U	N	
U	N	

C	Y	wound/damage to throat area
C	Y	
C	Y	
U	N	
U	N	caught by relocation trawler; Gulfarium said not oiled
U	N	
C	Y	
U	N	
C	Y	
U	N	adult female, died on nesting beach, apparent shark bites around tail area
U	N	unable to dive, covered with algae
C	Y	
C	Y	
C	Y	
C	Y	
U	N	
C	Y	
C	Y	
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C	Y	
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C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	parts only
C	Y	

C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
U	N	
U	N	
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	taken to AOA for rehab
C	Y	
C	Y	
C	Y	
C	Y	swab sample taken
C	Y	swab sample taken
U	N	
C	Y	taken to AOA for rehab
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
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U	N	
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U	N	
C	Y	

U	N	
U	N	
U	N	
C	Y	
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U	N	partial carcass, pieces only
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U	N		
C	Y		
C	Y		Severely decomposed, on beach
C	Y		Severely decomposed, on beach
C	Y		
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C	Y		
U	N		
U	N		
C	Y		
C	Y		
U	N		
C	Y	D-0029 IMMS	
C	Y	D-0030 IMMS	
C	Y	D-0031 IMMS	
C	Y	D-0032 IMMS	
C	Y	D-0033 IMMS	
C	Y	L-0001 IMMS	taken to IMMS, died in rehab, frozen for necropsy
C	Y	D-0001 IMMS	
C	Y	D-0002 IMMS	
C	Y	D-0003 IMMS	
C	Y	D-0004 IMMS	
C	Y	D-0005 IMMS	
C	Y	D-0006 IMMS	
C	Y	D-0034 IMMS	
C	Y	D-0007 IMMS	
C	Y	D-0008 IMMS	
C	Y	D-0009 IMMS	
C	Y	D-0010 IMMS	
C	Y	D-0011 IMMS	

C	Y	D-0012 IMMS	
C	Y	D-0013 IMMS	
C	Y	D-0014 IMMS	
C	Y	D-0015 IMMS	
C	Y	D-0016 IMMS	
C	Y	D-0017 IMMS	
C	Y	D-0018 IMMS	
C	Y	D-0019 IMMS	
C	Y	D-0020 IMMS	
C	Y	D-0021 IMMS	
C	Y	D-0022 IMMS	
C	Y	D-0023 IMMS	
C	Y	D-0024 IMMS	
C	Y	D-0025 IMMS	
C	Y	D-0026 IMMS	
C	Y	D-0027 IMMS	
C	Y	D-0028 IMMS	
C	Y	D-0035 IMMS	
C	Y	D-0036 IMMS	
C	Y	D-0037 IMMS	
C	Y	D-0038 IMMS	
C	Y	D-0039 IMMS	
C	Y	D-0040 IMMS	
C	Y	D-0041 IMMS	
C	Y	D-0042 IMMS	
C	Y	D-0043 IMMS	
C	Y	D-0044 IMMS	
C	Y	D-0045 IMMS	
C	Y	D-0046 IMMS	
C	Y	D-0047 IMMS	carcass in two pieces
C	Y	D-0048 IMMS	
C	Y	D-0049 IMMS	
C	Y	D-0050 IMMS	
C	Y	D-0051 IMMS	

C	Y	D-0052 IMMS		
C	Y	D-0053 IMMS		
C	Y	D-0054 IMMS		
C	Y	D-0055 IMMS		
C	Y	D-0056 IMMS		
C	Y	D-0057 IMMS		
C	Y	D-0058 IMMS		
C	Y	D-0063 IMMS	Decapitated, missing portions of flippers due to decomp; first reported on 5/8	
C	Y	D-0059 IMMS		
C	Y	D-0060 IMMS		
C	Y	D-0061 IMMS		
C	Y	D-0062 IMMS		
C	Y	D-0064 IMMS		
C	Y	D-0065 IMMS		
C	Y	D-0066 IMMS		
C	Y	D-0067 IMMS		
C	Y	D-0068 IMMS		
C	Y	D-0069 IMMS		
C	Y	D-0070 IMMS		
C	Y	D-0071 IMMS		
C	Y	D-0072 IMMS		
C	Y	D-0085 IMMS	field necropsy on beach; damaged LFF, carapace covered in barnacles; first rep 5/13	
C	Y	D-0073 IMMS		
C	Y	D-0074 IMMS		
C	Y	L-0002 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Mote Marine Lab 5/30/10	
C	Y	D-0075 IMMS		
C	Y	D-0076 IMMS	carapace cracked/broken	
C	Y	L-0003 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Clearwat	7/8/2010
C	Y	L-0004 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Clearwat	7/8/2010
C	Y	D-0086 IMMS	"chopped up", likely prop wounds to carapace	
C	Y	D-0077 IMMS	red slimy substance covering carapace	
C	Y	D-0087 IMMS	skeletal remains	
C	Y	D-0088 IMMS	skeletal remains	
C	Y	D-0078 IMMS		

C	Y	D-0089 IMMS		
C	Y	D-0090 IMMS	floating, picked up by NPS	
C	Y	L-0005 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Mote Ma	6/3/2010
C	Y	D-0079 IMMS	carapace only	
C	Y	D-0080 IMMS	carapace only	
C	Y	D-0091 IMMS	sample taken and logged, carcass painted and left on beach	
C	Y	D-0081 IMMS		
C	Y	D-0082 IMMS		
C	Y	L-0006 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Mote Ma	6/3/2010
C	Y	D-0083 IMMS		
C	Y	D-0092 IMMS	possible loggerhead, unsure of species ID	
C	Y	D-0093 IMMS		
C	Y	D-0094 IMMS	carcass in plastic bag before oil swab taken	
C	Y	D-0084 IMMS	rear portion of carcass missing	
C	Y	L-0008 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Disney 6/25/10	
C	Y	L-0009 IMMS	incidentally captured on hook and line; taken to IMMS for rehab	
C	Y	L-0010 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Disney 6/25/10	
C	Y	D-0095 IMMS	carcass in plastic bag before oil swab taken; severe prop damage	
C	Y	L-0011 IMMS	incidentally captured on hook and line; taken to IMMS for rehab	
C	Y	D-0161 IMMS		
C	Y	D-0096 IMMS	mangled caudal half of carcass	
C	Y	D-0097 IMMS		
C	Y	D-0098 IMMS		
C	Y	D-0099 IMMS	old injury to edge of carapace	
C	Y	D-0162 IMMS		
C	Y	D-0100 IMMS		
C	Y	D-0101 IMMS		
C	Y	D-0102 IMMS		
C	Y	D-0103 IMMS		
C	Y	D-0104 IMMS		
C	Y	D-0105 IMMS	scrapes along plastron	
C	Y	D-0106 IMMS	missing right edge of carapace, advanced decomp	
C	Y	D-0107 IMMS		
C	Y	D-0108 IMMS	extra costal scute on L side	

C	Y	D-0109 IMMS	edges of marginal scutes broken, postmortem	
C	Y	D-0110 IMMS	extra vertebral scute	
C	Y	D-0163 IMMS		
C	Y	D-0112 IMMS		
C	Y	D-0111 IMMS		
C	Y	D-0113 IMMS		
C	Y	D-0114 IMMS		
C	Y	D-0118 IMMS	severely mangled, no accurate meas possible	
C	Y	D-0119 IMMS	black substance in mouth	
C	Y	D-0115 IMMS		
C	Y	D-0116 IMMS		
C	Y	D-0117 IMMS		
C	Y	D-0120 IMMS		
C	Y	D-0121 IMMS		
C	Y	D-0122 IMMS		
C	Y	D-0123 IMMS		
C	Y	D-0124 IMMS		
C	Y	D-0125 IMMS		
C	Y	D-0126 IMMS		
C	Y	D-0127 IMMS		
C	Y	D-0128 IMMS		
C	Y	D-0129 IMMS		
C	Y	D-0130 IMMS		
C	Y	D-0164 IMMS		
C	Y	D-0165 IMMS		
C	Y	D-0166 IMMS		
C	Y	D-0167 IMMS		
C	Y	D-0168 IMMS		
C	Y	D-0169 IMMS		
C	Y	D-0131 IMMS		
C	Y	D-0132 IMMS		
C	Y	L-0015 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl	7/8/2010
C	Y	L-0014 IMMS	washed ashore alive	
C	Y	D-0133 IMMS		

C	Y	D-0134 IMMS		
C	Y	D-0135 IMMS		
C	Y	D-0136 IMMS		
C	Y	D-0137 IMMS		
C	Y	D-0138 IMMS		
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C	Y	D-0140 IMMS		
C	Y	D-0141 IMMS		
C	Y	D-0142 IMMS		
C	Y	D-0143 IMMS		
C	Y	D-0144 IMMS		
C	Y	D-0145 IMMS		
C	Y	D-0146 IMMS		
C	Y	D-0147 IMMS		
C	Y	D-0155 IMMS		
C	Y	D-0148 IMMS		
C	Y	D-0149 IMMS		
C	Y	D-0150 IMMS		
C	Y	D-0151 IMMS		
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C	Y	D-0153 IMMS		
C	Y	D-0154 IMMS		
C	Y	D-0172 IMMS		
C	Y	L-0016 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl	7/8/2010
C	Y	D-0156 IMMS		
C	Y	D-0157 IMMS		
C	Y	D-0158 IMMS		
C	Y	D-0159 IMMS		
C	Y	D-0170 IMMS		
C	Y	L-0017 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea World	6/25/10
C	Y	L-0018 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea World	6/25/10
C	Y	L-0019 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea World	6/25/10
C	Y	L-0020 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl	7/8/2010
C	Y	D-0160 IMMS		

C	Y	D-0171 IMMS		
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C	Y	L-0021 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea World 6/25/10	
C	Y	L-0022 IMMS	incidentally captured on hook and line; taken to IMMS for rehab	
C	Y	L-0023 IMMS	incidentally captured on hook and line; taken to IMMS for rehab	
C	Y			
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C	Y	L-0024 IMMS	found floating in Ocean Springs Harbor	
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C	Y	L-0025 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl	7/8/2010
C	Y	L-0026 IMMS	incidentally captured on hook and line; taken to IMMS for rehab	
C	Y	L-0027 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl	7/8/2010
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C	Y	incidentally captured on hook and line; taken to IMMS for rehab, hook ingested
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C	Y	only RRF present, head missing, most internal organs gone
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U	N
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U	N
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U	N
N	Y
N	Y

Tag Numbers	PIT Tag Number	Release Lat	Release Long	Release Location

YYX735 / YYX734	483C0E4C20	Ten Thousand Islands, FL
YYX737 / YYX736	4856313F37	Ten Thousand Islands, FL

Date	Stranding Referen	Species	ReportType	Condition	Disposition	Status
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Comatose	Rehab	Rehab-IMMS
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Lepidochelys kem	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Lepidochelys kem	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Dead	Salvaged	IMMS-GV
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100710	Caretta caretta	Trawl Capture	Alive	Released	
########	20100711	Caretta caretta	Trawl Capture	Alive	Released	

########	20100711	Caretta caretta	Trawl Capture	Alive	Released
########	20100711	Caretta caretta	Trawl Capture	Alive	Released
########	20100711	Caretta caretta	Trawl Capture	Alive	Released
########	20100711	Caretta caretta	Trawl Capture	Alive	Released
########	20100711	Caretta caretta	Trawl Capture	Alive	Released
########	20100711	Caretta caretta	Trawl Capture	Alive	Released
########	20100711	Caretta caretta	Trawl Capture	Alive	Released
########	20100711	Caretta caretta	Trawl Capture	Alive	Released
########	20100711	Caretta caretta	Trawl Capture	Alive	Released
########	20100711	Caretta caretta	Trawl Capture	Alive	Released
########	20100712	Caretta caretta	Trawl Capture	Alive	Released
########	20100712	Caretta caretta	Trawl Capture	Alive	Released
########	20100712	Caretta caretta	Trawl Capture	Alive	Released
########	20100712	Caretta caretta	Trawl Capture	Alive	Released
########	20100712	Caretta caretta	Trawl Capture	Alive	Released
########	20100712	Caretta caretta	Trawl Capture	Alive	Released

State	Descriptive Location	Latitude	Longitude	External oil?	TempLocation	Stranding
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
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off of Chandeleur Islands	N	Yes	No

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Release Latitude	Release Longitude	Flipper Tag Numbers	FT Applied or Recap?	PIT Tag Number

PT Applied or Recap?

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From: Sheryan Epperly [Sheryan.Epperly@noaa.gov]

Sent: Thursday, July 15, 2010 12:50 PM

To: Aleta Hohn; Larisa Avens; Joanne B Mcneill; Chris Sasso; Wendy Teas; Lisa Belskis; Lesley Stokes; Paul Richards; Kate L. Mansfield; John Mitchell; Karen Mitchell; Terry Henwood; Roger Zimmerman; Ben Higgins; James M Nance; Jim Bohnsack

Subject: Fwd: NRC Sea Turtle sponsor briefing]

Attachments: Sea Turtles prepub.pdf; Sea-Turtles-Report-Brief-Final.pdf

-------- Original Message --------
Subject:NRC Sea Turtle sponsor briefing]
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Apologies to those I missed. Please forward as appropriate
Thanks
Beth

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REPORT IN BRIEF

Assessment of Sea Turtle Status and Trends

Integrating Demography and Abundance

All six species of sea turtles found in U.S. waters are listed as endangered or threatened, but the exact population sizes of these species are unknown due to a lack of key information regarding birth and survival rates. The U.S. Endangered Species Act prohibits the hunting of sea turtles and reduces incidental losses from activities such as shrimp trawling and development on beaches used for nesting. However, current monitoring does not provide enough information on sea turtle populations to evaluate the effectiveness of these protective measures. This National Research Council report reviews current methods for assessing sea turtle populations and finds that although counts of sea turtles are essential, more detailed information on sea turtle biology, such as survival rates and breeding patterns, is needed to predict and understand changes in populations in order to develop successful management and conservation plans.

Sea turtles are vulnerable to the perils of ocean life. With long lifetimes and wide-ranging migration patterns, sea turtles are exposed to many sources of danger both in coastal locations and in the open sea, including environmental accidents like oil spills, incidental capture in fishing nets, and changes in the ocean environment. Furthermore, some societies prize sea turtles and their eggs for food and for their putative therapeutic value, making sea turtles a target for hunters. Because it takes many years for sea turtles to mature and reproduce, populations are slow to recover from losses.

Hawaiian green sea turtle in the Hawaiian Islands Humpback Whale National Marine Sanctuary.
Credit: Claire Fackler, NOAA National Marine Sanctuaries

To protect dwindling sea turtle populations, regulations are in place to prohibit or limit activities that can harm the animals. Additional information on sea turtle populations is needed to assess if these measures are effective—but current monitoring methods rely in large part on counts of the adult females that return to land each year to lay their eggs on nesting beaches, information that doesn't provide an accurate picture of the whole sea turtle population. Improved population assessments are important to develop and adjust management plans for sea turtle populations.

In response to these concerns, the National Marine Fisheries Service of the National Oceanic and Atmospheric Administration requested that the National Research Council form a committee to investigate methods of improving assessments of sea turtle populations. The committee reviewed existing methods, identified gaps in information, and suggested improvements for monitoring and data collection. The committee's central finding was that, in addition to estimates of the numbers of sea turtles, more detailed information is needed on key stages of the sea turtle lifecycle, such as breeding,

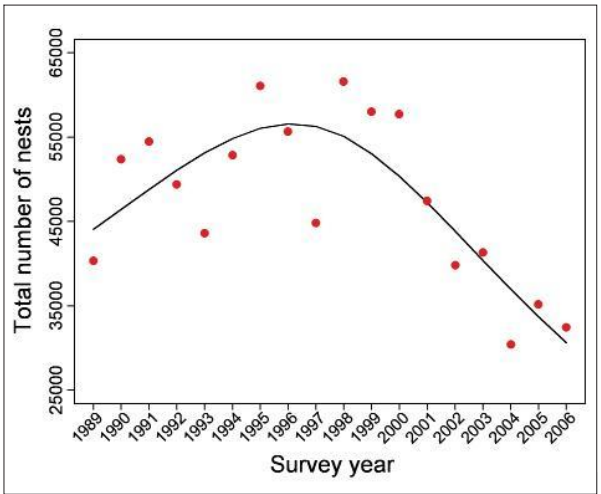


Figure 1. Numbers of loggerhead sea turtle nests on Florida beaches have declined rapidly in recent years.

Reprinted from Witherington et al., 2009, with permission from Ecological Society of America

survival, and dispersal of hatchlings from nesting beaches into the sea. These data would provide insight on the causes of declining sea turtle populations and could be used to develop management plans to limit and reverse these declines.

Gathering Information

To measure the impacts of environmental change or the success of conservation work, researchers monitor specific sea turtle populations, defined as groups of individuals of the same species whose members interbreed and experience similar conditions, resulting in common birth, mortality, and growth rates. However, keeping track of sea turtle populations is difficult. Their wide-ranging migration patterns make sea turtles virtually inaccessible to researchers for large periods of time. Furthermore, foraging activities can bring different sea turtle populations into the same area, where the intermingling of groups can prevent researchers from collecting data from just one population.

Adult female sea turtles return to the same beach to nest every two or three years, providing an opportunity to observe and collect data from a single population. Many U.S. nesting beaches have programs in place to count sea turtle nests, but the connection between the number of nests on the beach and the status of the population is weak. Counts of sea turtles at a single life-cycle stage can be misleading for diagnosing the status and trends of the whole population— adult females represent only a subset of the whole population, and not every female in the population returns to nest every year. The report's authoring committee concluded that collecting and analyzing demographic information on sea turtle population biology, such as survival and reproductive rates, provides a more accurate picture of the whole population and could help researchers draw robust conclusions from their observations. In addition, efforts should be made to monitor sea turtles at locations other than nesting beaches in the hope of collecting data on all sectors of the population (see illustration).

Data on environmental factors such as resource availability, ocean temperature, and ocean currents can help researchers interpret demographic information. Processes such as breeding or mortality are sensitive to environmental conditions; for example, the availability of food affects the age at which sea turtles begin to breed, the frequency with which females lay eggs, and the number of years between breeding seasons. An understanding of the relationship between environmental conditions and demographic information is essential to predict the population changes that could occur in response to changes in habitat or climate. Models can be used to help link population counts, demographic rates, and information on environmental factors to allow managers of sea turtle populations to identify trends and make decisions to help prevent population declines.

Improving Data Management, Coordination, and Education

The report's authoring committee suggested that the National Marine Fisheries Service and US Fish and Wildlife Service develop management plans for sea turtles based on both counts of sea turtles and demographic information. Improved data management, coordination, and education are needed to allow researchers to collect and analyze this information.

- In general, not enough accurate information on sea turtle populations is collected, even though hundreds of projects have been established throughout the United States to monitor sea turtle populations and research sea turtle biology. All too often, data collected by one organization are not accessible to other researchers because the methods for collecting and analyzing data are not standardized, or because of issues with data ownership. This

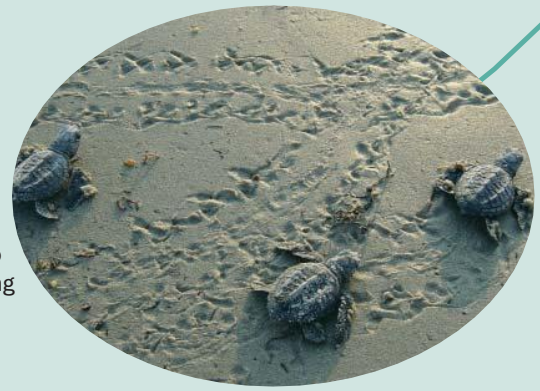
The Lifecycle of Sea Turtles

Mature female sea turtles nest every two to three years, somehow returning to the same beaches where they themselves hatched.

On the beach, female sea turtles dig nests in the sand and enter a trance-like state as they lay clutches of about 100 eggs.

Some species, such as loggerhead, green, hawksbill, and Kemp's ridley turtles, roam between the open ocean and the nearshore as juveniles. Others, such as the leatherback and olive ridley, remain in the open ocean throughout their lives. All sea turtles undergo extensive migrations in response to changes in temperature and to forage for food. Mating occurs at sea.

After covering their eggs with sand, female sea turtles head back to the ocean.



The eggs incubate for about two months before hatching. Then, the baby sea turtles make their way into the sea. With the exception of basking green turtles in Hawaii and other areas, only adult female turtles will ever return to land.

From top left: 1 Green sea turtles. Credit: Paulo Maurin. 2,3,4 Kemp's ridley turtles. Courtesy of NPS.gov. 5 Hawaiian green sea turtle. Credit: Claire Fackler, NOAA National Marine Sanctuaries.

DNA Testing

DNA testing can differentiate sea turtle populations by identifying the genetic markers unique to particular sea turtle groups. For this analysis to work, samples must be taken from sea turtles at both the breeding and nesting sites to establish the genetic characteristics of the population. Samples are then taken from sea turtles on foraging grounds or during migrations and used to distinguish among different populations in mixed groups or to trace the lineage of sea turtle populations in order to figure out how new populations are established.

lack of coordination is a major impediment to the management and conservation of sea turtles. Plans should be developed for the collection and analysis of data to address data gaps, with the input of sea turtle biologists and other experts who collect, analyze, and use the data. An online database also should be established to store and allow easy access to the information.

- Partnerships between the National Marine Fisheries Service, which manages sea turtles in the water, the U.S. Fish and Wildlife Service, which is responsible for sea turtles when on land, and other government agencies, universities, research institutions are needed to improve coordination between researchers and encourage data sharing.
- Because sea turtles are endangered, permits are required to carry out research on the species; however, most sea turtle researchers agree that the permitting process is a greater obstacle to research than is necessary to protect sea turtles and can delay or hamper innovative research projects. The report's authoring committee recommended that methods be developed to expedite the permitting process while meeting legislative requirements and intent.
- Accurate assessments of sea turtle populations and statistical analyses of population dynamics require extensive knowledge of topics such as statistics, modeling, study design and data analysis. To provide this information to managers of sea turtle populations, one strategy would be to recruit statisticians and modeling specialists from fields outside of conservation biology. Longer-term solutions include launching interdisciplinary training of fisheries and conservation professionals. Training would include population and ecosystem ecology, statistics, modeling, and also economics, policy, and decision analysis to provide insight into how the conservation of natural resources can be achieved.

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The National Academies appointed the above committee of experts to address the specific task requested by the National Marine Fisheries Service of the National Oceanic and Atmospheric Administration. The members volunteered their time for this activity; their report is peer-reviewed and the final product signed off by both the committee members and the National Academies. This report brief was prepared by the National Research Council based on the committee's report.

For more information, contact the Ocean Studies Board at (202) 334-2714 or visit http://nationalacademies.org/osb. Copies of *Assessment of Sea Turtle Status and Trends: Integrating Demography and Abundance* are available from the National Academies Press, 500 Fifth Street, NW, Washington, D.C. 20001; (800) 624-6242; www.nap.edu.

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Assessment of Sea-Turtle Status and Trends: Integrating Demography and Abundance

NATIONAL RESEARCH COUNCIL
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Assessment of Sea-Turtle Status and Trends: Integrating Demography and Abundance

Committee on the Review of Sea Turtle Population Assessment Methods

Ocean Studies Board

Division on Earth and Life Studies

NATIONAL RESEARCH COUNCIL
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This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the NRC's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their participation in their review of this report:

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Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the findings or recommendations nor did they see the final draft of the report before its release. The review of this report was overseen by **John J. Magnuson**, University of Wisconsin, appointed by the Divison on Earth and Life Studies, and **Robert T. Paine**, University of Washington, appointed by the Report Review Committee, who were responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring committee and the institution.

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Summary

INTRODUCTION AND BACKGROUND

Long lifespans and wide-ranging migrations make the seven species of sea turtles difficult to monitor. They are susceptible to many sources of mortality, including direct and incidental "takes" (basically any potential impact on a turtle or its behavior [50 CFR 17.3]) from coastal and oceanic human activities worldwide. All six of the species that occur in U.S. waters[1] (loggerhead [*Caretta caretta*], green [*Chelonia mydas*], hawksbill [*Eretmochelys imbricata*], Kemp's ridley [*Lepidochelys kempii*], olive ridley [*Lepidochelys olivacea*], and leatherback [*Dermochelys coriacea*]) are listed as endangered or threatened under the Endangered Species Act, thereby prohibiting their direct harvest, although incidental take is permitted under some circumstances. (The seventh sea-turtle species is the flatback (*Natator depressus*), which is only found in the waters around Australia, Papua New Guinea, and Indonesia.) Accurate assessments are necessary to evaluate the status and trends of populations and the impacts of incidental takes and to assess the value of implemented protections on specific populations.

Sea turtles migrate across whole ocean basins; therefore population assessments require an international context. Activities throughout the world's oceans, including development on nesting beaches, killing of turtles for food, and incidental capture in commercial and subsistence fisheries contribute to sea-turtle declines and affect populations found in U.S. waters. Data needed for accurate assessments for most populations are not available, prohibiting diagnostic evaluation that can benefit management. In light of this problem, the National Marine Fisheries Service (NMFS) of the National Oceanic and Atmospheric Administration requested advice from the National Research Council's (NRC) Ocean Studies Board on methods for improving sea-turtle population assessments. See Box S.1 for the committee's full statement of task.

Box S.1
Statement of Task

This study will review recent assessments on the status and trends of sea-turtle populations that occur in U.S. waters during all or a portion of their life cycle. The study will evaluate the state of the science and research in terms of population assessment capabilities and data required to improve assessments. The study will review the utility of existing research programs that provide information for assessing and managing sea-turtle populations in the context of current recovery plans. The report will include a discussion of current methods used to assess the status of sea-turtle populations and to estimate known mortality. Recommendations will focus on the research, monitoring, and data needed to improve sea-turtle population assessments in the short- and long-term, such as genetic analyses, telemetry, and mark-recapture studies, taking into account the effectiveness, cost, and timeliness of various data collection methods. The committee will also recommend improvements to existing models, highlight limitations in current methods, identify potential new avenues for modeling, and suggest methods for making sea-turtle population data available for incorporation into a wide range of models and meta-analytical studies.

[1] U.S. waters not only refers to waters around U.S. states but also waters around U.S. territories, such as American Samoa, Puerto Rico, Northern Mariana Island, Guam, the U.S. Virgin Islands, and Palmyra Atoll.

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In response, the NRC appointed a committee of experts. This committee held two public meetings during which they received briefings from NMFS, the U.S. Fish and Wildlife Service (USFWS), and a number of other experts in sea-turtle biology and population assessments. In addition, the committee reviewed the available literature, met in closed sessions, and participated in several conference calls to complete work on the report. This report is intended to help both NMFS and USFWS improve population assessments of sea turtles since NMFS is responsible for the management of sea turtles in the water, and USFWS is responsible for sea turtles when on land.

The committee was asked to evaluate current and emerging population assessment techniques being applied to provide advice to managers of sea turtles in the United States. Unlike the 1990 NRC report (*Decline of the Sea Turtles: Causes and Preventions*), the charge to this committee was not to review the wide range of threats and management actions related to sea turtles in the United States. Following a discussion with the agency representatives, it was agreed that this report would focus on the steps necessary to improve the assessments required for federal sea-turtle monitoring and management. This report describes a variety of assessment types and techniques, including beach samples, in-water surveys, genetic analyses, demographic[2] analyses, bycatch (incidental take) information, and aerial surveys; reviews assessment methods; identifies information gaps; and suggests improvements for data collection. The fundamental theme underlying this report is that abundance assessment is essential, but abundance information alone is insufficient to understand the causes underlying trends in sea-turtle populations or to predict future trends. In addition to reliable abundance estimates, it is necessary to understand key demographics. To date, sufficiently complete demographic information has not been used in population assessments of sea turtles in the United States, in large part because the information has not been available.

The committee felt it was beyond its charge to discuss major stresses on sea-turtle populations, such as interactions with fisheries, and the potential effects of environmental conditions or external stresses; to detail environmental conditions or regime changes; and to assess the costs of its recommendations. Additionally, this report does not review specific assessments comprehensively, except as illustrative examples of methods and data gaps but does provide a summary of methods used. The committee was not asked to conduct its own assessments of sea-turtle populations but was asked to evaluate the methods used to assess sea-turtle status and trends. This critical distinction was confirmed with NMFS by project staff. As a result, this report does not provide information on the status of sea-turtle populations. The committee recognizes the importance of taking an ecosystem approach to managing sea-turtle populations, but this report focuses on population assessments for a single species. Before agencies can undertake ecosystem-based approaches to assessments of sea-turtle populations, substantial information at the single-population or single-species level is needed, as described in this report.

Based on its review of the methods employed in assessments (see Table 1.2), the committee concludes that most of the modeling and analysis that has been done is a valiant effort to compensate for a debilitating lack of data. The assessment methods that have worked in fishery biology are less successful for turtles because the data generally are not as complete as they are for many commercial fish species. At present, filling the large gaps in the available data

[2] Demographic or vital-rate parameters, such as birth and survival rates, indicate the potential for changes in a population.

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has far greater promise for improving sea-turtle assessments than refinement of analytical methods. The committee therefore decided that the greatest focus needs to be on the data problem, for both the committee's report and the future activities of the agencies. Developing a rigorous process for assessment of sea-turtle populations is a high priority, but assessments can be more profitably reviewed and refined after better data become available along with a transparent framework for scientific review.

ASPECTS OF SEA-TURTLE ASSESSMENTS

Units of Assessment

Understanding the units of assessment in sea turtles requires clarity in the definition of nesting populations. Females show affinity for specific nesting sites, potentially causing sub-populations to be vulnerable to extinction. Males breed with females that can have various nesting-site affinities and thus provide male-mediated gene flow among these sub-populations. Because male gene contribution may occur at a larger geographic scale, that scale defines the geographic upper limits to the nesting populations.

The natural history of sea turtles includes several phases that are difficult to observe directly. In particular, the prolonged generation time and oceanic habitat of juveniles are a major obstacle to studies of immature stages. For these reasons, the genetic identification of populations takes heightened significance, as the alternative methods (usually tagging) can be logistically and financially daunting. The details of sea-turtle life history and population structure complicate the definitions of assessment units and management units. Chapter 2 of this report reviews the current genetic methods for resolving units of assessment for sea-turtle populations (units for evaluation of status and trends) and their applications in resolving management units and strategies (units for regulation and policy that may be based on geographic location). The major challenges associated with the complex population structure of sea turtles are still being resolved, and therefore the genetic issues addressed in this report are at the forefront of conservation genetics.

A Conceptual Model of Sea-Turtle Life History

A conceptual model linking population abundance with the key demographic processes in a single coherent framework is needed because species with a long lifespan are subject to influences beyond population changes (e.g., climate, level of exploitation, type of fishing effort). The environment could change, but the population effects (absent demographic information) would not be seen for a very long time if only abundance of nesting turtles is monitored. That is, the environment could become lethal to sea turtles, but the abundance data would still show no population decline, making it difficult to interpret abundance changes and estimate population parameters accurately.

A conceptual model of loggerhead sea-turtle abundance and demography is described in Chapter 3. This conceptual model provides a simple but effective graphical device to capture in a coherent and integrated framework the key demographic processes and anthropogenic hazards facing a sea-turtle population. This causal-loop model not only helps to identify knowledge gaps but also provides a blueprint for simulation models of sea-turtle population dynamics and for the

development of population-assessment models and risk-analysis tools. It is provided as an example of what could be developed for U.S. sea-turtle populations.

Measuring Sea-Turtle Populations at Nesting Beaches and in the Water

Population sampling at nesting beaches is a valuable source of information; however authors generally do not provide detailed justifications for their data-collection techniques. Techniques to measure abundance and other demographic characters of sea turtles on nesting beaches and in the water both vary widely in the type of sampling, what is counted, the methods by which counts are made, and how the data are used for estimates. These techniques vary depending upon species-specific or life-stage-specific behaviors, water depth and clarity, currents and sea state, accessibility of habitat, personnel and equipment availability, and funding. Some of these efforts use standardized methods to ensure that current datasets are compatible with older ones.

Few individual research projects are designed to collect population-wide demographic information. Most are focused on local groups of turtles and on the collection of information applied to local management issues. Other research projects collect demographic information from turtles observed or captured incidentally due to other activities, such as fisheries and power-plant operations. Thus, the location, timing, and nature of these research projects are determined by the operations that provide access to sea turtles. Variations between in-water projects notwithstanding, U.S. waters currently have a broadly distributed array of ongoing research targeting sea turtles. Chapter 4 provides a review of methods of sampling sea turtles on land and at sea and provides recommendations concerning the conditions under which they are best used and the further development of techniques.

Demographic Rates and Integrating Demographic and Abundance Estimates

Just as abundance estimates alone are not sufficient to predict or diagnose causes of population trends without estimating demographic parameters, estimates of demographic parameters without an understanding of the causes of variance and the regulating mechanisms that control these parameters are not sufficient to understand and to mitigate negative trends. Understanding the ecological context of demography—that is, the key environmental mechanisms, such as resource availability, temperature, current systems, and oceanic productivity, that influence demographic rates—is essential for an understanding of sea-turtle population status and trends. This knowledge is necessary to predict the changes in sea-turtle populations that will occur with climate change and with oceanic regime shifts that have profound effects on many critical sea-turtle habitats.

Using abundance measures for a single life-history stage can be misleading for diagnosing the status and trends of a population. Integrating abundance measures with demographic processes within a framework of modeling and data fitting provides a more robust basis for diagnosing trends, evaluating the impact of anthropogenic hazards, and defining recovery criteria. Chapters 5 and 6 review information about demography, techniques for estimating demographic parameters, some of the quantitative tools used in assessment of populations, and tools that have been applied to sea-turtle assessments to date and discuss the procedures routinely used in fisheries assessments to assure scientific rigor that could be adopted for future assessments of sea-turtle populations.

Data Management, Education, and Coordination

The fractured status and lack of coordination of sea-turtle databases are major impediments to the management and conservation of sea turtles. Throughout the United States, hundreds of projects (of varying duration) have been established to monitor sea-turtle populations or conduct research on sea-turtle biology. Projects have been conducted by federal and state agencies, universities, nongovernmental organizations, and private individuals. However, many of the data from these projects are either inaccessible or accessible only in summary formats. Consistent data collection would maximize the ability to combine and compare data among studies. Attempts have been made to standardize data-collection protocols for sea turtles, but use of standardized protocols (e.g., description of fishing gear and operational modes, which affects estimates of incidental captures and mortality; description of handling techniques and injuries to released individuals, which affect survival estimates) is limited for a number of reasons. In addition, better data archives, including the storage of tissue samples, are needed.

The committee has found broad consensus among researchers studying sea turtles that the permitting process is a greater obstacle to research than is necessary for the protection of sea turtles or for meeting the requirements under the Endangered Species Act. New research projects with innovative techniques will need to be initiated to meet the data needs outlined in this report. However, numerous examples were presented during committee meetings in which the U.S. permitting process delayed or denied research projects, particularly when innovative techniques were involved. The permitting process need not unnecessarily delay or hamper these critical studies.

THE COMMITTEE'S PRINCIPLE CONCLUSIONS AND RECOMMENDATIONS

Overarching Conclusion: Although abundance estimates are critical for assessing sea-turtle populations, demographic or vital-rate parameters are critical for understanding and predicting trends in sea-turtle populations. In addition, the committee concludes that (1) in the United States, critical vital rates have not been adequately determined; (2) the most important procedural enhancements would be improved coordination in data collection and availability, a more efficient and transparent permitting process, and increased archiving of tissue samples; and (3) sea-turtle assessments have not been isolated from broader evaluations of status and threats and have rarely included scientists from other quantitative-modeling fields.

Overarching Recommendation: NMFS and USFWS should develop a strategy for a coherent national plan for sea-turtle assessments to (a) improve the data-collection methods, data quality, and data availability and (b) develop a rigorous plan for external review of data and models used to assess population status and trends. Aspects of the plan would benefit from the focused attention of expert groups including government officials, academics, and nongovernmental organization personnel. As recommended by all expert working group documents (see Table 1.2), research should emphasize vital-rate estimation (averages and annual variance, as well as ecological or environmental mechanisms that drive vital rates) and improvement in abundance estimates. The most serious demographic data gaps to be addressed include in-water abundance, hatchling-cohort production, survival of immature turtles and nesting females, age at sexual

maturity, breeding rates, and clutch frequency[3]. More precise estimates of anthropogenic mortality are needed to evaluate impacts. All sources of data should be evaluated for quality, consistency, spatial and temporal heterogeneity and trends, and data gaps.

Detailed suggestions for improving the collection, analysis, and synthesis of data are provided at the end of each chapter of this report. Appropriate models and procedures for assessments are described in Chapter 6. Because assessments will involve different circumstances and management needs, the committee cannot recommend one standardized set of priorities for all assessments beyond its strong recommendation for a greater focus on demographic parameters. Below are specific conclusions and recommendations that elaborate on the overarching conclusion and recommendation and represent the highest-priority needs.

Conclusion: Sea-turtle population assessments in the United States are based too heavily on abundance estimates of adult females at nesting beaches. Although abundance estimates of adult females are critical, without knowledge of accompanying changes in demographic rates for all life stages, the proximate and ultimate causes of population trends cannot be determined. Selection and evaluation of the best management options depend on an understanding of the basis for the change in population abundance.

Recommendation: NMFS and USFWS should ensure that abundance estimates of life stages in addition to adult females are generated and that demographic rates are integrated with estimates of abundance in population assessments.

Conclusion: Inadequate information is available for population assessments because the data have not been collected, or if they have been collected, they have not been analyzed or made accessible in a manner that allows them to be useful.

Recommendations:

- NMFS and USFWS should develop plans for the collection and analysis of data to address data gaps. This development should include outside experts who collect, analyze, and use the data.
- NMFS and USFWS should present a comprehensive assessment plan and a data plan to sea-turtle biologists to facilitate effective data collection for this integrated approach and to obtain input from them on improvement of the plans.
- NMFS and USFWS, with other government agencies and funding sources, should support the collection and analysis of these data.
- To avoid data sources being overlooked, NMFS should create a metadatabase[4], identifying as many of the sea-turtle datasets in the United States and its territories as possible, similar to the document created for in-water projects in Florida (see Chapter 7). The online database should be updated regularly.
- NMFS and USFWS should support a program to safeguard and make accessible as many sea-turtle databases as possible, past and present. There is some urgency to undertake this task while data collectors are still available to provide essential metadata.

[3] Clutch frequency refers to the number of clutches deposited by an individual turtle in a nesting season.
[4] A metadatabase manages data that provide information about other data or are derived from other data.

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- NMFS and USFWS should partner with other government agencies, universities, and nongovernmental organizations to improve coordination among data holders. Incentives should be developed to encourage data sharing.
- NMFS and USFWS should arrange for a review of data now being collected under the auspices of, or with the support of, their agencies and evaluate the costs and benefits. For example, the sea-turtle stranding and salvage networks should be evaluated, perhaps with the assistance of the U.S. Geological Survey's National Wildlife Health Center.

Conclusion: Reviews of federal population assessments and research plans are not sufficiently rigorous and transparent.

Recommendations:

- NMFS and USFWS should develop a general framework for sea-turtle assessment procedures, including data evaluation, model review, and management strategy evaluation.
- NMFS and USFWS should ensure that all research plans generated from within federal agencies are reviewed by panels that include federal and non-federal scientists. Using reviewers with quantitative skills, such as population assessment and statistical analysis, is particularly important.

Conclusion: Unnecessary obstacles to collection and analysis of critical data exist, including inadequate quantitative training of scientists and an inadequate process for issuing research permits.

Recommendations:

- NMFS and USFWS should partner with other government agencies and universities to improve the quantitative skills of individuals involved in designing, reviewing, and implementing the projects and assessments that are generated under a comprehensive assessment plan. These will be short term (e.g., recruiting quantitatively skilled experts, improving the quantitative skills of current personnel) and long term (e.g., improving quantitative training of students).
- NMFS and USFWS should convene a working group to evaluate the permitting process for research projects and develop methods to expedite the process while meeting legislative requirements and intent. Participants should include representatives from the permitting agencies and research scientists. The review should weigh unintended consequences of permitting delays and lost research opportunities, should review the potential risks and benefits to the listed species of changing permitting requirements and procedures, and should assess the extent to which scrutiny of research permits has resulted in significant take reductions.

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Introduction

Long lifespans and wide-ranging migrations make sea turtles difficult to monitor and susceptible to many sources of mortality, including direct and incidental "takes" (basically any potential impact on a turtle or its behavior[5]) from human activities worldwide. All six of the species that occur in U.S. waters[6] (loggerhead [*Caretta caretta*], green [*Chelonia mydas*], hawksbill [*Eretmochelys imbricata*], Kemp's ridley [*Lepidochelys kempii*], olive ridley [*Lepidochelys olivacea*], and leatherback [*Dermochelys coriacea*]) are listed as endangered or threatened under the Endangered Species Act, thereby prohibiting their direct harvest. (The seventh sea-turtle species is the flatback [*Natator depressus*], which is only found in the waters around Australia, Papua New Guinea, and Indonesia.) However, permits are available for certain activities (such as shrimp fishing, dredging, and sand replenishment) that allow a specified number of incidental takes (i.e., a number of individuals that may be accidentally killed before the activity must stop). Therefore, accurate assessments are necessary to evaluate the status and trends of populations.

Regulatory decisions, such as allowing incidental takes, are best implemented with estimates of absolute population numbers, but these currently are unavailable due to the broad oceanic distribution of sea turtles and the very small proportion of each population that comes to land (nesting adult females) (Turtle Expert Working Group, 2000; 2009). Current assessment models in the United States are based on good census data for nests and nesting females, but they lack key demographic information to extrapolate those counts to total population size accurately (e.g., Turtle Expert Working Group, 2007). With a paucity of data and analysis of growth rates, annual survival, and reproductive frequency, current models used by the agencies can provide only relative or probabilistic numbers and trends under often limiting assumptions. For example, population A is larger than population B, population A is likely to decrease in the future, or population A is larger than it was five years ago (Heppell et al., 2003; Conant et al., 2009). Thus they can only demonstrate population trends for limited segments of the population or make general predictions about the effects of disturbances population persistence and recovery.

Since sea turtles migrate across whole ocean basins, population assessments require an international context. Global activities, such as development on nesting beaches, killing of turtles for food, and incidental capture in commercial fisheries, can contribute to sea-turtle declines and affect populations found in U.S. waters (e.g., Conant et al., 2009).

Management efforts appear to have slowed or reversed declines in some populations (e.g., Kemp's ridley; Turtle Expert Working Group, 2000) and Hawaiian green turtles (National Marine Fisheries Service and U.S. Fish and Wildlife Service, 2007a), but the status of many populations is still unknown or poorly understood (Table 1.1), and none have yet reached their recovery goals. According to the 2007 five-year status updates for each species (National Marine Fisheries Service and U.S. Fish and Wildlife Service, 2007a; b; c; d; e; f), there are many uncertainties in population structure, trends in productivity, and the non-breeding population for most species. However, data needed for accurate assessments for most populations still are not available, prohibiting diagnostic evaluations that can benefit management.

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[5] 50 CFR 17.3

[6] U.S. waters not only refers to waters around U.S. states but also waters around U.S. territories, such as American Samoa, Puerto Rico, Northern Mariana Island, Guam, the U.S. Virgin Islands, and Palmyra Atoll.

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Table 1.1. Current Endangered Species Act listing status and trends of sea turtles as reported in the five-year status reviews by the National Marine Fisheries Service and U.S. Fish and Wildlife Service (2007a; b; c; d; e; f). Here, the committee has listed only the reported number of increasing (↑), decreasing (↓), stable (−), or unknown (?) subpopulations or nesting aggregations that nest in the United States or U.S. territories commonly occur in U.S. waters. Trends are based on numbers of nests or nesting females (data from National Marine Fisheries Service and U.S. Fish and Wildlife Service, 2007 a; b; c; d; e; f).

Species	Geographic area	Listing status	Reported trend of subpopulations or nesting aggregations			
			↑	↓	−	?
Green turtle	Florida	Endangered	1	0	0	0
	Other Western Atlantic	Threatened	3	0	2	0
	Western Pacific	Threatened	2	0	1	1
	Central Pacific (U.S.)	Threatened	1	0	0	0
	Eastern Pacific	Endangered	1	0	1	0
	Eastern Pacific	Threatened	0	0	1	1
Hawksbill turtle[7]	U.S. Virgin Islands, Puerto Rico	Endangered	3	0	0	1
	Other Caribbean	Endangered	5	9	0	12
	Central Pacific (U.S. and holdings)	Endangered	1	2	0	1
	Central Pacific (other)	Endangered	0	3	0	1
Kemp's ridley turtle	Gulf of Mexico	Endangered	1	0	0	0
Olive ridley turtle	Eastern Pacific (Mexico)	Endangered	5	0	4	0
	Eastern Pacific	Threatened	1	2	1	8
Leatherback turtle	Florida, U.S. Virgin Islands, Puerto Rico	Endangered	3	0	0	0
	Other Caribbean Western Atlantic		5	1	4	9
	Eastern Pacific		0	5	0	0
	Western Pacific		0	2	0	4
Loggerhead turtle	U.S. Western Atlantic		1	3	1	0
	North Pacific (Japan)		3	12	0	0

There have been recommendations for improved data collection and analysis for status determination and assessment modeling in nearly every report and status review document published by the two federal agencies responsible for sea turtle management: the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). As stated in the green turtle review, "[t]he paucity of information regarding these [demographic] aspects continues to inhibit effective modeling of populations and prevents a full understanding of which

[7] Based on "recent trend" (i.e., in the past 20 years).

nesting concentrations are most at risk" (National Marine Fisheries Service and U.S. Fish and Wildlife Service, 2007a). The reports repeatedly state a need for additional information on genetic relationships among nesting populations, impacts of coastal and pelagic fisheries, identification of foraging areas, and identification of threats at foraging areas as key data needs for assessment and management. Likewise, the Turtle Expert Working Group has regularly highlighted inadequacies of their assessments for determining population size, trends (except for nesting females), maximum take levels, and evaluation of the success of various management strategies (Turtle Expert Working Group, 1998; 2000; 2007; 2009; Table 1.2). Some recent incidental take statements—required as part of an incidental take permit—have made clear how important it would be to have this information (National Marine Fisheries Service, 2005; Merrick and Haas, 2008).

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Table 1.2. Summary of reports by the Turtle Expert Working Group and other loggerhead assessments. This is not an exhaustive list; these documents are presented as examples of the methods, conclusions, and recommendations in assessment reports.

Species	Geographic area	Document reference	Year	Methods	Status Conclusion	Conclusion Quotes	Recommendations
Loggerhead	North Pacific	Bolten et al.	1996	LDM[8], PBR[9], VORTEX PVA[10], RAMAS Stage PVA[11], TURTSIM[12]	Existing levels of incidental mortality would not have a significant effect, assuming a stable population (loggerheads); maximum allowable removal = 28–800, depending on life stage affected	"Although the workshop was an excellent exercise in population model integration, more research is required to further develop a suite of analytical tools robust to shortcomings in biological knowledge and data on human-caused mortality"	"…develop and implement a comprehensive quantitative framework for marine turtle recovery management including…robust procedure for monitoring turtle populations and measuring progress toward recovery goals"

[8] LDM = Linear Deterministic Matrix
[9] PBR = Potential Biological Removal
[10] VORTEX = individual-based stochastic simulation program for Population Viability Analysis (PVA)
[11] RAMAS Stage = stochastic matrix PVA
[12] TURTSIM = length-based model developed by Weatherall at the Pacific Islands Fisheries Science Center

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Kemp's ridley	Western North Atlantic	Turtle Expert Working Group	2000	Trend analysis; LDM and LSM[13] fit to nest number	Population increasing; recovery goal achievable by 2020; cannot estimate acceptable removal rates	"It is clear to the TEWG that continued work towards developing estimates of take which do not negatively impact recovery is limited in meaning without a clear understanding of the status and condition of these stocks. We are confident that future assessment teams can make progress as more data become available."	Obtain key vital rates, especially survival and life stage duration. Provide adequate observer coverage to statistically evaluate take throughout the species' range.

[13] LSM = Linear Stochastic Matrix

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Loggerhead	Western North Atlantic	Turtle Expert Working Group	2000	Trend analysis	South Florida stable or increasing; northern subpopulation recovery goals unlikely to be met; cannot estimate acceptable removal rates	"No method for setting strandings limits was completely satisfactory to all Group members.[14] Significant data gaps exist which limit the pursuit of complete age-specific assessments."	Obtain key vital rates, especially survival and life stage duration. Provide adequate observer coverage to statistically evaluate take throughout the species' range. Define subpopulations and rates of mixing in foraging areas.
Loggerhead	Western North Atlantic	National Marine Fisheries Service Southeast Fisheries Science Center	2001	Trend analysis (nests); LDM	Northern subpopulation stable; Florida subpopulation increasing; 150–1,200 turtles killed in longlines annually	"It is unlikely that any loggerhead nesting subpopulation under the status quo will be extirpated over the next few years"	"It is recommended that actions to reduce juvenile mortality be identified through research and implemented as soon as feasible"

[14] This was also the case for the 1998 Turtle Expert Working Group assessment for these species, where potential biological removal (PBR) and strandings trend analysis were suggested as methods for setting limits on strandings to trigger management action.

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Leatherback	Western North Atlantic	National Marine Fisheries Service Southeast Fisheries Science Center	2001	Trend analysis (nests)	Population increasing in Florida and northern Caribbean; decreasing in French Guiana; 150–530 kills in longlines annually	"While the longline fishery and the U.S. trawl fishery may not be the immediate cause in declines in nesting in French Guiana, they could be contributing to these declines"	It is recommended that research begin immediately to identify and quantify the rate of mortality from the longline fishery, as well as mortality rates from other fisheries.
Leatherback	Atlantic	Turtle Expert Working Group	2007	Trend analysis; Bayesian state space analysis of trends	Adult population stable, increasing in some areas; 10,000–31,000 adult females, excluding unknown nesting in Africa	"Nest numbers could fluctuate considerably due to individual variance in remigration intervals, clutch number, and the reduced site fidelity in leatherbacks"	Analyses should be interpreted with caution due to high parameter and data uncertainty; efforts should be made to develop a collaborative international research plan on population dynamics and stock structure; need to estimate demographic parameters.

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Loggerhead	Western North Atlantic	National Marine Fisheries Service Southeast Fisheries Science Center	2009	LDM	1. Adult female population = 20,000–40,000+; total population highly uncertain 2. Any reductions in mortality will improve recovery potential, but even elimination of some anthropogenic mortality sources may not be sufficient to prevent extinction.	1. "This model cannot effectively address any specific question of what the effect of mortality in a given fishery might be without making very large assumptions that are difficult to justify." 2. "Predicting future populations of loggerhead sea turtles is very uncertain due in part to large uncertainty in our knowledge of loggerhead life history."	1. Devote more time and resources to the development of improved stock assessment models of sea turtles. 2. More in-water capture-recapture and telemetry studies…to improve estimates of survival and growth.

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Loggerhead	Western North Atlantic	Conant et al.	2009	DA with SQE[15], LDM (probabilistic growth rates)[16]	Nine distinct population segments (DPS) identified globally; three-fifths of DPS with good time series show high risk of extinction; some DPS show increasing trends but all have possibly unsustainable anthropogenic mortality and extinction risk	"this approach (LDM)…produced a wide range of results…"	N/A

[15] DA with SQE = diffusion approximation with susceptibility to quasi-extinction; Snover and Heppell (2009).
[16] Results presented as probability of population decline given current estimates of anthropogenic mortality

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Loggerhead	Western North Atlantic	Turtle Expert Working Group	2009	Nesting trend analysis; juvenile size and abundance trends	All nesting subpopulations in decline; increase in large neritic juveniles; low juvenile recruitment	"We have no time series of any demographic parameters that are appropriate to examine these hypotheses (for decline) quantitatively; We have bits and pieces of information, but lack the specific census and mortality data necessary to characterize and monitor trends"	Collection and evaluation of fundamental life history and census data

1

The fundamental theme underlying this report is that abundance assessment is essential, but abundance information alone is insufficient to diagnose the causes of trends in sea-turtle populations or to predict them. This is particularly true because abundance estimates in the United States are generally restricted to nesting females, which likely comprise less than 1% of total population size (Crowder et al., 1994, Turtle Expert Working Group, 2000; Chaloupka, 2002a, Heppell et al., 2003). In addition to reliable abundance estimates for multiple segments of each population, understanding key demographic processes, such as annual survival and breeding probabilities, is essential.

WHAT IS AN ASSESSMENT?

Population assessments seek to measure the current status, evaluate trends over previous years, and predict the future status of populations under various management scenarios by quantitatively evaluating population abundance and assessing such demographic parameters as productivity and survivorship (called "vital rates" that indicate the potential for change in a population). Population assessments are required in cases where all members of the population cannot be accurately counted—the case with almost all animal populations except for small populations of visible, individually identifiable animals, such as California condors (*Gymnogyps californianus*; most of which are tagged). The habit of most sea-turtle species to congregate in relatively small areas ashore to deposit egg clutches (i.e., the eggs produced and laid at a single time) does provide an opportunity to count animals, with the caveat mentioned above that those animals represent only a small part of the total population. This feature of sea-turtle biology is shared by anadromous fish, such as salmon (family Salmonidae), which also return as adults to specific spawning areas in freshwater. Like turtles, salmon have overlapping generations (with one exception, pink salmon [*Oncorhynchus gorbuscha*]), but sea-turtle reproduction is more complex because their adult lifespan is long, and females do not breed every year. General life-history traits of sea turtles are provided in Box 1.1.

Box 1.1
Some Distinctive Features of Sea-Turtle Life Histories

Not all species show the following traits to an equal degree:

- Long-lived with delayed maturity (greater than or equal to 10 years, maximum equals 30 years or more)
- Iteroparous (nest more than once but not every year)
- Life history in marine (foraging and mating) and terrestrial (nesting) habitats
- Overlapping generations
- Undertake long migrations and disperse widely
- Nesting populations on beaches, consisting of adult females and their eggs only
- Usually deposit several egg clutches in a breeding season (the number of clutches produced by a female in a season is termed clutch frequency)

When more is known about a population, including age, spatial distribution, and genetics, then more sophisticated models can be used for assessment wherein productivity can be evaluated for specific age groups and birth years. The value of a more sophisticated model is that, in theory, more of the uncertainty in life-history processes and vital rates can be evaluated

explicitly. Ideally, a population assessment will reflect the current population status and productivity accurately and predict the effect of future management practice on the future status of the population. As in almost all marine species, population assessments for sea turtles are made challenging by a lack of critical data or a difficulty in accessing the data. Box 1.2 discusses how sea-turtle assessments compare to fisheries assessments.

Box 1.2
Sea-Turtle Assessments and Fisheries Assessments

A population (stock)[17] assessment is an evaluation of the status and trends of a population of organisms, usually motivated by a concern for the effects of human activities on those organisms. NMFS has a large repository of assessment tools that have been rigorously evaluated and applied to fisheries management but does not have a standardized framework for data evaluation and modeling of sea-turtle populations. Sea-turtle biology, data, and management needs share some characteristics with marine fish that make the application of fisheries assessment methodologies possible, but they also differ in some key respects.

With respect to biology, sea turtles are similar to long-lived, slow-growing fish, but time lags from birth to reproductive maturity are much longer than most fish (decades; some fish with similarly long lives include some Pacific rockfish [*Sebastes* spp.], dogfish [order Squaliformes], and sturgeon [family Acipenseridae]). Sea turtles are highly migratory and occur in different habitats over their lifetimes. Population structure of sea turtles is highly complex, with natal homing (the process by which animals return to their birthplace to reproduce) by females that creates genetically distinct nesting units, like salmon. However, although some males exhibit natal homing, there is genetic mixing through males that have an opportunity to mate with females from different units, a pattern that is less common among fish species.

Fisheries-independent data, an important part of fish-stock assessments, exist for turtles in many forms (nesting beach surveys and in-water surveys) but are not always collected with comprehensive or standardized methods that allow their incorporation into population assessments; many excellent sources of data are proprietary and unavailable for evaluation. Because available fishery data on catches of turtles are based on bycatch from more than one kind of fishery and observer coverage is low for many U.S. fisheries and absent in many international fisheries, fishery-dependent data for estimating stock abundance, which can be so important for commercial species, are not as effective for estimating turtle abundance. Finally, length distributions are available from some of these bycaught animals, but age distributions are not—unlike most fish, many of which can be aged reliably.

In fisheries management, assessment models are used to predict rates of change in biomass and productivity of a population to set harvest limits. In sea-turtle management, assessment models are used to evaluate the status of the population relative to recovery goals, to compare relative impacts of different human activities and natural stressors on populations, and to determine if human activities that result in turtle mortality will impede recovery or increase

[17] A "population" is usually defined as a group of organisms whose members interbreed and are subjected to processes that result in a common birth, mortality, and growth rate. All members of a species can potentially interbreed, and some migration occurs among populations. An example of a population of sea turtles might be all the turtles that breed on a particular beach. "Stock" (synonymous with population in this case) refers to a group with common vital rates and is often used by fisheries scientists to identify a population that they seek to manage. For a detailed discussion, see Chapter 2.

extinction risk. Assessment of sea-turtle population status and trends is conducted according to the requirements of the Endangered Species Act and conducted through Expert Working Groups, Recovery Plan Teams, and Biological Review Teams convened by NMFS's Fisheries Science Centers. Worldwide, fish-stock assessments usually are prepared by fishery agencies and—in the United States—stock assessment teams associated with NMFS and regional management councils. Assessments of fish stocks undergo rigorous review, and recently, reports on turtle populations produced by the above-mentioned groups and teams have undergone external scientific review as well.

The term "assessment" is used somewhat generically to describe an evaluation of data to determine the status and trends of a population relative to its condition in the past and/or potential condition in the future. The results of assessments are used to address management questions, such as the maximum human-induced mortality that a population can absorb without declining significantly. Key components of the assessment procedure include independent evaluation of data quality, model suitability and robustness, and development of biologically reasonable reference points for status evaluation and management (National Research Council, 1998). A thorough population assessment needs to include a description and evaluation of change over time and space in the following areas:

- population structure (e.g., species, subspecies, distinct population segments; see Chapter 2)
- population lifecycle and demography (e.g., life stages, rates of survival, reproduction; see Chapters 3 and 5)
- population abundance and trends (e.g., evaluation and extrapolation of population indices; see Chapter 4)
- population ecology and behavior (e.g., habitat, distribution and movements, predators and prey, disease, parasites, contaminants)
- population size (e.g., numbers of individuals, age structure, sex ratio)
- current and projected threats (e.g., human-caused injury or mortality, habitat destruction, climate change)
- sources of variability (e.g., genetic, demographic, environmental, catastrophic)

Assessments of sea-turtle populations conducted by NMFS have included all of these elements but to varying degrees of detail and quantitative evaluation (Table 1.2). To be useful in decision making, assessment requires more than simple description of trends; the large and diffuse nature of sea-turtle populations make extrapolation of trends over time, space, and generations difficult at best and potentially misleading. Observed and potential changes in sea-turtle populations through time need to be assessed with age-structured models to determine population-wide status accurately and to diagnose causes of population change. Likewise, heuristic evaluation of possible futures under data-poor conditions has limited utility because management often requires "high-resolution" results—accurate and precise predictions of impact to set take regulations and to evaluate the outcomes of targeted management actions.

ASSESSMENT CASE STUDIES

To illustrate the importance of having demographic information, as well as abundance estimates in assessing sea-turtle populations, the committee briefly outlines a comparative case study of two of the most important loggerhead sea-turtle populations in the world—the genetic stock that nests along the Atlantic coast of Florida (Ehrhart et al., 2003) and the genetic stock that nests along the Pacific coast of Australia (Limpus and Limpus, 2003a). The assessment of the Florida turtles was severely hampered by the lack of demographic information, while demographic information available for the Australian population allowed a much more thorough evaluation of hypotheses.

The loggerhead sea turtle is considered to be a globally endangered species (International Union for Conservation of Nature, 2010) with some major nesting populations in decline, such as in the northwestern Atlantic (Witherington et al., 2009), whereas other major nesting populations are increasing, such as in the Pacific (Chaloupka et al., 2008a) and southwestern Atlantic (Marcovaldi and Chaloupka, 2007). Reasons for loggerhead nesting population increases are usually attributed to conservation measures (Marcovaldi and Chaloupka, 2007), and declines are usually attributed to climate change (Chaloupka et al., 2008a) or exposure to anthropogenic hazards, such as pelagic (open ocean; Lewison et al., 2004) or coastal fisheries (Peckham et al., 2007). But often the data are lacking to be confident in those attributions.

Most assessments of loggerhead sea-turtle population trends have been based on long-term monitoring of the seasonal beach nesting activity of adult females (Marcovaldi and Chaloupka, 2007; Chaloupka et al., 2008a; Witherington et al., 2009). However, monitoring only female nesting activity provides insufficient information for population assessment because adult females usually skip one or more breeding seasons, and nest counts provide no information on demographic structure because immature, adult male, and non-breeding female components are not sampled. Therefore, robust assessment of the status and trend of a loggerhead sea-turtle population suitable for population assessment and conservation management planning requires additional information and depends on sampling the entire demographic structure of a population resident in the foraging grounds and on deriving a range of key demographic parameter estimates for that population.

The spatial and temporal variation in nesting activity of the northwestern Atlantic loggerhead population that nests along the Atlantic coast of Florida has been monitored for more than 20 years. These nesting populations have declined significantly over the past 10 years (Figure 1.1), but the causes remain elusive because of a lack of demographic parameters to help diagnose the trends (Witherington et al., 2009). As a result, management agencies have not been able to predict the effectiveness of conservation strategies. A recent Turtle Expert Working Group (2009) review of the status of the loggerhead population nesting along the U.S. Atlantic coast clearly recognized this limitation: "Our ability to assess the current status of all segments of the Western North Atlantic loggerhead subpopulations is limited. We have bits and pieces of the information but lack the specific census and mortality data necessary to characterize and monitor trends for these populations." In this case, long-term abundance estimates without accompanying estimates of key demographic parameters were not sufficient to diagnose the cause(s) of the significant decline in nest numbers and to design suitable risk-mitigation or population-recovery strategies.

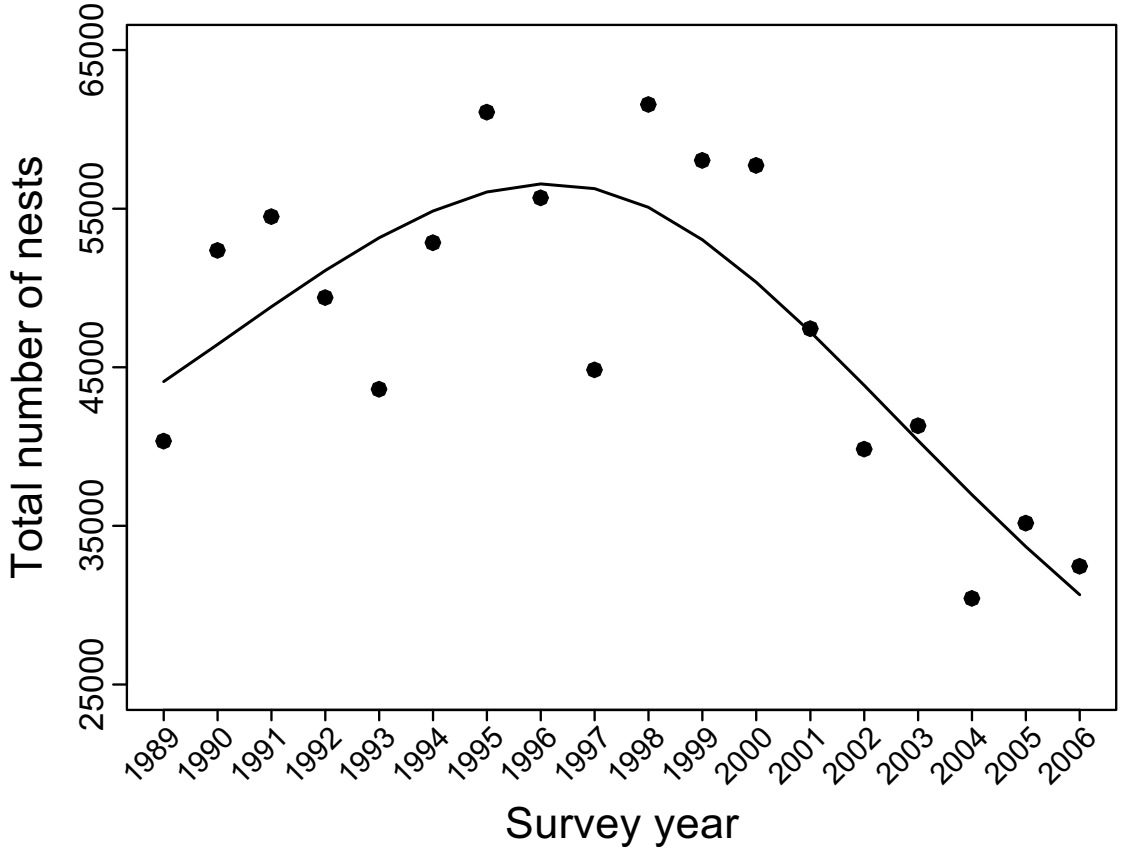

Figure 1.1. Annual total nest counts for loggerhead sea turtles on Florida beaches, 1989–2006. The trend line was estimated by fitting a three-knot restricted cubic spline curve to the total counts via negative binomial regression (reprinted from Witherington et al., 2009; with permission from Ecological Society of America).

The southern Great Barrier Reef (SGBR) loggerhead is one of two Pacific populations, and it has much better information available to help understand population trends. Loggerheads from this population nest on coral cays in the SGBR region and along the adjacent Australian mainland (Limpus and Limpus, 2003b). The SGBR loggerhead nesting populations have been monitored extensively for more than 30 years (Limpus and Limpus, 2003a; Chaloupka et al., 2008a), and several foraging-habitat aggregations of this population have also been extensively monitored for decades using a comprehensive capture-mark-recapture program (Chaloupka and Limpus, 2001; Limpus and Limpus, 2003a). The tagging program is coupled with laparoscopic examination of both female and male loggerheads of all ageclasses residing in nearby coastal habitats. These assessments of reproductive condition support sex determination and direct estimates of breeding rates. Not only is the spatial and temporal variation in SGBR loggerhead nesting abundance well known for this population but so too are key demographic parameters, such as sex- and ageclass-specific survival probabilities, sex-specific breeding rates, and trends

in sex- and ageclass-specific foraging habitat abundance estimates (Chaloupka and Limpus, 2001; 2002; Chaloupka, 2003a).

The sex- and ageclass-specific abundance and demographic parameter estimates derived for the SGBR loggerhead population have provided a sound foundation for assessing the relative risks of exposure over the past 30 years to various anthropogenic hazards, such as coastal fisheries, pelagic fisheries, feral animal predation of nests, coastal development impacts on nesting habitat, and long-term climate change (Chaloupka, 2003a; Chaloupka et al., 2008a). For this population, it is possible to determine, for example, whether per capita fecundity (i.e., individual reproductive output) has changed over time, whether survival probabilities have declined, or whether the proportion of mature females has changed. It was then possible to diagnose that declining ageclass-specific abundance during the 1980s and 1990s as attributable to predation by foxes on the coastal nesting beaches and to incidental capture in coastal trawl fisheries (Chaloupka, 2003a). Both hazards have now been mitigated by federal and state government conservation agencies, resulting in an apparently recovering stock (Chaloupka et al., 2008a). Some of the factors contributing to the ability of the SGBR loggerhead program to make these critical determinations include (1) a long-term research program maintained by a single agency with dedicated personnel, (2) a spatially extensive capture-mark-recapture program on the nesting beaches, and (3) additional capture-mark-recapture efforts in the coastal foraging habitats coupled with laparoscopy to assess both gender and breeding status (see review in Limpus and Limpus, 2003a).

The need to combine abundance trends with demographic parameters is important for all species and has been recognized for several sea-turtle species, including leatherbacks (Dutton et al., 2005), green turtles (Solow et al., 2002; Seminoff et al., 2003; Bjorndal et al., 2005), and loggerheads (Chaloupka and Limpus, 2001). These authors based their conclusions on a variety of assessments, and this committee agrees with them. For this reason, the committee has not provided a detailed review of a large number of assessments but instead has focused on methods for improving the collection of necessary data.

THE PRESENT STUDY

In light of the above concerns, NMFS requested advice from the National Research Council's Ocean Studies Board on methods for improving sea-turtle population assessments. See Box S.1 for the committee's full charge. This report is intended to help NMFS and the U.S. Fish and Wildlife Service (USWFS) improve population assessments of sea turtles. NMFS is responsible for the management of sea turtles in the water, and USFWS is responsible for sea turtles when on land. This shared responsibility means that cooperation between the agencies in the management of sea-turtle populations is critical. The two agencies have a history of cooperation, as in the co-development of recovery plans mandated by the U.S. Endangered Species Act (e.g., National Marine Fisheries Service and U.S. Fish and Wildlife Service, 2008).

The committee was asked to evaluate current and emerging population assessment techniques being applied to provide advice to managers of sea turtles in the United States. Methods for conducting population assessments vary widely from simple regression-based approaches to nesting-beach trend data to more mechanistic population-dynamics models. The choice of appropriate assessment approaches depends strongly upon the management question being addressed, and the ability to answer these questions is often limited by the available data.

This report describes a variety of assessment types and techniques, including beach samples, in-water surveys, genetic analyses, demographic analyses, bycatch (incidental take) information, aerial surveys, and others; reviews assessment methods; identifies information gaps; and suggests improvements for data collection. Its review of the methods employed in assessments (see Table 1.2) has led the committee to conclude that most of the modeling and analysis that has been done is a valiant effort to compensate for a debilitating lack of data. The assessment methods that can be so successful in fishery biology are less successful for turtles because the data generally are not as complete as they are for many commercial fish species. In addition, fishery models are focused on one main source of fish mortality—fishing—which has not been quantified for sea turtles and is only one of the anthropogenic sources of mortality for them.

At present, filling the large gaps in the available data has far greater promise for improving sea-turtle assessments than refinement of analytical methods (Heppell et al., 2003; Turtle Expert Working Group, 2000; 2007). The committee therefore decided that its most effective approach was to focus on the data problem, and it concluded that the agencies need to do so as well. Developing a rigorous process for assessment of sea-turtle populations is a high priority also. Once better data that can be evaluated in a transparent framework of scientific review are available, it will become profitable to focus more on refinement of analytical techniques.

This report does not revisit the earlier National Research Council report (1990, *Decline of the Sea Turtles: Cause and Prevention*) or any other report on the current status of sea-turtle populations or causes of sea-turtle declines. The committee felt it was beyond its charge to discuss major stresses on sea-turtle populations, such as interactions with fisheries, and the potential effects of environmental conditions or external stresses; to detail environmental conditions or regime changes; and to assess the costs of its recommendations. Additionally, this report does not review specific assessments comprehensively, except as illustrative examples of methods and data gaps but does provide a summary of methods used. The committee was not asked to conduct its own assessments of sea-turtle populations. As a result, this report does not provide information on the status of sea-turtle populations. The committee recognizes the importance of taking an ecosystem approach to managing sea-turtle populations, but this report focuses on population assessments for a single species. Before agencies can undertake ecosystem-based approaches to assessments of sea-turtle populations, substantial information at the single-population or single-species level is needed, as described in this report.

Because the report was prepared in response to a request from NMFS, it is primarily directed at the biologists and managers in that agency. However, the committee expects it to be useful for biologists and managers in other government agencies with responsibilities for sea turtles and for academic and other researchers. The report also focuses on questions asked frequently of managers, the current and emerging analyses that can be applied to address these questions, and what sort of data are required to fuel these analyses.

REPORT ORGANIZATION

Following this introductory chapter, Chapter 2 describes the units of assessment. Typically, assessments do not cover an entire species but instead focus on populations (or stocks) or even smaller units delineated by geographic distribution or genetic information. The chapter describes the array of techniques available and in need of development for these assessments.

Chapter 3 provides a conceptual model of sea-turtle life history that provides an intellectual framework for understanding survey needs and developing assessment methods. Chapter 4 focuses on methods of estimating abundance and trends in abundance, centered on land- and ocean-based methods. Chapter 5 discusses demographic parameters of sea turtles and what is known about them and methods and research needs. Chapter 6 discusses the importance of and methods for integrating demographic information with abundance estimates. Chapter 7 addresses a variety of issues that cut across many aspects of population assessments, including data management, education and training, the permit process, and opportunities for coordination at various levels. Chapter 8 provides the committee's major conclusions and recommendations.

2
Unit of Assessment

INTRODUCTION

Understanding the units of assessment in sea turtles requires clarity in the definition of nesting populations (Box 2.1). Females show affinity for specific nesting sites and thus can form sub-populations that are vulnerable to extinction. Males breed with females that can have various nesting-site affinities, thus providing male-mediated gene flow among these sub-populations. Because male gene contribution may occur at a potentially larger geographic scale, that scale defines the geographic upper limits to the nesting populations (Bowen and Karl, 2007; Lee, 2008; Wallace et al., 2009a).

Box 2.1
Why Do Populations Matter?

Populations matter because they are the fundamental units of species management. A population is an interbreeding group that has a degree of reproductive isolation and demographic cohesiveness. Population members share key demographic features, including fecundity (i.e., individual reproductive output), sex ratio, survivorship, and recruitment. In fisheries science these may be called *stocks*, and in conservation, they are often termed *management units*. While these terms may not be synonymous, they all entail the key feature of reproductive and demographic independence. Isolation between populations can be spatial, temporal, or behavioral. Nesting populations may aggregate with others during periods of their life history, yet retain their integrity when breeding. In this case, the nesting populations form a *metapopulation*—a group of interconnected populations that have some genetic exchange (Kritzer and Sale, 2006). This metapopulation may also qualify as an evolutionary significant unit in conservation; a distinct population segment (DPS) under the Endangered Species Act; and a regional management unit (RMU), a term developed to fit the natural history of sea turtles (Wallace et al., 2009a; b). Populations and metapopulations are also important because they are potential reservoirs of genetic diversity that retain local or regional adaptations (Jones, 2006) since they may evolve somewhat separately, providing a source of genetic diversity that can give a species greater resilience in the face of environmental challenges.

Population genetic studies in migratory marine animals have emphasized one important lesson in the last decade: primary sampling needs to be at the breeding and birthing site or as close as possible because these samples are not subject to dispersive life-history stages that may confound population genetic analyses. For example, genetic surveys of bluefin tuna (*Thunnus thynnus*) across the North Atlantic yielded contradictory results but no consistent evidence of population structure. However, when young-of-year were sampled near the spawning areas, significant evidence of population structure emerged, indicating homing by reproductive adults (Carlsson et al., 2007). This population separation is obscured on feeding grounds by mixing of multiple populations.

The natural history of sea turtles includes several phases that are difficult to observe directly. In particular, the prolonged generation time and oceanic habitat of juveniles are a major obstacle to studies of immature stages. For these reasons, the genetic identification of

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populations takes heightened significance, as the alternative methods (usually tagging) can be logistically and financially daunting. In this chapter, the committee reviews the current genetic methods for resolving populations as units of assessment and their applications in resolving management units and strategies. A key theme is that population mixing in sea turtles changes with life stage, as juveniles from regional nesting populations may be well mixed, while breeding adults may have strong genetic divisions. Population structure also varies among genetic markers, with maternally-inherited mitochondrial DNA (mtDNA) demonstrating strong population structure among breeding populations, while biparentally-inherited nuclear DNA (nDNA) markers sometimes show strong connectivity between breeding populations. The major challenges associated with this complex population structure are still being resolved.

Fisheries scientists typically use the term "stock", which is defined as "a discrete entity with its own origin, demographics, and fate" (Cadrin et al., 2005). It is the basic unit of management because each stock has its own unique resilience to harvest in so far as its basic vital rates (birth, death, and growth) result in a specific productivity. Hence, a stock will decline if it is subjected to mortality in excess of its ability to counteract these losses with new births and faster growth (density-dependent traits). Among ecologists, the term "population" is variously defined as "a group of individuals that belong to a single species and live in some defined area" (Case, 2000); "a collection of individuals that are sufficiently close geographically that they find each other and reproduce" (Akcakaya et al., 1999); or "individuals [that] form a functional unit" (Rockwood, 2006), wherein "changes are largely determined by birth and death processes" (Turchin, 2003). In essence, these are the same concepts and are mirrored in the use of the term "nesting population" in the study of metapopulations. The important point is that management policies will affect the timing and extent of mortality, and when stocks have been identified and delineated correctly, the response of the population can be estimated. In contrast, when stocks are not delineated correctly and when several stocks with differing vital rates are subjected mistakenly to management practices that do not account for individual population rates, the response to management is unpredictable, and smaller or less-productive stocks could become extinct unknowingly. Sea turtles may have a refuge of sorts in that they have been shown to use habitat differently depending on species, sex, and size (Hatase et al., 2002; Hawkes et al., 2006; Blumenthal et al., 2009a). However, such refuges last only until growth and reproduction induce habitat change, which may make them vulnerable.

GENETIC TECHNIQUES

The earliest analyses of genetic variation in sea turtles employed protein electrophoresis (a method of analyzing the proteins present in the blood; Smith et al., 1978). This study demonstrated low genetic variability in green (*Chelonia mydas*) and loggerhead (*Caretta caretta*) turtles (relative to other vertebrates), a theme that would resurface in the next three decades across many classes of genetic markers (e.g., Avise et al., 1992). Since the advent of direct DNA examinations in wildlife management, a number of techniques have been developed that are no longer in widespread use (or have yet to be widely applied; e.g., single-nucleotide polymorphism [a DNA-sequence variation that can occur among members of the same species]). Appendix A provides a brief description and history of these genetic markers and references to their use in sea-turtle studies. In the current age of genomics, the available classes of genetic markers are now known and largely well-characterized. Hence, scientists expect that for the coming decade

at least, the workhorse technologies for defining populations will remain stable: mtDNA and microsatellites (loci where short sequences of DNA are repeated in tandem arrays).

Mitochondrial DNA

Structure and Mode of Inheritance

The mitochondrial genome is a circular double-stranded ring of about 16,500 base pairs (bp) in turtles and most other vertebrates. This genome is housed in the mitochondria, the energy-producing organelles in the cytoplasm of eukaryotic cells. Mitochondria are inherited (with rare exceptions) through the egg cytoplasm, and sperm typically do not contribute mitochondria to the fertilized egg. This form of inheritance imparts the following two important consequences:

- Mitochondria (and mtDNA) are inherited only through the mother, providing a genetic marker for female lineages that is pertinent to sea-turtle population assessment.
- Only a single version of mtDNA is inherited. This haploid inheritance contrasts with the diploid inheritance of nDNA.[18]

An additional feature is that mtDNA accumulates mutations at a faster rate than most nuclear loci, making mtDNA sequences a method of choice for microevolutionary studies, which look at small-scale changes in allele frequencies in a population.

mtDNA-sequence information was first used to test the age and isolation of the green turtle nesting population at Ascension Island (Bowen et al., 1989), providing genetic evidence in support of the hypothesis that females return to their natal regions to nest. mtDNA sequence data have since become a core technique for examining sea-turtle population structure.

Advantages

The reproducibility of mtDNA sequence data has been a boon to sea-turtle genetic surveys, and registries of known haplotypes[19] are maintained at the Archie Carr Center for Sea Turtle Research (University of Florida, 2001) and the National Marine Fisheries Service Southeast Fisheries Science Center (2008).

Current Use

The control region is a noncoding origin of replication that accumulates mutations more rapidly than mtDNA protein-coding regions (areas where molecules are translated into a protein). Due to the overall dearth of genetic diversity in sea turtles (relative to other vertebrates), it is the mtDNA region of choice for population assessments. Methods to access the control region (via a polymerase chain reaction, a technique used to amplify pieces of DNA, generating millions of copies of a particular DNA sequence) were developed by Allard et al. (1994) and Norman et al. (1994). The resulting DNA products (from these two primer sets) are almost completely overlapping to produce about a 400 bp fragment in green turtles (e.g., Encalada et al., 1996; Dethmers et al., 2006) and are widely used for population assessment.

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[18] Haploids have one complete set of chromosomes; whereas diploids have two complete sets.
[19] A haplotype is a combination of alleles at multiple loci that are transmitted together on the same chromosome.

With improvements in DNA-sequencing technology, there is currently an initiative to expand the mtDNA-sequence coverage to include most of the mtDNA control region.

Limitations

The primary limitation of mtDNA sequence data is the maternal inheritance, which precludes inquiries about many aspects of male dispersal and behavior (but see FitzSimmons et al., 1997a). A second limitation is that recently colonized nesting populations may be indistinguishable from the ancestral population, even while maintaining reproductive isolation. Loggerhead nesting populations in the northwest Atlantic (northeast Florida, Georgia, South Carolina, and North Carolina) are spatially discrete but comprised of the same mtDNA type at almost 100% frequency. Bowen et al. (1993) suggested that the paucity of genetic diversity is due to the bottleneck effect of colonization by a small number of migrants. These coastlines were almost certainly too cold to support nesting during the last glacial epoch, ending about 12,000 years before present. Hence loggerhead nesting has spread northward to Virginia, the northernmost nesting site within the thermal regime for embryonic development. While the nesting populations in northeast Florida, Georgia, South Carolina, and North Carolina are genetically indistinguishable with current mtDNA data, they are almost certainly isolated management units, based on the overall pattern of population genetic separations in loggerheads (Bowen et al., 1993; Bowen and Karl, 2007).

Microsatellites

Structure and Mode of Inheritance

Microsatellites (also known as simple sequence repeats or variable number of tandem repeats) are short segments of DNA (usually nDNA) with a repeated sequence that is 2–6 bp long. One of the most common repeats is CACACACACACACA…, which in this case would be abbreviated as CA^7 because the CA sequence is repeated seven times. Other versions (alleles) could be CA^5, CA^6, CA^8, CA^{15}, CA^{18}, and so on. As the numbering indicates, there can be many alleles at these highly variable loci. Like other nDNA markers, microsatellites usually have diploid inheritance, receiving one allele each from mother and father. These loci are typically scored by their mobility in a gel or polymer, which can detect fragments of DNA that differ by two, four, or more bp in length.

Advantages

This is another workhorse technology for sea-turtle population genetics. Due to the highly variable nature of these loci, they are used for establishing genetic relationships from family pedigrees to fine-scale population structure (Selkoe and Toonen, 2006). Microsatellites have been profitably employed on most sea-turtle species to demonstrate multiple paternity. However, their broadest application may be in defining isolated populations with a biparentally-inherited nuclear marker. Microsatellites, in conjunction with maternally-inherited mtDNA, allow assessment of the male and female contributions to population structure.

Current Use

There are now microsatellite loci designed for each species of sea turtle, with about 40 loci available for loggerheads (Bowen et al., 2005; Shamblin et al., 2007; 2009; Monzón-Argüello et al., 2008), at least 17 loci available for green turtles (FitzSimmons et al., 1995; Dutton and Frey, 2009), at least 24 loci for hawksbills (*Eretmochelys imbricata*; Lin et al., 2008; Miro-Herrans et al., 2008), at least 16 loci for olive ridleys (*Lepidochelys olivacea*; Aggarwal et al., 2004; 2008), 4 loci for Kemp's ridleys (*Lepidochelys kempii*; Kichler et al., 1999), 4 loci for flatback turtles (*Natator depressus*; Theissinger et al., 2009), and 15 loci for leatherbacks (*Dermochelys coriacea*; Crim et al., 2002; Rivalan et al., 2006a). However, these resources are even richer than the numbers indicate, as many loci cross-amplify across sea turtles and other Chelonians[20] (FitzSimmons et al., 1995; 1997b; Jensen et al., 2006; Engstrom et al., 2007; Lin et al., 2008; Monzón-Argüello et al., 2008; Shamblin et al., 2009; Theissinger et al., 2009).

Limitations

Microsatellites are expensive to develop, requiring cloning and screening of the nuclear genome (Selkoe and Toonen, 2006). However, as noted above, research in the last decade has produced a rich library of microsatellite loci for sea turtles. A second limitation is that microsatellites are hard to reproduce between labs, as opposed to DNA sequences. Microsatellites are distinguished by their length differences, not by their DNA sequence, and differences of two or four bp may be hard to compare between labs. This standardization issue is a major limitation for assembling range-wide surveys with microsatellites.

METAPOPULATIONS AND MIXED STOCKS

Metapopulations are generally defined as a group of nesting populations that interact at some level, yet retain sufficient breeding isolation such that local adaptations are maintained and vital rates can differ (Hartl and Clark, 2007). The classic metapopulation model maintains that nesting populations can go extinct due to random chance but are recolonized from other nesting populations (Levins, 1969; Hanski, 1999), maintaining the long-term stability of the species. This model probably does not apply widely to marine organisms (Kritzer and Sale, 2006). Hanski and Gilpin (1991) defined a metapopulation as a "[s]et of local populations which interact via individuals moving among populations." This definition might apply to sea turtles in some regions, if "gametes" is substituted for "individuals". As discussed below, sea-turtle populations may have ongoing gene flow without actually exchanging individuals due to mating in shared feeding areas or migratory corridors.

Complex Population Structure: Life Stages

In most marine vertebrates, a survey of adults, preferably at breeding sites, is sufficient to sample the nesting population and thus to define management units. In sea turtles, due to their highly migratory nature and complex population structure, it is necessary to survey every life stage to determine the extent of connectivity among populations (Figure 2.1). Allison et al.

[20] Chelonia is the superorder uniting turtles, tortoises, and terrapins.

(2003) provide a conceptual model of potential population structures, and the most common population models are reviewed in Appendix B.

Figure 2

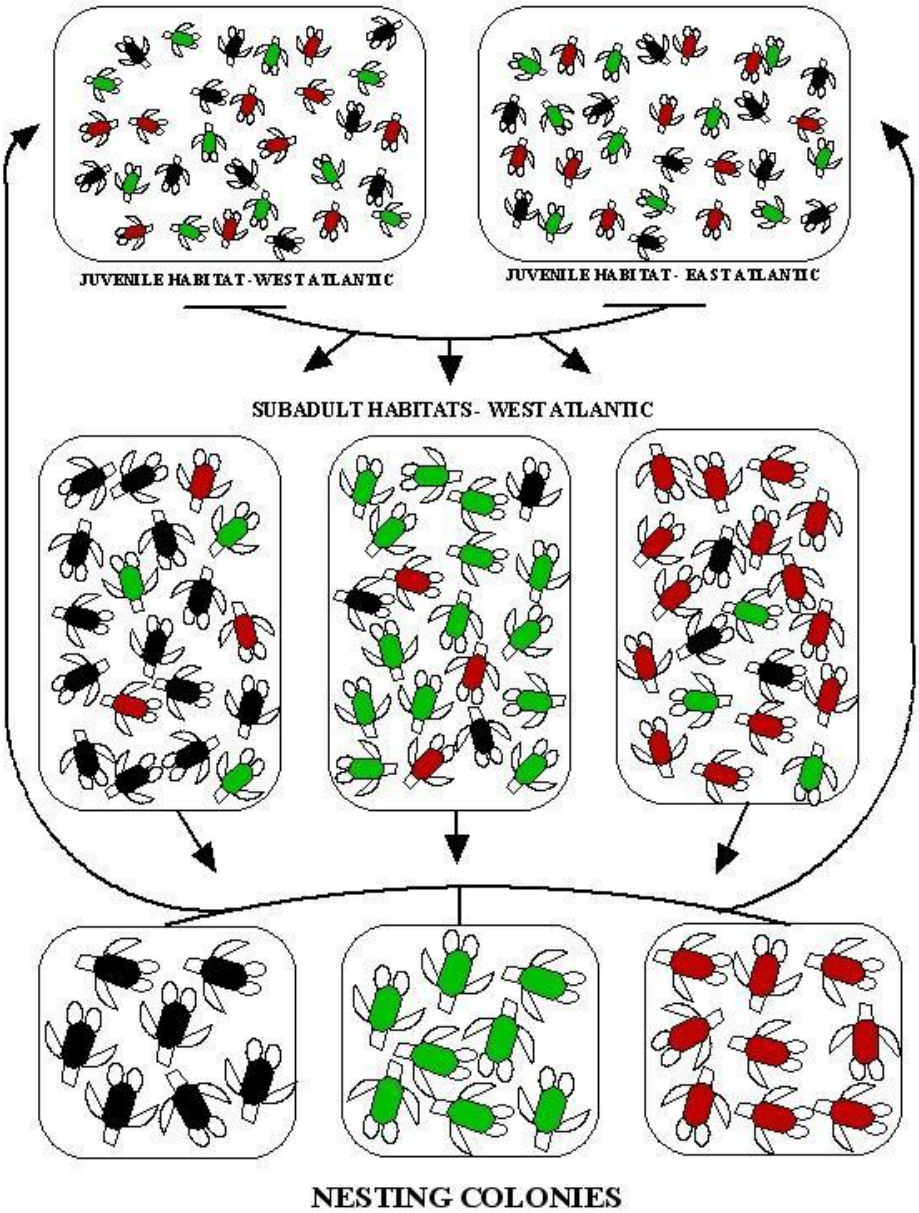

Figure 2.1. Population structure at three distinct life stages of the loggerhead turtle. Turtles from the three nesting populations are indicated by red, green, and black icons; the colors do not necessarily represent genetic differences. During the pelagic (open ocean, juvenile) stage, individuals from the nesting populations intermingle in oceanic habitat, and no population structure is apparent between eastern and western Atlantic. During the subadult stage, some turtles recruit to benthic (seafloor) feeding habitat in proximity to their natal rookery (breeding

population), producing low but significant population structure (Bowen et al., 2004). At the breeding stage, females (and possibly males) show natal homing to breeding and nesting habitat, producing strong population structure (reprinted from Bowen et al., 2005; with permission of Wiley-Blackwell).

Mixed-Stock Analyses

Although nesting populations separate themselves to breed, they mingle during other life periods, such as feeding, foraging, and migration. The composition of these mixed stocks can vary over time (Bjorndal and Bolten, 2008). Some of these stocks are more productive and can withstand greater mortality than others (Hilborn, 1985). Hence when turtles mingle in shared feeding habitats, some source (nesting) populations will be more vulnerable than others to common stressors. These situations cause problems when the effects of the stressor cannot be assessed separately for each stock and only when an overall effect can be calculated.

In mixed-stock analyses, mathematical models are used to compare the genotypes (genetic profiles) of natal areas (nesting populations for sea turtles) to the genotypes on feeding areas (pelagic [open ocean] or benthic [seafloor] habitats for sea turtles; Bolker et al., 2003). In contemporary methodologies, these models use maximum-likelihood or Bayesian algorithms, with the ultimate goal of estimating the contribution of each natal area to the shared feeding habitat. These methods were developed initially to estimate the contribution of salmon (riverine) breeding populations to coastal feeding populations (Grant et al., 1980). Subsequently, these methods have been applied to sea turtles and other migratory vertebrates, and most recently methods have been developed specifically for mixed stocks of sea turtles (Bolker et al., 2003; Okuyama and Bolker, 2005).

Appropriate Applications and Current Use

One of the earliest successful studies was the assignment of pelagic juvenile loggerheads in the North Atlantic to nesting populations on the coast of North America, based on mtDNA sequence comparisons (Bolten et al., 1998). The mixed-stock program SHADRACQ (Xu et al., 1994) showed that contributions from the West Atlantic nesting populations were roughly proportional to the size of these nesting populations. Similar methodology was used to demonstrate that juvenile loggerhead turtles from the West Atlantic occupy feeding habitats in the Mediterranean (Laurent et al., 1998), and loggerhead turtles from Japan are captured in North Pacific longline fisheries (Bowen et al., 1995).

Limitations

The mixed-stock methodology is valuable but has limited precision (wide confidence intervals) in the surveys accomplished to date. A primary reason for biased (lower-bound) estimates is incomplete sampling. An unknown proportion of sea-turtle nesting is accomplished by solitary females on isolated coastlines, which are extremely difficult to sample. Nesting habitats continue to be discovered in understudied parts of the world (Yalçın-Özdilek and Sönmez, 2006; Benson et al., 2007). An additional limitation is that nesting populations are not always differentiated in haplotype frequencies. While the precise composition of feeding populations may elude scientists in most cases, the answers provided by mixed-stock analyses

are compelling when applied at the appropriate scale (Bowen and Karl, 2007) and when uncertainty in estimates is understood. Juvenile loggerheads from West Atlantic nesting populations do feed in the eastern Atlantic (Bolten et al., 1998), and Caribbean reefs do host hawksbill turtles from multiple nesting populations (Bowen et al., 2007). On this scale, the mixed-stock analyses can provide sufficient resolution to address many management concerns. However, precise estimates of the contributions of small nesting populations to feeding populations may not be possible, and this uncertainty needs to be built into predictive models used for management decisions.

DISTRIBUTION

Complex Population Structure: Female versus Male Components of Population Structure

Genetic surveys of sea turtles consistently show lower population divergence in nDNA assays than mtDNA assays (Karl et al., 1992; FitzSimmons et al., 1997b; Roberts et al., 2004). Part of this can be attributed to the fourfold difference in the inheritance of mtDNA versus nDNA. When a zygote is formed, it has four possibilities for each nuclear locus: two from the mother and two from the father. There is only one possibility for mtDNA type (from the mother). However, inheritance mechanics cannot explain this pattern completely, and part of the solution lies in differences between male and female reproductive behavior.

In the first molecular nDNA study of green turtles, Karl et al. (1992) observed lower global population structure in nDNA (Atlantic $F_{ST} = 0.130$, Indo-Pacific $F_{ST} = 0.126$), relative to mtDNA (Atlantic $G_{ST} = 0.63$, Indo-Pacific $G_{ST} = 0.71$; Bowen et al., 1992). (For F statistics, see the section "Analytical Techniques".) A reassessment with microsatellites produced the same finding (Atlantic $F_{ST} = 0.038$, Indo-Pacific $F_{ST} = 0.024$; Roberts et al., 2004). FitzSimmons et al. (1997b) reported a similar pattern for West Pacific green turtles based on mtDNA and microsatellites. All three nDNA studies interpret this pattern as evidence of significant male-mediated gene flow between green turtle nesting populations. In other words, males apparently mate with females from more than one nesting population.

Importance of Surveying mtDNA and nDNA

Inter-rookery (breeding population) gene flow does not require departures from natal homing (the process by which animals return to their birthplace to reproduce). Overlap on feeding grounds and migratory corridors provides sufficient opportunity for mating between turtles from different nesting populations. Hence, both males and females may be homing to breeding areas near their natal beach, but gene flow can be extensive among nesting populations within an RMU (Wallace et al., 2009a). For this reason, surveys of both mtDNA and nDNA (usually microsatellites) are necessary to define populations (Bowen and Karl, 2007; Lee, 2008).

Interpretation of Genetic Data for Management

Difference between mtDNA and nDNA

The maternally-inherited mtDNA data provide resolution of isolated nesting populations. However, this resolution is imperfect and subject to the vagaries of each population history. For

example, nesting probably expanded into higher latitudes after the last glaciation. These new nesting populations may be isolated for hundreds or thousands of years without showing population-level differences in mtDNA sequence surveys. Therefore, it is important to focus on the overall pattern of isolation. Loggerhead turtles may show isolation on a scale of less than 100 km (Bowen et al., 2005), and green turtles on a scale of 500 km (Dethmers et al., 2006); whereas olive ridleys and leatherbacks may show high connectivity among nesting sites more than 500 km apart (Dutton et al., 1999; 2007; López-Castro and Rocha-Olivares, 2005). The overall pattern of population structure needs to be used to define management units in terms of isolated nesting populations.

The biparentally-inherited nDNA (usually microsatellites) reveals the shared history of males and females and (when compared to mtDNA) shows the impact of males on gene flow and population structure. In some cases, where isolated populations do not overlap on feeding and migratory habitat, the mtDNA and nDNA data can indicate concordant population boundaries (Dutton et al., 2008). In contrast, when breeding populations overlap in feeding and migratory habitats, the nDNA can show high connectivity between local nesting populations (Bowen et al., 2005). Therefore, the nDNA should be used to define RMUs, as stated by Wallace et al. (2009a; b). RMUs may be restricted to a single isolated nesting population as is the case for Hawaiian green turtles (Dutton et al., 2008) or may encompass several nesting populations as is the case for loggerhead turtles in the southeastern United States (Encalada et al., 1998; Bowen et al., 2005). These RMUs are analogous to evolutionary significant units as defined by Moritz et al. (1995) or DPSs under the U.S. Endangered Species Act (Waples, 1991; 1995).

Genetic Tags

Microsatellites can provide individual-specific genotypes (DNA fingerprints) that may serve as genetic tags to track individuals. For example, an individual genotyped on a nesting beach can be identified with high confidence from a tissue specimen taken on distant feeding habitat. When both parents are genotyped, their progeny can be assigned confidently as well; however, this application would require unrealistically high sampling of males. Genetic tags are also subject to the limitations inherent in saturation tagging (near 100% coverage of individuals), feasible for a few thousand turtles but not the tens of thousands that comprise some populations. For this reason, it may not be practical to genotype hatchlings with the expectation of matching these genotypes to turtles recaptured at later life stages. Nonetheless, genetic tags may resolve some aspects of population structure (Lee et al., 2007).

Analytical Techniques

The cornerstone of population genetic assessments has been F statistics (F_{ST}; Wright, 1943), which measure departures from random mating within and among populations based on genotype frequencies. Values of F statistics generally range from zero (no population differentiation) to one (complete population differentiation). An analog that takes DNA sequence divergence into account is Φ_{ST} (Excoffier et al., 1992), usually performed in the program ARLEQUIN (Excoffier et al., 2005) or SAMOVA (Spatial Analysis of Molecular Variance; Dupanloup et al., 2002). Additional analogs are available to address the maternal inheritance of mtDNA (G_{ST}; Takahata and Palumbi, 1985), potential biases in highly polymorphic (i.e., when genes exist in several allele forms) datasets, such as microsatellites

(F'_{ST}; Jost, 2008), and to account for the mutational model for microsatellites (R_{st}; Slatkin, 1995). Many of these estimators are available from the web service SMOGD (Software for the Measurement of Genetic Diversity; Crawford, 2009). All these genetic-distance estimators can be used to rank barriers to gene flow, as implemented in BARRIER (Manni et al., 2004).

Population genetics is a fast moving field due to the recent development of maximum likelihood and Bayesian approaches based on coalescence theory[21] (Kingman, 1982). These approaches allow estimations of migration and other population parameters (Beerli and Felsenstein, 2001). Whereas F statistics provide an estimation of the number of migrants exchanged between populations, the coalescence-based approaches allow some inferences about population history. It is also possible to make bidirectional estimates of gene flow, using the software programs MIGRATE (Beerli and Felsenstein, 2001), IMA (Hey and Neilsen, 2007; Hey, 2010a; b), and BayesAss+ (Wilson and Rannala, 2003). This allows at least some resolution of historical sources of migrants and founders.

Historical population expansion and declines can be detected with mtDNA and microsatellites, although the latter offers a more robust assessment over the timescales pertinent to population management (Beaumont, 1999). BEAST (Bayesian Evolutionary Analysis Sampling Trees; Drummond and Rambaut, 2007) and LAMARC (Likelihood Analysis with Metropolis Algorithm using Random Coalescence; Kuhner, 2009; University of Washington, 2010) are two of the most widely used programs for resolving demographic history.

Finally, assignment tests based on multilocus microsatellite genotypes may be used to assign individuals back to a population of origin (Paetkau et al., 1995). This approach has the potential to detect population structure even with a high number of dispersers (5–20%; Berry et al., 2004). A related application of multilocus genotypes is to resolve population separations with patterns of genetic disequilibrium, as implemented in the program STRUCTURE (Pritchard et al., 2000; Hubisz et al., 2009). Lee et al. (2007) used assignment tests to assess population structure at the finest scale at the Ascension Island nesting population.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions:

- Genetic surveys, in conjunction with tagging studies (see Chapter 4), provide the best approach for resolving the complex population structure of sea turtles.
- mtDNA surveys of nesting populations are useful for defining management units in terms of isolated reproductive populations.
- nDNA surveys are useful for resolving the male-mediated connections between nesting populations and for defining RMUs connected by nuclear gene flow. In the case of isolated regional populations, mtDNA and nDNA may indicate that management units defined with mtDNA are equivalent to RMUs defined with nDNA. RMUs may qualify as DPSs under the Endangered Species Act.
- Mixed-stock analyses can reveal the demographic links between regional nesting populations and feeding populations and indicate which nesting populations are at risk due to habitat disturbances and fishery bycatch in feeding areas. Confidence intervals on mixed-stock estimates are usually broad, indicating problems with comprehensive sampling of turtle populations.

[21] Coalescent theory uses a population sample to trace all alleles of a gene shared by all members of the population to a single ancestral copy.

Recommendations:

- Researchers should examine the finest scale of female homing in each species (already underway with green, leatherback, hawksbill, ridley, and loggerhead turtles) with mtDNA surveys of nesting beaches, preferably in conjunction with tagging studies. This is necessary to resolve management units defined by female homing behavior. This requires sampling coverage of continental coastline or adjacent islands where nesting is intermittent. Adequate sample sizes depends on the level of genetic diversity but may begin at approximately N = 30 per nesting population. Note that specimens must come from nesting females or a single progeny per female to avoid resampling the same maternal lineage.
- Researchers should develop a suite of at least 10–15 variable microsatellite loci for each species. This is necessary to accomplish the next three goals in population resolution and to develop individual-specific DNA fingerprints. This has largely been accomplished for sea turtles in U.S. waters with the possible exception of Kemp's ridley (*Lepidochelys kempii*).
- Researchers should survey nesting populations with microsatellites to determine the extent of connectivity between local nesting populations. This is necessary to resolve the male-mediated connections between nesting populations and to resolve RMUs. Adequate sample sizes depends on the level of genetic diversity (heterozygosity) but may begin at approximately N = 50–80 per location.
- Researchers should survey regional feeding populations (juveniles and adults) with mtDNA sequences to determine the source of these individuals with mixed-stock models, assignment tests, and related methodologies. This is necessary to determine which populations are present (and possibly at risk) in coastal and oceanic habitats. Microsatellite studies may also be useful. Priorities may be established for the most highly impacted feeding populations.
- Researchers should survey males in breeding populations off nesting beaches with mtDNA and microsatellites to determine if they are homing. This is necessary to resolve which populations are present (and possibly at risk) in coastal and oceanic habitats.
- Researchers should conduct a sea-turtle genome project for the explicit purpose of developing additional nuclear markers, possibly the next generation of genetic markers for sea turtles (see Appendix A). This will also provide benefits in understanding the natural history and genetic resilience of sea turtles. This may be accomplished in the context of the Genome 10K Project already under development (Genome 10K Community of Scientists, 2009).
- Researchers should develop sex-specific metapopulation models to evaluate genetic differences in dispersal. Males and females use habitat differently for feeding and reproduction, thereby arguing for sex-specific models for evaluating connectivity and survival. These models will provide increased understanding of management units and demography as outlined above.

3
Conceptual Model of Sea-Turtle Abundance and Demography

Demographic information is critical for interpreting abundance trends. Demography refers to the key vital rates or parameters, such as breeding, survival, and dispersal rates. As a concrete example, consider the common practice of assessing population status via nest counts. Setting aside sampling issues, discussed in Chapter 4, in estimating the number of nests on a beach, a central question concerns the connection between variations over time in nest numbers and in population abundance. First, the number of nests on a beach in a particular year is the product of clutch frequency (the number of clutches deposited by an individual turtle in a nesting season) and the number of females that nest on the beach in that year. To provide an index of the number of nesting females that is comparable from year to year, it is necessary either to know or have an estimate of clutch frequency or to assume that it remains constant over time. Otherwise, it is not possible to separate the effects on nest numbers of variations in the number of nesting females from variations in clutch frequency.

Second, the connection between the number of nesting females in a year and the number of adult females in the population is complicated by the fact that adult female sea turtles generally do not nest every year. Thus, the number of adult females in a population in a year consists of those that nest in that year and those that remain at sea. This latter number, which is typically not measured, depends on the numbers nesting in previous years, their remigration intervals (i.e., the interval between successive nesting seasons), and the at-sea survival rate for adult females. The issue is further complicated by variations over time in the distribution of the re-migration interval and the at-sea survival rate. Without information about re-migration intervals and adult survival, it is not possible to relate the number of nesting females in a year to the total number of adult females in that year. Third, adult females represent only a small part of the overall population. Their number provides an index of population abundance only if their proportion in the population remains stable over time. Taken together, these complications in the use of nest counts as an index of population abundance underscore the importance of demographic and other information in drawing robust conclusions about sea-turtle populations from observations limited to one part of this population at one stage of their lifecycle. Hence, a conceptual model linking population abundance with the key demographic processes in a single coherent framework is needed.

CONCEPTUAL BACKGROUND

The six species of sea turtles that inhabit U.S. waters share the basic lifecycle characteristics of nesting on land with breaks of one or more years between nesting seasons and varying degrees of site fidelity (see Chapter 2); variable egg survival with an incubation period of approximately two months and temperature dependent sex determination, a phase of rapid growth in the open sea; and a protracted juvenile stage of several years. The species then fall into two primary life-history groups, based on habitat use through their lifecycle. Loggerhead (*Caretta caretta*), green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*), and Kemp's ridley (*Lepidochelys kempii*) turtles make a developmental shift from pelagic (open ocean) to neritic (nearshore) habitat as juveniles, although the discreteness of the shift may vary (McClellan et al., 2010). Leatherback (*Dermochelys coriacea*) and olive ridley (*Lepidochelys olivacea*) turtles, in contrast, remain pelagic throughout their lives. The number of years spent in

pre-adult life stages varies among species, and lifecycle models have had some variability in the number and definition of life stages. All sea turtles undergo extensive migrations during their lives in response to changes in temperature and forage opportunities, and adult males and females migrate for mating and egg laying. With the exception of basking green turtles in Hawaii, only adult females return to land.

A simple but informative conceptual model of loggerhead sea-turtle abundance and demography is shown in Figure 3.1. Although this representation was developed for causal-loop modeling (Puccia and Levins, 1985), it provides a generic description of sea-turtle population dynamics (Chaloupka, 2002a; 2003a; 2004) and is not tied to a particular modeling approach. This conceptual model is meant to remind the reader of the big picture and provides an effective graphical device to capture in a coherent and integrated framework the key demographic processes and anthropogenic hazards facing a sea-turtle population—in this specific case, it is for the two Pacific loggerhead populations (Bowen et al., 1994). This causal-loop model not only helps to identify knowledge gaps but also provides a blueprint for simulation models of Pacific loggerhead population dynamics and for the development of population-assessment models and risk-analysis tools. The committee presents the Pacific loggerhead model as an example of what could be developed for U.S. sea-turtle populations.

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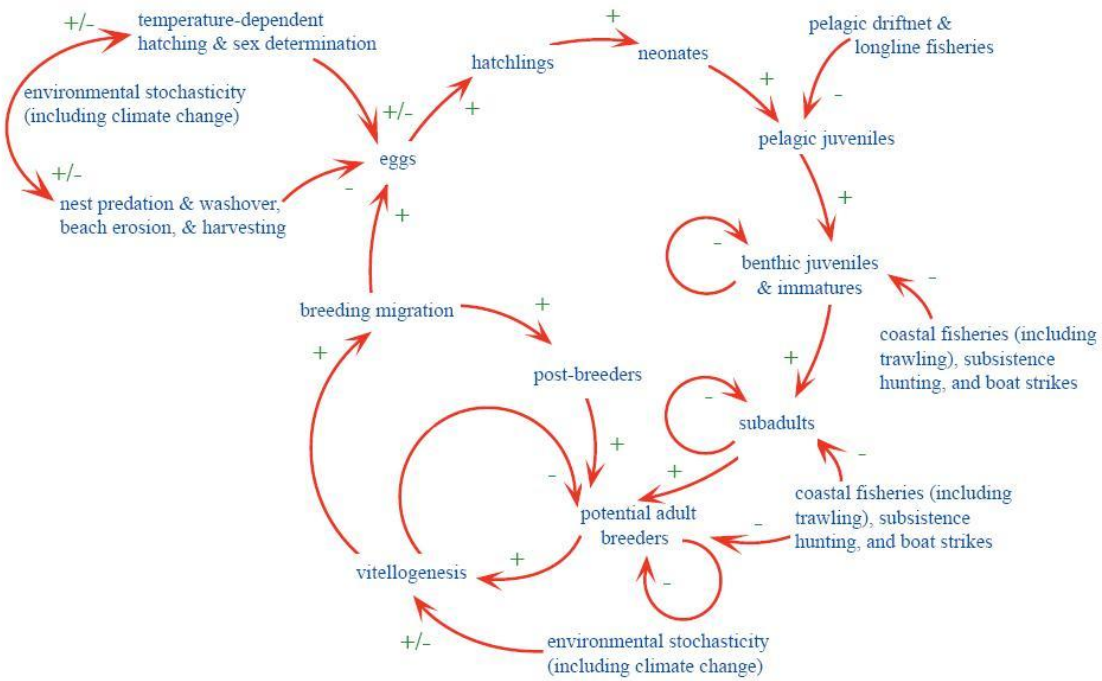

Figure 3.1. A conceptual or causal-loop diagram summarizing the ageclass structure and key demographic processes of the model accounting for the population dynamics of Pacific loggerhead sea-turtle populations exposed to various ageclass-specific anthropogenic hazards. +/- = causal-loop polarity with + meaning two components move in same direction, - means they move in opposite directions; for instance, as more turtles breed and migrate, the number of potential breeders decreases since females do not breed each year because of reproductive constraints. See Puccia and Levins (1985) for details on causal-loop modeling and Chaloupka (2002a; 2003a; 2004) for application to sea-turtle population modeling (figure created by committee member).

Causal-loop modeling is a special class of signed directed graph theory and is read as follows in reference to Figure 3.1. Arrowed links between variables (ageclasses and hazards) are signed negative if the two variables change in the opposite direction. For instance, as nesting beach temperature increases above thermal maximum of embryos, egg production (i.e., the number of eggs laid in the nest) decreases due to reduced hatching rates. A positive link means that the two variables respond in the same direction. For instance, as egg production increases, the abundance of hatchlings increases. Similarly, if oceanic juvenile abundance decreases, benthic or neritic immature abundance decreases (eventually). Increasing neritic immature abundance will eventually lead to decreasing abundance as a consequence of compensatory density-dependent processes affected by per capita food supply.

Causal-loop modeling is a robust and widely used structured graphical procedure for the development of meaningful conceptual models that are then used in qualitative modeling of complex biological systems (Puccia and Levins, 1985), ecosystem modeling (Loiselle et al., 2000), epidemiology (Dinno, 2007), and ecosystem-based fisheries management (Dambacher et al., 2009). Causal-loop modeling also provides the basis for development of simultaneous equations or simulation modeling based on coupled systems of differential equations to explore ecosystem or population dynamics (Hulot et al., 2000; Chaloupka, 2003a). These qualitative conceptual models can also be embedded in probability network models, such as Bayesian belief networks that are useful in data-poor and knowledge-vague settings (Hosak et al., 2008). A Bayesian belief network modeling approach based on the conceptual model shown in Figure 3.1 has in fact been proposed for assessment of the relative risk of exposure to multiple anthropogenic hazards for sea-turtle populations in Southeast Asian waters (Chaloupka, 2007).

CONCEPTUAL MODEL FOR POPULATION ASSESSMENT

Ageclass Structure

The conceptual model of loggerhead sea-turtle population abundance and demography shown in Figure 3.1 comprises the following developmental phases or ageclasses and the abundance associated with those ageclasses (Chaloupka, 2003a):

1. eggs laid during the summer on sandy beaches (Kamezaki et al., 2003; Limpus and Limpus, 2003a)
2. beach hatchlings that emerge from the nests around two months later and escape to the sea during mid- to late summer (Salmon et al., 1995)
3. coastal or neritic hatchlings and then neonates recruit during the first year of life following escapement to the oceanic habitat (Witherington, 2002; Whelan and Wyneken, 2007)
4. small immatures (more than 1 year old but less than 15 years; Chaloupka, 1998; Bjorndal et al., 2000a, 2001) inhabit productive oceanic frontal zones (Polovina et al., 2000)
5. large immatures (more than 10 years but less than 25 years; Chaloupka and Limpus, 2001; Chaloupka, 2003a) then recruit from oceanic habitat to coastal or neritic habitats that then develop into potential breeding adults
6. potential breeding adults (physically and physiologically mature, more than 25 years; Chaloupka, 2003a)

7. potential breeding adults undergo long-distance breeding migrations (Limpus et al., 1992) to population-specific regional rookeries, culminating as courting males and nesting females

Neritic immatures and adults are assumed to be subject to compensatory density-dependent functions; as the population density increases, the neritic component of the population is regulated by per capita food supply.

Major Demographic Processes

The major demographic processes included in the conceptual model are (1) ageclass-specific reproduction driven by environmental stochasticity[22], (2) temperature-dependent hatching and sex determination, (3) ageclass-specific growth, and (4) ageclass-specific survival.

Reproductive Behavior

Each summer a highly variable proportion of mature male and female Pacific loggerheads migrate from widely dispersed foraging grounds to regional rookeries in southern Japan (Kamezaki et al., 2003) or the southern Great Barrier Reef region to mate (Limpus et al., 1992). Not all females or males breed each season, but a significant proportion of the potential breeders skip one or more nesting years (Limpus et al., 1994), presumably due to variable food supply (Figure 3.2a) that can be climate induced (Chaloupka et al., 2008a). This is one reason for the significant interannual fluctuation in the number of female loggerheads nesting each year (Figure 3.2b). It is assumed that this function is also density dependent. Assuming successful mating, the female loggerheads then lay a variable number of clutches of eggs on the sandy beaches at the rookeries over the summer nesting season.

[22] Environmental stochasticity refers to the variation in birth and death rates from one season to the next in response to conditions, such as weather, disease, competition, and predation.

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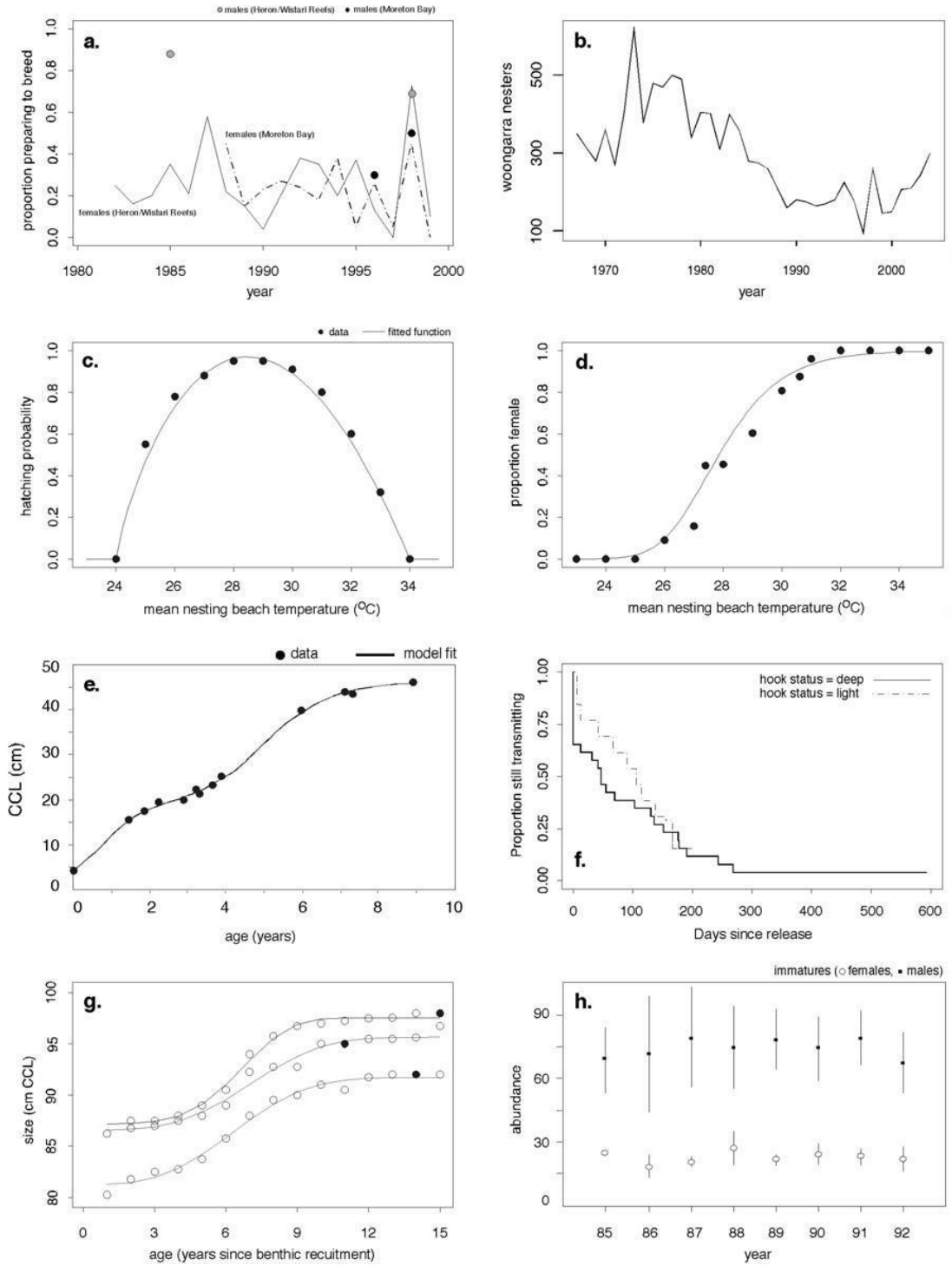

Figure 3.2. (a) Estimated proportion of females (curve) and males (dot) breeding each year for two loggerhead populations comprising the southwestern Pacific genetic stock (data from Limpus et al., 1994; Limpus and Limpus, 2003a; courtesy of M. Chaloupka), which were determined using laparoscopy. (b) Long-term nesting abundance (individually marked turtles) recorded at the Mon Repos rookery on the Woongarra coast (southern Great Barrier Reef region)

(from Chaloupka et al., 2008a; with permission from Elsevier). (c) Temperature-dependent loggerhead hatching probability and (d) temperature-dependent hatchling sex determination function for Pacific loggerheads (data for plots derived from Limpus et al. [1983; 1985] for the southwestern Pacific loggerhead population). Curve in (c) shows a Thornley-type model fit for hatching probabilities (solid dots), and the curve in (d) shows a generalized logistic function fit for hatchling sex-determination probabilities (solid dots) (from Chaloupka, 2002b; courtesy of M. Chaloupka). (e) Pelagic loggerhead size (curved carapace length [CCL] in cm) plotted as a function of estimated age (select age metric) (from Zug et al., 1995) with the addition of estimated hatchling size. Solid curve shows the polyphasic logistic growth function fitted to the growth data indicated by solid dots (from Chaloupka, 1998; with permission from American Society of Ichthyologists and Herpetologists). (f) Expected group-specific Kaplan-Meier-Turnbull survival functions for the 40 satellite tracked deep- and light-hooked loggerheads only without the visual clutter of the confidence intervals (from Chaloupka et al., 2004a; with permission from Inter-Research Science Center). (g) Size-at-age growth functions (open circles) for three female southwestern Pacific loggerheads recorded over a 15-year sampling period (reprinted from Chaloupka, 2003a; with permission from Smithsonian Books). Age = years since recruitment to neritic habitat. Solid curve shows fitted Weibull-type growth model with AR(2) error derived in Chaloupka (2001a). Solid circle shows age at first breeding event derived from Limpus (1992; 1994). (h) Immature sex-specific Horwitz-Thompson-type abundance estimates for the loggerhead population resident on Heron reef (southern Great Barrier Reef) (from Chaloupka and Limpus, 2001; with permission from Elsevier).

Temperature-Dependent Hatching and Sex Determination

The probability of eggs hatching to emerge at the beach surface as hatchlings (Figure 3.2c) and the proportion of female hatchings produced are dependent on the nest temperature (Limpus et al., 1985; Matsuzawa et al., 2002). Female hatchlings are produced at warmer temperatures and males predominately at cooler temperatures (Figure 3.2d), assuming that nest temperature is within the nonlethal limits for hatching (Figure 3.2c). This results in many southwestern Pacific loggerhead populations being female-biased due to the high summer beach temperatures experienced at most loggerhead rookeries in the Southern Hemisphere (Limpus et al., 1994) but not necessarily at those foraging ground populations in close proximity to the regional rookery (see Figure 3.2h; Chaloupka and Limpus, 2001).

Somatic Growth and Maturity

Relevant size-at-age data for Pacific loggerheads were summarized by Chaloupka (1998) for northwestern Pacific pelagic loggerheads (Figure 3.2e) that are exposed to the various fisheries hazards (Figure 3.2f; Chaloupka et al., 2004a). Somatic (body) growth functions for southwestern Pacific neritic female loggerheads have been developed by Chaloupka (2003a) (see Figure 3.2g). Limpus et al. (1994) and Limpus and Limpus (2003a) have shown pelagic loggerheads recruit to a coastal or neritic habitat from the Pacific Ocean at around 70–80 cm curved carapace length (CCL). The pelagic phase is estimated at 10–15 years given size-at-age polyphasic (consisting of two or more phases) growth functions derived for northwestern Pacific loggerheads by Chaloupka (1998) and mark-recapture of notched southwestern Pacific loggerhead hatchlings (Limpus et al., 1994). This is a longer duration than the 6–11-year pelagic

phase duration estimated for Atlantic loggerheads that recruit around 46–64 cm CCL (Bjorndal et al., 2000a, 2003a). Once recruited to a neritic foraging ground in western Pacific coastal waters, there is apparently very little evidence for either ageclass- or sex-specific dispersal behavior (Limpus and Limpus, 2001).

Size-at-age data for neritic female loggerheads were analyzed by Chaloupka (2003a) using Weibull-type growth models (Chaloupka, 2001a) that reflect an accelerated growth phase and longitudinal data derived for southwest Pacific loggerheads (Limpus, 1992; 1994). Some individual-based growth functions are summarized in Figure 3.2g, which indicates a neritic phase duration prior to maturity of around 10–15 years (see Chaloupka, 2003a). This is shorter than for Atlantic loggerheads that recruit at smaller sizes and take longer (20 years) to mature (Bjorndal et al., 2001). The polyphasic pelagic juvenile growth function (Chaloupka, 1998) and the Weibull-type neritic phase growth functions (Chaloupka, 2003a) suggest that Pacific female loggerheads are more than 25–30 years old at maturity, which is consistent with estimates of the age-specific maturation period for Atlantic loggerheads (Bjorndal et al., 2000a, 2001), despite smaller recruitment size for Atlantic loggerheads.

Somatic growth is negligible after the onset of maturity at a size more than 90 cm CCL (Chaloupka, 2003a). There is some evidence for sex-specific growth behavior for Pacific loggerheads (Chaloupka and Limpus, unpublished data) that is known for other Pacific turtle species, such as green turtles along the Great Barrier Reef (Chaloupka et al., 2004b). Male loggerheads grow slightly faster than females at all comparable sizes in the Moreton Bay population resident in warm temperate waters. While Pacific males might grow slightly faster at similar sizes compared to females, it seems that age-at-maturity is similar between the sexes as males are also larger at maturity (Limpus and Limpus, 2003a). Somatic growth and onset of maturity may well be density dependent for loggerheads, but such an effect has only been demonstrated for a green turtle population so far (Bjorndal et al., 2000b).

Ageclass-Specific Survival

There are few reliable ageclass-specific survival probability estimates for loggerheads (see review in Chaloupka and Limpus, 2002). Loggerhead egg survival and hatching probabilities in the Pacific were based on estimates given in Limpus et al. (1985) and Matsuzawa et al. (2002). Clutch loss to tidal inundation, extreme rainfall, or beach erosion is low for the loggerhead populations in the Pacific (Limpus et al., 1985; Limpus and Limpus, 2003a). Egg predation, for example by lizards or pigs, can be high at some southwestern Pacific loggerhead rookeries (Limpus and Limpus, 2003a) but is not a current source of egg mortality for the northwestern Pacific population. Of course, Pacific loggerhead eggs and hatchlings are also (or have been historically) exposed to numerous beach-roaming predators, such as foxes and weasels (Chaloupka, 2003a; Kamezaki et al., 2003). There are no estimates of hatchling or neonate survival given escapement to open water for the Pacific populations—some estimates of survival during the first few hours following escapement to the open ocean have been derived for a Florida loggerhead population of approximately 95% (Whelan and Wyneken, 2007). Bjorndal et al. (2003b) using a catch-curve approach and Sasso and Epperly (2007) using satellite telemetry have derived estimates of oceanic juvenile annual survival probabilities that range from 64% to 81%. No such oceanic ageclass annual survival probability estimates exist for Pacific loggerhead populations. Comprehensive estimates of ageclass-specific annual survival probabilities for neritic immatures and adults have been derived from long-term capture-mark-recapture programs

for populations from the southwestern Pacific loggerhead population, which range from around 88% to 92%, depending on whether transient behavior is accounted for or not (Chaloupka and Limpus, 2001, 2002). While loggerhead annual survival probabilities are ageclass-specific, there are no sex-specific survival probability differences apparent for any loggerhead population (Chaloupka and Limpus, 2002).

Anthropogenic Hazards

The conceptual model used here also provides a basis for a structured approach to risk analysis comprising the following four major components of the risk-chain analysis (Merkhofer, 1987):

- hazard (e.g., coastal trawl fisheries)
- exposure (e.g., during the nesting season off major loggerhead rookeries along the Atlantic coast of Florida or the Carolinas)
- effect (e.g., drowning from entanglement, failure of egg production, recruitment)
- judgment (e.g., if exposure is extensive, loggerhead population decline, which is considered unacceptable and warrants some mitigation strategy)

The major anthropogenic hazards for loggerhead sea turtles in general included in the conceptual demographic model are as follows (Bolten et al., 2010):

- climate change affecting sea level and hence beach washover and inundation of nests (Daniels et al., 2006); nesting beach erosion (Fish et al., 2005) and nesting beach temperature, which affects hatching rates (Matsuzawa et al., 2002); and hatchling sex determination (Limpus et al., 1985; Marcovaldi et al., 1997)
- nest or emerging hatchling predation by feral animals or natural predators attracted by human activity (Chaloupka, 2003a; Kamezaki et al., 2003; Engeman et al., 2005)
- compaction of nesting beaches by human activity (Kudo et al., 2003)
- egg harvesting or poaching on mainland rookeries (Kamezaki and Matsui, 1997; Kamezaki et al., 2003)
- nesting female and emergent hatchling exposure to artificial night lighting (Salmon et al., 1995)
- hunting of nesting females or foraging ground matures and immatures (Kamezaki and Matsui, 1997; Gardner and Nichols, 2001)
- coastal infrastructure affecting nesting behavior and nesting-beach access (Kamezaki et al., 2003; Mazaris et al., 2009)
- coastal development activities in foraging habitat and nesting beaches (Kamezaki et al., 2003; Limpus and Limpus, 2003b)
- coastal fisheries (Poiner and Harris, 1996; Julian and Beeson, 1998; Cheng and Chen, 1997; Chaloupka, 2003a; Peckham et al., 2007)
- pelagic driftnet (Wetherall et al., 1993) or longline fisheries (Polovina et al., 2000; Chaloupka et al., 2004a; Lewison et al., 2004)
- climate change affecting food supply and hence reproductive rates (Chaloupka et al., 2008a)
- boat strike in coastal habitats reported as a major cause of sea-turtle strandings in U.S. waters (Boulon, 2000; Chaloupka et al., 2008b)

It is assumed in this model (Figure 3.1) that neonates are not exposed to major anthropogenic hazards since none appear to be caught in any pelagic fisheries (Wetherall, 1993; Chaloupka et al., 2004a) nor are any known to be caught in subsistence hunting (Gardner and Nichols, 2001). However, ingestion of anthropogenic debris is a serious issue in this ageclass. Tar or debris was found in 20–63% and 15–17% of neonates, respectively, off the coast of Florida (Witherington, 2002). These hazards have a direct effect on the long-term viability of a loggerhead sea-turtle population through the following key demographic metrics (Chaloupka and Limpus, 2001; Matsuzawa et al., 2002; Bjorndal et al., 2003b; Chaloupka, 2003a; Heppell et al., 2003; Limpus and Limpus, 2003a; Mazaris et al., 2005; 2006):

- ageclass- and sex-specific foraging ground abundance
- nester abundance
- ageclass- and sex-specific survival probabilities
- ageclass- and sex-specific dispersal probabilities
- sex-specific breeding probabilities
- hatchling sex ratio
- hatchling production

4
Abundance and Trends

REVIEW OF TECHNIQUES FOR MEASURING POPULATION TRENDS AT NESTING BEACHES

Data-collection techniques at sea-turtle nesting beaches have varied in sampling approach, what is counted, and the methods by which counts are made. Authors generally do not provide detailed justifications for their data-collection techniques, but they often describe their techniques as appropriate for the existing conditions, particularly based on limitations of nesting-beach access, personnel, and equipment. Historical data-collection techniques often influence current techniques. Given the variation in the range of the population covered and whether there are data from individual turtles, it is evident that data-collection techniques are also influenced by authors' choices regarding breadth-versus-depth tradeoffs.

Types of Sampling

One-time sampling describes counts made during a short visit to a nesting rookery. This sampling is used to determine presence and absence and approximate magnitude of species abundance. Data of this kind are seldom published except where they are the only estimates early in a time series (Addison, 1997; Seminoff, 2002). One-time sampling includes serendipitous sampling from recorded images, as in the Kemp's ridley (*Lepidochelys kempii*) nesting-female counts from the 1947 Herrera film (Carr, 1963; Hildebrand, 1963).

Reactionary sampling describes counts initiated at the onset of nesting activity. This sampling relies on a reduced initial effort to detect when formal and more extensive efforts would result in counts being made. The most common example of reactionary sampling comes from counts made following the recognition of an arribada (a mass nesting behavior) of ridleys (*Lepidochelys* spp.) (Valverde and Gates, 1999; Solis et al., 2008).

Systematic or periodic sampling is generally used where counts over an extensive population range or across multiple discontinuous beaches is favored over complete temporal coverage. This sampling is used commonly for aerial nesting surveys (Hopkins-Murphy et al., 2001; Benson et al., 2007; Lauret-Stepler et al., 2007) and occasionally for ground surveys (Bjorndal et al., 1999; Sims et al., 2008). Periodicity of sampling may follow variations on a weekly schedule or may be based on tidal cycles that erase previous days' tracks (Hopkins-Murphy et al., 2001).

Sampling by index location and season allows representative locations and season dates to remain constant throughout a time series (McLachlan et al., 2006; Beggs et al., 2007; Marcovaldi and Chaloupka, 2007; Witherington et al., 2009). Although many factors contribute to the selection of index beaches and seasons, indices are often described by authors as being representative of a population. Choices of index locations are inherently biased by logistical concerns and monitoring history. However, diversity in beach habitat (e.g., wave energy, human development), latitude, and nesting density may buffer these biases and allow representative spatial and temporal trends to be assessed (Witherington et al., 2009). Similarly, broad and consistent seasonal sampling can buffer temporal sampling biases (Witherington et al., 2009; but note the possibility of temporal shifts discussed by Weishampel et al. [2004]). Sampling by

index locations with variable seasons leads to uncontrolled limits on effort that affects the seasonal coverage of counts (Balazs and Chaloupka, 2004a, 2006).

A census describes counts made throughout the nesting range of a population and throughout each nesting season in a time series (Witherington et al., 2009). A census also may include identification of all nesting females in a population, but in practice, researchers have only accomplished censuses for discrete island populations (Chaloupka et al., 2008c). Complete census efforts are expensive and may be unnecessary to obtain useful measures of abundance with which to assess trends (Jackson et al., 2008; Sims et al., 2008).

Counts

Population abundance assessed at nesting beaches may come from counts of eggs, tracks, nests, and nesting females. Harvested eggs have been counted as a representation of reproductive effort and of nesting females with the assumption that there has been a nearly complete harvest. These count data are seldom published except where they are the only abundance estimates early in a time series (Chan and Liew, 1996). Crawls (tracks) have been counted as a representation of reproductive effort and of nesting females with assumptions of constant nesting success (nests and crawls) and clutch frequency (the number of clutches deposited by an individual turtle in a nesting season; Godley et al., 2001). Nests (clutches) have been counted as a representation of reproductive effort and of annual nesting females with assumptions of constant clutch frequency (Beggs et al., 2007; Marcovaldi and Chaloupka, 2007; Witherington et al., 2009). Nesting females have been identified and counted as they attempted to nest (Chaloupka and Limpus, 2001; Balazs and Chaloupka, 2004a, 2006; Dutton et al., 2005; Richardson et al., 2006).

Counting Methods

Interviews to glean historical knowledge and reviews of historical accounts have been conducted to produce count data from informal assessments of nesting abundance (Marcovaldi and Marcovaldi, 1999; Meylan, 1999; Limpus et al., 2003). These count data are seldom published except where they are the only estimates early in a time series.

Morning-after aerial surveys have recorded tracks and nests using observers in aircraft flying the morning following nocturnal nesting attempts (Hopkins-Murphy et al., 2001; Benson et al., 2007; Lauret-Stepler et al., 2007). This method has been used where there is extensive population range, discontinuous beaches, and limited personnel. The aerial counts are typically calibrated to ground counts. Scheduling of aerial surveys often correlates with tides that erase the previous day's tracks (Hopkins-Murphy et al., 2001).

Morning-after ground surveys have recorded tracks and nests using observers on the beach the following morning (Bjorndal et al., 1999; Marcovaldi and Chaloupka, 2007; Witherington et al., 2009). Old tracks are marked by observers the previous day, and the crawl sign is appraised to determine species and nesting success (nests and abandoned attempts) (Schroeder and Murphy, 1999; Florida Fish and Wildlife Commission, 2007).

Density estimates from nesting-female encounters describe methods normally associated with arribadas and other high-density nesting. In this method, representative sampling of turtle density on the beach is used to extrapolate total nesting females (Gates et al., 1996; Valverde and Gates, 1999; Limpus et al., 2003; Solis et al., 2008). A related "stepping index" was used as a

unique method for assigning turtle densities based on historical accounts describing people stepping on turtles for measured distances (Limpus et al., 2003).

Tag-recapture estimates from nesting-female encounters have been made by marking nesting females (typically with external flipper tags and internal passive integrated transponder [PIT] tags) during their nesting attempts and re-identifying the turtles as they make subsequent nests (Chaloupka and Limpus, 2001; Balazs and Chaloupka, 2004a, 2006; Dutton et al., 2005). This method has been used to provide counts of turtles within a nesting season and to estimate total nesting females between multiple years. Temporary marks (paint) have been used on high-density nesting beaches where subsequent "recapture" observations were made in waters off the nesting beach (Limpus et al., 2005). Tagging efforts on most nesting beaches involve extensive effort, typically at night. These efforts are expensive and may result in adverse effects on nesting turtles (Broderick and Godley, 1999) or other beach species like shorebirds (Epstein, 1999).

Modeling Counts and Abundance Estimates

Assumptions of representativeness for all counts are required if they are to apply to population abundance. Representativeness is not an issue for censuses, but most counts described as a census take place on only a portion of the nesting population's range. Composite counts from neighboring projects using similar techniques within a population range are rare (Witherington et al., 2009), even for individual islands (Chaloupka et al., 2008c). However, reviews of nest and nesting-female counts across multiple projects have attempted to estimate population abundance from a variety of counting methods (Broderick et al., 2002).

How counts reflect abundance varies with detectability and availability of things counted and systematic error, such as misidentification due to lost tags. At discrete sampling locations and times, estimates of nesting female abundance are often modeled using an observation probability function, such as a Horvitz-Thompson estimator (a general estimator for a population total, which can be used for any probability sampling plan with or without replacement; Balazs and Chaloupka, 2006) or other estimators of population totals used for varied sampling plans and encounter probabilities. These models include covariates (two or more random variables exhibiting correlated variation) that describe how available a nesting turtle is for being counted given a specified measure of effort. In counting, effort is likely to vary within a time series due to occasional difficulties with weather, personnel, and equipment. Where counts are collected as an index (standardized locations and season) using a fine spatiotemporal scale, missing data have been filled in using Poisson and negative binomial models (Witherington et al., 2009). Tag-loss models describe the probability of misidentifying previously counted turtles as new turtles (Rivalan et al., 2005a). Although this identification error can be factored into models using re-observation rates of nesting females, technological advances in tag persistence (e.g., PIT tags) have allowed the reduction of this error to insignificant rates.

Because counts made on nesting beaches depend on nesting activity, information on reproductive rates is required to use these data for mature female abundance estimates. These reproductive rates often come from more completely monitored nesting beaches, but recently, clutch frequency has been determined from interpretation of satellite transmitter locations (Tucker, 2010). Track counts have the greatest data requirements for estimating mature female abundance, and counts of nesting females have the fewest data requirements. In each type of annual count, abundance estimates must account for nesting females that skip breeding seasons, which is a common trait in sea turtles. Horwitz-Thompson estimators can allow for the effect of

skipped breeding on detection (Dutton et al., 2005) and have provided abundance estimates from nesting-female counts over multiple nesting seasons. Modeling abundance from the identification of nesting females requires minimal additional data on reproductive rates because these rates can be measured as part of the methodology. Identification of nesting females over multiple nesting seasons can also contribute to modeling of mark-recapture rates. Open robust design modeling using mark-recapture data has provided highly reliable nesting-female abundance estimates and detection probabilities, as well as estimated rates for recruitment, survival, and breeding (Kendall and Bjorkland, 2001; Dutton et al., 2005; Rivalan et al., 2005b; Troëng and Chaloupka, 2007).

REVIEW OF TECHNIQUES FOR MEASURING POPULATION TRENDS IN OCEANIC AND NERITIC HABITATS

Data-collection techniques to measure abundance and other demographic characters from sea turtles in the water vary widely, in many of the ways that nesting-beach techniques do. Like counts and other demographic data collected on nesting beaches, authors reporting similar data for sea turtles in the water seldom provide detailed justifications but do often describe the techniques as appropriate given conditions. These conditions vary with behavior specific to a species or life stage, water depth and clarity, currents and sea state, accessibility of habitat, personnel and equipment availability, and funding. Some of these efforts continue standardized methods used historically to assemble comparable datasets.

Incentives to collect demographic information on sea turtles in the water influence the location, timing, and nature of data collection. Few individual research projects are designed to collect population-wide demographic information, and most are focused on local groups of turtles. Other research projects collect demographic information from turtles observed or captured incidentally due to other activities, such as fisheries and power-plant operations. Thus, the location, timing, and nature of these research projects are determined by the operations that provide access to sea turtles. Lastly, personal preferences by individual researchers also have the potential to influence data collection techniques. These preferences may be based on opportunity, skill set, and choices regarding tradeoff between collection of fewer data from more turtles or more data from fewer turtles. In-water project variations notwithstanding, U.S. waters currently have a broadly distributed array of ongoing research targeting sea-turtle species (Eaton et al., 2008; Turtle Expert Working Group, 2009). Proceedings of a workshop on in-water sea-turtle population assessments (Bjorndal and Bolten, 2000) provides a useful introduction to application of catch per unit effort (CPUE), transect, and capture-mark-recapture (CMR) methods in these studies.

Types of Sampling

One-time sampling has been used to detect the presence and absence and to approximate the population density of sea turtles in an area, usually when there is a potential for harm from human activities, such as channel dredging or explosions (National Marine Fisheries Service, 1991; Clarke and Norman, 2005). Counts made during these efforts generally apply to a time- and location-specific relative abundance or density of sea turtles, although spatial or seasonal trends might be used to extrapolate results to a broader scale.

Reactionary sampling has occurred at the onset of turtle-access opportunities, such as following cold-stunning events (Witherington and Ehrhart, 1989) or other stranding episodes (Limpus and Reed, 1985a; Hart et al., 2006; Chaloupka et al., 2008b). An important characteristic of reactionary sampling is that effort is variable or not recorded regularly.

Reporting of sea-turtle observations has occurred as elements of long-term programs (as in stranding recovery) or in shorter-term projects. In short-term efforts, researchers have asked boat captains, divers, or recreational fishermen to submit sea-turtle observation data (Epperly et al., 1995a; Saladin, 2007). In the social sciences, these data from questionnaires and voluntary reports are given extensive statistical assessments for reliability, which accompany common, but controversial, use in quantitative analyses (Manski, 1993). However, use of these reported data in sea-turtle population assessments largely has been qualitative. Reports from biologists conducting counts of other species, typically with measured effort (James et al., 2006), could be considered as a separate category of reporting. However, counting methods and spatiotemporal distribution (over space and time) of effort are likely to be dictated by the need to detect the target species. All data that rely on reporting by second parties might be subject to underreporting (Groves et al., 1992).

Targeted opportunistic effort characterizes many sea-turtle research projects where effort is measured and sampling locations are predetermined but where sampling times are dictated by weather or other haphazard scheduling. Examples include observations or use of equipment, such as nets, that require optimum sea state or other weather conditions. These targeted sampling efforts may occur within a framework of attempted periodic or seasonal sampling (e.g., Limpus and Reed, 1985b). This sampling effort may be targeted to a broad area with haphazardly directed searches for turtles within the area. This method was chosen for small-vessel searches within an aquatic refuge with a GPS recorded search effort (Bresette et al., 2010).

Random sampling of sea-turtle abundance is most commonly used within a stratified schedule (stratified random sampling) where geographic groups (e.g., grid cells) are sampled independently. Stratified random sampling has been used in trawling capture of sea turtles in shelf waters (Maier et al., 2004). In these efforts, the sampling protocol of the Southeast Area Monitoring and Assessment Program (National Marine Fisheries Service Southeast Fisheries Science Center, 2001) has been used repeatedly for structuring randomized trawl samples in time and space within the southeastern United States. In this sampling, stations are distributed among areas where trawling is possible, and multiple species are targeted in addition to sea turtles. Fisheries-observer sampling for sea-turtle bycatch has had sampling effort stratified by the timing and location of fishing effort with fishing vessels selected randomly within each stratum. These strata do not target the highest likelihood of sea-turtle bycatch (Murray, 2008, 2009) and are dependent on sampling locations and times chosen by vessel operators.

Many sampling efforts to count sea turtles take place at standardized index locations with periodic or haphazard scheduling. Extensive examples of these sea-turtle counting and capture efforts in the southeastern United States are given in Eaton et al. (2008) and Turtle Expert Working Group (2009). Authors describing sampling sites as “index” sites report consistently sampled representative locations chosen for high capture or observation success. Repeated sampling of these locations is often seasonal but varies between and within projects. Index locations are inherently biased by logistical concerns and monitoring history, and temporal sampling is most commonly reported to vary due to unscheduled events. One example of continuous sampling at an index location is where sea turtles are drawn into the intake water of a continually operating power plant (Bresette et al., 1998). Although index surveys for stranded

sea turtles have been proposed (Shaver and Teas, 1999), this methodology is not used widely for stranding counts in the United States.

Counts

Removed (killed, taken) turtles are commonly counted and are often represented in reports describing the magnitude of threats and mortality factors or in accounts of historical harvest (Witzel, 1994). Removed sea turtles include those that are bought, sold, or transported. Parts of taken turtles are also reported, such as shell, leather, meat, and stuffed individuals.

Stranded turtles are counted as turtles that have reached land due to illness, injury, or death and that have been reported by trained observers. The U.S. Sea Turtle Stranding and Salvage Network coordinates reporting of these data in the southeastern United States and U.S. islands in the Caribbean Sea (Southeast Fisheries Science Center, 2010). These data most commonly are used in qualitative assessments of abundance (e.g., to detect periodicity in mortality events; Crowder et al., 1995) and generally are presented as being a combined function of both relative abundance and relative mortality (or morbidity). The data also have been used in conjunction with counts of nesting turtles in the same region to estimate mortality (Epperly et al., 1996). In addition to superimposed effects from abundance and mortality, stranding counts are also influenced by physical oceanographic factors, including winds, currents, and temperature (Epperly et al., 1996; Hart et al., 2006). Trends in stranding counts vary with observation and reporting effort (Tomás et al., 2008). Data collection from stranded sea turtles is discussed in more detail in Chapter 5.

Captured sea turtles are counted either as turtles obtained through targeted efforts or as turtles incidentally captured. Capture of turtles allows researchers to collect data in addition to simple counts and to mark released turtles with tags that identify and track. These additional data allow counts to be divided by categories, such as size, sex, and genetic origin. Tagging, release, and recapture of identified turtles facilitate estimation of abundance and survivorship and allows studies of behavior and physiology (Bjorndal et al., 2003c; 2005).

Observed turtles have been counted underwater (Leon and Diez, 1999) and from vessels, land, or air and include turtles recorded both at and below the water's surface with varying levels of associated information. In comparison to turtle captures, turtle observations have a higher encounter rate-per-unit effort but have lower information return per encounter. Occasionally, observation counts are made in conjunction with sea-turtle capture efforts (Bresette et al., 2010).

Counting Methods

Sea-turtle abundance has been estimated from interviews (Epperly et al., 1995b; Meylan 1999), historical accounts (Witzel, 1994; Jackson et al., 2001), and archeological data (McClenachan et al., 2006; Allen, 2007). These data are often the only representations of abundance early in a time series. Because of uncertainty in how these reports and extrapolations apply to actual abundance, little analysis of these data has been conducted. Some counts are discussed in terms of abundance orders of magnitude, and harvest data are most commonly presented without measures of associated effort.

Aerial (Kenney and Shoop, in press), vessel (Bresette et al., 2010), and diver (Makowski et al., 2005) surveys for sea turtles are conducted along transects and vary in two important ways. One is their geographic scope, and another is in the associated data that allow

extrapolation of observations into estimations of turtle density and abundance. Aerial surveys have the largest geographic scope, but there are presumed tradeoffs in low detectability and misidentification of species, especially when flight speeds and altitudes favor marine mammal target species and not sea turtles (Marsh and Sinclair, 1989). Most surveys use a variation of line- or strip-transect methods to estimate relative density and abundance from observations. Some surveys are conducted in conjunction with measurements of turtles' surface time so that an availability function can be used to estimate absolute density and abundance (Mansfield, 2006).

Aerial and vessel surveys for sea turtles can vary in objectives, methods, and operating models, and their spatial extent can range from tens to thousands of square kilometers. Since their first application using light aircraft, most large-scale surveys have applied line-transect theory utilized for population assessment of marine mammals (Buckland et al., 1993; 2004). The Cetacean and Turtle Assessment Program works to detect seasonal (quarterly) patterns and habitat use, covering approximately 280,000 km^2 of the northeast U.S. continental shelf (Shoop and Kenney, 1992). Similarly, in the Gulf of Mexico region, a series of separate geographic blocks were surveyed in order to portray seasonal distribution and abundance patterns (Fritts et al., 1983). In the southeastern United States, large-scale surveys were flown to detect sea turtles from North Carolina to the Florida Keys (e.g., Schroeder and Thompson, 1987), while others were conducted in juvenile or estuarine habitats, such as the Carolinas (Braun and Epperly, 1995) and Chesapeake Bay (Musick et al., 1994). Although sea turtles are included and counted in the long-running Southeast Right Whale Survey coordinated by several states, the National Marine Fisheries Service (NMFS), and the New England Aquarium (Slay et al., 2002), the sea-turtle sightings data were not used for assessment purposes. A detailed review presents aerial-survey design, sampling limitations, and objectives of specific surveys conducted in the United States and abroad (Kenney and Shoop, in press).

The challenges of detecting sea turtles are similar to those for small marine mammals. Issues include detectability, glare, sea state, field of view, observer fatigue, and similarity of appearance. Species identification of sea turtles is difficult, even for well-trained, highly experienced observers (e.g., Marsh and Saalfeld, 1989; Henwood and Epperly, 1999). Individuals smaller than 60–75 cm in carapace length are difficult to detect from fixed-wing aircraft flying at any altitude or speed, although smaller individuals (25–30 cm) may be identified correctly via airship (lighter-than-air craft; Kenney and Shoop, in press). A central issue for aerial assessment of sea turtles is that research design is a complex issue, surveys are costly, and density or absolute abundance estimation present a number of sensitivity issues (Burnham et al., 1985; Gerrodette, 2000).

When surfacing behavior must be considered, a correction factor is used for unobserved animals, but in sea turtles, dive patterns vary with size, species, ambient temperature, and activity (Lutcavage and Lutz, 1997). If a number of species are present in an area, a single correction factor for submerged (undetected) turtles could be highly biased. Other major challenges include assumptions that animals are randomly distributed and can be equally sampled so abundance surveys may be designed to represent expected densities in different habitats.

Novel imaging methods developed for other fields of study have the potential for use in aerial and vessel surveys of sea turtles. These methods would allow both an increase in the proportion of turtles available to be counted and in the recording of observed turtles in a way that would reduce detection bias. For example, vessel-mounted multi-beam sonars currently are in use, which allow imaging of individual fish within schools. The signal resolution of some

systems is sufficient to estimate sizes of individuals in decimeter units out to a distance of 90 m from the vessel (Lutcavage et al., unpublished data). Laser (LIDAR [Light Detection and Ranging]) or radar-based ranging systems have also been used to detect marine animals and image fish schools and, in principle, could detect turtles within the sampled swath (Hunter and Churnside, 1995; Brill and Lutcavage, 2001), although high costs and expensive post processing have limited its use. High-resolution video and still photography coupled with attitude sensors that enable spatial- or geo-referencing (assigning geographic coordinates to an image) are new approaches that might be used in aerial surveys. These imaging techniques allow recording of observations and estimation of size for detected targets and could be combined with computer software "trained" to recognize species differences that cannot be discerned by human observers. Integration of new technology and engineering solutions might help overcome the current limitations of aerial surveys, namely species identification, size estimation, and presence of submerged animals. Coupled with species-specific understanding of dispersal rates, vertical behavior, and environmental associations from data-logging tagging studies, direct aerial or in-water surveys may lead to better indices or absolute estimates of regional abundance.

Sea-turtle capture methods vary fundamentally by whether they have a measurable associated effort and whether sea turtles are the targeted species. Targeted sea-turtle capture methods with effort measured by net-soak time, tow time, and net size include use of tangle nets and trawl nets (Ehrhart and Ogren, 1999). Other targeted capture methods with variable potential for measures of effort include use of hand capture (Limpus and Reed, 1985b; Bjorndal et al., 2005; Bresette et al., 2010), dip nets (Witherington, 2002), hoop nets (Beavers and Cassano, 1996, James and Mrosovsky, 2004), and strike nets (Ehrhart and Ogren, 1999). However, some researchers have used measured effort associated with initial observation of turtles that are later captured by these methods (Leon and Diez, 1999; Witherington, 2002; Bresette et al., 2010).

Incidental capture of sea turtles may have either a measured or an uncertain effort associated with turtle captures. Captures from fisheries, including pound nets, trawls, gill nets, seine nets, longline hooks, and rod and reel, have varying levels of recorded effort that depend on cooperation and communication with fishermen. In some cases, close relationships between researchers and fishermen allow high certainty of effort measurement (Epperly et al., 2007). In the case of power-plant entrapment, effort is measurable in terms of water flow and is constant except for occasional outages (Bresette et al., 1998).

Modeling Counts and Abundance Estimates

Data representing observed turtles are applied most commonly to measures of relative abundance or density using point-count, strip-transect (Marsh and Saalfeld, 1989), or more commonly, line-transect methods (Epperly et al., 1995b; Beavers and Ramsey, 1998), each with assumptions regarding detectability and availability (Buckland et al., 1993). Point-count methods are generally thought of as methods to approximate indices of relative abundance and are not commonly used to estimate abundance or density. Although this method has an assumption of constant proportionality between observation periods (a constant probability of detection), it does not allow this assumption to be tested.

The best example of modeling estimates of relative abundance from transect observations is the use of distance methods (Buckland et al., 2001; Eguchi and Gerrodette, 2009) where observers measure the distance to each observed animal. Using these methods, it is possible to

model detectability of subjects and their density, using observed distances and counts, and researchers model the reduction in detection probability with distance from a transect, assuming perfect detectability on the line itself, or specify an effective strip width that includes a high proportion of observed animals. In the past decades, there has been sufficient development of line- and strip-transect approaches, and a substantial body of peer-reviewed and technical literature addresses theory, analytical assumptions, and practical applications of survey design for in-water studies. Assumptions of line-versus-strip-transect theory dictate survey protocols and sampling design, and reviews conclude that line transects are preferred because they require fewer assumptions about detectability and use all of the sightings in the analysis (Burnham et al., 1985; Marsh and Sinclair, 1989; Kenney and Shoop, in press).

CPUE is a measure of relative abundance that may involve removal of turtles from the population and may be applied to a variety of methods, including intentional capture for research and bycatch from fisheries. However, CPUE does not always have a linear relationship with density (Hilborn and Walters, 1992). Fisheries studies have shown that this non-linear function is most common for the circumstances under which sea turtles are typically captured by individual research projects, namely captures of clustered animals with effort concentrated in a small spatial scale where turtles are most abundant. Sample biases, inconsistent methods between projects, and low and variable capture rates can make it difficult to justify statistically the use of CPUE as a quantitative index of abundance. However, pooling of regional capture efforts may reduce this difficulty. Within a capture project, reducing sampling bias would rely on standardization of sampling season, capture gear, and other methods affecting capture efficiency. Ideally, sampling would be randomized in space and time, especially if CPUE is to apply regionally. However, non-random sampling, as at individual index sites, can be valuable for assessing qualitative annual trends. The problems with the reliability of CPUE to represent relative population abundance are likely to be reduced as multiple capture projects are used within a regional meta-analysis. Although unlike regional aerial surveys, a multi-project CPUE analysis would still rely on discrete sampling points, but benefits over aerial observations would include positive species identifications and separation by sex, genetic population, and size (age).

CMR estimates of abundance are possible wherever sea turtles are captured by any method, with or without measured capture effort, as long as recapture rates are sufficiently high (Le Gall et al., 1986; Chaloupka and Limpus, 2001). CMR also includes marking (e.g., painting) and resighting of turtles, which would not involve physical turtle recapture. In addition to abundance estimates, captures and CMR modeling allow assessment of information on demographic structure and survivorship rates. Pine et al. (2003) offer a review of study designs using CMR under a variety of assumptions and information needs.

As with CPUE from individual capture project locations, CMR estimates of abundance can represent regional population abundance more powerfully if estimated using multiple capture sites. CMR data collection coordinated within a networked array of sites, including nesting beaches, would provide one of the most detailed and powerful datasets possible for assessments of sea-turtle abundance and for measurement of many important demographic rates (Chaloupka and Limpus, 2001; Bjorndal et al., 2005). Wider networking of capture sites allows a wider inclusion of turtles' state variables, such as sex, genetic identity, size, physiological condition, breeding status, and geographic location.

Integrative Methods

In many cases, aerial surveys are undertaken to assess a range of air-breathing species (e.g., Marsh and Sinclair, 1989; Palka, 2000), but their distributions and dispersal patterns may not be similar. This is especially true in foraging areas since sea birds, mammals, and sea turtles target different prey and would tend to aggregate where their food is concentrated. How well in-water surveys represent true abundance is never known, but surveys that better utilize existing knowledge of sea-turtle dispersal rates, vertical behavior, and environmental associations are needed. Application of sonic tracking and satellite telemetry can be used to provide context for interpreting surface abundance patterns and linkage between study areas (Blumenthal et al., 2006). Integrative studies using different technologies are being applied currently to large pelagic fish and sharks (see Nielsen et al., 2009). For example, are habitats being used primarily for feeding, refuge, transit, nesting, or mating? Novel sensors that record behavior, such as orientation magnetometers or "Daily Diary" tags (e.g., Wilson et al., 2008), mouth sensors (Hochscheid et al., 2005; Myers et al., 2006; Fossette et al., 2008), or stomach temperature "pills" developed by Southwood and Kirby (2008), can detect foraging events, and GPS-satellite linked tags provide high-resolution locations for where events occur. Various behaviors have been monitored using animal-borne imaging systems (e.g., critter cams; Heithaus et al., 2002; Reina et al., 2005; Seminoff et al., 2006; Arthur et al., 2007). Acoustic arrays, video monitors, and tracking networks now deployed primarily to track marine mammals or fish species may be used to monitor behavior of sea turtles in a variety of habitats or "hotspots." Broad-scale deployment of acoustic receiver systems, such as the Ocean Tracking Network (O'Dor and Stokesbury, 2009), establishes the potential to integrate information on sea-turtle movements across state and national boundaries.

Integrated spatial and temporal information on dispersal behavior is necessary to understand and inform interpretation of abundance patterns obtained via aerial or in-water methods. In addition, oceanographic, remote sensing, and climactic information (e.g., presence or strength of El Niño, Gulf Stream eddies, tropical depressions) provide additional context for understanding abundance patterns (Saba et al., 2008; Mansfield et al., 2009a).

In ecosystem approaches to marine resource management, there is a new emphasis on fishery-independent surveys to provide better assessment tools and understanding (Cotter et al., 2004; 2009; Jennings, 2005). Some of these approaches include the development of indicator series of survey-based models (Rice and Rochet, 2005), which may offer good applications for sea-turtle assessment, that by tradition lack CPUE-based frameworks.

CONCLUSIONS AND RECOMMENDATIONS

Measuring Population Trends at Nesting Beaches

Conclusions:

- Choice of techniques to estimate adult-female abundance on nesting beaches has been influenced by logistics, personnel availability, opportunity, existing networks, and historical data. Few studies have sought to optimize information gathered given resource expenditure.
- Most U.S. nesting beaches have programs in place to count nests as a measure of sea-turtle abundance. These programs have extensive geographic coverage but do not

provide direct turtle counts, measure recruitment, or estimate adult-female survival and reproductive rates. Few programs measure representative egg-to-hatchling survival.

- Multi-annual near-saturation tagging of nesting females on the nesting beach provides a straightforward way to count turtles, measure recruitment, and estimate survival and reproductive rates, but this level of effort is extensive and would be difficult and expensive to maintain throughout a population's range and nesting season for a statistically powerful time series.
- Seasonal nest counts require a lower effort per spatiotemporal unit. However, these counts estimate adult females indirectly (with associated error) and do not produce other information on vital rates.
- Interpretation of tracking data to measure reproductive rates has been used as a substitute for direct identification of large numbers of nesting females through tagging studies.

Recommendations:

- NMFS and the U.S. Fish and Wildlife Service (USFWS) should work with the states, and with other countries, to coordinate existing nesting-beach data collection so that effort is balanced between geographic scope and depth of gathered information. (See Chapter 7 for additional discussion on coordination.)
- Agencies should facilitate a tiered method of nesting-female abundance counts at beaches spanning a spectrum of data scope (breadth and depth proportions). An example of such a tiered methods set is (1) standardized population-wide track or nest counts with spatiotemporal sampling that could detect biologically significant spatial trends; (2) nest counts at representative index locations and seasons with spatiotemporal sampling over a sufficiently long time series that would detect biologically significant spatial and annual trends (e.g., a change of 1% per year); and (3) near-saturation identification tagging at representative index locations and seasons with mark-and-recapture rates with sufficient statistical power to detect biologically significant changes in annual number of nesting females, breeding rates, recruitment, and survivorship.
- The proposed methodological tiers would ideally be divided among existing research and conservation efforts and groups. For example, beach surveyor networks coordinated by government agency, non-profit, and university-organized entities, are effective in maintaining broad-scale track and nest counts for long time series. These groups may also coordinate indexed nest counts and conduct near-saturation tagging efforts. However, extensive tagging programs may also be attractive to individual researchers from consulting firms and universities due to the potential such projects have for ancillary basic and applied research.
- Because existing datasets and data-collection networks are an important consideration for planning efforts to measure nesting female abundance at beaches, attention should be given to coordination and training that would focus existing data collection on statistically valid and powerful sampling and methods, measurement of observational error, and the recording effort.
- NMFS, USFWS, and the states should facilitate representative sampling of nesting females tracked with satellite tags, GSM phone tags, or other technologies to describe clutch frequency and test hypotheses on nesting-site fidelity. These methods have a lower potential to generate survival rates in comparison to extensive marking with PIT and external flipper identification tags. However, these tracking methods are useful for

estimating clutch frequency in populations that nest over a broad geographic range where the rate of mark-recaptures per unit effort is low. Remote tracking efforts that take place in conjunction with extensive marking of nesting turtles are recommended as a powerful combination of comparative methods.

Measuring Population Trends in the Water

Conclusions:

- Given an extensive distribution of ongoing studies of sea turtles in the water, there is the potential for an integrated network of sampling projects to assess abundance and trends on local and regional scales.
- This integrated network would comprise intensive, low-variance measures of relative or absolute abundance in multiple, turtle-dense areas (i.e., index sites), and less-intensive, broad-scale measures of relative abundance throughout the same region. Index sites may need to be broad geographically where turtle densities are determined by transient oceanographic features.
- Establishment and coordination of an integrated network, participant training, data sharing, and effective data management will require NMFS to provide resources, such as specialized program funding, expertise, and adequate staff.
- Assessments of relative abundance are sufficient for determination of trends; however, localized measures of absolute abundance are helpful in evaluating incidental catch and mortality and other takes.
- CMR efforts at various international locations have contributed to local and regional analyses using open robust design models to estimate relative or absolute abundance.
- Less-intensive, broad-scale measures of regional relative abundance (e.g., aerial surveys) are not a substitute for abundance measures from index sites. However, broad-scale surveys can fit into an integrated network of sampling projects by calibrating counts between well-sampled index sites and poorly sampled sites, by identifying spatial overlap with fisheries and other human activities, and by providing the only possible measure of relative abundance for inaccessible areas.
- Broad-scale measures, such as aerial surveys, may not be appropriate for estimates of regional abundance because of costs associated with long-term sampling and maintenance of extended synoptic surveys, but they are most useful when coupled with measures of detectability and availability that allow estimation of turtle density.
- Measures of relative abundance from aerial surveys will become more useful when detectability is improved by application of new technologies (e.g., LIDAR, multi-beam sonar) and with collection of more detailed information that would allow abundance to be assigned to specific size or ageclasses of a population's conceptual model. For example, new instrumentation, such as image mosaic and rectification, will allow accurate size assessment and help define relationships and demographic overlap of surveyed areas with index sites where turtle life stages and genetic stocks are known.
- Fisheries observer data can contribute to relative abundance estimation where effort and vulnerability to capture (or detection) is understood (how it varies with catch rate) and where information is collected that would allow abundance to be assigned to ageclasses of a population's conceptual model.

Recommendations:

- NMFS should play a leadership role in assessments of sea-turtle abundance and trends by funding and coordinating an integrated network of sampling projects.
- Index sites should have internal (within-project) consistency in methods. Methods should be standardized between sites with similar sampling conditions but need not be standardized among all index sites.
- Random or periodic sampling at index sites is recommended to reduce sampling bias; however, consistency in bias should allow determination of representative trends in relative abundance.
- Index sites should be representative of geographic areas, genetic stocks, and life stages.
- Effective coordination should include training participants in network protocols and data reporting, application of incentives, and stipulation of requirements to achieve data sharing.
- Effective data management should include open access to data, metadata, and data products and facilitation of analyses by third parties.
- To improve its program for assessing abundance and trends, NMFS should develop a networked array of sites, having long-term CMR efforts that would support local and regional analyses with open robust design models to estimate relative or absolute abundance specific to ageclasses in the conceptual models of populations. Assigning abundance to a conceptual model implies that turtles are identified by their genetic stock and that abundance measures apply to specific life stages. Secondarily recommended for multiple index sites are measures of relative abundance with quantified effort and estimated values for detectability, having relative abundance measures that can be assigned to specific ageclasses of a population's conceptual model. This includes most in-water capture studies with quantified effort.

5
Demographic Rates

Knowledge of demographic rates and trends are essential for accurate assessments of sea-turtle populations, as outlined in Chapter 3 in the discussion of the conceptual model. The reasons for changes in sea-turtle abundance cannot be diagnosed—nor can management plans to mitigate declines in populations be developed—without knowledge of demographic parameters. In this chapter, the various demographic parameters and methods to generate estimates for these parameters are introduced. Applications for the different demographic parameters are further described in Chapter 6.

All demographic parameters exhibit variation within and among species and populations and over space and time; some parameters, such as clutch frequency (i.e., the number of clutches deposited by an individual turtle in a nesting season), interbreeding intervals, and somatic growth rates, vary within individuals over time. To develop an accurate assessment, these data need to be collected across populations, at large spatial scales, and over many years. Caution is needed when extrapolating estimates among species and populations and even within populations for different years and habitats. However, parameter estimation that accounts for this variation is costly. Methods to estimate demographic parameters at reasonable cost are needed so parameters can be monitored frequently to detect changes in these vital rates. Moreover, estimation of variance about the mean, not just point estimates, is critical.

The ecological context of demography—that is, the key environmental mechanisms, such as resource availability, temperature, current systems, and oceanic productivity, that regulate demographic rates—is necessary to understand sea-turtle population status and trends fully. This knowledge is critical to predict the changes in sea-turtle populations that will occur with climate change and with oceanic regime shifts that have profound effects on many important sea-turtle habitats.

Demographic parameters are not of equivalent value for diagnosing status and trends in populations. Some vital rates are influenced more by environmental factors—probably acting largely through nutrition—than others. For example, with reproduction, nutrition affects age at sexual maturity, clutch frequency, and the number of years between breeding season, but clutch size is not affected (Bjorndal, 1985). In populations with ample, high-quality food, somatic growth rates, body condition, and clutch frequency will be high, and interbreeding intervals will be low. Populations with poor food resources or those approaching carrying capacity, where competition for food is high, will exhibit the opposite.

BREEDING RATES AND ADULT-RECRUITMENT PROBABILITIES

In most species of sea turtles, females generally do not reproduce in consecutive years but at variable intervals of two years or more. The probability that a female will reproduce in any given year (breeding rate) is affected by nutrition (Bjorndal, 1985), environmental factors, and migration distance between foraging grounds and nesting beaches (Limpus and Nicholls, 2000; Solow et al., 2002; Troëng and Chaloupka, 2007). Knowledge of breeding rates is critical for understanding the highly variable numbers of clutches deposited in successive years at nesting beaches (Hays, 2000; Broderick et al., 2001; Solow et al., 2002) and for interpreting population trends.

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Estimates of breeding rates for females have been derived from mark-recapture studies on nesting beaches using an "open robust design"—a specific mark-recapture method—for hawksbills (*Eretmochelys imbricata*; Kendall and Bjorkland, 2001) and leatherbacks (*Dermochelys coriacea*; Dutton et al., 2005). Mean remigration interval (the number of years between successive breeding seasons) has been estimated more commonly in sea-turtle studies and approximates the inverse of breeding rate. Although not as useful as breeding rate for demographic models, remigration intervals do offer important insights into the productivity of the population and population density relative to carrying capacity (Saba et al., 2007; Troëng and Chaloupka, 2007). Remigration intervals are usually measured by the number of years that elapse between sightings of individual tagged females at the nesting beach. Thus, values are biased to shorter intervals because of tag loss and human-induced mortality since the probability of both factors increases with the length of the remigration interval. Values are biased to longer values when incomplete sampling on the nesting beach results in females being missed in intervening breeding seasons.

Breeding rates for male sea turtles are poorly studied, and more information is needed. Males may breed at greater frequency than females; substantial proportions of males may reproduce annually (Hamann et al., 2003). Newer techniques, such as ultrasound, are very useful and minimally invasive for evaluating the reproductive condition of adult sea turtles of both sexes. By first locating the kidney as a landmark in the male, the size and density of the testis and epididymis (parts of the male reproductive system) can be determined and the diameters of epididymal tubules measured for comparative studies (Blanvillain et al., 2008). Male breeding rates will inform our understanding of the proportion of males in a population required for successful reproduction and possible depensation effects. (Refer to the "Density Dependence" section for more information on depensation.)

Recruitment of females into the breeding population or the proportion of first-time breeders in a nesting population are critical parameters for assessing population trends. For example, if a nesting population is increasing in abundance, is that increase the result of increased recruitment of first-time breeders, increased survival of mature females, or both? In nesting populations subject to saturation tagging (wherein every female is tagged) for a duration longer than the remigration intervals with no loss of individual identification through tag loss and no immigration due to low levels of fidelity, recruitment can be measured directly as the number of females that arrive with no tags (Richardson et al., 2006; Dutton et al., 2007). Few studies, however, meet these requirements. Another technique, laparoscopy, can be performed on female sea turtles at rookeries to determine the proportion of females that are first-time breeders or performed on foraging grounds to assess the proportion of recruits among the females preparing to breed that year (Hamann et al., 2003). However, a method that is less invasive and more rapid is needed to distinguish recruits from females that have nested in previous seasons.

FECUNDITY

Fecundity is the reproductive output of an individual or a population. In sea turtles, fecundity is usually measured as the number of eggs deposited during a nesting season, which when combined with breeding rates (see above) yields estimates of lifetime fecundity (average breeding rate multiplied by average reproductive lifespan). Within a nesting season, egg output for an individual is the product of the number of clutches deposited (clutch frequency) and the number of eggs in each clutch (clutch size). Egg size is usually not considered a measure of

fecundity. However, because egg size is both a measure of offspring quality and a component of estimates of resource allocation to offspring production, it is included in this discussion. Production of healthy hatchlings is another, and perhaps better, measure of fecundity than the production of eggs; therefore, the committee also addresses fertility, temperature-dependent sex determination, and hatching success.

Egg Production

Clutch frequency is an extremely important demographic parameter for both population models and assessing trends in population abundance. Many monitoring programs on nesting beaches rely on nest counts to generate estimates of, and trends in, population abundance with the explicit assumption that clutch frequency is constant over time. This parameter requires frequent monitoring because clutch frequency may vary among years (Broderick et al., 2003). For example, clutch frequency varied substantially with quality of nutrition in green turtles (*Chelonia mydas*; Bjorndal, 1985), indicating that varying resource and environmental conditions affect clutch frequency. Attempts to measure clutch frequency largely have been based on saturation-tagging programs on nesting beaches. Because of the length of the reproductive interval and the distance over which females deposit nests in a given season, intercepting females at each emergence is challenging. For example, in Florida, individual loggerheads (*Caretta caretta*) have been recorded nesting up to eight times in one season over an 82-day interval (Tucker, 2009), and an individual female deposited nests along the east coast of Florida separated by 182 km during one season (Bjorndal et al., 1983). Hence, many published estimates of clutch frequency need to be viewed with caution.

Other approaches have been employed to estimate clutch frequency and deserve further development. Radio and satellite telemetry have both been used. Radio telemetry is limited by the relatively short transmission distance and labor intensive nature of monitoring. The relatively large location error of satellite telemetry has limited its application but does not preclude its application (Tucker, 2009). This technology will become more valuable as telemetry systems that generate more accurate locations are developed. Rivalan et al. (2006b) estimated clutch frequency in leatherbacks at French Guiana by using mark-recapture data to model stopover duration. A recent initiative used genetic markers from one egg in each clutch deposited in Georgia to identify the individual female that had deposited each clutch and thus the number of clutches deposited by each female (Brian Shamblin, personal communication). Methods to estimate clutch frequency that are relatively inexpensive and can be applied repeatedly at nesting beaches around the world are greatly needed.

Clutch size may be the only demographic parameter for which there is adequate data. The most accurate counts of clutch size are made during the egg-laying process, but with proper training and experience, accurate egg counts can be determined from pieces of egg shells during nest inventories after hatchlings have emerged (Miller, 1999). Unlike clutch frequency, clutch size apparently is not affected significantly by environmental factors (Bjorndal, 1985; Bjorndal and Carr, 1989). Clutch size does vary substantially within populations or individuals over time (van Buskirk and Crowder, 1994; Broderick et al., 2003). Female body size accounts for some of this variation, as does time within the nesting season (Frazer and Richardson, 1985; van Buskirk and Crowder, 1994; Broderick et al., 2003). A better understanding of the basis for this variation would be valuable for evaluation of the importance of clutch size as a basis for population assessment.

For a parameter that is so easily measured, there are surprisingly few data on egg size in sea turtles. Egg size is measured most commonly as egg diameter, but egg mass and volume have also been measured. Egg size varies substantially among sea-turtle species (van Buskirk and Crowder, 1994) and perhaps between populations and individuals of the same species. Substantial variation in hatchling size has been shown recently for flatback (*Natator depressus*) populations (Whiting et al., 2008). Again, accounting for the variation in egg size, evaluating the relationship of egg size to hatchling size (see van Buskirk and Crowder, 1994), and determining whether egg size is significantly affected by environmental factors would be valuable in assessing the importance of egg size as a factor in population assessment.

Hatchling Production

Survival from egg deposition to the emergence of hatchlings from the nest is the best quantified for any life stage of sea turtles. However, given the accessibility of this stage, the number of quantitative studies, particularly for natural nests that have been subject to management interventions, is surprisingly low (National Research Council, 1990). Paucity of published data is due primarily to three factors: the difficulty of marking and following nests, the substantially longer monitoring season that is required to quantify hatching success throughout the season, and the lack of publication of many of these studies.

Determining hatching success is critical for the assessment of sea-turtle populations. Relying solely on the number of nests deposited to estimate hatchling production can lead to serious overestimates. At Tortuguero, Costa Rica, the largest green turtle nesting population in the Atlantic, Horikoshi (1992) reported that hatchling success was substantially reduced by high groundwater levels that drowned many nests, although no problem was apparent from surface observation of the beach.

Many factors, both natural and anthropogenic, can affect embryonic survival and lower hatching success (Lutcavage et al., 1997). Techniques for evaluating hatching success have been summarized by Miller (1999). Loss to predators, both natural predator populations and those introduced or subsidized by humans, can be very high (Stancyk, 1982). For example, raccoon populations that had increased above natural levels as a result of human activities were responsible for predation of up to 97% of loggerhead nests on some beaches in Florida (National Research Council, 1990).

Although fertility of eggs deposited by sea turtles is generally high, probably exceeding 95% (Miller, 1997; Bell et al., 2003), low egg fertility can be a problem. Thus egg fertility needs to be monitored in studies of hatching success. Decreased egg fertility in leatherback eggs from Terengganu, Malaysia (Chan, 1989), probably resulting from a reduction in the ratio of males to females, has been identified as a factor contributing to the dramatic decline of nesting at that rookery (Chan and Liew, 1996).

All species of sea turtle exhibit temperature-dependent sex determination (Wibbels, 2003). That is, the temperature at which an embryo develops is primarily responsible for determining the sex of the hatchling (but see LeBlanc and Wibbels, 2009). In sea turtles, females are produced at warmer temperatures and males at cooler temperatures. Therefore, the primary sex ratio—the sex ratio of hatchlings—can vary greatly among clutches, among months within a nesting season, among nesting seasons, and among nesting beaches. Environmental changes, such as construction of tall buildings in Florida that shade the beach and lower sand temperatures (Mrosovsky et al., 1995) and removal of trees behind the nesting beach at

Terengganu resulting in higher sand temperatures (Chan and Liew, 1996), can have substantial impacts on the sex ratio of hatchlings. Currently, hatchling sex can only be identified reliably from gonad histology or morphology (Ceriani and Wyneken, 2008); a nonlethal, accurate technique that could be used on a large number of hatchlings is greatly needed (Wibbels, 2003). Such a technique will be critical for monitoring responses of populations to climate change. As temperatures warm, primary sex ratios may shift toward more females. Because many nesting beaches already produce primary sex ratios strongly biased toward females, there is concern that the proportion of males will be insufficient and fertility of eggs could decline (Hawkes et al., 2007; Poloczanska et al., 2009). Laparoscopy may be a nonlethal technique for determining sex in hatchlings (Wyneken et al., 2007) and could be investigated.

SURVIVAL PROBABILITIES

One of the greatest gaps in developing the conceptual model is survival estimates of immature turtles and nesting females in all species. Survival of turtles through embryonic development to their emergence from the nests is discussed above (see "Fecundity" section).

Adult Females

Survival estimates for adult females have been derived from mark-recapture studies using open robust design for hawksbills (Kendall and Bjorkland, 2001) and leatherbacks (Dutton et al., 2005). Currently, this analysis is the best available approach for estimating survival probabilities based on mark-recapture data at nesting beaches, if sufficient data are available. Survival estimates have also been generated from recovery analyses (Campbell and Lagueux, 2005; Troëng and Chaloupka, 2007) and a model of remigration intervals (Solow et al., 2002). Applying more than one approach to a population can increase confidence when the independently derived estimates are similar. For green turtles nesting at Tortuguero, Costa Rica, four analyses using three techniques yielded similar estimates of annual survival probabilities for adult females (Solow et al., 2002; Campbell and Lagueux, 2005; Troëng and Chaloupka, 2007).

Despite multiple calls for new studies (see Table 1.2; Turtle Expert Working Group, 2000; Heppell et al., 2003), there have been few attempts to update survival-rate estimates by mark-recapture analysis for loggerhead turtles nesting in the United States (e.g., Hedges, 2007), and current models still rely on results from the 1970s when mark-recapture studies were conducted at Little Cumberland Island, Georgia (Richardson et al., 1978; Frazer, 1983). The survival rates from those studies were not estimated with the open robust design methods that have been developed to account for detectability of nesting females (Kendall and Nichols, 2002) but did account for tag loss. Efforts to assess loggerhead status and interpret trends in nests with lifecycle and simulation models have been stymied by the lack of new estimates (Turtle Expert Working Group, 2000; National Marine Fisheries Service Southeast Fisheries Science Center, 2001). This has also prevented proper evaluation of the effectiveness of management actions, such as the implementation of turtle excluder devices (Epperly and Teas, 2002).

Survival of nesting female Kemp's ridley (*Lepidochelys kempii*) turtles was estimated through a model-fitting exercise where a simple age-structured model was fit to nest census counts from Mexico to obtain a point estimate of annual survival before and after 1990 (Turtle Expert Working Group, 2000; Heppell et al., 2005). This was a unique circumstance because all nesting by this highly endangered species was largely restricted to one well-monitored nesting

beach, and the population had exhibited changes in trends over time that provided contrast for model fitting. However, the estimate was not empirically based, and additional analysis of existing mark-recapture data of females tagged with passive integrated transponders (PITs) needs to be done (Heppell et al., 2007).

Immature Turtles

The paucity of estimates of annual survival for immature sea turtles on their oceanic and neritic (nearshore) foraging grounds limits the ability to assess sea-turtle populations. Mark-recapture models based on tagging studies (Chaloupka and Limpus, 2002; 2005; Bjorndal et al., 2003c; Campbell and Lagueux, 2005; Braun-McNeill et al., 2007) and catch-curve analyses (Frazer, 1987; Bjorndal et al., 2003b) have been used to generate estimates. A serious limitation for both of these approaches, particularly in Atlantic populations in which immature turtles tend to move among foraging grounds to a greater extent than in the Pacific, is the confounding of emigration and mortality in estimates of apparent survival (usually referred to as phi). Differences between apparent survival and true survival can be substantial in populations of immature sea turtles (Bjorndal et al., 2003c). Estimates of survival not confounded with emigration are possible with Burnham models (Burnham, 1993; Catchpole et al., 1998), a joint analysis of live-recapture and dead-recovery data (Bjorndal et al., 2003c; Seminoff et al., 2003), if sufficient data are available. Transients, which are usually identified as marked animals seen only once in a study area, can lead to biased estimates of survival probabilities (Pradel et al., 1997). Accounting explicitly for transient behavior of marked sea turtles has been undertaken in few studies of sea-turtle survival probabilities (Chaloupka and Limpus, 2002; Sasso et al., 2006) but needs to be explored further. Another common technique in fisheries, catch-curve analyses, requires knowledge of size-at-age, which can limit applications to sea-turtle populations, and needs to incorporate differential growth rates and recruitment.

Data from strandings of sea-turtle carcasses cannot be used to estimate survival probabilities. However, stranded carcasses can be used to assess abrupt changes in mortality due to changes in fisheries or disease outbreaks or to track the incidence of diseases. Stranding data are most valuable in hazard-specific analyses (Crowder et al., 1995; Chaloupka et al., 2008b) because the proportion of the population represented by stranded turtles is unknown.

A major anthropogenic hazard for sea turtles worldwide is incidental capture in shallow-set pelagic longline fisheries (Lewison et al., 2004). Many turtles caught in these fisheries are alive when released from the gear (Gilman et al., 2007), but it is widely assumed that a substantial number will die soon after because of injuries caused by hooks or line entanglement (Lewison et al., 2004). However, there are few reliable estimates of post-release mortality for sea-turtle species despite being essential for risk assessment and hazard mitigation. Chaloupka et al. (2004a) and Sasso and Epperly (2007) used satellite telemetry to estimate post-hooking mortality for loggerhead sea turtles but point out the limitations of this methodology, including inadequate sample sizes and premature release of satellite tags, that make it difficult to derive reliable cause-specific mortality estimates.

DISPERSAL PROBABILITIES

Movement of Adult Females between Rookeries

To date, all measured probabilities of female movements between rookeries are too low to impact management plans. Nesting females are highly philopatric (i.e., return to their birthplace), but the degree of site specificity varies among species. Loggerhead nesting populations may show population structure (mitochondrial DNA differentiation) on a scale of less than 100 km (Bowen et al., 2005), green turtles on a scale of 500 km (Dethmers et al., 2006), and olive ridley (*Lepidochelys olivacea*) and leatherback turtles on a scale of more than 500 km (Lopez-Castro and Rocha-Olivares, 2005; Dutton et al., 2007). This information is important because the degree of site specificity and the scale of population structure determine the appropriate sizes of management units (see Chapter 2) and determine the extent to which nesting populations will reinforce each other.

These geographic scales are supported in some species by tag-recapture data from renesting females. However, long-distance relocations (beyond the geographic ranges outlined above) are documented for nesting females. LeBuff (1974) demonstrated a loggerhead female relocating from southwest Florida to southeast Florida, and at least two tagged females have switched from Tortuguero to other locations in the Caribbean (citations in Bowen et al., 1992). A low level of switching between nesting sites is beneficial and probably necessary for the long-term persistence of sea-turtle species. In view of epochal changes in climate, oceanography, and geography, the appropriate nesting sites of the Pliocene (for example) are not the same as the ones today. Shifting among nesting beaches allows sea turtles to respond to a changing world.

Dispersal of Immature Sea Turtles

Immature sea turtles generally undergo two phases of dispersal (both of which are poorly understood): (1) hatchlings disperse away from the nesting beach into oceanic habitats following emergence from the nest and (2) immature turtles disperse from oceanic habitats when they recruit to neritic habitats, usually years before reaching sexual maturity. Once on neritic foraging grounds, immature turtles tend to move among foraging habitats. Knowledge of movements of immature sea turtles has improved through increased flipper tagging of immatures, satellite telemetry, genetics, and stable isotopes, revealing a more complex series of dispersals in some turtles (Eckert and Martins, 1989; Eckert, 2002; Bolten, 2003a; Harrison and Bjorndal, 2006; McClellan and Read, 2007; Reich et al., 2007).

Evaluation of dispersal of hatchlings has been limited to direct observations (Frick, 1976; Witherington, 1991), tissue transplants or "living tags" (Wood and Wood, 1985), shell notching (Limpus, 2009), and evaluation of current patterns (Blumenthal et al., 2009b). Over 43,000 Kemp's ridley hatchlings were marked with internal wire tags from 1996 through 2000 (Caillouet, 1998; Snover et al., 2007). All of these techniques have well-documented limitations. The greatest challenge for any mass-hatchling tagging program (e.g., with wire tags or PIT tags) is the ability to intercept and recognize these marked turtles in their juvenile stages. The feasibility of an improved program of marking large numbers of hatchlings so they can be recognized when they appear in oceanic or neritic foraging grounds could be explored.

In 2009, neonate loggerheads were tracked successfully with highly miniaturized satellite transmitters initially designed for birds (Mansfield et al., 2009b). In addition, application of

hatchling dispersal models coupled with multi-trophic biophysical models[23], such as the Spatial Ecosystem and Population Dynamics Model (Lehodey et al., 2008), currently being applied to pelagic fish can be used to predict movements and habitat occupancy through the first years of life.

The recruitment of sea turtles from oceanic to neritic habitats can occur over a range of sizes and, presumably, ages (Bolten, 2003b). Sufficient numbers of recruits from the mass tagging of Kemp's ridley hatchlings with internal wire tags were identified to estimate the age of recruitment as 2.2 years (Dodge et al., 2007). Identifying new recruits on neritic foraging grounds is a challenge; a number of techniques have been employed but with uncertain success. Arrival of turtles without tags in areas with saturation tagging (Bjorndal and Bolten, 2008) with epibionts (organisms that live on the surface of other living organisms) from oceanic habitats (Limpus and Limpus, 2003a) or, in green turtles, with clear plasma color (Bolten and Bjorndal, 1992) have all been used to identify recruits. Stable isotope signatures of carbon and nitrogen in scute tissue (the keratin covering of the upper shell that is inert after deposition) provide a history of diet and habitat that can be used to identify recent recruits (Reich et al., 2007). Reliable, rapid, and non-invasive methods to identify recruits are needed.

SOMATIC GROWTH AND AGE AT SEXUAL MATURITY

Somatic growth has been measured in a number of sea-turtle populations. Adult females essentially stop growing after attaining sexual maturity, at which point resources are allocated away from somatic growth to reproduction. In immature turtles of a given species, growth varies spatially and temporally (Diez and van Dam, 2002; Balazs and Chaloupka, 2004b; Chaloupka et al., 2004b; Kubis et al., 2009). Known sources of variation are body size (Chaloupka and Musick, 1997), population density (Bjorndal et al., 2000a), habitat quality (Diez and Van Dam, 2002), nutrient quality of diet (Wood and Wood, 1981), disease status (Chaloupka and Balazs, 2005), and compensatory growth (Bjorndal et al., 2003a; Roark et al., 2009a). Combining somatic growth rates with indices of body condition is the best current measure of habitat quality and population status on foraging grounds (Bjorndal et al., 2000a; Diez and van Dam, 2002; Kubis et al., 2009).

The most common method for measuring growth rates in turtles has been through mark-recapture studies. Because population and environmental conditions can be monitored throughout a mark-recapture study, this technique is currently the best approach for evaluating the mechanisms that regulate growth. Mark-recapture studies are by necessity long term and labor intensive and are only successful when recapture probabilities are relatively high. Because these conditions are not always met, other techniques have been employed.

Skeletochronology, the use of markers in skeletal material (primarily humeri and eye ossicles), has been used in many studies to estimate somatic growth rates (Zug et al., 1986; Bjorndal et al., 2003a; Snover and Hohn, 2004; Snover et al., in press). Caution is critical in the interpretation of marks, the technique is not practical for live animals, and remodeling of internal bone layers can be problematic for this technique. These and other challenges in the application of skeletochronology have been well reviewed (Snover et al., 2007; Avens et al., 2009). Advantages of this technique are that turtles do not have to be captured, skeletal elements can be gathered from the large number of carcasses that strand on the U.S. coast each year, and longitudinal sampling of individuals can be exploited. Longitudinal sampling is only possible

[23] These are models that integrate effects of biological and physical parameters over several trophic levels.

with multiple recaptures in mark-recapture studies. With skeletochronology, growth-increment analysis of the humeri can be used to detect individual variance in growth rates (Vaughan, 2009). A greater effort needs to be made to archive humeri from sea-turtle carcasses with known size, sex, location, and date for age and growth studies.

Length-frequency analyses, which rely on maximum likelihood algorithms to detect ageclass modes in size distributions, have been used widely in fisheries and have been employed with success in sea turtles (Bjorndal et al., 1995; 2000b; 2001). A disadvantage of this technique is that, with currently available software, only von Bertalanffy growth models can be employed. Greater overlap of body lengths in older ageclasses may limit use of this technique. The main advantage is that only data on size distributions are required.

Two other techniques to measure growth have been investigated for sea turtles. First, Hays and Marsh (1997) estimated growth rates of the very early stages through analysis of drift times to remote locations along with size of small turtles at those locations. Second, the use of RNA and DNA ratios, which have been used extensively in studies of fish growth, has been tested in sea turtles with limited success (Roark et al., 2009b). Both techniques deserve further evaluation.

Age at sexual maturity is a critical demographic parameter. Estimating age at maturity based on somatic growth rates is problematic because, for all Atlantic populations, few data are available on growth rates for large subadult turtles (i.e., above 70 cm carapace [upper shell] length in green turtles). A high priority might be to determine growth rates for large subadults so that estimates of age at sexual maturity are based on a stronger foundation.

SEX RATIOS

Because sea turtles exhibit environmental sex determination, primary sex ratios are determined by environmental factors, as described above (see "Fecundity" section). Variation in secondary sex ratios on foraging grounds may result from variation in primary sex ratios, sex-specific mortality, or sex-specific dispersal. Data on secondary sex ratios from immature and adult sea turtles are needed to develop sex-specific population models and to evaluate "optimal" sex ratios (i.e., sex ratios at which reproductive output is maximized in a population). If it becomes necessary due to global warming, the latter will be critical for programs to manipulate primary sex ratios at nesting beaches (Mrosovsky and Godfrey, 1995).

DENSITY DEPENDENCE

Rates in a population are said to be density dependent if they vary with the abundance or density of the population. For example, under the classic logistic model of population growth, the per capita population growth rate increases linearly as the population declines. This kind of density dependence is termed compensatory because it tends to stabilize population size. When the population is small, the per capita growth rate is high, and the population increases toward its carrying capacity. As the population nears its carrying capacity, the growth rate declines as births and deaths become equal, and the population reaches a stable abundance. Other things being equal, when compensation is present, a depleted population will begin to recover relatively rapidly if the limiting factor (e.g., harvesting, bycatch, disease) is reduced or eliminated. The most common cause of compensation is competition for food, space, or other resources.

In contrast to compensation, some populations exhibit a form of density dependence termed depensation, which describes the situation where, over some low range of abundance, the per capita growth rate decreases as abundance declines. Depensation is said to be critical when this rate actually becomes negative at low abundance. When depensation is operating, a depleted population will tend to recover slowly—and therefore be vulnerable to extinction shocks. If depensation is critical, the population may simply become extinct despite the elimination of the limiting factor. Although the classic explanation of depensation (also referred to as the Allee effect) is the rarity of high-quality mating opportunities, other factors may be involved (Liermann and Hilborn, 2001).

Turtle population growth has been evaluated with stage-based matrix models that typically assume that vital rates are independent of density. This reflects primarily a lack of information about density effects on these rates. The effect on model predictions of ignoring density dependence remains an open question. Clearly, if vital rates are strongly density dependent, a model with fixed rates will be, at best, applicable over a limited range of population size. Despite this limitation, model predictions still may be correct qualitatively (Heppell et al., 2000). Chaloupka and Balazs (2007) developed a statistical state-space model for Hawaiian green turtles that allows for density dependence (either compensatory or depensatory).

By necessity, most work on identifying density dependence in sea-turtle populations has focused on processes occurring on nesting beaches. For example, Girondot et al. (2002) identified density-dependent nest destruction in the leatherback turtle at a beach in French Guiana with the rate of destruction increasing with nesting numbers (presumably as a result of nesting-habitat limitation). This was accompanied by a density-dependent feminization of the hatchling sex ratio (Caut et al., 2006). Tiwari et al. (2006) also reported density-dependent nest destruction and predation on hatchlings in a Caribbean green turtle population. In a study not involving nesting processes, Bjorndal et al. (2000a) found evidence for density dependence in the somatic growth rate of immature green turtles in the Caribbean region. They found a negative correlation between population density and both the mean annual growth rate (as measured by carapace length) and an index of body condition. This suggests that Caribbean green turtles are food limited when abundance is high.

Bell et al. (2010) evaluated evidence for depensation in green turtles and loggerhead turtles. This study focused on the relationship between rookery size (as measured by total clutches per season) and fertilization success, hatch success, and hatchling emergence success, using data from the Cayman Islands and a meta-analysis of global data. The study found no evidence of depensation in either species in either the Cayman Islands data or the global data. However, as the analysis was based on a mixture of cross-sectional and time-series data, this result needs to be treated with caution. A more complete analysis would treat the data as multiple time series with depensation operating within, but not between, the component series.

STRANDINGS DATA

A substantial proportion of the effort expended to collect sea-turtle data in the United States is invested in the Sea Turtle Stranding and Salvage Network (STSSN). Because the usefulness of the data generated by this program has been debated (Epperly et al., 1996; Turtle Expert Working Group, 2000), the committee addresses STSSN here in some detail. Sea-turtle strandings occur when animals have washed up on a beach or into shallow water. Stranded animals may be dead or dying due to anthropogenic causes, such as fisheries interactions, or

natural morbidity, such as disease or "cold stunning" where they have been exposed to lethal cold-water temperatures. Strandings include all life stages that are present in neritic habitats, including juveniles and adult males. Carcasses provide opportunities for data collection that are difficult or impossible with live animals, such as evaluation of maturational status and removal of the humerus bone for age and growth studies. Carcasses are checked for tags and provide an important source of tag recoveries that are used to evaluate growth and dispersal of individual turtles. Strandings can also provide limited information on mortality and have been correlated with levels of fishing effort and enforcement (Lewison et al., 2003). With careful consideration of the many sources of variability that affect the probability of stranding and detection of carcasses, strandings may also provide distribution and trend information that is relevant to population assessment (Chaloupka et al., 2008b).

The density of strandings has been used as a trigger for management action in some areas, resulting in spatial closures for fisheries (Santora, 2003). Strandings have been clearly linked to fishing activity (Caillouet et al., 1996; Chaloupka et al., 2008b), and changes in the relative abundance of strandings have been used as an indicator of management effectiveness (Crowder et al., 1995; Lewison et al., 2003). However, many factors contribute to the frequency of strandings, including cause of death and condition of the carcass, location of death and water currents, water temperature (decay rate), and salvage effort. Physical processes that affect stranding rates may also change over time, potentially necessitating regular evaluation of the correlation between ocean conditions and probability of stranding as climate-driven forcers vary in time and space. Concerns about these caveats have led to disagreement about the value of strandings for population assessment (Epperly et al., 1996; Turtle Expert Working Group, 2000). Expert working groups and recovery planning teams have agreed that strandings are highly stochastic events that provide information about local mortality events and a minimum estimate of regional mortality, but it may be difficult to extrapolate trends in strandings to changes in population abundance. Importantly, strandings represent an unknown proportion of total mortality that likely varies across regions. Nevertheless, patterns of strandings in time and space can provide information about seasonal distribution and fisheries interactions when carcass recovery effort is standardized and data are pooled over broad spatio-temporal scales (Chaloupka et al., 2008b; Tomás et al., 2008).

STSSN in the United States operates through each coastal state and is coordinated through the National Marine Fisheries Service (NMFS) and state agencies. The network is run by a state coordinator and is largely dependent on local volunteers. Coordinators are responsible for training programs for the volunteers and weekly or bi-weekly data reports that are sent to NMFS. While the specific goals of each salvage program vary, most are designed to evaluate carcass abundance and trends that are assumed to be indicative of the living population of turtles in the monitored area. The programs provide data to quantify seasonality, species composition, population structure, life-history stage, sex ratio, and spatial distribution of turtles that wash ashore.

Currently, all STSSN-recovered animals are identified to species, checked for external tags, and recorded by date and location. Carapace length and general condition of the carcass are also recorded for most animals. Many recovered dead turtles are necropsied by the state coordinator and staff to identify sex and state of maturation, to record plastic ingestion (Bjorndal et al., 1994), and to conduct a general evaluation of the potential cause of death (although this rarely can be determined). Carcasses may also be checked for PIT tags or magnetic wire tags. Some samples are collected from necropsied animals for specific projects, including tissue

samples for contaminants evaluation and bones (humerus, eye ossicle) for aging (Snover and Hohn, 2004), and body size data have been used to generate somatic growth curves (Bjorndal et al., 2001). The proportion of recovered turtles that are evaluated thoroughly varies by state and frequency of strandings. Although sampling of sea-turtle carcasses for specific research projects does occur, the extent to which samples are collected and archived is variable in the southeastern United States, where most sea-turtle strandings occur (Laris Avens, personal communication). In Hawaii, the Pacific Islands Fisheries Science Center regularly archives tissue and humeri samples from recovered turtles. Strandings data are compiled and reviewed by the Southeast Fisheries Science Center, but researchers must request access to the data from each state individually, and state coordinators vary in their criteria for sharing data.

Changes in size distributions of strandings may be a valuable indicator of shifts in age structure or distribution of juveniles (Shoop et al., 1999). Turtle Expert Working Group reports (2000; 2009) have included examinations of trends in total strandings by region and the size distributions of strandings. Kemp's ridley and loggerhead strandings size distributions were converted to age distributions utilizing an age-length key and used to estimate total instantaneous mortality utilizing a simple catch-curve method (Turtle Expert Working Group, 2000). There are a number of issues with this approach that were discussed by the report authors, including the unknown relationship between sizes of strandings and those of the population-at-large, the need to pool strandings across several years due to small sample sizes, and variable growth rates that confound the age-length relationship. Recently, a data review by a loggerhead turtle working group included plots of turtle sizes observed through time that showed a good correlation between the size distributions of strandings on the east coast of the United States and the size distributions of turtles observed at a power plant intake in Florida and juvenile mark-recapture surveys (Turtle Expert Working Group, 2008; Vaughan, 2009). This suggests that strandings may be a reasonable indicator of what turtles are in the nearshore population, at least over broad spatial and temporal scales. Confirmation of this congruence is needed, particularly if researchers want to continue to use strandings to estimate mortality rates.

If the size composition of the nesting population is known and a strandings event can be linked to a particular fishery or environmental event, the size distribution observed can help determine selectivity of that mortality source (what size classes are susceptible to the fishing gear used or an environmental event, such as red tide). Further research on the "selectivity curve" for strandings would be helpful to determine how the probability of carcass recovery is affected by size and condition of the animal and its environment. A study using drifter bottles deployed in the South Atlantic Bight provided a rough estimate of a 20% probability of reaching shore for a wind- and current-driven carcass, with strong seasonal and spatial variability (Hart et al., 2006); similar studies need to be conducted in the Gulf of Mexico and northeast United States, with an emphasis on establishing the likelihood of detection and statistical discrimination across various spatial scales (Wiens, 1989).

However, the level of environmental monitoring to identify relationships between oceanography and strandings over time may be substantial, given the complexity and variability of nearshore ocean processes. It is possible that environmental variance will nullify strandings as a source of trend and distribution information for nesting populations, but large strandings events are still valuable indicators of local conditions (e.g., harmful algal blooms, intense fishing mortality), and samples from dead animals can provide important information about local population structure, growth rates, maturation rates, and habitat use through diet evaluation.

Every recovered carcass can be a valuable source of information for assessment if recovery efforts are standardized; proper measurements are taken; and samples are collected, processed, and archived according to established protocols. To improve the value of strandings data for assessment, each state program needs to be reviewed and evaluated for consistency in recovery effort, volunteer training, and protocols. Areas with low or inconsistent sampling effort could be identified to improve extrapolation methods. Programs for evaluating size distributions and growth rates from turtle hard parts need to be supported and enhanced to maximize the amount of information obtained from each stranded animal. While flipper collection could become standard protocol for STSSN volunteers in the southeastern and Gulf states, a considerable investment in time and resources will be needed to process and evaluate those samples.

RECOMMENDATIONS

- Researchers should give priority to generating estimates for the following parameters: survival of immature turtles and nesting females, age at sexual maturity, breeding rates, and clutch frequency.
- Because demographic rates can vary over time and space, researchers should collect data over both dimensions so that population trends can be detected and evaluated adequately.
- Researchers should be aware that evaluation of point estimates of demographic parameters is not sufficient for population assessment; characterizing uncertainty and variance in demographic parameters is necessary as well.
- Researchers should strive to understand the mechanisms regulating variation in demographic rates, which is essential for diagnosing changes in population abundance and mitigating population declines.
- NMFS and the U.S. Fish and Wildlife Service should arrange for a review of data now being collected under the auspices of, or with the support of, their agencies and evaluate the costs and benefits. For example, the sea-turtle stranding and salvage networks should be evaluated, perhaps with the assistance of the U.S. Geological Survey's National Wildlife Health Center.
- STSSN should collect, in addition to data on abundance, size, condition, and sex, samples of tissues and hard parts that can be used to identify stock of origin, to assess diet through isotope analysis, and to evaluate age and growth.

6
Integrating Demographic Information with Abundance Estimates

Sea-turtle management has been focused on reducing mortality from as many sources as possible on all possible life stages. This is a laudable goal for any endangered species, and it is reasonable to assume that minimization of anthropogenic mortality would result in population recovery. Yet, in spite of decades of monitoring and litigation, some U.S. populations do not appear to be recovering (e.g., Northwest Atlantic loggerheads [*Caretta caretta*]), and most are of unknown population status, or status is inferred exclusively from nesting-beach trends (see Table 1.1).

Wildlife and conservation researchers understand that using abundance measures for a single life-history stage can be misleading for diagnosing the status and trends of a population (Van Horne, 1983; Thomson et al., 1997; Brooks et al., 2004), including the diagnosis of sea-turtle trends (Bjorndal et al., 1999; Hays, 2000; Chaloupka, 2001b; Solow, 2001; Chaloupka and Limpus, 2002; Heppell et al., 2003). Integrating abundance measures with demographic processes within a framework of modeling and data fitting provides a more robust basis for diagnosing trends, evaluating the impact of anthropogenic hazards and defining recovery criteria (Brooks et al., 2008).

In this chapter, the committee reviews some of the quantitative tools used in assessment of populations, reviews which tools have been applied to sea-turtle assessments to date, and discusses the procedures routinely used in fisheries assessments to assure scientific rigor that could be adopted for future assessments of sea turtles.

MODELS FOR POPULATION ASSESSMENT

Mathematical models are powerful tools for species assessment and evaluation. The reliability and utility of models depends on the quality and availability of data and assumptions conferred by model structure. Population models for sea turtles have been reviewed by Chaloupka and Musick (1997), Heppell et al. (2002), and others. Published models have ranged from regression fits to nesting-numbers data, deterministic-lifecycle analyses, and complex simulation models—all with varying data requirements and assumptions. There are tradeoffs in model construction among precision, realism, and generality. Levins (1966) argued that a particular model can achieve at most two of these three qualities. Appropriate model complexity is strongly dependent upon the question asked. The results of a simple model might be robust to uncertainty in lifecycle parameters but may be qualitative or incapable of making precise estimates of population size or the effects of removals of individuals from the populations. On the other hand, detailed simulation models may require a large amount of biological information to produce precise or reliable estimates of population size or predicted response to perturbations. Regardless, models that are to be used for assessment, prediction, and management decisions require solid demographic data, preferably as time series of information that can be analyzed for changes in response to stressors, population density, or environmental variability (Hilborn and Mangel, 1997).

TOOLS FOR ASSESSMENT

Sea-turtle management issues vary by region, but quantitative assessment is generally focused on the following four primary issues:

- evaluation of trends in nesting and foraging population abundance as an indicator of population status
- diagnosis of the potential causes of those trends
- evaluation of the impact of natural and anthropogenic hazards on population viability
- definition of recovery criteria

Here the committee reviews a range of modeling approaches available to address questions about sea-turtle status and trends and notes the data requirements for each (Table 6.1). Unlike fisheries assessment, the focus for sea-turtle management in the United States is not on sustainable harvest. Nevertheless, many of the quantitative tools used in fisheries assessments are applicable to sea turtles and other threatened species. The approaches identified here are applicable to one or more of these management questions but have different data requirements, and the results they generate vary from qualitative to highly quantitative (Table 6.1).

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Table 6.1. Common evaluation methods and modeling tools that have been applied to sea-turtle assessment and their basic data requirements. Methods are grouped according to three primary needs for management and ordered along a general gradient from lower to higher accuracy of model output. Increased accuracy is tied to model complexity and the need for detailed biological information.

					Vital Rate						
Focus	Method	Accuracy	Quantitative	Abundance	Breeding Frequency	Clutch Frequency	Adult Survival	Juvenile Survival	Age at Maturation	Dispersal	Trophic Dynamics
Trend evaluation	Linear regression of abundance index (nests)		Yes	X	X	X					
	Bayesian trend evaluation		Yes	X	X	X					
	In-water trends		Yes	X						X	
	Diffusion approximation		Yes	X	X	X					
Trend diagnosis	Surplus production	lower	Yes	X	X		X				
	Transition matrix		Yes		X	X	X	X	X		
	Aggregate simulation		Yes	X	X	X	X	X	X		
	Individual-based simulation		Yes		X	X	X	X	X	X	
	Integrated models		Yes	X	X	X	X	X	X	X	
	Ecosystem models	higher	Yes	X	X	X	X	X	X	X	X
Evaluating anthropogenic impacts	Bayesian Belief Network	lower	No								
	Diffusion approximation		Yes	X	X	X					
	Potential biological removal		Yes	X			X		X		
	Surplus production		Yes	X	X						
	Aggregate simulation		Yes	X	X	X	X	X	X		
	Individual-based simulation		Yes	X	X	X	X	X	X	X	

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	Integrated models		Yes	X	X	X	X	X	X	X	
	Ecosystem models	higher	Yes	X	X	X	X	X	X	X	X
Defining recovery criteria	Diffusion approximation	lower	Yes	X	X	X					
	Aggregate simulation	↓	Yes	X	X	X	X	X	X		
	Individual-based simulation		Yes	X	X	X	X	X	X	X	
	Integrated models		Yes	X	X	X	X	X	X	X	
	Ecosystem models	higher	Yes	X	X	X	X	X	X	X	X

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TREND EVALUATION AND EXTINCTION RISK

Trends in Abundance and Abundance Indices

The most common evaluation of sea-turtle population status are nesting-beach trends, which may be based on counts of nests or nesting females (see Chapter 4). Linear regression is often employed to identify an exponential growth rate for each nesting beach and for pooled data by region (e.g., National Marine Fisheries Service Southeast Fisheries Science Center, 2001). Regression methods have also been used to evaluate trends in abundance indices derived from juvenile and adult sampling at sea. Slopes and confidence intervals from simple regression analysis are easy to interpret but may fail to include important biological complexities that relate what is counted (such as nests) to a trend at the population level. Because the numbers of nests or nesting females may be highly variable due to effects of the environment on probability of breeding and other factors (Solow et al., 2002), data are sometimes smoothed using a running sum or averaging (e.g., Turtle Expert Working Group, 2007; Snover and Heppell, 2009). Uncertainty in population trends has also be evaluated with Bayesian state-space methods that are not restricted to parametric statistical evaluation and permit a more transparent evaluation of the probability of population decline (Turtle Expert Working Group, 2007; 2009). In the Bayesian approach, trends are expressed as probabilities of increase or decline rather than slopes and confidence intervals but still require biological information to extrapolate nest counts to population abundance. More complex trend-evaluation models that incorporate environmental drivers, such as nonparametric regression or Bayesian generalized additive models (Bjorndal et al., 1999; Chaloupka, 2001b; Balazs and Chaloupka, 2004b; Troëng and Rankin, 2005), have also been applied. The advantage of the Bayesian approach is that the confidence intervals do not require normal approximation assumptions but are based on the data themselves, thereby providing a natural means for evaluation of both sampling uncertainty and process error caused by environmental variance.

Without estimates of breeding probability (remigration interval) and recruitment of new turtles to the breeding population, assessment of population trends using nesting beach data is highly tenuous. Changes in the number of nests may be due to a change in the frequency of nesting, a change in adult-female survival, or a change in the number of first-time breeders. Currently, none of these parameters is monitored by the agencies. Trends of juvenile-turtle abundance through in-water surveys, aerial surveys, and frequency of strandings have generally been evaluated with regression analysis following an evaluation of data uncertainty (e.g., Turtle Expert Working Group, 2009).

Stochastic Projections and Diffusion Approximation of Extinction Risk

The simplest form of population-viability analysis projects a time series of abundance or an index of abundance and evaluates the probability of extinction (or recovery) based on the proportion of projections that cross a predetermined threshold (Dennis et al., 1991; Holmes, 1999; 2004; Snover and Heppell, 2009). The model relies on estimates of the exponential trend and variance estimated from census data and can be evaluated analytically with a model that describes a diffusion process with drift, commonly referred to as a “diffusion approximation” of extinction risk (Dennis et al., 1991). Because time series of sea-turtle abundance are based on counts of nests or nesting females, the trend and variance through time must be adjusted to

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account for the relationship between nest number and adult-female number (clutch frequency [i.e., the number of clutches deposited by an individual turtle in a nesting season]) and autocorrelation (the similarity between observations as a function of the time separation between them) caused by remigration intervals (breeding frequency). The diffusion approximation model has been applied recently to sea-turtle status assessment as a method to estimate trends and evaluate risk of decline while accounting for uncertainty (susceptibility to quasi-extinction; Snover and Heppell, 2009). It has also been applied to evaluation of removals (Merrick and Haas, 2008; Snover, 2008), although the discrimination ability of the analysis to detect changes in extinction risk has yet to be evaluated fully.

While trends in an index of abundance and simple stochastic extinction risk can provide benchmarks for status determination, it is the *diagnosis* of a trend that is more critical for decision making. Predicting how and why changes in abundance have occurred requires tools that provide additional biological details, particularly the mechanisms of population dynamics that are linked to the sea-turtle lifecycle (Chapter 3).

Surplus-Production Models

Surplus-production models are the most commonly used population-assessment approach when limited to datasets comprising only a harvest and relative abundance time series (Hilborn and Walters, 1992). Surplus-production models implicitly account for density-dependent demography—the change in population growth rate that is anticipated with changes in population size. The models do not include age structure but can be modified to include time lags. To determine reasonable parameter estimates through data fitting, these models require a time series of abundance data that can accurately demonstrate density-dependent population processes. Chaloupka and Balazs (2007) used a Bayesian state-space modeling approach to fit a stochastic surplus-production model to the Hawaiian green turtle (*Chelonia mydas*) nesting-abundance data series given the known commercial harvest history. This Bayesian-inference approach enabled prior knowledge of green turtle demography to be incorporated in order to supplement the limited information available for this population. The model accounted for both process and observation error. This approach also enabled uncertainty in model-parameter estimates and the temporal variability in nesting abundance to be accounted for explicitly. The main objective was to determine whether it was possible to derive meaningful estimates of population and management parameters for the Hawaiian green turtle population based on the limited data available.

Age- and Stage-Structured Matrix Models

These structured models aggregate individuals into life-history stages or ageclasses, allowing incorporation of time lags. They can be deterministic or stochastic (random) and can (but often do not) include non-linearities, such as density dependence (Caswell, 2001). Analytical sensitivity analyses of deterministic matrices have been used extensively for sea turtles to identify vital rates that have a large effect on asymptotic-model outputs, such as population growth rate and stage-specific reproductive value (reviewed in Heppell et al., 2003). Most deterministic matrix-model evaluations are useful for learning and discovery purposes to compare relative changes in abundance that may occur with changes in stage-specific vital rates (e.g., Crowder et al., 1994) or to compare qualitatively the potential impact of removals of turtles

of different ages (Wallace et al., 2008). They can only be used to predict population size if vital-rate means and variances have remained relatively constant over time and if initial conditions of abundance and age structure can be determined. Matrix models that describe lifecycles can be very simple or include complex population structure, such as the life stages shown in the conceptual model in Chapter 3; parameterization is based on empirical estimates of survival, growth, or fecundity, as well as dispersal if life stages are spatially explicit. Matrix models for simulation purposes can include parameterization through model fitting when time series of abundance, recruitment, or age structure are available (e.g., model for Kemp's ridley [*Lepidochelys kempii*]; Turtle Expert Working Group, 2000; Heppell et al., 2005); however, this has not been done in most of the existing assessments due to uncertainty in age- or stage-specific vital rates and unknown population age structure. Diagnosis of observed population change can potentially be performed using a life-table response experiment approach where the magnitude of the effects of different vital-rate changes can be evaluated between two or more time periods (Caswell, 2001). Age-structured models used in fisheries assessment, while not matrix models *per se*, operate with the same principles of age-specific tracking through time and recruitment tied to adult abundance.

Stochastic Simulation Models

A number of stochastic, ageclass-specific, and individual-based simulation models have been developed to account for sea-turtle demography. Chaloupka (2003a) developed a stochastic simulation model for the southern Great Barrier Reef green sea-turtle population to foster better insight into regional metapopulation dynamics. This model (based on a system of ordinary differential equations) was sex- and ageclass-structured linked by various density-dependent, correlated, and time-varying demographic processes subject to environmental and demographic stochasticity. The density-dependent processes included depensatory or Allee effects that occur at low abundances when the per capita growth rate decreases as abundance declines. The simulation model was based on extensive demographic information derived for this population from a long-term sea-turtle research program established and maintained by the Queensland Parks and Wildlife Service. Model validation was based on comparison with empirical-reference behaviors, and sensitivity was evaluated using multi-factor perturbation experiments and Monte Carlo simulation within a fractional factorial sampling design. The model was designed to support evaluation of the effects of habitat-specific competing mortality risks on population abundance and also on the sex and ageclass structure. Similar but simpler stochastic simulations models have been developed for the southern Great Barrier Reef green (Chaloupka, 2002a) and loggerhead (Chaloupka, 2003a) sea-turtle populations. The southern Great Barrier Reef green turtle model presented in Chaloupka (2002a) was extended in Chaloupka (2004) to account for a simple metapopulation structure based on distance-dependent dispersal. Mazaris et al. (2009) developed an individual-based stochastic simulation model that accounted for various density-dependent biological and behavioral attributes (e.g., nest-site selection) of nesting loggerhead sea turtles in the eastern Mediterranean. The model was designed to evaluate the potential impact of nesting habitat loss due to coastal development and sea-level rise on hatchling production and population dynamics. Similar individual-based stochastic simulation models have been used by Mazaris and colleagues to evaluate various risk factors, such as ageclass-specific mortality on nesting Mediterranean loggerhead population dynamics (Mazaris et al., 2005; 2006).

Integrated Population Dynamics Models

Stochastic simulation models outlined above are the most comprehensive models developed so far to explore the population dynamics of sea turtles and to evaluate the potential impact of exposure to anthropogenic hazards on those populations. It is possible to fit the process-based models developed for instance by Chaloupka (2003b) to a range of ageclass-specific abundance and demographic data. This modeling approach, comprising integration of various data and model components and simultaneous estimation of all parameters, presents a number of challenges, including the availability of long time series (Fonnesbeck and Conroy, 2004). Maunder (2003; 2004) presents an integrated population modeling framework applied in recent fisheries stock assessments that warrants further investigation for sea-turtle population assessments where suitable data series exist. Similar approach was used by Fonnesbeck and Conroy (2004) to model the impact of harvesting on black-duck populations.

Multi-Species and Ecosystem Models

Sea turtles interact directly and indirectly with other species, and changes in environmental factors have impacts on vital rates (see Figure 3.1). There has been increasing effort to incorporate multi-species and ecosystem interactions in fisheries-assessment models (Plagányi, 2007), and any mechanistic model of sea-turtle dynamics has to account for changes in prey, predators, competitors, and habitat. However, comprehensive ecosystem models include a large number of parameters and uncertain interactions; as such, they may prove to be more heuristic than predictive (Fulton et al., 2003). Qualitative approaches, such as loop analysis of community models, can evaluate stability and trophic responses in data-poor systems (Dambacher et al., 2003). Biomass balance models, such as EcoPath with Ecosim, require more information on food-web structure and energy transfer but have been applied to a number of ecosystems that include sea turtles (Walters et al., 1997). Comprehensive tools for ecosystem-based fisheries assessment, such as Atlantis (Fulton et al., 2005), may have future application to sea-turtle management in well-studied ecosystems.

Bayesian Belief or Probability Network Models

There are few robust tools available to assist risk assessment and policy development given data-poor and knowledge-vague situations. One approach to help support better decision making in data-poor situations is to apply a method known as Bayesian belief networks—also known as probability networks or Bayes nets (Varis and Kuikka, 1999; Castelletti and Soncini-Sessa, 2007). This approach provides a structured framework to integrate information from several sources, including simulation models, published material, and stakeholder and expert opinion. Chaloupka (2007) introduced this probability-based approach at a recent workshop of the Food and Agriculture Organization of the United Nations as a robust way to evaluate the relative risk of ageclass-specific anthropogenic hazards, such as fishing gears, coastal development, and climate change, on the long-term viability of Southeast Asian sea-turtle populations. The Bayesian belief network model constructed for that workshop showed, given limited data and uncertainty about turtle-fisheries interactions, that trawl fisheries, gillnet fisheries, and coastal development were hazards most likely to have a major impact on the viability of the Southeast Asian sea-turtle populations.

Potential Biological Removal

Some models are designed specifically to address a particular management question, such as identification of a threshold bycatch level (see Table 6.1). Potential biological removal (PBR) was developed for marine-mammal populations to determine a maximum removal rate that a population can absorb without a significant increase in the probability of decline (Barlow et al., 1995; Wade, 1998). PBR is based on the precautionary approach in a very explicit way. The simple algebraic formula is based on the concept of "optimum sustainable yield" (Taylor et al., 2000), which is a function of population productivity. PBR determines a maximum human-caused removal of individuals from a population based on one-half of its potential net productivity rate, adjusted by a recovery factor (F) that varies from 0.1 to 1 depending upon status of protection. The equation requires a minimum population size estimate (N_{min}), the maximum rate of increase predicted (or measured) for a population (R_{max}), and predetermined risk criteria (low risk to minimal risk) for the recovery factor. PBR is generally applied to an entire population or stock but could be set for specific life stages; the PBR value represents cumulative removals from all anthropogenic sources. PBR and various modifications to accommodate sea-turtle life history have been explored (Bolten et al., 1996; Turtle Expert Working Group, 2000) but not yet utilized to set bycatch limits or evaluate human-caused mortality.

Each of these modeling approaches has merit in potential application to sea-turtle demographic analysis and assessment. However, no model can be useful without data for both parameterization and evaluation of model behavior, particularly for applications that require precision. Increasing model complexity provides biological realism and the ability to estimate population status precisely, but data need to increase also (see Table 6.1). The most biologically realistic and complex models for sea turtles have been developed for populations with long time series of in-water abundance, breeding frequency, survival rate estimates, and nesting abundance (e.g., Chaloupka, 2003a; b). All of the published sea-turtle assessment reports (e.g., Turtle Expert Working Group reports and National Marine Fisheries Service [NMFS] technical memoranda summarized in Table 1.2) highlight the paucity of basic data for population modeling, as have reviews of sea-turtle modeling efforts in the United States (e.g., Heppell et al., 2003). The most recent sea-turtle status assessments (National Marine Fisheries Service and U.S. Fish and Wildlife Service, 2007a; b; c; d; e; f) also comment on the need for basic information on population structure and vital rates to identify changes in populations and their listing designations properly.

ASSESSMENT PROCEDURES FOR SCIENTIFIC REVIEW OF DATA AND MODELS

In addition to identification of appropriate assessment tools, it is important to have standard procedures for evaluation that assure rigorous scientific review in all phases of assessment. A thorough review process that covers all elements of a stock assessment is invaluable when it is undertaken by knowledgeable teams of scientists that also include independent experts. It ensures that the "best available science" (National Research Council, 2004; Sullivan et al., 2006) is used to manage our nation's resources, especially when the process is transparent and open to the public. The need for "best available science" is encoded in legislation directly applicable to sea turtles under the Endangered Species Act of 1973 and in

Standard 2 of Fishery Conservation and Management Act of 1976 (reauthorized in 1996 as the Magnuson-Stevens Fishery Conservation and Management Act). To achieve the use of best scientific data and practice, assessments may include several components that each includes peer review.

Fisheries Assessment

The review procedures for stock assessments vary regionally in the United States depending on the fishery management council that is responsible for managing the stock, but they follow a general pattern wherein panels of experts review input data series, models, and reference points. The review workshops are the Stock Assessment Workshops and the Stock Assessment Review Committees (in the northeastern United States); the Southeast Data, Assessment, and Review (in the southeast and Gulf of Mexico regions); and the Stock Assessment Review and the Western Pacific Stock Assessment Review (in the Pacific region). Typically the expert panels include one or more members of the management Council's Scientific and Statistics Committee (SSC) and state, federal, and academic scientists but may also include international reviewers from the Center for Independent Experts (CIE). The reviews entail workshops that last up to a week, and these workshops result in a series of written reports that are available through the NMFS website. CIE reports are performed separately and are also available to the public online. These CIE reports provide an independent and critical review that are external to agency procedures or oversight and can provide valuable insights. The process of fisheries assessment and formulation of management recommendations involves a series of workshops.

Data Workshops

Participants at data workshops are experts who are responsible for data programs and collections. Some data review workshops also include CIE representatives who evaluate data quality and the statistical analyses used in data summaries. During the data workshops, input data are submitted by state agencies and NMFS that include: (1) fishery-dependent measures, such as catch per unit effort (CPUE), total catch, and age-length matrices to convert total catch to catch at age among others; (2) fishery-independent measures, such as survey catch abundance and CPUE, and biological metrics; and (3) other ancillary data that might affect abundance or distributional characteristics of the species. These data are evaluated for consistency and data quality. Those data that are chosen for analysis are then recommended for use in the modeling process. Although some data that are typically used in fisheries assessments are not available or directly applicable to sea turtles, the approach of comprehensive data review holds value as a potential component of sea-turtle management. This approach might have value in evaluating surveys, such as nesting beach counts, strandings and in-water mark-recapture efforts, or length distributions.

Model Workshops

Participants at model workshops include assessment scientists and demographers, CIE reviewers, SSC members, and other knowledgeable experts. During the modeling workshops, the adequacy of input data for modeling, model performance, and stability are evaluated. In

large part, these evaluations are based on the fits of model outputs to time series of population data, including abundance and age distribution. Frequently, results from several different models (e.g., biomass versus age-structured) are evaluated following the recommendation given by the National Research Council (1998). The model results are reviewed as to whether there is evidence of sustainability of population abundance and excess mortality. Models are also reviewed for retrospective patterns in residuals that indicate poor model fit as parameters are updated over time.

Reference Point Workshops

Participants at the reference point workshops include experts from state and federal agencies, CIE, SSC, academics, and other knowledgeable experts. Participants evaluate the adequacy of point values that demark the level of overfishing or excess fishing mortality and the level of stock abundance or biomass that results in sustainable populations, which are sufficiently productive of new recruits. These workshops require information on population growth and productivity to evaluate the appropriate reference points.

Management Strategy Evaluation Workshops

The management strategy evaluation (MSE) concept was developed in Europe and Australia to provide a simulation approach to evaluate management strategies by simulating the effects of different input data, reference points, and modeling frameworks on virtual "populations" (see for example Smith et al., 1999). MSE deals directly with uncertainty by simulating the entire process of population dynamics and management from data input to reference points and management response; this is the simulation version of adaptive management. The advantages of this approach are many because sensitivity analyses can reveal how data quality, assessment model structure, reference points, and the management process itself affect the performance of a given management model. MSE concepts have been introduced to the stock assessment process by CIE reviewers.

Marine-Mammal Assessment

Similar to sea turtles, marine mammals are protected species in the United States that face threats from direct and indirect mortality, often due to interactions with fisheries. Section 117 of the Marine Mammal Protection Act specifies requirements for stock assessments for marine mammals. The Act requires formation and support of regional scientific review groups consisting of experts in marine-mammal ecology, population dynamics and modeling, and commercial fishing practices. These groups are responsible for (1) reviewing stock assessments and updates and data and models used to estimate abundance and trends and (2) advising the agency on uncertainty and research needs. In addition, take reduction teams (TRTs), consisting of scientists and industry representatives, are formed when fisheries interactions exceed the allowable take determined through PBR analysis. TRT plans are subsequently reviewed by independent guidelines that have been established for all assessment procedures, including take evaluation, PBR calculation, and review and revision of stock assessment reports (Wade and Angliss, 1997).

Sea-Turtle Assessment

A variety of assessments for sea turtles have been conducted by NMFS, all with considerable peer review but not as part of a standardized procedure (see Table 1.2). Currently, sea-turtle assessments are conducted as part of a status review required by the Endangered Species Act or in response to a specific management concern. Turtle Expert Working Groups consisting of agency scientists, academics, and scientists associated with stakeholder groups have been formed at irregular intervals since 1995 to review data and conduct analyses related to conservation concerns (Turtle Expert Working Group, 1998; 2000; 2007; 2009). Status reports are required for each species every five years, conducted by biological review teams that are composed of agency scientists from NMFS and the U.S. Fish and Wildlife Service (USFWS); these are primarily data update summaries but recently included quantitative analysis (Conant et al., 2009). Recovery teams update the recovery plans for each species, which are split by ocean basin; recovery plans utilize existing models or published model results to set recovery criteria (e.g., National Marine Fisheries Service and U.S. Fish and Wildlife Service, 2008). Expert workshops to evaluate particular assessment-related issues, such as survey techniques and fishery impact assessment, have been conducted with assistance from academic scientists and fishery management councils (e.g., Bolten et al., 1996). In addition, the agency conducts and contracts out quantitative evaluations that result in internal agency reports, including take evaluations described in biological opinions. All documents are submitted to extensive internal review and varying degrees of external review. Recent quantitative analyses used by turtle expert working groups, biological review teams, and recovery teams have undergone external review by CIE.

Take Evaluation

In accordance with Section 7 of the Endangered Species Act, all federally permitted activities that have potential interactions with sea turtles are evaluated for impact. Estimates of the number and severity of interactions with sea turtles are developed using observer data or other sources. The resulting biological opinions include the population level impacts of “takes”, where a “take” may be direct or indirect killing, injuring, or harassment of individuals or their habitat. Activities may need to be reduced or restricted if they are likely to impede recovery of a listed species or stock. For sea turtles, which are under the joint jurisdiction of NMFS and USFWS, biological opinions are most often written in response to sea-turtle interactions with commercial fisheries or for coastal development activities. Under Endangered Species Act guidelines, the evaluations must include a determination of whether the proposed activity is likely to cause “jeopardy” to the affected population or species as a whole. Biological opinions and jeopardy rulings are critical documents in litigation and are challenged regularly by environmental and industry groups. Standardized, quantitative tools are desirable to determine when a “take” is sufficient to cause “jeopardy”, warranting a curtailment of the fishing or development activity. PBR for marine mammals was developed for a similar application (Taylor et al., 2000).

Quantitative evaluation of the effects of bycatch on sea-turtle recovery has been discussed in workshops (Bolten et al. 1996) and modeled in various ways by expert working groups (Turtle Expert Working Group, 2000), agency scientists (National Marine Fisheries Service Southeast Fisheries Science Center, 2001; Snover, 2008), and contractors. In all cases,

the authors blamed a lack of basic demographic information for their inability to discriminate among alternative models. The uncertainty in survival, growth, and reproduction rates in the past and present was too high to make a proper assessment of the likely effect of the bycatch at the population level. In one case, 64 alternative population-projection scenarios for loggerheads were presented, ranging in prediction from dramatic decline to rapid recovery (National Marine Fisheries Service Southeast Fisheries Science Center, 2001). A more complex evaluation of expected changes in population growth that might result from reductions in anthropogenic mortality used age-structured models with Monte Carlo sampling of vital-rate distributions to try to cope with uncertainty; the result was a nearly incomprehensible amalgamation of possible population responses (National Marine Fisheries Service Southeast Fisheries Science Center, 2009). Without demography, there is simply no way to predict the likely effects of fishery bycatch for such a long-lived animal (Heppell et al., 2003).

Threats Evaluation

Recent recovery plans have included a semi-quantitative evaluation of threats to sea-turtle populations using rough estimates of the number of turtles affected. To compare the potential population-level impacts of threats that affect different life stages of sea turtles, the recovery teams have developed an "adult equivalent" calculation that "discounts" the estimated number of juvenile mortalities according to their reproductive value, relative to the reproductive value of adults (National Marine Fisheries Service and U.S. Fish and Wildlife Service, 2008; Wallace et al., 2008; Bolten et al., in press). Reproductive value is determined by a deterministic-lifecycle matrix, which requires estimates of survival, growth, and fertility. Uncertainty in remigration interval or other reproductive parameters can have a substantial effect on the adult reproductive value used for scaling, and reproductive values are dependent on the underlying asymptotic growth rate predicted by the matrix (Caswell, 2001). Thus, methods based on reproductive value and adult equivalents are best for relative comparisons within species that may prioritize research or conservation effort rather than quantitative assessment of threats or setting take limits.

Abundance Estimation

Estimating population size of sea turtles is highly problematic because they inhabit vast areas and have many ageclasses that occur in different habitats. Extrapolation of nest abundance and trends to adult sea turtles, which likely comprise less than 5% of the non-hatchling population (Crowder et al., 1994), requires data on sex ratio, recruitment rates (proportion of nesters that are breeding for the first time), and annual survival; uncertainty in these parameters has been incorporated through resampling of known or presumed distributions to provide a range of possible population sizes (Turtle Expert Working Group, 2007). Extrapolation of nesting data to estimate population size is even more problematic due to uncertainty in survival and cohort variability. A lack of sufficient information on survival rates resulted in 5–10 fold differences in estimates of population sizes among best-fit models for Kemp's ridley sea turtles, even though cohort strength (annual hatchling production) was well known due to extensive monitoring of nests for the entire species (Turtle Expert Working Group, 2000; Heppell et al., 2005).

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Population Trends and Probability of Extinction or Recovery

While older sea-turtle assessments relied heavily on simple regression analysis of nesting-beach data to evaluate population trends, recent assessments published by NMFS have included Bayesian state-space modeling and diffusion approximation methods to estimate trends and uncertainty in population trajectories (Turtle Expert Working Group, 2007; 2009; Conant et al., 2009). The most recent status assessment for Atlantic loggerhead turtles also includes a "matrix threat analysis" that is essentially a deterministic matrix sensitivity analysis to ascertain potential changes in population growth that result from additional mortality (Conant et al., 2009). The analysis is far more comprehensive than past sensitivity analyses (e.g., Crowder et al., 1994; Heppell et al., 2003) because it accounts for uncertainty in parameter estimates. The potential cumulative effects of anthropogenic stressors affecting all life stages of each population unit are then modeled as additive mortality, and ranges of potential asymptotic growth rates are compared. This exercise is informative because it shows that, even under the most optimistic scenarios, there is a high probability that current mortality levels are too high to be sustained by most loggerhead populations. However, it is largely a heuristic exercise with little or no real power for prediction due to the high level of uncertainty and assumptions required for deterministic age-structured models. There is no attempt to fit models to data, in part because the time lags involved with sea-turtle life history make it very difficult to establish a likely age structure of the population currently or in the past.

CONCLUSIONS

Population assessment for management requires an integration of abundance data and demography to account for species' life history and to diagnose properly the likely causes of observed trends. There are a number of modeling approaches of varying complexity and precision that can address management questions, but accurate data at the population level are needed for all of them. Vital-rate estimation is essential for these slow-growing species, as trends in nesting-beach abundance provide information about only a tiny fraction of a sea-turtle population. Some data that can be used to determine changes in vital rates already exist, including time series of juvenile abundance (or indices of abundance) and size distributions.

Assessments for managed fish populations include gathering and reviewing biological information and catch data, a variety of modeling workshops to determine the most appropriate tools for assessment and reference points for status determination, and extensive external peer review. Marine-mammal assessments also follow a prescribed path for evaluation. Sea-turtle assessments have included many of the elements required for these species but are not done in a set procedural framework that ensures consistency, transparency, and thorough evaluation.

Importantly, there has been no real attempt to assess sea-turtle status with population models that are fit using available data on bycatch, size distributions, and productivity. This is due to the following three primary factors that can be addressed by the agency:

- critical vital rates have not been monitored, leading to high uncertainty in parameter estimates and interpretation of trends
- data are scattered and require a thorough evaluation to determine quality and applicability to population assessment

- sea-turtle assessment efforts have not been isolated from broader evaluations of status and threats and have rarely included scientists from other quantitative modeling fields, such as fisheries scientists

RECOMMENDATIONS

- NMFS and USFWS should develop a general framework for a sea-turtle assessment procedure, including data evaluation, model review, and management strategy evaluation.
- NMFS and USFWS should conduct data evaluation workshops, starting with Atlantic loggerheads, specifically focused on the evaluation of time series information that can contribute to parameterization of demographic models. Data for evaluation include, but are not limited to, nesting abundance, in-water abundance, hatchling cohort production, length distributions, and reproductive frequency. All sources of data should be evaluated for quality, consistency and spatial or temporal heterogeneity, and data gaps.
- Researchers should work with modelers from different fields to develop a toolbox for sea-turtle assessment that can provide standardized methods for evaluation and review of data-poor and data-rich species. This includes methods that utilize available data on trends and size distributions of turtles to reduce the possible ranges of unknown parameters and estimates of abundance through model fitting.
- The agencies should sponsor a cost-benefit analysis workshop to prioritize research needs according to which parameters will provide the most useful information for diagnosis of population change.

7
Cross-Cutting Issues: Data, Education, Permits, and Coordination

DATA MANAGEMENT

This report describes extensive data requirements necessary for accurate assessments of sea-turtle populations. Many of these data have yet to be collected. Other data resources currently exist but have not been used to address data gaps because the data are not accessible or have limited access. These data are at risk of being lost as data owners change fields, retire, or pass away. Most of these datasets cannot be replaced because they were collected in past years or decades under different environmental conditions and turtle densities.

This situation is not unique to sea turtles. The need for open access to data has been recognized for decades, and many committees and workshops have been convened to discuss and develop methods to address this need. A recent National Research Council (2009) report, *Ensuring the Integrity, Accessibility, and Stewardship of Research Data in the Digital Age*, cites 36 reports of the National Academy of Sciences, the National Academy of Engineering, the Institute of Medicine, and the National Research Council published since 1985 that have addressed this issue. A recent editorial (Whitlock et al., 2010) by editors of four prestigious scientific journals emphasized the need for archiving raw data—not data summaries—to prevent the loss of critical data to science and announced a new policy. Several journals of ecology and evolution will now require authors to submit all raw data upon which their journal articles are based to an appropriate public archive.

These three critical issues emerge (National Research Council, 2009): (1) data integrity; (2) data access, sharing, and ownership; and (3) data stewardship and management plans. The National Research Council report concluded that explicitly outlining the roles and responsibilities of the various entities—data providers, host institutions, and data users—is essential.

In this report, the committee has not repeated information so thoroughly reviewed elsewhere. Rather, the committee has described the current situation for sea-turtle data and has recommended what should be done to make data accessible for research and management and to reduce the risk of data loss.

Current Status

The fractured status and lack of coordination of sea-turtle databases are major impediments to the management and conservation of sea turtles. Throughout the United States, hundreds of projects (of varying duration) have been established to monitor sea-turtle populations and conduct research on sea-turtle biology. These projects have been conducted by individuals in federal and state agencies, universities, and nongovernmental organizations, as well as by private individuals.

Data resulting from these projects have a wide range of integrity, accessibility, and stewardship. Integrity (structural completeness, including metadata [data that provides information about other data]) and quality of the data vary greatly depending on many factors. Quality control of data collection is a major factor. Factors affecting data-collection quality include the extent and consistency of training given to data collectors; the experience and number of data collectors; and the quality of equipment used, such as tags and instruments to

measure turtles. Data transcription from field or laboratory notes to digital databases is a common source of errors. Quality control of data transcription is essential to maintain the integrity of the database. Accurate metadata can help offset some data-quality problems. For example, accurate reporting of annual survey effort can offset problems of uneven effort among years. An important difficulty in sea-turtle count data is understanding whether each zero count is actually the result of the absence of turtles or zero effort.

Many databases resulting from sea-turtle studies have limited or no access for people other than the data owners. Data accessibility is determined by the willingness of the data owner to share the data, the ease of data use, and the presence of essential metadata so that data can be interpreted. Some data, particularly those from federal and state agencies, are available as digital databases but in summary form only.

Current stewardship of the data resulting from these projects ranges from well-curated, computerized databases with safeguarded backups to boxes of loose data sheets stored at a single vulnerable location. Data from some studies have been lost and cannot be reconstructed. The risk of loss of these databases depends on a number of factors, including the form of the data, arrangements for perpetual management, and the number of people and type of organization involved.

Examples of Sea-Turtle Databases Established to Share Data

Some databases provide information to locate data sources or to avoid duplication and confusion in sea-turtle studies. Because this type of database does not threaten "ownership" status, participation level tends to be good, depending largely on the benefit to the participant, which varies from certain and immediate (e.g., Marine Turtle DNA Sequences) to less certain and future (e.g., Sea Turtle Tag Inventory). The following includes some examples of this type of database:

- *In-Water Sea Turtle Monitoring and Research in Florida: Review and Recommendations* (Eaton et al., 2008) lists all known (n = 42) in-water sea-turtle research projects in Florida (active and inactive) with maps, brief summaries of results, and lists of publications. Given funding opportunities, the Florida Fish and Wildlife Conservation Commission has tentative plans to update this database and initiate coordination among projects.
- Marine Turtle DNA Sequence websites assign haplotype (i.e., nucleotide sequence) designations to all mitochondrial DNA sequences for green (*Chelonia mydas*) and loggerhead turtles (*Caretta caretta*) in the Atlantic (University of Florida, 2001) and Pacific green turtles (Southwest Fisheries Science Center, 2008) as they are discovered to facilitate coordination and to avoid the confusion of duplication of sequence designations in publications. The databases are updated as new sequences are submitted.
- The Sea Turtle Tag Inventory (University of Florida, 1999a) lists all flipper-tag sequences used by programs around the world to avoid duplication of tag numbers when tags are purchased by different research programs and to assist in reporting recapture data for turtles when only the tag number has been recorded. The database is updated as new tag series are submitted.

Several databases secure (i.e., protect from loss) data from sea-turtle projects and provide partial access or access to data summaries. However, long-term continuation of the host institution is not always assured. A few examples of these include the following:

- The Cooperative Marine Turtle Tagging Program (University of Florida, 1999b) is a centralized program funded by the Southeast Fisheries Science Center of the National Marine Fisheries Service (NMFS) and managed by the Archie Carr Center for Sea Turtle Research at the University of Florida to distribute sea-turtle tags, manage tagging data, correspond with individuals who capture tagged turtles, and facilitate exchange of tag information in the Atlantic. All data owners allow NMFS to use their data for management purposes and stipulate any additional extent to which their data are accessible. All data owners allow the Archie Carr Center for Sea Turtle Research to release original tagging data to people reporting capture of tagged turtles.
- Satellite tracking (Seaturtle.org, 2009) displays maps of sea-turtle tracks generated by satellite telemetry with contact information of data owners. Raw data are not available, and use of data is not allowed without permission from data owners.
- Sea turtle nest-count data for Florida (Florida Fish and Wildlife Conservation Commission, 2009) are displayed in a summary table of the statewide nesting totals for each year beginning in 1979 for each species and for the most current year (updated each February) only as a summary of nests and non-nesting emergences by county for each species.
- Data for sea turtles that stranded along the coast from Maine to Texas (Southeast Fisheries Science Center, 2010) are available from 1998 to 2005 as monthly totals for each species for each county. Beginning in 2006, data are available as weekly totals for each species for each NMFS zone, divided into inshore and offshore categories.
- Nesting and stranding data for a few areas are available from Seaturtle.org (2010a; b).

Few databases secure the data and provide complete access to raw data. The two examples that follow represent the two major types of data collected (tagging data and geographic distribution and abundance data):

- Legacy Database Initiative of the Archie Carr Center for Sea Turtle Research (University of Florida, 2010) will consist of many datasets. The first dataset (completed) is the tagging data for nesting sea turtles at Melbourne Beach, Florida, collected by Billy J. Turner and colleagues between 1972 and 1981. The second will be the tagging data for nesting sea turtles on Jupiter Island, Florida, collected by Frank Lund and colleagues between 1969 and 1981. All data, with accompanying metadata, will be available on the web.
- Ocean Biogeographic Information System Spatial Ecological Analysis of Megavertebrate Populations (OBIS-SEAMAP; Duke University, 2009) is a spatially-referenced online global database of megavertebrate (including sea turtle) distribution data. The database can be searched and viewed through online mapping applications. Raw data are available to download under the agreement that data contained in OBIS-SEAMAP will not be used in any publication, product, or commercial application without prior written consent of the original data provider. OBIS-SEAMAP is contained within OBIS, which was established by Census of Marine Life.

Centralized Data Facility

Perhaps the most efficient and secure approach for making sea-turtle data accessible would be to have all databases available through a single, permanent facility that would ensure

long-term management of the data. For tagging data, one possible program is the Cooperative Marine Turtle Tagging Program, which is described above. For geographic distribution and abundance data, a possibility is the Global Biodiversity Information Facility (GBIF), which is an international organization with the goal to make biodiversity data accessible everywhere in the world. OBIS is an associate member of GBIF, which is the only intergovernmental organization mandated to make data on global biodiversity freely accessible. It is now the largest, most comprehensive portal to biodiversity information with more than 177 million biodiversity data records (Gilman et al., 2009).

Top priority needs to be given to coordinating data from within the United States and its territories. This effort would require extensive coordination among federal and state agencies, nongovernmental organization, and individual citizens. Because sea-turtle populations are shared by many nations, concerted efforts could also be made to coordinate with governments and nongovernmental organizations in other countries. International networks, such as the Wider Caribbean Sea Turtle Conservation Network, could be valuable partners.

Data Protocols

Consistent data collection maximizes the ability to combine and compare data among studies. Attempts have been made to standardize data-collection protocols for sea turtles for a wide range of techniques (e.g., Bjorndal and Balazs, 1983; Higgins et al., 1997; Eckert et al., 1999; National Marine Fisheries Service Southeast Fisheries Science Center, 2008). Because many sea-turtle research programs have been underway for extended periods, it is understandable that researchers would be reluctant to change current methods or add new methods to their own data protocols.

Archives

In addition to the data archives discussed above, there is a great need for archives to store tissue samples from sea turtles. An archive for genetics samples already exits at the NMFS Southwest Fisheries Science Center, and the National Oceanic and Atmospheric Administration Center for Coastal Environmental Health and Biomolecular Research in Charleston, South Carolina, maintains a limited archive for sea-turtle tissues. Additional archives are needed for various tissue types to support analyses of somatic growth through skeletochronology, resource utilization through stable isotope analyses, and contaminant loads through analyses of pollutants. These archives need to be curated carefully and provide long-term storage and access to researchers. Incentives in the form of analytical assistance, collaborative help, and facilitated access will be needed to maximize contributions to these archives.

EDUCATION AND CAPACITY BUILDING

Chapter 1 emphasizes the need for U.S. management agencies to apply a more complete and quantitative understanding of sea-turtle population dynamics to management policy. Limits on quantitative information pertinent to sea-turtle management stem from both inadequate quantitative expertise and insufficient guidance of study designs and data analyses from policy information needs. Short-term remedies for this problem might include recruiting statistics and modeling specialists into management agencies from fields outside conservation biology.

However, effective analyses applied to pertinent management needs would require difficult science and policy translation between fields. This communication has been especially difficult in the interpretation of scientific uncertainty (Bradshaw and Borchers, 2000) and in the use of caution in management decisions (Cooney, 2004). This committee proposes that long-term remedies to pertinent quantitative information deficits include interdisciplinary training of fisheries and conservation professionals. (Refer to the discussion on assessment procedures in Chapter 6.)

There is interest both nationally (Jacobson and Robinson, 1990; National Research Council, 2000) and internationally (Buitrago et al., 2008) in the interdisciplinary challenges of educating quantitative fisheries and conservation professionals. There is general agreement that the education of effective professionals be broadly based and interdisciplinary (Massey, 1989; National Research Council, 1998; Clark, 2001). Training needs to include both quantitative and biological subjects, such as population and ecosystem ecology, statistics, and modeling, but also needs to include economics, policy, and decision-analysis courses, for example, to provide insight into how conservation of natural resources can be achieved. Students are generally quite eager to take fundamental biology courses, such as physiology and anatomy, but more frequently avoid the fundamental courses in mathematics and statistics that are needed to establish sufficient quantitative skills. Even though there is general agreement, realization of interdisciplinary education faces structural barriers at colleges and universities (Jacobson, 1990; Jacobson and Robinson, 1990).

Capacity building is a term that includes the development of partnerships between government and nongovernmental organizations. In terms of sea-turtle conservation and management, this would include NMFS, the U.S. Fish and Wildlife Service (USFWS), the U.S. Geological Survey, state resource agencies, universities, aquariums, nongovernmental organizations, biological consultants, and international collaborators. In addition to the development of partnerships, capacity building includes public outreach and improvement of scientific infrastructure.

An example of the difficulty in improving human resources for conservation work can be found in a report by the U.S. Department of Commerce and the U.S. Department of Education (2008). The fisheries management and marine conservation agencies face the same challenges that were identified in a National Research Council (2000) report on recruiting quantitative scientists to the agency despite aggressive actions to provide educational opportunities. More than 16 U.S. universities are engaged in cooperative programs with NMFS, along with a Sea Grant-administered Graduate Fellowships in Population Dynamics and Marine Resource Economics. Other programs, such as the NMFS–Recruiting Training Research Program at Virginia Tech, undertake special population dynamics workshops annual for undergraduates. Despite these advances, conservation education faces the challenges of providing interdisciplinary education within a traditional academic framework (Le Tissier et al., 2004; Kroll, 2007).

Important quantitative elements of interdisciplinary training in conservation students include a working knowledge of basic models and statistical evaluation of data. Students need to be aware of the value of quantitative analysis as a provider of recommendations that evaluate potential sources of bias and uncertainty and key evidence for motivating conservation action. All students majoring in natural and social sciences require an understanding of models and population effects of management actions to critically (and correctly) evaluate the tools that are used in decision making.

To promote a broader appreciation for the uses, and potential misuses, of quantitative analysis, universities need to make population-dynamics training more widely accessible to undergraduates (Hard, 1995; Matter and Steidl, 2000; Burger and Leopold, 2001). Existing biology and natural resource programs may leave out population-dynamics education beyond basic theoretical models presented in ecology or leave a gap between very basic, introductory courses and highly technical quantitative courses for graduate students.

ALLOCATION OF MANAGEMENT AND RESEARCH FUNDS

Federal agencies need to ensure that funds available to support research—both internal to the agencies and external funding—are invested wisely. At minimum, all research proposals generated from within federal agencies have to be reviewed by panels that include federal and non-federal scientists.

An example of one system that is working well is the Western Pacific Regional Fisheries Management Council's (WPRFMC) Sea Turtle Conservation Program. The committee summarizes their approach here, not as a description of what should be done but as a starting point for agency-appropriate plans. The program was established in 2002 to ensure the sustainability of Hawaii-based longline fisheries, contribute to the international transfer of sustainable fisheries technology and knowledge, and aid in the recovery of Pacific sea-turtle populations. Since then, WPRFMC has played an instrumental role in fostering collaboration, transferring bycatch-mitigation technology, and advancing the sustainability of fisheries by convening a number of international meetings. It has also played a key role in encouraging sea-turtle research, monitoring, and conservation projects in the Pacific where funding may not have been otherwise available, and its program annually receives a portion of the Congressional funding dedicated to Pacific sea-turtle research and conservation. With the advice of the Sea Turtle Advisory Committee (STAC), WPRFMC has been supporting conservation measures since 2003 to offset negative effects on sea-turtle populations from the Hawaii-based longline fishery. STAC was formed by WPRFMC at the 114th Council meeting (August 2002) to direct and advise on its turtle-conservation activities. STAC generally meets once a year and is comprised of eight well-known sea-turtle biologists and scientists. In FY2010, WPRFMC initiated an annual unified request for proposal (RFP) process for WPRFMC-funded sea-turtle conservation projects. The RFP process solicits projects focusing on one or more of WPRFMC's priority species and activities, as defined by its five-year plan for 2010–2014 and recommended by STAC. Proposals are reviewed by a panel consisting of WPRFMC staff, STAC members, and additional external reviewers if necessary. All previously funded projects requesting continued support from WPRFMC are subject to annual review through the same RFP process.

PERMITTING

Prior to initiating a research project on sea turtles in the United States that has potential for "take," investigators must obtain one or more research permits. The NMFS Office of Protected Resources is responsible for permitting studies conducted in the water, and USFWS is responsible for research conducted or initiated on land. For example, USFWS would issue a permit to attach a satellite transmitter to a sea turtle that has come ashore to nest and will return to the ocean. USFWS has established cooperative agreements with states and territories (i.e., Florida, Georgia, South Carolina, North Carolina, Puerto Rico, and the U.S. Virgin Islands)

having dedicated staff with sea-turtle expertise so that state agencies may grant permits under the auspices of Section 6 of the Endangered Species Act for research and educational programs on threatened sea-turtle species. NMFS does not have a similar relationship with states so sea-turtle research projects that take place in state waters usually require permits from both NMFS and the state in which the work is conducted, although in some cases the federal permit is all that is required.

The committee has found broad consensus among researchers studying sea turtles that the permitting process is a greater obstacle to research than is necessary for the protection of sea turtles or for meeting the requirements under the Endangered Species Act. There are three major concerns. First, the process is too slow; permits often take six months, and sometimes much longer, to be issued or denied. Second, the review is redundant and sometimes inconsistent with other required reviews, such as those rigorously conducted by internal and external scientific peer review of proposed research by funding agencies and by Institutional Animal Care and Use Committees. There is also redundancy between federal and state or territorial agencies with federal permitting authority. Third, the reasons for rejecting a permit request are not always provided, and mechanisms for appeals are not specified.

New research projects with innovative techniques will need to be initiated to meet data needs outlined in this report. However, numerous examples were presented during committee meetings in which the U.S. permitting process delayed or denied research projects, particularly when innovative techniques were involved. The permitting process need not unnecessarily delay or hamper these critical studies. Considering the balance between over- and under-regulation, it is clear that the sea-turtle research-permitting process is not under-regulated. Evidence for this is the absence of third-party lawsuits challenging granted research permits, whereas numerous lawsuits have resulted from the issuance of non-research incidental-take permits. Permitting agencies need to improve efficiency and change research-permitting processes so that the Endangered Species Act mandates are met under a timely and transparent process for permit applicants.

RECOMMENDATIONS

Data Management

- To avoid data sources being overlooked, NMFS should create a metadatabase[24] identifying as many of the sea-turtle datasets in the United States and its territories as possible, similar to the document created for in-water projects in Florida (described above). The online database should be updated regularly. As was done with the Florida in-water project, the permits granted for monitoring and research through federal and state agencies can be used to identify many of these projects. This database would provide information on available data, status of each dataset (e.g., computerized, hard-copy only, lost), and contact information but would not include the data.
- NMFS and USFWS should partner with other government agencies, universities, and nongovernmental organizations to develop a mechanism to obtain, computerize, maintain, and make accessible as many sea-turtle databases as possible. There is some urgency to undertake this task while data collectors are still available to provide essential metadata. Issues, such as data ownership, authorship requirements, and ensuring

[24] A metadatabase manages data that provide information about other data or are derived from other data.

appropriate use of data, will need to be addressed through data safeguards, extensive outreach, and participant incentives. Priorities for selecting which databases to conserve should be based on the integrity of the data, the amount and type of data, and risk of loss.

- NMFS and USFWS should partner with other government agencies, universities, and nongovernmental organizations to improve coordination among data holders. Incentives should be developed to encourage data sharing. These may include providing participating researchers with data analysis services and data products, regional data summaries, data backup assurance, assistance with publication of results, and facilitation of collaborative relationships.
- The Sea Turtle Stranding and Salvage Network should make information from all stranded turtles available for evaluation at least by review teams and assessment modelers.
- NMFS and USFWS should convene a working group of experts from government agencies, academics, and nongovernmental organizations to consider establishing centralized databases for all sea-turtle data collected within the United States and its territories.
- NMFS and USFWS should convene a task force of experts from government agencies, academics, and nongovernmental organizations to establish standard research and data collection protocols, building on earlier work (Eckert et al., 1999; National Marine Fisheries Service Southeast Fisheries Science Center, 2008), with emphasis on new techniques that have recently emerged. This task force should also develop incentives for researchers to adopt the protocols and outline a plan for ongoing training of methods and analytical techniques.
- NMFS and USFWS should establish and maintain long-term tissue banks, similar to the genetics tissue bank now at the Southwest Fisheries Science Center, for other types of tissues. The agencies should develop effective incentives to encourage participation in tissue banking, such as collecting humeri from turtle carcasses and tissue samples from turtles captured incidentally in fisheries.

Education and Capacity Building

Most of the recommendations presented in an earlier report of the National Research Council (2000) are still relevant today, and many of them remain unfulfilled. In addition, the committee recommends the following:

- Increase opportunities for undergraduates to have "hands-on" experiences with sea-turtle conservation and population dynamics. This could be done by increasing funding to existing cooperative programs or by developing summer programs similar to the National Science Foundation's Research Experience for Undergraduates. Because quantitative skills are essential for species management generally, summer courses could be directed towards a broader audience of undergraduates and beginning graduate students who are pursuing careers in conservation of marine mammals, sea birds, and other marine species.
- Increase opportunities for graduate and postgraduate students to pursue quantitatively oriented careers in conservation biology. This could be accomplished by funding additional scholarships within the NMFS–Sea Grant Joint Graduate Fellowships in population dynamics and in marine resource economics.

- Provide support for hands-on workshops that include (1) introductory materials (in English and Spanish) that provide a basic overview of why quantitative evaluation and statistical rigor in data collection are important for sea-turtle conservation and (2) data analysis and modeling guidance on how to analyze data and interpret model results. These workshops would be valuable tools for connecting data holders across regions.
- Provide outreach and training on how scientific information shapes conservation policy.
- Expand and facilitate involvement in student internships within the NMFS Office of Protected Resources.
- Formalize an outreach program aimed at informing professionals in conservation biology on how the information they gather is used in management decisions. Clearly broadcast updated information and data needs required assessments of risks and population viability.

Allocation of Research Funds

- To ensure that research funds are invested wisely, NMFS and USFWS should have all research plans generated from within federal agencies reviewed by panels that include federal and non-federal scientists.

Permits

- NMFS and USFWS should convene a working group to evaluate the permitting process for research projects and develop methods to expedite the process while meeting legislative requirements and intent. Participants should include representatives from the permitting agencies and research scientists. The review should weigh unintended consequences of permitting delays and lost research opportunities, should review the potential risks and benefits to the listed species of changing permitting requirements and procedures, and should assess the extent to which scrutiny of research permits has resulted in significant take reductions.

8
Conclusions and Recommendations

Overarching Conclusion: Although abundance estimates are critical for assessing sea-turtle populations, demographic or vital-rate parameters are critical for understanding and predicting trends in sea-turtle populations. In addition, the committee concludes that (1) in the United States, critical vital rates have not been adequately determined; (2) the most important procedural enhancements would be improved coordination in data collection and availability, a more efficient and transparent permitting process, and increased archiving of tissue samples; and (3) sea-turtle assessments have not been isolated from broader evaluations of status and threats and have rarely included scientists from other quantitative-modeling fields.

Overarching Recommendation: The National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) should develop a strategy for a coherent national plan for sea-turtle assessments to (a) improve the data-collection methods, data quality, and data availability and (b) develop a rigorous plan for external review of data and models used to assess population status and trends. Aspects of the plan would benefit from the focused attention of expert groups including government officials, academics, and nongovernmental organization personnel. As recommended by all expert working group documents (see Table 1.2), research should emphasize vital-rate estimation (averages and annual variance, as well as ecological or environmental mechanisms that drive vital rates) and improvement in abundance estimates. The most serious demographic data gaps to be addressed include in-water abundance, hatchling-cohort production, survival of immature turtles and nesting females, age at sexual maturity, breeding rates, and clutch frequency[25]. More precise estimates of anthropogenic mortality are needed to evaluate impacts. All sources of data should be evaluated for quality, consistency, spatial and temporal heterogeneity and trends, and data gaps.

Detailed suggestions for improving the collection, analysis, and synthesis of data are provided at the end of each chapter of this report. Appropriate models and procedures for assessments are described in Chapter 6. Because assessments will involve different circumstances and management needs, the committee cannot recommend one standardized set of priorities for all assessments beyond its strong recommendation for a greater focus on demographic parameters. Below are specific conclusions and recommendations that elaborate on the overarching conclusion and recommendation and represent the highest-priority needs.

Conclusion: Sea-turtle population assessments in the United States are based too heavily on abundance estimates of adult females at nesting beaches. Although abundance estimates of adult females are critical, without knowledge of accompanying changes in demographic rates for all life stages, the proximate and ultimate causes of population trends cannot be determined. Selection and evaluation of the best management options depend on an understanding of the basis for the change in population abundance.

[25] Clutch frequency refers to the number of clutches deposited by an individual turtle in a nesting season.

Recommendation: NMFS and USFWS should ensure that abundance estimates of life stages in addition to adult females are generated and that demographic rates are integrated with estimates of abundance in population assessments.

Conclusion: Inadequate information is available for population assessments because the data have not been collected, or if they have been collected, they have not been analyzed or made accessible in a manner that allows them to be useful.

Recommendations:

- NMFS and USFWS should develop plans for the collection and analysis of data to address data gaps. This development should include outside experts who collect, analyze, and use the data.
- NMFS and USFWS should present a comprehensive assessment plan and a data plan to sea-turtle biologists to facilitate effective data collection for this integrated approach and to obtain input from them on improvement of the plans.
- NMFS and USFWS, with other government agencies and funding sources, should support the collection and analysis of these data.
- To avoid data sources being overlooked, NMFS should create a metadatabase[26], identifying as many of the sea-turtle datasets in the United States and its territories as possible, similar to the document created for in-water projects in Florida (see Chapter 7). The online database should be updated regularly.
- NMFS and USFWS should support a program to safeguard and make accessible as many sea-turtle databases as possible, past and present. There is some urgency to undertake this task while data collectors are still available to provide essential metadata.
- NMFS and USFWS should partner with other government agencies, universities, and nongovernmental organizations to improve coordination among data holders. Incentives should be developed to encourage data sharing.
- NMFS and USFWS should arrange for a review of data now being collected under the auspices of, or with the support of, their agencies and evaluate the costs and benefits. For example, the sea-turtle stranding and salvage networks should be evaluated, perhaps with the assistance of the U.S. Geological Survey's National Wildlife Health Center.

Conclusion: Reviews of federal population assessments and research plans are not sufficiently rigorous and transparent.

Recommendations:

- NMFS and USFWS should develop a general framework for sea-turtle assessment procedures, including data evaluation, model review, and management strategy evaluation.
- NMFS and USFWS should ensure that all research plans generated from within federal agencies are reviewed by panels that include federal and non-federal scientists. Using reviewers with quantitative skills, such as population assessment and statistical analysis, is particularly important.

[26] A metadatabase manages data that provide information about other data or are derived from other data.

Conclusion: Unnecessary obstacles to collection and analysis of critical data exist, including inadequate quantitative training of scientists and an inadequate process for issuing research permits.

Recommendations:

- NMFS and USFWS should partner with other government agencies and universities to improve the quantitative skills of individuals involved in designing, reviewing, and implementing the projects and assessments that are generated under a comprehensive assessment plan. These will be short term (e.g., recruiting quantitatively skilled experts, improving the quantitative skills of current personnel) and long term (e.g., improving quantitative training of students).
- NMFS and USFWS should convene a working group to evaluate the permitting process for research projects and develop methods to expedite the process while meeting legislative requirements and intent. Participants should include representatives from the permitting agencies and research scientists. The review should weigh unintended consequences of permitting delays and lost research opportunities, should review the potential risks and benefits to the listed species of changing permitting requirements and procedures, and should assess the extent to which scrutiny of research permits has resulted in significant take reductions.

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Appendix A
Brief History of Alternative Genetic Markers

The first wave of molecular genetic data for sea turtles included a variety of techniques, during a period when DNA sequence data was still expensive and laborious to obtain. For the purposes of sea turtle population studies, these techniques have largely been replaced. However, it is notable that the conclusions based on these techniques have been confirmed (for the most part) with newer technologies based on the polymerase chain reaction (PCR), a technique used to amplify pieces of DNA, generating millions of copies of a particular DNA sequence. As explained in Chapter 2, mitochondrial DNA control region sequences and hypervariable microsatellites[27] are currently the methods of choice for sea turtle population assessment, and are likely to remain the primary methodologies for the next decade (Bowen and Karl, 2007). One promising technique that has not been applied yet to sea turtles is single-nucleotide polymorphisms (a DNA-sequence variation that can occur among members of the same species; Vignal et al., 2002), which require extensive nuclear DNA sequence information to identify variable sites throughout the genome (Lee, 2008).

Restriction Fragment Length Polymorphisms (Bowen et al., 1992)—This technique takes advantage of a suite of restriction enzymes[28], which can cut the DNA at specific four, five, or six base-pair sequences. For example, the enzyme *EcoR1* (a restriction enzyme derived from the bacteria *Escherichia coli*) cuts DNA at sites that contain the nucleotide sequence GAATTC. This is a quick and inexpensive way to get sequence information and was widely used in population genetic studies prior to the advent of PCR-based sequencing technology. The technique is highly repeatable and robust but has largely been replaced by direct DNA sequencing.

Anonymous Single-Copy Nuclear DNA (Karl et al., 1992)—This technique requires cloning and sequencing fragments of DNA from the genome. Based on these clones, variation in the nuclear genome can be resolved and characterized. The requirement of cloning (like microsatellites; see Chapter 2) makes this an expensive and labor-intensive approach to initialize but is also robust and repeatable (Karl and Avise, 1993). In population genetic studies, it is largely replaced by microsatellite methods but has broad applications in phylogeography and phylogenetic studies.[29]

Minisatellites (Peare et al., 1996)—These are first generation of "DNA fingerprints" and consist of short repeat sequences[30] of about 10–60 base pairs that occur in variable copy number, in

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[27] Also known as DNA fingerprints, these are highly variable DNA sequences that occur in short repeats, such as GAGAGAGAGA. The number of repeats can vary from a few to over 30 so it is possible to have many variants at this hypervariable region.
[28] These are useful for cutting genomes into fragments that are small enough to manipulate in cloning or DNA sequencing.
[29] Phylogeography focuses on the geographic distribution of genetic variation, usually at the level of species and genera. Phylogeographic studies often reveal molecular evolutionary separations below the species level, as is the case for green turtles (*Chelonia mydas*; Bowen et al., 1992). Phylogenetics is the study of evolutionary history, usually by describing relationships among species, genera, and higher taxonomic categories in the format of trees.
[30] These are DNA segments that repeat the same sequence multiple times. They are prone to duplication during cell replication and therefore can produce highly variable genetic markers.

hundreds of locations across the genome. They are detected with a fluorescent or radioactive probe and can be variable enough to distinguish individuals (Jeffreys, 2005). However, these can also be difficult to interpret and have largely been replaced by microsatellites in population genetic studies.

Random Amplification of Polymorphic DNA (Schroth et al., 1996)—This technique uses PCR primers to randomly amplify short segments of the genome, which are separated and visualized with gel electrophoresis[31]. It has the advantage of not requiring prior knowledge of the genome (sequence data) to design primers. However, it is not widely used in population genetic studies because of problems with interpretation and repeatability.

[31] This is a method for separating DNA fragments by size. The DNA or protein is inserted into a gelatin slab, and an electrical current is run through the gelatin to move fragments toward either the positive or negative end.

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Appendix B
Population-Structure Models

ISLAND MODEL

The island model provides a basic model of subdivision of a species into isolated "islands" that breed randomly within the island and where migrants are drawn randomly from each island. Due to this subdivision and isolation, the heterozygosity (when two different alleles occupy the gene's position [locus] on the paired chromosomes) of the entire group is lower than would be expected through random mating across all members of the species (Wright, 1943).

ISOLATION BY DISTANCE

When a species inhabits a large geographical area, genotype frequencies may change gradually across space in a way that is not due to physical barriers. Such isolation occurs because the geographic area is much greater than an individuals migration distance. This model reflects the loss of heterogeneity that results when individuals breed with their neighbors so that there is genetic differentiation across the range. At the ends of the range there is smaller genetics correlation than in nearby localities (Wright, 1943). Dethmers et al. (2006) observed isolation by distance in west Pacific green turtles (*Chelonia mydas*), on a scale greater than 2,000 km.

STEPPING-STONE

This model is a further modification of the ideas of isolation by distance. "The model assumes that the entire population is subdivided into colonies and the migration of individuals in each generation is restricted to nearby colonies" (Kimura and Weiss, 1964). Thus it is a special case of isolation by distance.

METAPOPULATION

Whereas Sewall Wright and others developed the ideas of spatial structure in populations relative to their genetics, Levins (1969; 1970) reframed the effects of spatial structure to a species population dynamics and ecology. His model concentrated on the consequences of extinction and recolonization of local populations on the persistence of a species. Hanski further developed these ideas since the 1980s to emphasize the effect of migration and connectivity on the vital rates of the local populations and how spatial heterogeneity can act to protect a species from extinction (Hanski and Simberloff, 1997). Modern theory does not necessarily assume that local populations will go extinct, and allow that there can be significant migration between them. However, the ramifications of habitat fragmentation on formation of metapopulations has not been fully developed (Jones, 2006).

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Appendix C
Committee and Staff Biographies

COMMITTEE

Karen A. Bjorndal (*Chair*) is a Professor of biology and Director of the Archie Carr Center for Sea Turtle Research at the University of Florida in Gainesville. She received a Ph.D. in zoology from the University of Florida. Dr. Bjorndal served as the chair of the Marine Turtle Specialist Group of the International Union for the Conservation of Nature for 12 years. She is a member of the Scientific Advisory Council of the Bahamas National Trust and served as president of the Comparative Nutrition Society. Her research includes sea turtle demographics, feeding ecology, growth rates, and nutrition. Dr. Bjorndal was a member of the NRC Committee on Sea Turtle Conservation, which issued *Decline of the Sea Turtles: Causes and Prevention*.

Brian W. Bowen is an Associate Researcher at the Hawaii Institute of Marine Biology, part of the University of Hawaii at Manoa. He received a Ph.D. in genetics from the University of Georgia in 1992. Dr. Bowen's research focuses on the phylogeography and conservation genetics of marine vertebrates. His research program is designed to serve conservation goals by illuminating the evolutionary processes that generate biodiversity. Dr. Bowen is a member of the American Association for the Advancement of Science, the American Genetics Association, the Society for Conservation Biology, and the Society for the Study of Evolution. He is an author of the textbook *Diversity of Fishes, Second Edition* and has held many editorial positions, including two currently: *Molecular Ecology* and *Journal of Heredity*.

Milani Chaloupka runs Ecological Modeling Services Pty Ltd., an international research company that provides statistical and mathematical consulting on ecological and economic issues for a wide range of groups, including industry, government, academia, and nongovernmental organizations. Dr. Chaloupka has a Ph.D. in marine ecology from the University of Queensland in Australia. His expertise is in statistical and mathematical modeling of complex ecological systems, including the development of interactive stochastic computer simulations of endangered species population dynamics. He is the chair of the Sea Turtle Advisory Committee of the Western Pacific Regional Fishery Management Council and vice-chair of the Marine Turtle Specialist Group. He is also chair of the Marine Turtle Red List Authority.

Larry B. Crowder is Professor of marine ecology at the Nicholas School for the Environment at Duke University. He completed his doctoral studies in Zoology at Michigan State University. Dr. Crowder's research centers on predation and food-web interactions, mechanisms underlying recruitment variation in fish, and population modeling in conservation biology. Dr. Crowder is currently engaged in more extensive programs in marine conservation, including endangered species and fisheries conflicts, especially bycatch in fishing gear. Dr. Crowder is a former member of the Ocean Studies Board and has served on several NRC committees.

Selina S. Heppell is an Associate Professor in the Department of Fisheries and Wildlife at Oregon State University. She earned a Ph.D. in zoology from Duke University. Dr. Heppell's research focuses on sea turtles, sharks, sturgeon, and U.S. west coast rockfish, primarily using computer models and simulations to understand how populations respond to human impacts and

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to guide research and management policy towards their recovery. She was an Aldo Leopold Leadership Program Fellow in 2006.

Cynthia M. Jones is a Professor, Eminent Scholar, and Director of the Center for Quantitative Fisheries Ecology at Old Dominion University. She received a Ph.D. in oceanography from the University of Rhode Island. Dr. Jones is a recognized expert in fisheries ecology and population dynamics, and her recent research has explored topics, including elemental analysis of adult and juvenile fish to investigate natal homing and connectivity in a marine fish metapopulation. She has served on the Ocean Studies Board and several NRC committees.

Molly E. Lutcavage is Research Professor and Director of the Large Pelagics Research Center in the Department of Natural Resources and the Environment, University of Massachusetts, Amherst. Dr. Lutcavage received her Ph.D. in biological oceanography from the University of Miami in 1987 and her M.S. from Virginia Institute of Marine Science at the College of William and Mary in 1981. Her research emphasizes population biology, physiological ecology, and conservation of large pelagic species, particularly tunas, billfish and sea turtles. Along with colleagues, Dr. Lutcavage helped develop electronic tagging and tracking methodologies for large marine animals. Her current interests include development of fishery independent detection and assessment methods for large pelagic species, and cooperative research approaches for fisheries.

Andrew R. Solow is a Senior Scientist and Director of the Marine Policy Center at the Woods Hole Oceanographic Institution. He received his Ph.D. from Stanford University. His research is in the area of environmental and ecological statistics. Dr. Solow's has served on several NRC committees.

Blair E. Witherington is a Research Scientist with the Florida Fish and Wildlife Research Institute where he has worked since 1992 on sea-turtle biology and conservation. Dr. Witherington received a Ph.D. from the Department of Zoology at the University of Florida. He has an appointment as adjunct assistant professor in the Department of Zoology at the University of Florida, serves as a Fulbright Senior Specialist in Biology, has served as president of the 20th International Sea Turtle Symposium, and is a member of the Marine Turtle Specialist Group of the International Union for Conservation of Nature as Vice-Chair of the Northwest Atlantic region.

STAFF

Jodi Bostrom is an associate program officer with the Ocean Studies Board. She earned an M.S. in environmental science from American University in 2006 and a B.S. in zoology from the University of Wisconsin-Madison in 1998. Since starting with the Ocean Studies Board in May 1999, Ms. Bostrom has worked on several studies pertaining to coastal restoration, fisheries policy, marine mammals and noise, nutrient over-enrichment, ocean exploration, capacity building for oceans and coasts, land-based marine debris, and best practices for shellfish aquaculture.

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Susan Park (until December 2009) was a senior program officer with the Ocean Studies Board until the end of 2009. She received her Ph.D. in oceanography from the University of Delaware in 2004. Dr. Park was a Christine Mirzayan Science and Technology Graduate Policy Fellow with the Ocean Studies Board in 2002 and joined the staff in 2006. She worked on several reports, including *Nonnative Oysters in the Chesapeake Bay*, *Review of Recreational Fisheries Survey Methods*, *Dynamic Changes in Marine Ecosystems*, *A Review of the Ocean Research Priorities Plan and Implementation Strategy*, and *Tackling Marine Debris in the 21st Century*. Prior to joining the Ocean Studies Board, she spent time working on aquatic invasive species management with the Massachusetts Office of Coastal Zone Management and the Northeast Aquatic Nuisance Species Panel. She is currently Assistant Director for Research at Virginia Sea Grant.

David Policansky has a B.A. in biology from Stanford University and a M.S. and Ph.D. in biology from the University of Oregon. He has taught introductory biology, genetics, ichthyology, evolution, ecology, and graduate seminars. He is a scholar in the Board on Environmental Studies and Toxicology, where he directs studies on applied ecology and natural resource management. He is a member of the Ecological Society of America and the American Fisheries Society and chairs the advisory council for the University of Alaska's School of Fisheries. He was a 2001 Harriman Scholar on the retracing of the 1899 Harriman Alaska Expedition. His interests include genetics; evolution; and ecology, including the effects of fishing on fish populations; ecological risk assessment; natural resource management; and how science is used in informing policy. He has directed more than 30 projects at the NRC on natural resources and ecological risk assessment, including reports on the Endangered Species Act; salmon in the Pacific Northwest, Maine, and Alaska; wetlands delineation; enhancing water supplies in the Middle East; cumulative environmental effects of oil and gas activities on Alaska's North Slope; ecological indicators; environmental impacts of wind-energy projects, and ecosystem-based approaches to the management of marine fisheries. He has published approximately 35 papers, book chapters, and book reviews, most recently on fisheries, the role of science in decision making, and common-property resources.

Jeremy Justice is a senior program assistant with the Ocean Studies Board. He earned a B.A. in international and area studies from the University of Oklahoma in 2008. Since joining the staff in October 2008, Mr. Justice has worked on *Science at Sea: Meeting Future Oceanographic Goals with a Robust Academic Research Fleet* and *Ecosystem Concepts for Sustainable Bivalve Mariculture*, in addition to this report.

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Microsoft Outlook

From: Sheryan Epperly [Sheryan.Epperly@noaa.gov]
Sent: Friday, July 16, 2010 6:16 PM
To: Bonnie Ponwith; Theo Brainerd; Peter Thompson; Jim Bohnsack
Cc: Chris Sasso; Wendy Teas; Lisa Belskis; Lesley Stokes; Paul Richards; Kate L. Mansfield; Aleta Hohn; Joanne B Mcneill; Larisa Avens; April Goodman
Subject: Turtle Update - July 16, 2010 - Deepwater Horizon MC252
Attachments: Sea Turtle Strandings and Live Captures - Deepwater Horizon.xls; DWHMC252_Turtles20100716.pdf; Mammal_Turtle_Data_15_July-SUMMARY.xls; Mammal_Turtle_Data_15_July.xls; MMST_Health_and_Stranding_Update_for_16_July_FINAL.doc

Wendy continues to coordinate the STSSN (see below and attached) and we receive reports and maps daily from the Wildlife Branch in Houma (see attached).

Today, Sherry reviewed the ACOE's NRDA proposal (we are a collaborator for blood sampling and for satellite tagging - that work will be conducted under our permit). The rest of the team was standing down.

-------- Original Message --------
Subject: 7/15 Strandings and Live Capture Update - Non-oiled and Oiled Turtles - Deepwater Horizon
Date: Thu, 15 Jul 2010 21:46:44 -0400
From: Wendy.Teas@noaa.gov
To: HoumaICC MMST <HoumaICC.MMST@noaa.gov>, MobileICC MMST <MobileICC.MMST@noaa.gov>, "Sheryan.Epperly" <Sheryan.Epperly@noaa.gov>, Bonnie Ponwith <Bonnie.Ponwith@noaa.gov>, Lisa Belskis <Lisa.Belskis@noaa.gov>, Chris Sasso <Chris.Sasso@noaa.gov>, Paul Richards <Paul.Richards@noaa.gov>, Brian Stacy <Brian.Stacy@noaa.gov>, "Karen.Mitchell" <Karen.Mitchell@noaa.gov>, _NMFS SER Emergency Consult <nmfs.ser.emergency.consult@noaa.gov>, Kristy Long <Kristy.Long@noaa.gov>

There were 3 turtle strandings reported / verified today:
FL - 1 dead Kemp's ridley, no oil
AL - 1 dead unknown species (bones only), no oil
MS - 1 dead green turtle, no oil
LA - 0

There were 4 turtles recovered by live capture operations:
1 Kemp's ridley, oiled, was recovered by the group working out of Venice, LA
2 Kemp's ridleys (1 oiled, 1 not oiled) and 1 green turtle (oiled) were recovered by the LDWF group working approx 35 miles offshore Grand Isle, LA

There has been no update received since 7/13 on trawl or dredge captures working on the berm project in LA.

See attached Excel file for details.

VoO's utilized for stranding response:
AL - 7/15 - Mob# 50030 Capt. Anthony Morales
AL - 7/14 - Mob# 55154 Capt. Terry (Note - this one should have been included in yesterday's report)

Update through July 15, 2010 (as of 1800)

Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period

- Increase of 3 turtle strandings (1 dead in FL, 1 dead in AL, 1 dead in MS).
- Increase of 4 oiled turtle by directed turtle captures offshore.
- No dolphin strandings reported.
- The report reflects an increase of 2 dead dolphins in Louisiana on May 14 that had not been previously reported to the Wildlife Branch.
- The historic numbers also reflect a change in oiled status for one live dolphin - it was removed from the oiled category and reclassified as non-oiled based on further evaluation of the capture data.
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols.

Sea Turtles

Total Turtle Numbers (includes various corrections/edits from prior dates as data go through QA/QC; these corrections are not reflected in increase-decrease statements, those statements refer only to yesterday's stranding/capture events)

NOTE: Turtles captured in the COE/State of LA dredging project and associated trawler effort are not included in the numbers directly below, but have their own individual summary information following these summaries.

668 total sea turtles verified to date within the "designated spill area" (increase of 7 from July 15 report)

- 521 stranded* (increase of 3 from July 15 report)
  - 463 of the stranded were found dead (increase of 3 from July 15 report)
  - 58 of the stranded were found alive (no change from July 15 report)
    - 4 recovered alive but died in rehab (no change from July 15 report)
    - 11 turtles released alive (no change from July 15 report)
    - 43 live turtles in rehabilitation (no change from July 15 report)
- 147 turtles collected during directed turtle sampling efforts (increase of 4 from July 15 report)
  - 4 of the collected were found dead (no change from July 15 report)
  - 143 of the collected were found alive (increase of 4 from July 15 report)
    - 3 turtles recovered live that died in rehab (no change from July 15 report)
    - 0 turtles released alive (no change from July 15 report)
    - 144 live turtles in rehabilitation (increase of 1 from July 15 report)

* For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Update through July 15, 2010 (as of 1800)

Turtle Necropsy Status (of the 463 dead stranded, 4 dead directed capture, and 7 that died in rehab):

- 14 assessed and unable to perform necropsies (i.e. advance decomposition) (no change from July 15 report)
- 24 partial necropsies (e.g. due to scavenging or autolysis) (no change from July 15 report)
- 106 full necropsies performed (no change from July 15 report)
- 46 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from July 15 report)
- 284 carcasses to be necropsied, if decomposition stage warrants (increase of 3 from July 15 report)
- Of the initial 75 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. Further results are pending.

Information on Signs of Sea Turtle Oiling:

- To date, visible evidence of oil has been documented externally on 11 dead stranded sea turtle and 10 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 3 dead sea turtles and 132 live sea turtles captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 15 is 32.
- For comparison purposes, the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in the month of July (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-8 stranded sea turtles
    - Alabama: 1-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 7-29 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles since the inception of the oil spill; however, we do not believe this factor fully explains the increase.

COE/State of Louisiana Hopper Dredge Project and Associated Trawling for Turtles

- 74 sea turtles captured in trawlers working near the dredging site (no change from July 15 report due to no report submitted by COE)
    - 1 of the captured was dead (no change from July 15 report)
    - 73 of the captured were alive (no change from July 15 report)
        - 72 unoiled turtles released alive (no change from July 15 report)
        - 1 unoiled live turtle in rehabilitation (no change from July 15 report)

Update through July 15, 2010 (as of 1800)

Marine Mammals

Total Mammal Numbers
66 total marine mammals have been verified to date (an increase of 2 from July 15 report which had not been previously reported)

- 65 dolphins have been verified to date within the "designated spill area" (increase of 2 from July 15 report)
  - 60 were dead stranded* dolphins (increase of 2from July 15 report)
  - 5 were live stranded dolphins (no change from July 15 report)
    - 2 died shortly after stranding (no change from July 15 report)
    - 1 euthanized upon stranding (no change from July 15 report)
    - 1 stranded live and freed immediately (no change from July 15 report)
    - 1 live and in care (no change from July 15 report)
- 1 dead whale has been verified to date within the "designated spill area" (no change from July 15 report)
  - 1 was a dead stranded sperm whale (no change from July 15 report)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR
- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status (of the 60 dead stranded and 3 live stranded dolphins that died or were euthanized):

- 28 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 15 report)
- 11 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 15 report)
- 13 full necropsies performed (no change from July 15 report)
  10 verified strandings but animals not collected due to stage of decomposition or unable to recover (increase of 2 from July 15 report based on late reports of 2 animals stranded on May 14 found during QA/QC process with field responders)
- 1 carcass to be necropsied, if decomposition stage warrants (no change from July 15 report)
- Necropsy results are pending for all animals necropsied to date.

Whale Necropsy Status (of the 1 dead stranded):

Update through July 15, 2010 (as of 1800)

- 0 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 15 report)
- 0 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 15 report)
- 0 full necropsies performed (no change from July 15 report)
- 1 verified stranding but animal not collected due to stage of decomposition or unable to recover (no change from July 15 report)
- 0 carcasses to be necropsied, if decomposition stage warrants (no change from July 15 report)

Information on Signs of Mammal Oiling:

- Dolphins: Four of the verified dolphins had evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to determine whether the three dead stranded animals were externally oiled pre- or post-mortem. All other necropsy findings are pending. (decrease of 1 from July 15 report; based upon further conversations with the responders, an animal trapped within the boom that was released was reclassified from oiled to unoiled).
- Whales: The verified whale had no evidence of external oil.

Historical Dolphin Strandings

- The total number of dolphin strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 15 is 5.
- For comparison purposes, the number of dolphin strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in July (2003-2007) is as follows:
    - Louisiana: 0-2 stranded dolphins
    - Mississippi: 0-1 stranded dolphins
    - Alabama : 0-3 stranded dolphins
    - Florida panhandle: 0-1 stranded dolphins
- The total number of strandings during this event is higher than the number of marine mammal strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.

Historical Whale Strandings

- The total number of whale strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 15 is 0.
- For comparison purposes, there are no records of stranded whales in the designated spill area for July (2003-2007).

<u>Summary of Action Plan Items:</u>

- On-water direct turtle capture operations under the Wildlife Branch were operational on July 14 out of both Venice, LA and Destin, FL.

Deepwater Horizon MC252

Update through July 15, 2010 (as of 1800)

- Multiple discussions with Unified and Area Commands (including with NOAA SSCs) have occurred on the Gulf-wide observer program (maximum of 60 observers). Following meetings between NMFS leadership (Rauch and Golde) and the Incident Commander at the Houma ICC on 15 July, a Resource Request was signed to rapidly activate 20 observers, and the Master Service Agreement is currently being developed. Logistical details and a staffing plan are currently being developed by the on-site Observer Coordinator.
- The hopper dredges continue to operate in the borrow areas near the Chandeleur Islands and required relocation trawling continues. Communication has been difficult, and no information has been received from the field operators in the past few days.
- In situ burn activities were conducted on July 15. Five observers were at sea with the burn task forces. Reports from the observers are pending. Discussions are underway with the supervisors of the Controlled Burn Unit regarding the optimum number of protected resources observers.
- The Best Management Practices for oil spill response activities and NMFS and USFWS protected species are fully integrated into the Houma ICC Operational Assignments, and are being reviewed by Area Command.
- An on-water dolphin assessment team will be in Orange Beach, Alabama beginning 18 July to conduct additional follow up visual health assessments on the resident bottlenose dolphins in the Perdido Bay complex. There have been repeated reports of sick animals in the area which have not been confirmed by marine mammal experts. The team will be comprised of PR and SERO staff who will be accompanied by a non-governmental marine mammal veterinarian. The team will be on the water for two days utilizing a VOO.
- Eight unoiled turtles were transferred by USFWS plane from IMMS in MS to SeaWorld and Disney's Living Seas to free up room at IMMS for oiled turtles in accordance with primary/secondary facility plans. Planning is ongoing to move additional unoiled and de-oiled turtles from primary to secondary facilities in the coming week. Expert discussions are underway regarding release locations for oiled turtles that have been medically cleared for release.
- Release status discussions regarding the dolphin in rehabilitation at Audubon have been initiated by SERO.

Oiling Criteria

Defined Categories of Stranded Marine Mammals/Sea Turtles During MC 252 Spill

1) Visibly Oiled
   a. Evidence of external oiling (live or dead animals); or
   b. Evidence of internal oiling on initial exam: Oil in oral cavity, nares or blowhole (live or dead animals); or
   c. Evidence of internal oiling on necropsy: Oil in esophagus, gastrointestinal tract and/or respiratory tract (dead animals).
2) Not Visibly Oiled: Do not meet criteria above. Note not visibly oiled does not imply cause of death nor whether this event impacted the animal.

Procedures for Determining Oiling Status in Marine Mammals or Sea Turtles

1) Upon report of stranded animal, designated members of the Wildlife Branch (trained to appropriate evidence collection and Chain of Custody procedure) will be dispatched to the site for initial evaluation.

2) All animals within the "designated spill area" will be immediately externally evaluated, sampled, and photographed following NOAA's "Marine Mammal Oil Spill Response Guidelines" or the established "Sea Turtle MS 252 Response Guidelines".
   a. All animals within a specified distance that affected mammals or turtles may travel or float after being affected (distance to be determined upon daily consultation with the Envt Unit within the Planning Section and the NRDA Unit) will be immediately externally evaluated and, if suspicious, will be externally sampled.
   b. Those animals not within or adjacent to the "designated spill area" should *not* be considered as part of this spill and not be accounted for in the spill documentation (but standard stranding procedures should be followed).

3) All stranded animals will be grossly evaluated by necropsy (cetacea at site of stranding, at the primary care facility, or at a pre-determined necropsy site if logistically feasible, sea turtles at the primary care facility or at a designated remote pathology center).
   a. For certain carcasses, such as turtles with open coelomic cavities or dolphins in advanced state of decomposition and no intact GI tract, it may not be possible to pathologically determine cause of death or pathologies and collect useable tissues. The sampling of these animals will be for the presence of external oil only.

4) Oiling status will be determined based on external and internal gross evaluation. NOTE THAT THE DETERMINATION OF OILING STATUS DOES NOT ESTABLISH SUB-APPARENT OIL EXPOSURE OR THE CAUSE OF DEATH. In fact, some gross pathological changes, such as respiratory damage or significant irritation to ocular tissues or mucous membranes, can be associated with oil exposure. The determination of these types of impacts must come from further evaluation of the samples and other evidence, such as histopathological evaluation of tissues and/or PAH analysis of the biological samples.

Summary Totals

	TOTAL Dolphins							
	Live			Dead				
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Date Totals	Released
Subtotal 30 Apr-31 May	0	0	0	1	33	0	34	0
Subtotal 1 Jun-30 Jun	1	4	0	2	17	2	26	1
1-Jul-10	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	1	0	1	0
3-Jul-10	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	1	1	0
6-Jul-10	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	1	1	0
9-Jul-10	0	0	0	0	1	0	1	0
10-Jul-10	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	1	1	0
12-Jul-10	0	0	0	0	0	0	0	0
13-Jul-10	0	0	0	0	0	0	0	0
14-Jul-10	0	0	0	0	0	0	0	0
15-Jul-10	0	0	0	0	0	0	0	0
Category Totals	1	4	0	3	52	5	65	1

Summary Totals

	TOTAL Whales						
	Live			Dead			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	1	1
1-Jul-10	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0
13-Jul-10	0	0	0	0	0	0	0
14-Jul-10	0	0	0	0	0	0	0
15-Jul-10	0	0	0	0	0	0	0
Category Totals	0	0	0	0	0	1	1

Summary Totals

	TOTAL Turtles							
	Live			Dead			Date Totals	Released
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending		
Subtotal 26 Apr-31 May	**12**	**17**	**0**	**1**	**82**	**153**	**265**	**4**
Subtotal 1 Jun-30 Jun	**90**	**35**	**0**	**10**	**0**	**195**	**330**	**0**
1-Jul-10	0	0	0	0	0	0	**0**	0
2-Jul-10	1	1	0	1	0	0	**3**	0
3-Jul-10	0	0	0	0	0	0	**0**	0
4-Jul-10	0	1	0	0	0	2	**3**	0
5-Jul-10	0	0	0	0	0	1	**1**	0
6-Jul-10	0	0	0	0	0	3	**3**	0
7-Jul-10	0	0	0	0	0	1	**1**	0
8-Jul-10	10	1	0	0	0	3	**14**	7
9-Jul-10	11	1	0	0	0	0	**12**	0
10-Jul-10	10	0	0	1	0	1	**12**	0
11-Jul-10	4	0	0	1	0	2	**7**	0
12-Jul-10	1	2	0	0	0	6	**9**	0
13-Jul-10	0	0	0	0	0	0	**0**	0
14-Jul-10	0	0	0	0	0	1	**1**	0
15-Jul-10	3	1	0	0	0	3	**7**	0
Category Totals	**142**	**59**	**0**	**14**	**82**	**371**	**668**	**11**

Summary Totals

	Turtles - Translocation of Gulf Nests			
	# of Nests		# of Hatchlings	
	Loggerhead	Kemp's Ridley	Loggerhead	Kemp's Ridley
Subtotal 26 Apr-31 May	**0**	**0**	**0**	**0**
Subtotal 1 Jun-30 Jun	**0**	**1**	**0**	**0**
1-Jul-10	0	0	0	0
2-Jul-10	0	0	0	0
3-Jul-10	0	0	0	0
4-Jul-10	0	0	0	0
5-Jul-10	0	0	0	0
6-Jul-10	0	0	0	0
7-Jul-10	0	0	0	0
8-Jul-10	0	0	0	0
9-Jul-10	2	0	0	0
10-Jul-10	0	0	0	0
11-Jul-10	0	0	0	22
12-Jul-10	6	0	0	0
13-Jul-10	0	0	0	34
14-Jul-10	2	0	0	0
15-Jul-10	2	0	0	0
TOTALS	12	1	0	56

Status Summary

	Dolphin Status	Whale Status	Turtle Status - Stranded	Turtle Status - Captured
Verified Animals				
Total animals collected	**65**	**1**	521	147
Total dead animals	60	1	463	4
Total live animals	5	0	58	143
Total live animals stranded that died in care	3	0	4	3
Total live released animals	1	0	11	0
Total live animals currently in rehabilitation	1	0	43	140
Oiling Status				
Total dead oiled animals	3	0	11	3
Total live oiled animals	1	0	10	132
Animal Necropsy Status				
Number collected and unable to perform necropsies (e.g., advanced decomposition)	28	0	14	
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	11	0	24	
Number of full necropsies performed	13	0	106	
Verified strandings but animals not collected due to stage of decomposition or unable to recover	10	1	46	
Carcasses to be necropsied, if decomposition stage warrants	1	0	284	

Dolphins

	Dolphins - ALABAMA							Dolphins - FLORIDA						
	Live			Dead				Live			Dead			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 26 Apr-31 May	0	0	0	0	3	0	0	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	1	0	0	0	2	1	1	2	0	0	1	0	0
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	1	0	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	0	1	0	0	3	3	1	1	2	0	0	1	0	0
Species Total	7							4						

Dolphins

	Dolphins - LOUISIANA							Dolphins - MISSISSIPPI							Daily Totals
	Live			Dead			Released	Live			Dead			Released	
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending		Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending		
Subtotal 26 Apr-31 May	0	0	0	1	22	0	0	0	0	0	0	8	0	0	**34**
Subtotal 1 Jun-30 Jun	0	1	0	1	11	0	0	0	0	0	1	5	0	0	**26**
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2-Jul-10	0	0	0	0	0	0	0	0	0	0	0	1	0	0	**1**
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
4-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	**1**
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
8-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
9-Jul-10	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
10-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
11-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	**1**
12-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
13-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
14-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
15-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
TOTALS	0	1	0	2	34	0	0	0	0	0	1	14	2	0	**65**
Species Total	37							17							

Whales

	Whales - ALABAMA						Whales - FLORIDA					
	Live			Dead			Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	0	0	0	0	0	0	0
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
13-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
14-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
15-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Species Total	**0**						**0**					

Whales

	Whales - LOUISIANA						Whales - MISSISSIPPI					
	Live			Dead			Live			Dead		
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	0	0	0	0	0	0	0
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
13-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
14-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
15-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Species Total	**0**						**0**					

Whales

	Whales - Off-Shore						Daily Totals
	Live			Dead			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	1	1
1-Jul-10	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0
13-Jul-10	0	0	0	0	0	0	0
14-Jul-10	0	0	0	0	0	0	0
15-Jul-10	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**1**	**1**
Species Total	**1**						

Turtles

	Turtles - ALABAMA							Turtles - FLORIDA						
	Live Strandings			Dead Strandings				Live Strandings			Dead Strandings			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 26 Apr-31 May	0	2	0	0	5	43	1	0	4	0	0	0	27	0
Subtotal 1 Jun-30 Jun	3	0	0	3	0	23	0	2	6	0	1	0	18	0
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul-10	1	0	0	1	0	0	0	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5-Jul-10	0	0	0	0	0	1	0	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0	0	1	0	0	0	0	0
9-Jul-10	1	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	1	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	1	0	1	0	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0	0	1	0	0	0	1	0
13-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-Jul-10	0	0	0	0	0	1	0	0	0	0	0	0	0	0
15-Jul-10	0	0	0	0	0	1	0	0	0	0	0	0	1	0
TOTALS	5	2	0	5	5	71	1	2	12	0	1	0	48	0
Species Total	88							63						

Turtles

	Turtles - LOUISIANA							Turtles - MISSISSIPPI						
	Live Strandings			Dead Strandings				Live Strandings			Dead Strandings			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 26 Apr-31 May	2	2	0	1	2	61	0	0	9	0	0	75	22	3
Subtotal 1 Jun-30 Jun	1	2	0	3	0	27	0	0	19	0	0	0	126	0
1-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul-10	0	1	0	0	0	1	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	3	0
7-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	3	7
9-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul-10	0	0	0	1	0	0	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	1	0
12-Jul-10	0	1	0	0	0	1	0	0	0	0	0	0	4	0
13-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	1	0
TOTALS	3	6	0	5	2	90	0	0	28	0	0	75	161	10
Species Total	106							264						

Turtles

	Turtles - Dedicated On-Water Turtle Surveys						Daily Totals
	Live Directed Captures			Dead Directed Captures			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 26 Apr-31 May	10	0	0	0	0	0	265
Subtotal 1 Jun-30 Jun	84	8	0	3	0	1	330
1-Jul-10							0
2-Jul-10	0	1	0	0	0	0	3
3-Jul-10							0
4-Jul-10							3
5-Jul-10	0	0	0	0	0	0	1
6-Jul-10	0	0	0	0	0	0	3
7-Jul-10	0	0	0	0	0	0	1
8-Jul-10	10	0	0	0	0	0	14
9-Jul-10	10	1	0	0	0	0	12
10-Jul-10	10	0	0	0	0	0	12
11-Jul-10	4	0	0	0	0	0	7
12-Jul-10	1	0	0	0	0	0	9
13-Jul-10	0	0	0	0	0	0	0
14-Jul-10	0	0	0	0	0	0	1
15-Jul-10	3	1	0	0	0	0	7
TOTALS	132	11	0	3	0	1	668
Species Total	147						

Summary Totals

	TOTAL Dolphins							
	Live			Dead				
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Date Totals	Released
Subtotal 30 Apr-31 May	0	0	0	1	33	0	34	0
Subtotal 1 Jun-30 Jun	1	4	0	2	17	2	26	1
1-Jul-10	0	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	1	0	1	0
3-Jul-10	0	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	1	1	0
6-Jul-10	0	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	1	1	0
9-Jul-10	0	0	0	0	1	0	1	0
10-Jul-10	0	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	1	1	0
12-Jul-10	0	0	0	0	0	0	0	0
13-Jul-10	0	0	0	0	0	0	0	0
14-Jul-10	0	0	0	0	0	0	0	0
15-Jul-10	0	0	0	0	0	0	0	0
Category Totals	1	4	0	3	52	5	65	1

Summary Totals

	TOTAL Whales						
	Live			Dead			Date Totals
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	1	1
1-Jul-10	0	0	0	0	0	0	0
2-Jul-10	0	0	0	0	0	0	0
3-Jul-10	0	0	0	0	0	0	0
4-Jul-10	0	0	0	0	0	0	0
5-Jul-10	0	0	0	0	0	0	0
6-Jul-10	0	0	0	0	0	0	0
7-Jul-10	0	0	0	0	0	0	0
8-Jul-10	0	0	0	0	0	0	0
9-Jul-10	0	0	0	0	0	0	0
10-Jul-10	0	0	0	0	0	0	0
11-Jul-10	0	0	0	0	0	0	0
12-Jul-10	0	0	0	0	0	0	0
13-Jul-10	0	0	0	0	0	0	0
14-Jul-10	0	0	0	0	0	0	0
15-Jul-10	0	0	0	0	0	0	0
Category Totals	0	0	0	0	0	1	1

Summary Totals

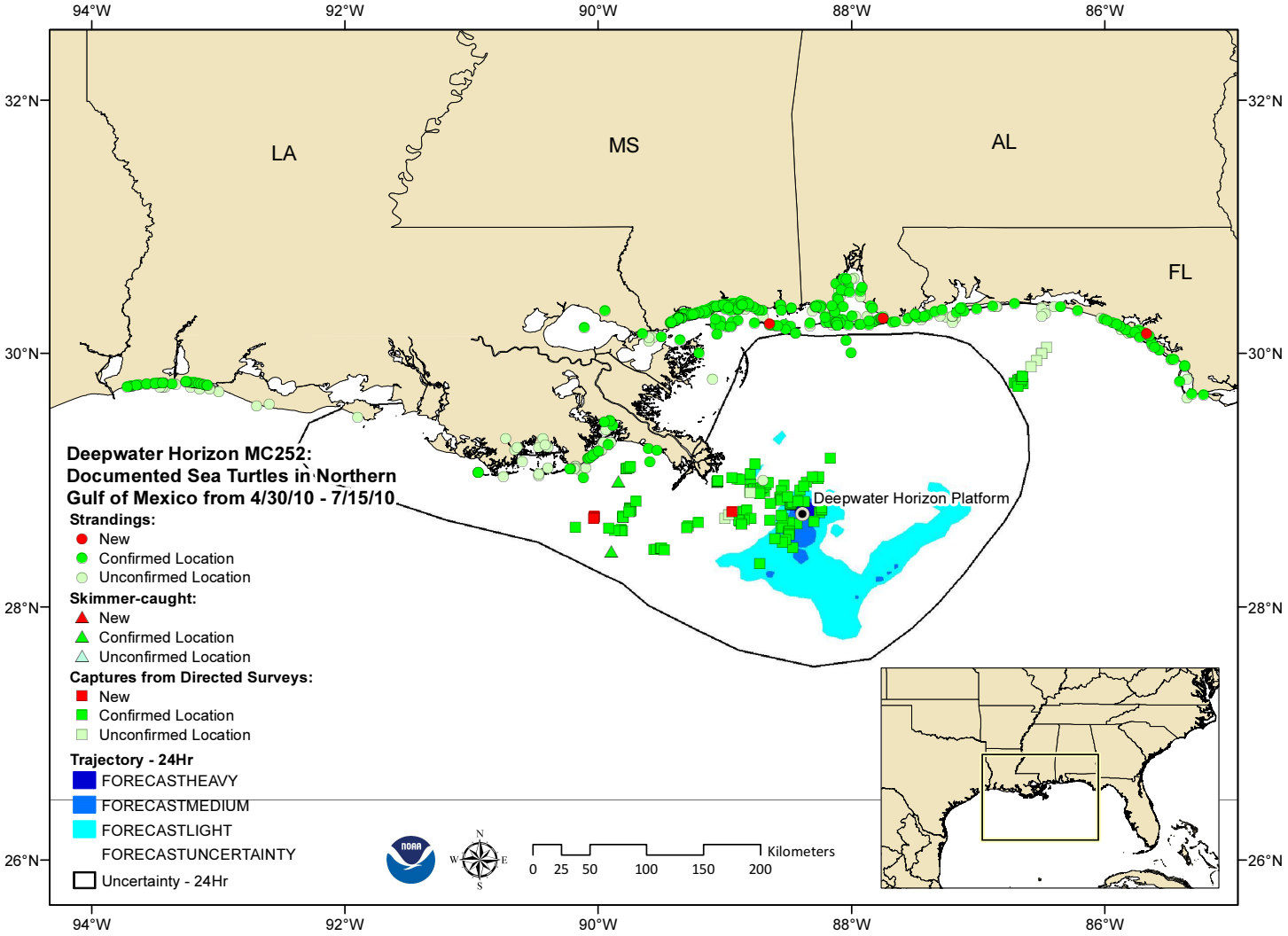
	TOTAL Turtles							
	Live			Dead			Date Totals	Released
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending		
Subtotal 26 Apr-31 May	**12**	**17**	**0**	**1**	**82**	**153**	**265**	**4**
Subtotal 1 Jun-30 Jun	**90**	**35**	**0**	**10**	**0**	**195**	**330**	**0**
1-Jul-10	0	0	0	0	0	0	**0**	0
2-Jul-10	1	1	0	1	0	0	**3**	0
3-Jul-10	0	0	0	0	0	0	**0**	0
4-Jul-10	0	1	0	0	0	2	**3**	0
5-Jul-10	0	0	0	0	0	1	**1**	0
6-Jul-10	0	0	0	0	0	3	**3**	0
7-Jul-10	0	0	0	0	0	1	**1**	0
8-Jul-10	10	1	0	0	0	3	**14**	7
9-Jul-10	11	1	0	0	0	0	**12**	0
10-Jul-10	10	0	0	1	0	1	**12**	0
11-Jul-10	4	0	0	1	0	2	**7**	0
12-Jul-10	1	2	0	0	0	6	**9**	0
13-Jul-10	0	0	0	0	0	0	**0**	0
14-Jul-10	0	0	0	0	0	1	**1**	0
15-Jul-10	3	1	0	0	0	3	**7**	0
Category Totals	**142**	**59**	**0**	**14**	**82**	**371**	**668**	**11**

Summary Totals

	Turtles - Translocation of Gulf Nests			
	# of Nests		# of Hatchlings	
	Loggerhead	Kemp's Ridley	Loggerhead	Kemp's Ridley
Subtotal 26 Apr-31 May	**0**	**0**	**0**	**0**
Subtotal 1 Jun-30 Jun	**0**	**1**	**0**	**0**
1-Jul-10	0	0	0	0
2-Jul-10	0	0	0	0
3-Jul-10	0	0	0	0
4-Jul-10	0	0	0	0
5-Jul-10	0	0	0	0
6-Jul-10	0	0	0	0
7-Jul-10	0	0	0	0
8-Jul-10	0	0	0	0
9-Jul-10	2	0	0	0
10-Jul-10	0	0	0	0
11-Jul-10	0	0	0	22
12-Jul-10	6	0	0	0
13-Jul-10	0	0	0	34
14-Jul-10	2	0	0	0
15-Jul-10	2	0	0	0
TOTALS	12	1	0	56

Status Summary

	Dolphin Status	Whale Status	Turtle Status - Stranded	Turtle Status - Captured
Verified Animals				
Total animals collected	**65**	**1**	521	147
Total dead animals	60	1	463	4
Total live animals	5	0	58	143
Total live animals stranded that died in care	3	0	4	3
Total live released animals	1	0	11	0
Total live animals currently in rehabilitation	1	0	43	140
Oiling Status				
Total dead oiled animals	3	0	11	3
Total live oiled animals	1	0	10	132
Animal Necropsy Status				
Number collected and unable to perform necropsies (e.g., advanced decomposition)	28	0	14	
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	11	0	24	
Number of full necropsies performed	13	0	106	
Verified strandings but animals not collected due to stage of decomposition or unable to recover	10	1	46	
Carcasses to be necropsied, if decomposition stage warrants	1	0	284	


94°W
92°W
90°W
88°W
86°W
32°N
30°N
28°N
26°N
LA
MS
AL
FL
Deepwater Horizon MC252:
Documented Sea Turtles in Northern
Gulf of Mexico from 4/30/10 - 7/15/10
Deepwater Horizon Platform
Strandings:
New
Confirmed Location
Unconfirmed Location
Skimmer-caught:
New
Confirmed Location
Unconfirmed Location
Captures from Directed Surveys:
New
Confirmed Location
Unconfirmed Location
Trajectory - 24Hr
FORECASTHEAVY
FORECASTMEDIUM
FORECASTLIGHT
FORECASTUNCERTAINTY
Uncertainty - 24Hr
NOAA
N
W
E
S
0 25 50 100 150 200
Kilometers

Date	Stranding Reference	Species	ReportType	Condition	Disposition	Status	State
5/2/2010	MRC20100502-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/2/2010	MRC20100502-02	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	SNW20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	JMI20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	MPW20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	SNW20100504-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	SNW20100504-02	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	FXM20100504-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/5/2010	MPW20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/5/2010	MRC20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/6/2010	MPW20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/6/2010	MPW20100506-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/7/2010	MPW20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/7/2010	MPW20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/8/2010	ANR20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/8/2010	JMI20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/10/2010	JMI20100510-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/11/2010	MPW20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MPW20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MPW20100513-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/14/2010	LAJ20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/16/2010	LAJ20100516-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/17/2010	MRC20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MRC20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/19/2010	LAJ20100519-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/19/2010	JMI20100519-01	Lepidochelys kempii	Stranding	Alive	Released		AL
5/20/2010	LAJ20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL

5/20/2010	LAJ20100520-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/20/2010	LAJ20100520-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/21/2010	MPW20100521-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/22/2010	RLR20100522-01	Lepidochelys kempii	Stranding	Alive	Rehab-Died	Necropsied	AL
5/22/2010	JMI20100522-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/22/2010	JMI20100522-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/23/2010	JMI20100523-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/23/2010	JMI20100523-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/28/2010	20100528	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/29/2010	20100529	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/3/2010	JMI20100603-01	Caretta caretta	Stranding	Alive	Rehab	Rehab-IMMS	AL
6/4/2010	20100604	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/5/2010	RLR20100605-01	Eretmochelys imbricata	Stranding	Alive	Rehab	Rehab-IMMS	AL
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/6/2010	20100606	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/6/2010	20100606	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/7/2010	20100607	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/9/2010	20100609	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/11/2010	20100611	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/16/2010	20100616	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL

6/21/2010	20100621	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/21/2010	20100621	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/23/2010	20100623	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/25/2010	20100625	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
6/27/2010	20100627	Unknown	Stranding	Dead	Salvaged	Frozen-DI	AL
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/30/2010	20100630	Chelonia mydas	Stranding	Alive	Rehab	Rehab-IMMS	AL
7/2/2010	20100702	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
7/2/2010	20100702	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	AL
7/5/2010	20100705	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
7/9/2010	20100709	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	AL
7/10/2010	20100710	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
7/11/2010	20100711	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
7/11/2010	20100711	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
7/14/2010	20100714	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
5/8/2010	NME20100508-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/8/2010	NME20100508-02	Caretta caretta	Stranding	Alive	Rehab-Died	Frozen-GV	FL
5/8/2010	NME20100508-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/10/2010	MEM20100510-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/11/2010	MAN20100511-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/12/2010	JWM20100512-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/13/2010	AVH20100513-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/14/2010	VEL20100514-01	Caretta caretta	Stranding	Alive	Rehab-Died	Frozen-GV	FL
5/14/2010	MEC20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/15/2010	NME20100515-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	NME20100517-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	MAN20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	MAN20100517-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	SSM20100517-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL

5/18/2010	WAJ20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/18/2010	JRJ20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/18/2010	CTS20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	NME20100519-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	NME20100519-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	MAN20100519-01	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
5/20/2010	WAJ20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	BAE20100520-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	20100520	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	MAN20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/21/2010	MAN20100521-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
5/24/2010	NME20100524-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/24/2010	GWG20100524-01	Caretta caretta	Stranding	Dead	Left on beach		FL
5/25/2010	NME20100525-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/27/2010	MJH20100527-01	Caretta caretta	Stranding	Dead	Buried		FL
5/28/2010	VXW20100528-01	Chelonia mydas	Stranding	Dead	Buried		FL
5/30/2010	NAD20100530-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/1/2010	NME20100601-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/6/2010	20100606	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/7/2010	NAD20100607-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/7/2010	NME20100607-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/9/2010	RAB20100609-01	Lepidochelys kempii	Stranding	Alive	Released		FL
6/10/2010	20100610	Eretmochelys imbricata	Stranding	Alive	Rehab	Rehab-GulfWorld	FL
6/11/2010	20100611	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/11/2010	20100611	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/12/2010	20100612	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
6/12/2010	20100612	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/12/2010	20100612	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/13/2010	20100613	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/14/2010	20100614	Caretta caretta	Stranding	Dead	Buried		FL
6/15/2010	20100615	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/16/2010	20100616	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/18/2010	20100618	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL

6/20/2010	20100620	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-GulfWorld	FL
6/22/2010	KEG20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/22/2010	NME20100622-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/22/2010	NME20100622-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/22/2010	20100622	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	FL
6/28/2010	SXH20100628-01	Chelonia mydas	Stranding	Alive	Rehab	Rehab-GulfWorld	FL
6/30/2010	20100630	Unknown	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/30/2010	20100630	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-NOAA	FL
7/4/2010	20100704	Chelonia mydas	Stranding	Dead	Salvaged	Taken to GV	FL
7/8/2010	20100708	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
7/12/2010	20100712	Chelonia mydas	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
7/12/2010	20100712	Caretta caretta	Stranding	Dead	Salvaged	Frozen-NOAA	FL
5/1/2010	MJF20100504-01	Unknown	Stranding	Dead	Left on beach		LA
5/1/2010	MJF20100504-02	Unknown	Stranding	Dead	Left on beach		LA
5/3/2010	XXX20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/3/2010	20100503	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/5/2010	JAL20100505-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
5/7/2010	MXC20100507-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-05	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-06	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-07	Caretta caretta	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-08	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-09	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-10	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-11	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-12	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-13	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-14	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	GXP20100507-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen	LA

5/10/2010	CSE20100510-01	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/10/2010	CSE20100510-02	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/10/2010	MXC20100510-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-05	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
5/11/2010	20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/11/2010	20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/12/2010	MXC20100512-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/12/2010	MXC20100512-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/12/2010	MXC20100512-03	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
5/12/2010	MXC20100512-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	MXT20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	JEB20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	MXC20100513-01	Eretmochelys imbricata	Stranding	Dead	Left on beach		LA
5/13/2010	MXC20100513-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/13/2010	20100513	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/14/2010	MXC20100514-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
5/16/2010	MXH20100516-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-05	Caretta caretta	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-06	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-07	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-08	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-09	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/17/2010	MXT20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/17/2010	AXL20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/18/2010	SDD20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/19/2010	20100519	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/20/2010	NXX20100520-01	Unknown	Stranding	Dead	Salvaged	Frozen	LA

5/22/2010	20100522	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/22/2010	20100522	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/23/2010	20100523	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/24/2010	20100524	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/24/2010	20100524	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/28/2010	20100528	Lepidochelys kempii	Skimmer	Alive	Rehab	Rehab-AOA	LA
5/29/2010	20100529	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/31/2010	20100531	Lepidochelys kempii	Skimmer	Alive	Rehab	Rehab-AOA	LA
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/7/2010	20100607	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/7/2010	20100607	Unknown	Stranding	Dead	Salvaged	Frozen	LA
6/8/2010	20100608	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/9/2010	20100609	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
6/9/2010	20100609	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/10/2010	20100610	Unknown	Stranding	Dead	Salvaged	Frozen	LA
6/12/2010	20100612	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/14/2010	20100614	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/15/2010	20100615	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/15/2010	20100615	Lepidochelys kempii	Stranding	Dead	Left on beach		LA

6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/17/2010	20100617	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
6/18/2010	20100618	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/21/2010	20100621	Caretta caretta	Stranding	Dead	Salvaged	Frozen	LA
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/25/2010	20100625	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-AOA	LA
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/27/2010	20100627	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/27/2010	20100627	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-will be trai	LA
7/4/2010	20100704	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Audubon	LA
7/4/2010	20100704	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-AOA	LA
7/10/2010	20100710	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-AOA	LA
7/12/2010	20100712	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Audubon	LA
7/12/2010	20100712	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-AOA	LA
4/26/2010	CNH20100426-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	CNH20100430-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	TTH20100430-01	Lepidochelys kempii	Stranding	Alive	Rehab-Died	Necropsied	MS
5/1/2010	KMF20100501-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	EXP20100501-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS

5/2/2010	KMF20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	KMF20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	KMF20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	EXP20100504-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/5/2010	WLH20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/5/2010	DKV20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	SXC20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JBT20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	CLM20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS

5/7/2010	JBT20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	MMK20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	SAH20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JKM20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	SAH20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JNF20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JNF20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JKM20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	WLH20100510-01	Caretta caretta	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/10/2010	WLH20100510-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/10/2010	ZHS20100510-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/11/2010	BTN20100511-01	Caretta caretta	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/13/2010	JXS20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/13/2010	CNH20100514-01	Caretta caretta	Stranding	Dead	Left on beach		MS
5/14/2010	JNF20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/14/2010	JNF20100514-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/14/2010	SAH20100514-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Mote	MS
5/15/2010	LMJ20100515-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/15/2010	LMJ20100515-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/15/2010	JKM20100515-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
5/15/2010	JKM20100515-02	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
5/15/2010	KMM20100515-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/16/2010	EXJ20100516-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/18/2010	KPB20100518-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS

5/18/2010	KPB20100518-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
5/18/2010	WLH20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/19/2010	MDH20100519-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/19/2010	MDH20100519-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/20/2010	TTH20100520-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
5/20/2010	JNF20100520-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/20/2010	JNF20100520-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/21/2010	RDS20100521-01	Caretta caretta	Stranding	Dead	Left on beach		MS
5/21/2010	JNF20100521-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/21/2010	JNF20100521-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/22/2010	TTH20100522-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
5/24/2010	WLH20100524-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/24/2010	AJD20100524-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	JXB20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	CNH20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	WLH20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/27/2010	JBT20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Disney	MS
5/27/2010	JKM20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/27/2010	MSB20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Disney	MS
5/28/2010	JNF20100528-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/28/2010	RAW20100528-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/3/2010	CNH20100603-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/4/2010	DKV20100604-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	KMM20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS

6/6/2010	JBT20100606-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	JRS20100608-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	WLH20100607-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	KMH20100607-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
6/8/2010	WLH20100608-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/8/2010	WLH20100608-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	WLH20100609-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	WLH20100609-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	WLH20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	WLH20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	TTH20100611-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS

6/11/2010	KMH20100611-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/11/2010	WLH20100611-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-09	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-10	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-11	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-12	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-13	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	CRS20100611-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	RCL20100612-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	CRS20100612-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	JKM20100612-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
6/13/2010	CRS20100613-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	CRS20100613-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	CRS20100613-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	LCB20100613-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	LCB20100613-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	JKM20100613-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-SeaWorld	MS
6/13/2010	JKM20100613-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-SeaWorld	MS
6/13/2010	JKM20100613-03	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-SeaWorld	MS

6/13/2010	JKM20100613-04	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
6/14/2010	WLH20100614-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/15/2010	LCB20100615-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	WLH20100617-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-SeaWorld	MS
6/17/2010	JBT20100617-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/17/2010	JBT20100617-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	TTJ20100619-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	SLE20100620-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
6/20/2010	JKM20100620-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/20/2010	MSB20100620-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS

6/21/2010	SKM20100621-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-09	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-10	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	TTJ20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	TTJ20100622-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	SKM20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/24/2010	SKM20100624-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/24/2010	SKM20100624-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/24/2010	TTJ20100624-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	TTJ20100625-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	SKM20100625-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	SKM20100625-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/26/2010	JKM20100626-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/26/2010	SKM20100626-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/26/2010	SKM20100626-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/26/2010	SKM20100626-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/27/2010	JKM20100627-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/27/2010	JKM20100627-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/28/2010	JKM20100628-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/28/2010	SKM20100628-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/28/2010	SKM20100628-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/6/2010	20100706	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/6/2010	20100706	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/6/2010	20100706	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS

7/7/2010	20100707	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/8/2010	20100708	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/8/2010	20100708	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/8/2010	20100708	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/11/2010	20100711	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
5/18/2010	BXW20100518-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/20/2010	MXT20100520-01	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA	
5/20/2010	MXT20100520-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-07	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-01	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-02	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-03	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-07	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-08	Eretmochelys imbricata	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-10	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	XXX20100601-01	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied	
6/1/2010	XXX20100601-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	XXX20100601-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	XXX20100601-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	XXX20100601-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	

6/6/2010	BAS20100606-01	Eretmochelys imbricata	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-05	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied
6/10/2010	BAS20100610-01	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied
6/10/2010	BAS20100610-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/10/2010	BAS20100610-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/10/2010	BAS20100610-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-08	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-09	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	20100613	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	20100613	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-08	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-10	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-11	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA

6/15/2010	BAS20100615-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-05	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-06	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-07	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-02	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/18/2010	20100618	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/20/2010	20100620	Chelonia mydas	Directed Capture	Dead	Salvaged	Frozen
6/21/2010	MCT20100621-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-02	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-05	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-06	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-08	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-10	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/22/2010	BAS20100622-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/24/2010	BAS20100624-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/24/2010	BAS20100624-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA

6/24/2010	BAS20100624-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/25/2010	BAS20100625-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-03	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-04	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-06	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/2/2010	20100702	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Temp-Ft.Jackson

7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Temp-Venice?	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/11/2010	20100711	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/11/2010	20100711	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/11/2010	20100711	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/11/2010	20100711	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/12/2010	20100712	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/15/2010	20100715	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-NOAA	FL
7/15/2010	20100715	Unknown	Stranding	Dead	Salvaged	Frozen-DI	AL
7/15/2010	20100715	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/15/2010	20100715	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/15/2010	20100715	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/15/2010	20100715	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/15/2010	20100715	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	

Descriptive Location	Latitude	Longitude	External oil?	TempLocation	Stranding	New	Alive
"Lots of Sand Dunes" Condo, Baldwin Co	30.232019	-87.936861	N	No	Yes	N	N
eastern point of Dauphin Island	30.250125	-88.075553	N	No	Yes	N	N
Dauphin Island	30.248253	-88.125822	N	No	Yes	N	N
floating 2 miles North of Fort Gaines	30.268880	-88.071720	N	No	Yes	N	N
Dauphin Island	30.332274	-88.132595	N	No	Yes	N	N
Dauphin Island	30.248253	-88.125822	N	No	Yes	N	N
Mobile Bay, 4 miles south of Fowl River	30.395431	-88.107261	N	No	Yes	N	N
Mobile Bay, 7287 Bay Rd	30.552467	-88.123317	N	No	Yes	N	N
floating off of Bayou La Batre	30.368167	-88.278317	N	No	Yes	N	N
Coden	30.445639	-88.109028	N	No	Yes	N	N
Dauphin Island	30.250164	-88.162886	N	No	Yes	N	N
Donnie Grace, bay side	30.249856	-88.202100	N	No	Yes	N	N
outside Weeks Bay toward Fish River Reef	30.367914	-87.839833	N	No	Yes	N	N
18261 Scenic Hwy 98	30.492133	-87.929833	N	No	Yes	N	N
Dauphin Island	30.249450	-88.172633	N	No	Yes	N	N
Gulf Shores	30.253417	-87.823317	N	No	Yes	N	N
Bayou La Batre	30.381033	-88.267233	N	No	Yes	N	N
pier across from Fort Morgan Museum	30.230283	-88.023694	N	No	Yes	N	N
Baldwin Co	30.250570	-87.828960	N	No	Yes	N	N
Baldwin Co	30.228430	-87.861390	N	No	Yes	N	N
Baldwin Co	30.231160	-87.928990	N	No	Yes	N	N
200 yds SE of city pier	30.245610	-88.124230	N	No	Yes	N	N
Hwy 193 past Hwy 188, Mobile Co	30.370900	-88.109670	N	No	Yes	N	N
east of Dauphin Is public fishing pier on Sand Is	30.247186	-88.125303	N	No	Yes	N	N
Little Dauphin Is, north side	30.274270	-88.111150	N	No	Yes	N	N
Audubon Place beach	30.243830	-88.092890	N	No	Yes	N	N
bay side of Sand Island	30.227653	-88.113175	N	No	Yes	N	N
Coden	30.377883	-88.241517	N	No	Yes	N	N
Mobile Bay, 1 mile south of Fowl River	30.425728	-88.103975	N	No	Yes	N	N
Hwy 98 on county rd 1, near Pelican Island	30.378320	-87.851020	N	No	Yes	N	N
Dauphin Island	30.247530	-88.124480	N	No	Yes	N	N
mouth of Bayou La Batre, Mobile Bay	30.375000	-88.285000	N	No	Yes	N	Y
Dauphin Island, west end	30.386400	-88.560983	N	No	Yes	N	N

Dauphin Island, west end	30.386400	-88.560983	N	No	Yes	N	N
Coden	30.006272	-88.004007	N	No	Yes	N	N
Dauphin Island	30.244817	-88.114433	N	No	Yes	N	N
Bayou La Batre	30.381586	-88.257034	N	No	Yes	N	Y
floating near Bayou La Batre	30.376750	-88.258480	N	No	Yes	N	N
Mobile Bay	30.591497	-88.063306	N	No	Yes	N	N
Shore Rd of CR12	30.358870	-87.832670	N	No	Yes	N	N
Plash Island	30.282700	-87.751230	N	No	Yes	N	N
Dauphin Island	30.250000	-88.200000	N	Yes	Yes	N	N
Dauphin Island	30.270000	-88.150000	N	Yes	Yes	N	N
Mobile Bay	30.400000	-88.100000	N	Yes	Yes	N	N
Mobile Bay	30.500000	-88.100000	N	Yes	Yes	N	N
Mobile Bay	30.300000	-87.750000	N	Yes	Yes	N	N
west end of Dauphin Island	30.220000	-88.330000	N	Yes	Yes	N	N
Dauphin Island, bayside	30.260000	-88.110000	N	Yes	Yes	N	N
Mobile Bay	30.300000	-87.970000	N	Yes	Yes	N	N
floating in MS Sound near Coden Bayou	30.350000	-88.220000	N	Yes	Yes	N	N
floating in Perdido Pass near Orange Beach	30.278471	-87.555537	Y	No	Yes	N	Y
floating south of Coden	30.374000	-88.240000	N	Yes	Yes	N	N
East Beach, Baldwin County	30.248301	-87.676815	Y	No	Yes	N	Y
Bon Secour Bay	30.300000	-87.875000	N	Yes	Yes	N	N
W Dauphin Island	30.250000	-88.060000	N	Yes	Yes	N	N
floating off of Bayou La Batre	30.340000	-88.310000	N	Yes	Yes	N	N
Mobile Bay, east side	30.450000	-87.930000	N	Yes	Yes	N	N
Mobile Bay, west side	30.450000	-88.090000	N	Yes	Yes	N	N
Gulf Shores	30.251060	-87.653670	N	No	Yes	N	N
Bayou La Batre	30.366460	-88.244330	N	No	Yes	N	N
~100 ft from Fairhope Municipal Pier	30.525780	-87.917040	N	No	Yes	N	N
Orange Beach	30.260000	-87.570000	Y	Yes	Yes	N	N
floating in Mobile Bay, Mobile side of bay	30.600000	-87.980000	N	Yes	Yes	N	N
floating in Bon Secour Bay	30.267240	-87.787240	N	No	Yes	N	N
floating in Bon Secour Bay	30.280430	-87.766780	N	No	Yes	N	N
floating in Mobile Bay, SE of Gaillard Island	30.371770	-88.065410	N	No	Yes	N	N
floating in Mobile Bay, NE of Dauphin Is. Bridge	30.332983	-88.130400	N	No	Yes	N	N

floating in Mobile Bay, btwn Dog River Bridge and Gai	30.531760	-88.022900	N	No	Yes	N	N
floating in Mobile Bay, NE of Fort Morgan	30.298020	-87.997720	N	No	Yes	N	N
northern part of Mobile Bay	30.590000	-88.000000	N	Yes	Yes	N	N
Mobile Bay, west side near Dog River	30.530000	-88.070000	N	Yes	Yes	N	N
Orange Beach	30.260000	-87.580000	Y	Yes	Yes	N	N
Bon Secour Bay	30.25917	-87.86152	N	No	Yes	N	N
Bayou La Batre	30.370583	-88.2809	N	No	Yes	N	N
a bay 2mi N. of Dauphin Island (part of Mobile Bay)	30.290183	-88.208166	N	No	Yes	N	N
Bon Secour Bay	30.27595	-87.76513	N	No	Yes	N	N
200 yds off of Gilliard Island in Mobile Bay	30.49744	-88.04932	N	No	Yes	N	N
Secador industrial west in Mobile bay	30.50712	-88.0789	Y	No	Yes	N	N
Dauphin Island	30.23	-88.15	Y	Yes	Yes	N	Y
east part of Pelican Is, near Dauphin Is pier	30.2255	-88.1089	Y	No	Yes	N	N
floating 2 mi SW of Mobile Bay buoy, ~10 mi offshore	30.105	-88.04166	Y	No	Yes	N	Y
Orange Beach, Perdido Bay, just N of 31735 Shoalwat	30.29965	-87.4859	N	No	Yes	N	N
~1 mile N of west end of Dauphin Island, in bay	30.23985	-88.32628	Y	No	Yes	N	Y
~1 mi SE of Berkley Field Pier in Mobile Bay	30.59365	-88.0398	N	No	Yes	N	N
Bon Secour Bay, just S of Intercoastal channel	30.27726	-87.76435	N	No	Yes	N	N
Bon Secour Bay, near the Intercoastal channel	30.2849	-87.7642	Y	No	Yes	N	N
SE of Guillard Island in Mobile Bay	30.48597	-88.01768	N	No	Yes	N	N
Panama City Beach	30.19650	-85.84358	N	No	Yes	N	N
Panama City Beach	30.2442	-85.93718	N	No	Yes	N	Y
Panama City Beach	30.16782	-85.794	N	No	Yes	N	N
Panama City Beach	30.21513	-85.87758	N	No	Yes	N	N
Pensacola Beach	30.32589	-87.17208	N	No	Yes	N	N
St. Joseph Peninsula State Park	29.77851	-85.40833	N	No	Yes	N	N
Perdido Key State Park	30.28801	-87.47814	N	No	Yes	N	N
East Walton County Beach, Orange St access	30.2724	-86.00381	N	No	Yes	N	Y
Naval Live Oaks (Headquarters), GUIS	30.36422	-87.12725	N	No	Yes	N	N
Tyndall AFB, Archery Rd beach, east of marina	30.08165	-85.62992	N	No	Yes	N	N
Panama City Beach	30.18925	-85.83112	N	No	Yes	N	N
Perdido Key area of Gulf Islands NS	30.30350	-87.39394	N	No	Yes	N	N
Santa Rosa area of Gulf Islands NS	30.35489	-87.01419	N	No	Yes	N	N
west Walton County	30.37170	-86.34960	N	No	Yes	N	N

Crooked Island east, Tyndall AFB	29.95664	-85.47378	N	No	Yes	N	N
Crooked Island west, Tyndall AFB	30.02786	-85.56911	N	No	Yes	N	N
Walton County, east of Draper Lake	30.34060	-86.21480	N	No	Yes	N	N
Panama City Beach	30.26268	-85.97958	N	No	Yes	N	N
St. Andrews Bay, Bunkers Cove at yacht club	30.14250	-85.64920	N	No	Yes	N	N
Pensacola Beach	30.33619	-87.11075	N	No	Yes	N	Y
Tyndall AFB, Crooked Island east at boardwalk	29.95634	-85.45734	N	No	Yes	N	N
St. Joe Beach	29.90192	-85.36683	N	No	Yes	N	N
Rosemary Beach, Walton County	30.28000	-86.03000	N	Yes	Yes	N	N
Naval Live Oaks, south beach on Santa Rosa sound	30.36074	-87.14003	N	No	Yes	N	N
Perdido Key	30.29619	-87.42647	N	No	Yes	N	Y
Panama City, Baypoint Marina Yacht Club	30.14352	-85.72778	N	No	Yes	N	N
Navarre Beach	30.37590	-86.88760	N	No	Yes	N	N
St. Andrews Bay	30.16385	-85.68565	N	No	Yes	N	N
Pensacola Naval Air Station, Trout Point Beach	30.33185	-87.34040	N	No	Yes	N	N
W Escambia County, inshore, floating	30.31250	-87.49710	N	No	Yes	N	N
Cape San Blas	29.68224	-85.31182	N	No	Yes	N	N
St. Andrews Bay, Sun Harbor Marina, Panama City	30.18415	-85.73262	N	No	Yes	N	N
Panama City Beach	30.16000	-85.81000	N	Yes	Yes	N	N
St. Vincent NWR	29.67590	-85.21767	N	No	Yes	N	N
Port of Panama City	30.17795	-85.72493	N	No	Yes	N	N
Pensacola	30.29000	-87.25000	N	Yes	Yes	N	Y
Panama City, Inlet Beach	30.19000	-85.87000	N	Yes	Yes	N	Y
West Miramar Beach	30.37000	-86.40000	N	Yes	Yes	N	N
Pensacola	30.30000	-87.30000	N	Yes	Yes	N	Y
Navarre Beach	30.37000	-86.85000	N	Yes	Yes	N	N
approx 1 mile off of Pensacola Beach	30.28000	-87.18000	Y	Yes	Yes	N	Y
Eglin AFB, just east of Navarre Beach	30.37000	-86.86000	N	Yes	Yes	N	N
Pensacola Beach	30.25000	-87.20000	N	Yes	Yes	N	N
Pensacola Beach	30.30000	-87.20000	N	Yes	Yes	N	N
Pensacola Beach	30.27000	-87.45000	N	Yes	Yes	N	N
approx 1 mile off of Destin	30.35800	-86.49900	N	Yes	Yes	N	Y
Port St. Joe, Mexico Beach	29.90475	-85.36946	N	No	Yes	N	N
Tyndall AFB	30.06000	-85.62000	N	Yes	Yes	N	N

floating in St. Joe Bay	29.80000	-85.35000	N	Yes	Yes	N	Y
Eglin AFB, 100 yds east of A-11	30.39469	-86.71058	N	No	Yes	N	N
Panama City, access 59 west of city pier	30.21607	-85.87965	N	No	Yes	N	N
Panama City, Navy base behind the dive school	30.17280	-85.75803	N	No	Yes	N	N
Pensacola	30.30000	-87.20000	N	Yes	Yes	N	N
offshore Destin area	30.32000	-86.47000	N	Yes	Yes	N	Y
St. Andrews Bay	30.14	-85.7	N	Yes	Yes	N	N
Panama City area	30.23488	-85.90698	Y	No	Yes	N	Y
Perdido Key	30.29	-87.43	Y	Yes	Yes	N	N
St. Andrews State Park	30.1297	-85.7242	N	No	Yes	N	N
Cape San Blas	29.65	-85.35	N	Yes	Yes	N	N
floating offshore Destin	30.3	-86.5	N	Yes	Yes	N	Y
Grand Bay, near Pensacola	30.346239	-87.285679	N	No	Yes	N	Y
Tyndall AFB	30.05625	-85.60641	N	No	Yes	N	N
Elmers Island	29.17027	-90.08316	N	No	Yes	N	N
Elmers Island	29.18166	-90.06428	N	No	Yes	N	N
Slidell area, Lake Borgne	30.13447	-89.50054	N	No	Yes	N	N
Grand Isle	29.24	-89.98	N	Yes	Yes	N	N
Elmers Island	29.17235	-90.07981	N	No	Yes	N	N
Rutherford Beach	29.76692	-93.16193	N	No	Yes	N	N
Rutherford Beach	29.76879	-93.17164	N	No	Yes	N	N
Rutherford Beach	29.76972	-93.17667	N	No	Yes	N	N
Rutherford Beach	29.77171	-93.18671	N	No	Yes	N	N
Rutherford Beach	29.7732	-93.19467	N	No	Yes	N	N
Rutherford Beach	29.77341	-93.19683	N	No	Yes	N	N
Rutherford Beach	29.77354	-93.19756	N	No	Yes	N	N
Rutherford Beach	29.77576	-93.21589	N	No	Yes	N	N
Rutherford Beach	29.77738	-93.2461	N	No	Yes	N	N
Rutherford Beach	29.77728	-93.25497	N	No	Yes	N	N
Rutherford Beach	29.77728	-93.25497	N	No	Yes	N	N
Rutherford Beach	29.76578	-93.15643	N	No	Yes	N	N
Rutherford Beach	29.76119	-93.13665	N	No	Yes	N	N
Rutherford Beach	29.75513	-93.11017	N	No	Yes	N	N
floating near Slidell - Rigolets Pass	30.1588	-89.6505	N	No	Yes	N	N

Elmers Island	29.18184	-90.06364	N	No	Yes	N	N
Grand Isle	29.20786	-90.03112	N	No	Yes	N	N
Holly Beach	29.76897	-93.4392	N	No	Yes	N	N
Holly Beach	29.76879	-93.43438	N	No	Yes	N	N
Holly Beach	29.76922	-93.45638	N	No	Yes	N	N
Holly Beach	29.76897	-93.48772	N	No	Yes	N	N
Holly Beach	29.76771	-93.50714	N	No	Yes	N	N
Constance Beach	29.76031	-93.56936	N	No	Yes	N	N
Fourchon Beach	29.11	-90.18	N	Yes	Yes	N	N
Fourchon Beach	29.11	-90.18	N	Yes	Yes	N	N
Mae's Beach	29.74595	-93.68512	N	No	Yes	N	N
Mae's Beach	29.74582	-93.68592	N	No	Yes	N	N
Mae's Beach	29.7423	-93.70653	N	No	Yes	N	Y
Grand Isle	30.1086	-89.3545	N	No	Yes	N	N
Grand Terre	29.209166	-90.029166	N	No	Yes	N	N
Grand Isle	29.28435	-89.92149	N	No	Yes	N	N
Holly Beach	29.74232	-93.7065	N	No	Yes	N	N
Holly Beach	29.76391	-93.36438	N	No	Yes	N	N
found floating, location?	29.23	-89.99	N	Yes	Yes	N	N
Mae's Beach	29.7424	-93.7062	N	No	Yes	N	Y
Long Beach	29.7534	-93.6293	N	No	Yes	N	N
Long Beach	29.7509	-93.6492	N	No	Yes	N	N
Mae's Beach	29.7396	-93.7208	N	No	Yes	N	N
Constance Beach	29.7605	-93.5674	N	No	Yes	N	N
Holly Beach	29.7683	-93.5018	N	No	Yes	N	N
Holly Beach	29.7689	-93.441	N	No	Yes	N	N
Rutherford Beach	29.7555	-93.1114	N	No	Yes	N	N
Rutherford Beach	29.7513	-93.0941	N	No	Yes	N	N
Rutherford Beach	29.7498	-93.0873	N	No	Yes	N	N
Bayou Rigaud, floating	29.14436	-89.59246	N	No	Yes	N	N
Lake Pontchartrain, floating	30.205	-90.11194	N	No	Yes	N	N
Fourchon Beach	29.09	-90.21566	N	No	Yes	N	N
near Cocodrie	29.24	-90.66	N	Yes	Yes	N	N
4 mi NE of Fishing Smack Bay	30.003805	-89.20633	N	No	Yes	N	N

Grand Isle Beach	29.24	-89.99	N	Yes	Yes	N	N
Empire Jetty Beach	29.25412	-89.60345	N	No	Yes	N	N
Grand Terre	29.28	-89.92	N	Yes	Yes	N	N
Bayou Terrebonne by Bayou La Fleur	29.26	-90.64	N	Yes	Yes	N	N
Lake Chien	29.33	-90.44	N	Yes	Yes	N	N
Bayou Trove	29.2386	-89.53792	N	No	Yes	N	N
Grand Isle State Park	29.24	-89.97	Y	Yes	Yes	N	N
Queen Bess Island	29.3	-89.96	N	Yes	Yes	N	N
Lake Felicity, North of Timbalier Island	29.26	-90.4	N	Yes	Yes	N	N
Lake Felicity, North of Timbalier Island	29.26	-90.47	N	Yes	Yes	N	N
Lake Felicity, North of Timbalier Island	29.28	-90.42	N	Yes	Yes	N	N
Grand Isle Beach	29.2	-90.04	N	Yes	Yes	N	N
skimmer found ~50 mi S of Louisiana coastline, broug	28.4375	-89.8958	Y	No	Skimmer	N	Y
Cameron Parish beach	29.76	-93.34	N	Yes	Yes	N	N
skimmer found ~17 mi offshore Grand Isle	28.9932	-89.8412	Y	No	Skimmer	N	Y
Timbalier Island	29.04	-90.47	N	Yes	Yes	N	N
floating just offshore western LA beaches	29.76	-93.46	N	Yes	Yes	N	N
western Louisiana beaches	29.74	-93.42	N	Yes	Yes	N	N
western Louisiana beaches	29.74	-93.44	N	Yes	Yes	N	N
western Louisiana beaches	29.74	-93.46	N	Yes	Yes	N	N
Coup A Bel Pass	29.3	-89.9	Y	Yes	Yes	N	N
Marsh Island	29.5	-91.9	N	Yes	Yes	N	N
Barataria Bay	29.4	-89.94	Y	Yes	Yes	N	N
north Barataria Bay	29.43308	-89.88585	Y	No	Yes	N	N
western Louisiana, nearshore waters	29.7	-93	N	Yes	Yes	N	Y
Fourchon Beach	29.08	-90.14	N	Yes	Yes	N	N
no location info - est location in Chandeleur Sound	29.8	-89.1	N	Yes	Yes	N	Y
Rutherford Beach	29.74	-93.22	N	Yes	Yes	N	N
Rutherford Beach	29.72	-93.15	N	Yes	Yes	N	N
Rutherford Beach	29.72	-93.07	N	Yes	Yes	N	N
Fourchon Beach	29.1	-90.1	N	Yes	Yes	N	N
Slidell area	30.13	-89.57	N	Yes	Yes	N	N
Rollover Bayou (W LA near Rockefeller Refuge)	29.59	-92.7	N	Yes	Yes	N	N
Rollover Bayou (W LA near Rockefeller Refuge)	29.6	-92.6	N	Yes	Yes	N	N

Whiskey Island chain, south of Cocodrie	29.03	-90.75	N	Yes	Yes	N	N
Timbalier Island area - floating?	29.05	-90.47	N	Yes	Yes	N	N
west of Bayou La Fourche, north of jetties at Port Fou	29.1	-90.18	N	Yes	Yes	N	N
Timbalier Bay	29.1	-90.4	N	Yes	Yes	N	N
Lake Borgne	30.1	-89.6	N	Yes	Yes	N	N
floating in Terrebonne Bay, ~4-5 mi S of Cocodrie	29.15	-90.6	N	Yes	Yes	N	N
floating in Houma navigational channel	29.33	-90.73	N	Yes	Yes	N	N
Fourchon Beach	29.09139	-90.22365	N	No	Yes	N	N
Racoon Island	29.06263	-90.94988	N	No	Yes	N	N
Racoon Island	29.0624	-90.94663	N	No	Yes	N	N
off shore S.E. Of Port Fourchon	29.01988	-90.11865	Y	No	Yes	N	Y
Grand Isle Beach	29.19899	-90.04115	N	No	Yes	N	N
Grand Isle Beach	29.22781	-90.00005	N	No	Yes	N	N
Rigolets Pass, near Slidell	30.13	-89.6	N	Yes	Yes	N	Y
Port Fourchon, on sandbar	29.09	-90.19	N	Yes	Yes	N	N
Bay Wilkinson	29.46985	-89.91005	Y	No	Yes	N	N
N Barataria Bay, in canal off of Wilkinson Canal	29.46278	-89.95111	N	No	Yes	N	Y
location? Off of LA	29	-88.7	N	Yes	Yes	N	N
Bay St. Louis	30.30880	-89.32590	N	No	Yes	N	N
Bay St. Louis	30.29410	-89.34320	N	No	Yes	N	N
Waveland	30.26410	-89.39200	N	No	Yes	N	N
Waveland	30.27260	-89.37750	N	No	Yes	N	N
Waveland	30.27360	-89.37640	N	No	Yes	N	N
Long Beach	30.34780	-89.13900	N	No	Yes	N	Y
Pass Christian	30.31481	-89.24207	N	No	Yes	N	N
Pass Christian	30.31071	-89.25556	N	No	Yes	N	N
Pass Christian	30.31460	-89.24252	N	No	Yes	N	N
Pass Christian	30.31080	-89.25728	N	No	Yes	N	N
Pass Christian	30.31295	-89.24477	N	No	Yes	N	N
Pass Christian	30.31082	-89.25535	N	No	Yes	N	N
Ocean Springs	30.40980	-88.84080	N	No	Yes	N	N
Bay St. Louis	30.31900	-89.32230	N	No	Yes	N	N
Waveland	30.28830	-89.36000	N	No	Yes	N	N
Waveland	30.28680	-89.36260	N	No	Yes	N	N

Pass Christian	30.30650	-89.26858	N	No	Yes	N	N
Pass Christian	30.30725	-89.26653	N	No	Yes	N	N
Bay St. Louis	30.30562	-89.32865	N	No	Yes	N	N
Pass Christian	30.32834	-89.19923	N	No	Yes	N	N
Pass Christian	30.30529	-89.27249	N	No	Yes	N	N
Pass Christian	30.32620	-89.20892	N	No	Yes	N	N
Pass Christian	30.32460	-89.21450	N	No	Yes	N	N
Biloxi	30.39289	-88.94716	N	No	Yes	N	N
Waveland	30.28865	-89.35290	N	No	Yes	N	N
Pass Christian	30.32824	-89.19985	N	No	Yes	N	N
Pass Christian	30.33144	-89.18568	N	No	Yes	N	N
Pass Christian	30.32144	-89.22351	N	No	Yes	N	N
Pass Christian	30.30750	-89.26659	N	No	Yes	N	N
Bay St. Louis	30.31558	-89.29004	N	No	Yes	N	N
Pass Christian	30.30525	-89.27421	N	No	Yes	N	N
Pass Christian	30.30989	-89.25963	N	No	Yes	N	N
Waveland	30.26362	-89.39346	N	No	Yes	N	N
Waveland	30.28670	-89.36321	N	No	Yes	N	N
Gulfport	30.35567	-89.11807	N	No	Yes	N	N
Waveland	30.24120	-89.42470	N	No	Yes	N	N
Gulfport	30.36948	-89.07825	N	No	Yes	N	N
Biloxi	30.39169	-88.95027	N	No	Yes	N	N
Biloxi	30.39271	-88.87608	N	No	Yes	N	N
Waveland	30.27834	-89.37222	N	No	Yes	N	N
Gulfport	30.37689	-89.04778	N	No	Yes	N	N
Waveland	30.27006	-89.38032	N	No	Yes	N	N
Bay St. Louis	30.30022	-89.33346	N	No	Yes	N	N
Pass Christian	30.32762	-89.20251	N	No	Yes	N	N
floating N of Ship Island	30.25080	-88.94120	N	No	Yes	N	N
Waveland	30.25685	-89.41499	N	No	Yes	N	N
Waveland	30.26483	-89.39040	N	No	Yes	N	N
Waveland	30.26471	-89.39070	N	No	Yes	N	N
Pass Christian, floating by Henderson Point	30.30320	-89.29570	N	No	Yes	N	N
Waveland	30.28749	-89.36136	N	No	Yes	N	N

Waveland	30.28790	-89.36065	N	No	Yes	N	N
Gulfport	30.36129	-89.10089	N	No	Yes	N	N
Long Beach	30.33749	-89.16818	N	No	Yes	N	N
Pass Christian	30.32775	-89.20048	N	No	Yes	N	N
Pass Christian	30.31166	-89.25018	N	No	Yes	N	N
Pass Christian	30.30335	-89.28335	N	No	Yes	N	N
Waveland	30.28267	-89.36761	N	No	Yes	N	N
Biloxi	30.39147	-88.95452	N	No	Yes	N	N
Biloxi	30.39385	-88.91407	N	No	Yes	N	N
Horn Island	30.22831	-88.64799	N	No	Yes	N	N
Pass Christian	30.31300	-89.24830	N	No	Yes	N	N
Pass Christian	30.31190	-89.29050	N	No	Yes	N	N
Gulfport	30.38250	-89.02280	N	No	Yes	N	N
Gulfport	30.38150	-89.02610	N	No	Yes	N	N
floating ~1/2 mile south of Biloxi bridge	30.38960	-88.84190	N	No	Yes	N	N
Waveland Beach at Nicholson Ave	30.29410	-89.35910	N	No	Yes	N	N
Pass Christian	30.32320	-89.21840	N	No	Yes	N	N
Gulfport Beach	30.35582	-89.11698	N	No	Yes	N	N
Gulfport Beach	30.33215	-89.18207	N	No	Yes	N	N
Lakeshore/Waveland	30.25117	-89.42138	N	No	Yes	N	N
Bay St. Louis	30.29545	-89.34080	N	No	Yes	N	N
Waveland	30.26715	-89.38553	N	No	Yes	N	N
Bay St. Louis	30.30980	-89.32553	N	No	Yes	N	N
West Ship Island	30.2115	-88.98480	N	No	Yes	N	N
Waveland	30.28248	-89.36733	N	No	Yes	N	N
Pass Christian	30.31406	-89.24347	N	No	Yes	N	N
Gulfport	30.37421	-89.04382	N	No	Yes	N	Y
Bay St. Louis	30.30883	-89.32583	N	No	Yes	N	N
Waveland	30.27683	-89.37367	N	No	Yes	N	N
Waveland	30.28064	-89.36495	N	No	Yes	N	Y
Waveland	30.28127	-89.36557	N	No	Yes	N	Y
Pascagoula Beach	30.3433	-88.55500	N	No	Yes	N	N
Waveland	30.27234	-89.37753	N	No	Yes	N	N
SE Horn Island	30.2207	-88.59330	N	No	Yes	N	N

southside Cat Island	30.2283	-89.07330	N	No	Yes	N	N
Pass Christian	30.31352	-89.24396	N	No	Yes	N	N
Bellefontaine Beach	30.3433	-88.70330	N	No	Yes	N	N
water south of Cadet Point, Biloxi	30.3877	-88.85890	N	No	Yes	N	N
Waveland	30.28063	-89.36495	N	No	Yes	N	Y
Biloxi Bay	30.40980	-88.86906	N	No	Yes	N	N
Biloxi Bay	30.40980	-88.86906	N	No	Yes	N	N
Horn Island, ~3000' from W end	30.2398	-88.76870	N	No	Yes	N	N
Waveland	30.28655	-89.36330	N	No	Yes	N	N
Pass Christian	30.30725	-89.26660	N	No	Yes	N	N
Waveland	30.28063	-89.36495	N	No	Yes	N	Y
Long Beach	30.33743	-89.16837	N	No	Yes	N	N
Biloxi Beach	30.39154	-88.95600	N	No	Yes	N	N
north side of Horn Island	30.22307	-88.62952	N	No	Yes	N	N
Bangs Lake off of Pascagoula	30.3588	-88.47300	N	No	Yes	N	N
Biloxi, Back Bay	30.40079	-88.85896	N	No	Yes	N	N
Ocean Springs, McPherson Pier	30.40397	-88.83031	N	No	Yes	N	Y
Waveland	30.28063	-89.36495	N	No	Yes	N	Y
Ocean Springs	30.40397	-88.83031	N	No	Yes	N	Y
Biloxi, near Palace Casino	30.3959	-88.85830	N	No	Yes	N	N
Ocean Springs	30.40397	-88.83031	N	No	Yes	N	Y
Ocean Springs	30.4075	-88.83540	N	No	Yes	N	N
Gulfport	30.35487	-89.12191	N	No	Yes	N	N
Waveland	30.26605	-89.38722	N	No	Yes	N	N
Long Beach	30.34084	-89.15894	N	No	Yes	N	N
Biloxi, near harbor	30.39268	-88.88209	N	No	Yes	N	N
Gautier / Belle Fontaine Beach	30.3457	-88.74080	N	No	Yes	N	N
Biloxi	30.39158	-88.94994	N	No	Yes	N	N
Biloxi	30.39184	-88.94596	N	No	Yes	N	N
Biloxi	30.39183	-88.94596	N	No	Yes	N	N
Biloxi	30.39184	-88.94576	N	No	Yes	N	N
Biloxi	30.39262	-88.93246	N	No	Yes	N	N
Biloxi Beach	30.3932	-88.90645	N	No	Yes	N	N
Biloxi Beach	30.39353	-88.92310	N	No	Yes	N	N

Biloxi Beach	30.39382	-88.91889	N	No	Yes	N	N
Biloxi Beach	30.39375	-88.92016	N	No	Yes	N	N
Biloxi Beach	30.39108	-88.96432	N	No	Yes	N	N
Biloxi Beach	30.38968	-88.97850	N	No	Yes	N	N
Ocean Springs / Belle Fontaine Beach	30.34316	-88.72950	N	No	Yes	N	N
Gulfport Beach	30.3597	-89.10686	N	No	Yes	N	N
Biloxi Beach	30.3938	-88.91200	N	No	Yes	N	N
Gulfport Beach	30.37834	-89.04083	N	No	Yes	N	N
Gulfport Beach	30.38538	-89.01003	N	No	Yes	N	N
Gulfport Beach	30.37825	-89.04118	N	No	Yes	N	N
Gulfport Beach	30.3844	-89.01535	N	No	Yes	N	N
Biloxi Beach	30.38942	-88.98023	N	No	Yes	N	N
Biloxi Beach	30.39028	-88.97433	N	No	Yes	N	N
Biloxi Beach	30.39357	-88.89623	N	No	Yes	N	N
Gulfport Beach	30.3831	-89.0192	N	No	Yes	N	N
Biloxi Beach	30.3914	-89.0069	N	No	Yes	N	N
Biloxi Beach	30.39	-88.9756	N	No	Yes	N	N
Biloxi Beach	30.3875	-88.9942	N	No	Yes	N	N
Biloxi Beach	30.3889	-88.9847	N	No	Yes	N	N
Gulfport Beach	30.37058	-89.0742	N	No	Yes	N	N
Gulfport Beach	30.3706	-89.07417	N	No	Yes	N	N
Gulfport Beach	30.37131	-89.07161	N	No	Yes	N	N
Gulfport Beach	30.37158	-89.07066	N	No	Yes	N	N
Gulfport Beach	30.3768	-89.07045	N	No	Yes	N	N
Gulfport Beach	30.37262	-89.06721	N	No	Yes	N	N
Gulfport	30.38075	-89.02951	N	No	Yes	N	N
Gulfport	30.38097	-89.02944	N	No	Yes	N	N
Gulfport	30.38048	-89.03049	N	No	Yes	N	N
Gulfport	30.38016	-89.03156	N	No	Yes	N	N
Biloxi	30.3799	-89.03266	N	No	Yes	N	N
Biloxi	30.38032	-89.03104	N	No	Yes	N	N
Gulfport Beach	30.37746	-89.0433	N	No	Yes	N	N
Gulfport Beach	30.37819	-89.0416	N	No	Yes	N	N
Waveland	30.2806	-89.3449	N	No	Yes	N	Y

Biloxi, Acadia Ave	30.39277	-88.9312	N	No	Yes	N	Y
Gulfport Beach	30.37819	-89.0416	N	No	Yes	N	N
Gulfport Beach	30.37819	-89.0416	N	No	Yes	N	N
Gulfport Beach	30.37843	-89.0413	N	No	Yes	N	N
Gulfport Beach	30.37837	-89.04101	N	No	Yes	N	N
Gulfport Beach	30.37457	-89.0563	N	No	Yes	N	N
Gulfport Beach	30.37456	-89.05634	N	No	Yes	N	N
Biloxi Beach	30.3887	-88.98878	N	No	Yes	N	N
Biloxi Beach	30.38877	-88.98797	N	No	Yes	N	N
Biloxi Beach	30.38877	-88.98797	N	No	Yes	N	N
Biloxi Beach	30.38886	-88.9741	N	No	Yes	N	N
Biloxi Beach	30.38886	-88.98734	N	No	Yes	N	N
Pass Christian Beach	30.32762	-89.20251	N	No	Yes	N	N
Gulfport Beach	30.38188	-89.02495	N	No	Yes	N	N
Gulfport Beach	30.38393	-89.01701	N	No	Yes	N	N
Gulfport Beach	30.38583	-89.00827	N	No	Yes	N	N
Biloxi Beach	30.39357	-88.89818	N	No	Yes	N	N
Biloxi Beach	30.39182	-88.94774	N	No	Yes	N	N
Biloxi Beach	30.39328	-88.92583	N	No	Yes	N	N
Biloxi Beach	30.37561	-89.09052	N	No	Yes	N	N
Biloxi Beach	30.37571	-89.05148	N	No	Yes	N	N
Biloxi Beach	30.38738	-89	N	No	Yes	N	N
Biloxi Beach	30.38746	-88.99895	N	No	Yes	N	N
near Horn Island - floating?	30.2333	-88.53093	N	No	Yes	N	N
floating off of Gulfport	30.32007	-89.17917	N	No	Yes	N	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	N	Y
Biloxi Beach	30.39383	-88.91076	N	No	Yes	N	N
Biloxi Beach	30.39167	-88.89817	N	No	Yes	N	N
Biloxi Beach	30.39383	-88.91895	N	No	Yes	N	N
Gulfport Beach	30.37125	-89.07175	N	No	Yes	N	N
west side of Deer Island, Biloxi	30.26278	-88.89885	N	No	Yes	N	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	N	Y
Waveland Pier	30.2806	-89.3449	N	No	Yes	N	Y
Waveland Pier	30.2806	-89.3449	N	No	Yes	N	Y

Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Biloxi Beach	30.38722	-89.00137	N	No	Yes	N	N
Ocean Springs	30.3603	-88.7642	N	No	Yes	N	N
Ocean Springs	30.369965	-88.779549	N	No	Yes	N	N
Biloxi	30.392	-88.87	N	No	Yes	N	N
Long Beach	30.35226	-89.12932	N	No	Yes	N	N
Long Beach, Jeff Davis Ave	30.3437	-89.1498	N	No	Yes	N	N
Long Beach	30.3397	-89.94848	N	No	Yes	N	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
3 Oaks Bayou (Bayou Caddy), outside Waveland	30.24575	-89.43206	N	No	Yes	N	N
Pass Christian	30.32465	-89.2142	N	No	Yes	N	N
Long Beach	30.33843	-89.16594	N	No	Yes	N	N
Long Beach	30.34897	-89.13697	N	No	Yes	N	N
floating off of NE corner of Ship Island	30.22236	-88.94848	N	No	Yes	N	N
floating off NE coast of Cat Island	30.2596	-89.037	N	No	Yes	N	N
floating east Cat Island	30.2211	-89.0336	N	No	Yes	N	N
in MS Sound ~2 mi offshore Biloxi, brought in to Ocea	30.368	-88.958	N	No	Yes	N	Y
Deer Island, Biloxi Harbor	30.21851	-88.48135	N	No	Yes	N	N
Biloxi Harbor	30.19418	-88.52193	N	No	Yes	N	N
Biloxi Harbor, NW end Horn Island	30.16057	-88.44111	N	No	Yes	N	N
Gulfport Harbor	30.1523	-89.0633	N	No	Yes	N	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
floating off of Biloxi	30.37	-88.92	N	Yes	Yes	N	N
floating off of Biloxi	30.365	-88.89	N	Yes	Yes	N	N
floating off of Biloxi	30.36	-88.86	N	Yes	Yes	N	N
floating off of Biloxi	30.35	-88.84	N	Yes	Yes	N	N
floating off of Biloxi Beach	30.3505	-88.9066	N	No	Yes	N	N
floating off of Biloxi Beach	30.389	-88.8865	N	No	Yes	N	N
floating off of Biloxi Beach	30.3531	-88.937	N	No	Yes	N	N
floating off of Biloxi Beach	30.3379	-88.9542	N	No	Yes	N	N

floating off of Cat Island, Long Beach	30.2736	-89.0744	N	No	Yes	N	N
floating off of Biloxi Beach	30.3498	-88.892	N	No	Yes	N	N
floating off of Biloxi Beach	30.3651	-88.8896	N	No	Yes	N	N
floating off of Biloxi Beach	30.3667	-88.8944	N	No	Yes	N	N
floating off of Biloxi Beach	30.356	-88.9961	N	No	Yes	N	N
floating off of Biloxi Beach	30.356	-88.898	N	No	Yes	N	N
Biloxi Beach	30.38757	-88.99525	N	No	Yes	N	N
Gulfport Beach	30.37807	-89.04175	N	No	Yes	N	N
Ocean Springs	30.40376	-88.82699	N	No	Yes	N	N
Long Beach	30.34	-89.16059	N	No	Yes	N	N
Gulfport	30.37314	-89.0655	N	No	Yes	N	N
Biloxi Beach	30.38498	-89.01112	N	No	Yes	N	N
floating off of Long Beach	30.32185	-89.1497	N	No	Yes	N	N
floating in Back Bay of Biloxi	30.41678	-88.86855	N	No	Yes	N	N
Bay St. Louis, on beach, Lakeshore area	30.24835	-89.42323	N	No	Yes	N	N
Biloxi Beach	30.38	-88.89	N	Yes	Yes	N	N
floating off of Jackson County	30.3	-88.7	N	Yes	Yes	N	N
Ocean Springs Pier, Jackson County	30.40398	-88.82962	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Harrison County	30.37537	-88.81745	N	No	Yes	N	N
Harrison County	30.37762	-88.1543	N	No	Yes	N	N
Jackson County	30.40048	-88.84228	N	No	Yes	N	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Pass Christian	30.34114	-89.15825	N	No	Yes	N	N
Long Beach	30.32659	-89.2067	N	No	Yes	N	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N	Y
Bay St. Louis	30.3	-89.3	N	Yes	Yes	N	N
Long Beach	30.33	-89.16	N	Yes	Yes	N	N
Long Beach	30.345	-89.1	N	Yes	Yes	N	N
Bay St. Louis	30.24918	-89.42303	N	No	Yes	N	N
Pass Christian	30.31637	-89.23715	N	No	Yes	N	N
Pass Christian, on beach	30.31161	-89.25247	N	No	Yes	N	N

floating off of Biloxi	30.39065	-88.87007	N	No	Yes	N	N
floating off west end of Deer Island, near Biloxi	30.38	-88.89	N	Yes	Yes	N	N
floating off west end of Deer Island, near Biloxi	30.375	-88.87	N	Yes	Yes	N	N
floating by Biloxi Schooner Pier	30.39	-88.87	N	Yes	Yes	N	N
floating ~1 mi offshore of Mississippi Coliseum	30.21919	-88.58492	N	No	Yes	N	N
Cat Island	30.36698	-88.97193	N	No	Yes	N	N
East Beach, Davis Bayou	30.39609	-88.81237	N	No	Yes	N	N
inside Point Cadet Harbor, N side of seawall	30.38839	-88.85983	N	No	Yes	N	N
Ship Island, ~1 mile east of pier	30.21271	-88.95624	N	No	Yes	N	N
Directed Capture	28.4665	-88.46116	Y	No	No	N	Y
Directed Capture	28.96778	-88.79333	Y	No	No	N	Y
Directed Capture	28.90722	-88.80167	Y	No	No	N	Y
Directed Capture	28.9597	-88.5342	Y	No	No	N	Y
Directed Capture	28.9182	-88.5552	Y	No	No	N	Y
Directed Capture	28.865	-88.5658	Y	No	No	N	Y
Directed Capture	28.8538	-88.5617	Y	No	No	N	Y
Directed Capture	28.847	-88.5588	Y	No	No	N	Y
Directed Capture	28.8405	-88.5557	Y	No	No	N	Y
Directed Capture	28.6573	-88.4313	Y	No	No	N	Y
Directed Capture	28.8045	-88.4771	Y	No	No	N	Y
Directed Capture	28.804483	-88.4771	Y	No	No	N	Y
Directed Capture	28.80725	-88.47808	Y	No	No	N	Y
Directed Capture	28.813483	-88.480383	Y	No	No	N	Y
Directed Capture	28.81535	-88.479233	Y	No	No	N	Y
Directed Capture	28.81669	-88.47803	Y	No	No	N	Y
Directed Capture	28.828083	-88.37115	Y	No	No	N	Y
Directed Capture	28.829617	-88.471267	Y	No	No	N	Y
Directed Capture	28.826867	-88.464933	Y	No	No	N	Y
Directed Capture	28.834317	-88.42455	Y	No	No	N	Y
Directed Capture - LDWF	29.09	-89.78	Y	No	No	N	N
Directed Capture - LDWF	29.0919	-89.7781	Y	No	No	N	Y
Directed Capture - LDWF	29.0932	-89.7747	Y	No	No	N	Y
Directed Capture - LDWF	29.0998	-89.7574	Y	No	No	N	Y
Directed Capture - LDWF	29.1065	-89.748	Y	No	No	N	Y

Directed Capture	29.01025	-88.26369	Y	No	No	N	Y
Directed Capture	29.01025	-88.26369	Y	No	No	N	Y
Directed Capture	29.01025	-88.26369	Y	No	No	N	Y
Directed Capture	29.02569	-88.25586	Y	No	No	N	Y
Directed Capture	29.17372	-88.16519	Y	No	No	N	N
Directed Capture	28.7538	-88.85602	Y	No	No	N	N
Directed Capture	28.75114	-88.84875	Y	No	No	N	Y
Directed Capture	28.62252	-88.55688	Y	No	No	N	Y
Directed Capture	28.76398	-88.82482	Y	No	No	N	Y
Directed Capture	28.66965	-88.49193	Y	No	No	N	Y
Directed Capture	28.91208	-88.68748	Y	No	No	N	Y
Directed Capture	28.70114	-88.53979	Y	No	No	N	Y
Directed Capture	28.92108	-88.7991	Y	No	No	N	Y
Directed Capture	28.92094	-88.79822	Y	No	No	N	Y
Directed Capture	28.92891	-88.77321	Y	No	No	N	Y
Directed Capture	28.928	-88.7701	Y	No	No	N	Y
Directed Capture	28.92558	-88.74215	Y	No	No	N	Y
Directed Capture	28.93916	-88.71402	Y	No	No	N	Y
Directed Capture	28.94739	-88.70053	Y	No	No	N	Y
Directed Capture	28.96491	-88.67766	Y	No	No	N	Y
Directed Capture	28.98004	-88.65568	Y	No	No	N	Y
Directed Capture - LDWF	28.72474	-88.55243	Y	No	No	N	Y
Directed Capture - LDWF	28.81743	-88.63998	Y	No	No	N	Y
Directed Capture	28.62361	-88.54351	Y	No	No	N	Y
Directed Capture	28.60264	-88.49568	Y	No	No	N	Y
Directed Capture	28.59733	-88.49236	Y	No	No	N	Y
Directed Capture	28.59501	-88.49054	Y	No	No	N	Y
Directed Capture	28.57604	-88.49573	Y	No	No	N	Y
Directed Capture	28.57271	-88.49434	Y	No	No	N	Y
Directed Capture	28.56876	-88.49416	Y	No	No	N	Y
Directed Capture	28.52956	-88.51617	Y	No	No	N	Y
Directed Capture	28.50794	-88.54434	Y	No	No	N	Y
Directed Capture	28.53647	-88.60338	Y	No	No	N	Y
Directed Capture	28.69822	-88.79404	Y	No	No	N	Y

Directed Capture	28.90896	-88.72726	Y	No	No	N	Y
Directed Capture	28.6881	-88.84448	Y	No	No	N	Y
Directed Capture	28.67472	-88.88646	Y	No	No	N	Y
Directed Capture	28.68382	-88.88902	Y	No	No	N	Y
Directed Capture	28.8945	-88.72223	Y	No	No	N	Y
Directed Capture	28.6575	-88.87042	Y	No	No	N	Y
Directed Capture	28.65178	-88.86879	Y	No	No	N	Y
Directed Capture	28.6833	-88.64572	Y	No	No	N	Y
Directed Capture	28.74405	-88.2535	Y	No	No	N	Y
Directed Capture	28.7637	-88.23549	Y	No	No	N	Y
Directed Capture	28.7666	-88.23471	Y	No	No	N	Y
Directed Capture	28.78214	-88.23679	Y	No	No	N	Y
Directed Capture	28.87021	-88.50445	Y	No	No	N	Y
Directed Capture - LDWF	28.67327	-88.29708	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.71517	-89.80517	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.714	-89.806	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.714	-89.806	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.709	-89.80267	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.70783	-89.80433	Y	No	No	N	Y
Directed Capture - LDWF, 42 mi SW Grand Isle	28.70783	-89.80433	Y	No	No	N	Y
Directed Capture - LDWF, floating ~50 miles offshore	28.62647	-90.18168	N	No	No	N	N
Directed Capture - LDWF, floating ~35 miles offshore	28.78182	-89.7506	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.77712	-89.74897	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.77405	-89.74953	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.76734	-89.747	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.76683	-89.7453	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.76467	-89.74487	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.76212	-89.74383	Y	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.75873	-89.74536	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.75897	-89.74525	N	No	No	N	Y
Directed Capture - LDWF, floating ~35 miles offshore	28.7489	-89.75946	Y	No	No	N	Y
Directed Capture	28.34139	-88.72183	Y	No	No	N	Y
Directed Capture	28.92028	-88.40833	Y	No	No	N	Y
Directed Capture	28.98478	-88.35519	Y	No	No	N	Y

Directed Capture	29.02858	-88.30956	Y	No	No	N	Y
Directed Capture	28.95217	-88.37383	Y	No	No	N	Y
Directed Capture	29.00767	-88.90133	Y	No	No	N	Y
Directed Capture	29.00914	-88.88017	Y	No	No	N	Y
Directed Capture	29.05264	-88.79911	Y	No	No	N	Y
Directed Capture	29.13067	-88.76469	Y	No	No	N	Y
Directed Capture	28.97922	-89.06208	Y	No	No	N	Y
Directed Capture	28.98544	-89.05781	Y	No	No	N	Y
Directed Capture	28.98914	-89.05772	Y	No	No	N	Y
Directed Capture	28.99314	-89.05647	Y	No	No	N	Y
Directed Capture	28.99411	-89.05583	Y	No	No	N	Y
Directed Capture	28.99439	-89.05569	Y	No	No	N	Y
Directed Capture	29.01933	-88.94467	Y	No	No	N	Y
Directed Capture	28.83391	-89.70232	N	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.77967	-86.6597	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.76232	-86.64677	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.78245	-86.66177	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.79148	-86.66885	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.79648	-86.67315	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.79063	-86.68507	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.79198	-86.6845	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.76888	-86.71662	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.76633	-86.69712	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.78413	-86.6638	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.74103	-86.68613	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.798	-86.65583	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.8186	-86.64862	Y	No	No	N	Y
Directed Capture, floating approx 40 mi S/SW of Dest	29.82193	-86.64973	Y	No	No	N	Y
Directed Capture - LDWF, approx 50 mi S of Grand Isl	28.60669	-89.81942	Y	No	No	N	Y
Directed Capture - LDWF, approx 50 mi S of Grand Isl	28.60237	-89.80797	Y	No	No	N	Y
Directed Capture - LDWF, approx 50 mi S of Grand Isl	28.5988	-89.82002	Y	No	No	N	Y
Directed Capture - LDWF, approx 50 mi S of Grand Isl	28.60407	-89.86728	Y	No	No	N	Y
Directed Capture - LDWF, approx 50 mi S of Grand Isl	28.62131	-89.91562	Y	No	No	N	Y
Directed Capture - BirdTeam - location? Off of LA	28.7	-89	Y	Yes	No	N	Y

Directed Capture - LDWF - location? Off of LA	28.73	-88.97	N	Yes	No	N	Y
Directed Capture, off of Destin, FL	30	-86.5	Y	Yes	No	N	Y
Directed Capture, off of Venice, LA	28.45497	-89.56168	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.45473	-89.54215	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.46103	-89.50808	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.4621	-89.50258	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.46322	-89.50012	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.45018	-89.47792	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.64048	-89.28675	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.62377	-89.3015	Y	No	No	N	Y
Directed Capture, off of Venice, LA	28.66903	-89.20977	Y	No	No	N	Y
Directed Capture, off of Destin, FL	30.05	-86.46	Y	Yes	No	N	Y
Directed Capture, off of Destin, FL	30	-86.5	Y	Yes	No	N	Y
Directed Capture, off of Destin, FL	29.95	-86.54	Y	Yes	No	N	Y
Directed Capture, off of Destin, FL	29.9	-86.58	Y	Yes	No	N	Y
Directed Capture, off of Venice, LA	28.9	-88.8	Y	Yes	No	N	Y
St Andrews Bay			N	Yes	Yes	Y	N
on beach in intercoastal just S of Plash Island	30.28118	-87.75023	N	No	Yes	Y	N
1/4 mi NE of Horn Island, floating	30.23691	-88.64885	N	No	Yes	Y	N
Directed Capture, off of Venice, LA			Y	Yes	No	Y	Y
Directed Capture - LDWF, ~35 mi off of Grand Isle, LA			Y	Yes	No	Y	Y
Directed Capture - LDWF, ~35 mi off of Grand Isle, LA			N	Yes	No	Y	Y
Directed Capture - LDWF, ~35 mi off of Grand Isle, LA			Y	Yes	No	Y	Y

Symbol	Confirmed	Log #	Comments	Date Released
C	Y		outside of area of concern	
C	Y		outside of area of concern	
C	Y		outside of area of concern	
C	Y		outside of area of concern	
C	Y		outside of area of concern	
C	Y		outside of area of concern	
C	Y		outside of area of concern	
C	Y		outside of area of concern	
C	Y	D-0002 BSNWR		
C	Y	D-0001 BSNWR		
C	Y	D-0003 BSNWR		
C	Y	D-0004 BSNWR		
C	Y	D-0005 BSNWR		
C	Y	D-0006 BSNWR		
C	Y	D-0007 BSNWR		
C	Y	D-0008 BSNWR		
C	Y	D-0009 BSNWR		
C	Y	D-0010 BSNWR		
C	Y	D-0015 BSNWR		
C	Y	D-0014 BSNWR		
C	Y	D-0011 BSNWR		
C	Y	D-0012 BSNWR		
C	Y	D-0013 BSNWR		
C	Y	D-0016 BSNWR		
C	Y	D-0017 BSNWR	dried carcass	
C	Y	D-0018 BSNWR		
C	Y	D-0019 BSNWR		
C	Y	D-0020 BSNWR		
C	Y	D-0021 BSNWR		
C	Y	D-0023 BSNWR		
C	Y	D-0022 BSNWR		
C	Y	L-0001 BSNWR		
C	Y	D-0024 BSNWR		

C	Y	D-0025 BSNWR	
C	Y	D-0026 BSNWR	
C	Y	D-0027 BSNWR	
C	Y	L-0007 IMMS	emaciated; taken to IMMS for rehab; died 5/25, shipped to UF for necropsy
C	Y	D-0028 BSNWR	
C	Y	D-0029 BSNWR	
C	Y	D-0030 BSNWR	
C	Y	D-0031 BSNWR	
U	N		
U	N		
U	N		
U	N		
U	N		
U	N		
U	N		
U	N		
U	N		
C	Y	L-0012 IMMS	found floating next to boom; externally oiled turtle; taken to IMMS for rehab
U	N		
C	Y	L-0013 IMMS	externally oiled turtle; taken to IMMS for rehab
U	N		
U	N		too decomposed for necropsy
U	N		
U	N		
U	N		
C	Y		parts only - head, guts and 1 flipper
C	Y		
C	Y		
U	N		
U	N		
C	Y		
C	Y		
C	Y		
C	Y		

C	Y	
C	Y	
U	N	
U	N	
U	N	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	only back flippers and a bit of carapace
C	Y	
U	N	
C	Y	
C	Y	
C	Y	
C	Y	older damage to carapace, scrape on head and possible constriction to LRF
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	very emaciated, missing part of RRF
C	Y	very emaciated; taken to Gulf World, died soon after recovery
C	Y	no head, flippers or internal organs
C	Y	brown algae on carapace; some small barnacles on skin; adult female
C	Y	prop damage to right side of carapace
C	Y	no wounds; barnacles and algae on carapace; adult male
C	Y	missing notch from right side carapace; barnacle and algae growth
C	Y	barnacles on carapace and flippers; taken to Gulf World, died same day
C	Y	apparent piece of metal in ventral LFF near insertion
C	Y	dried carcass; little skin remaining, bones visible
C	Y	no head or front flippers, shark bites
C	Y	missing both front flippers and lrf
C	Y	carapace completely covered w/barnacles and algae; adult female
C	Y	emaciated, lots of barnacles, damage to base of front flippers and neck

C	Y	
C	Y	
C	Y	in pieces, decomposed
C	Y	carapace broken, pieces missing
C	Y	skin and scutes peeling
C	Y	numerous barnacles and light algae on carapace; taken to Gulfarium
C	Y	old wound to posterior marginals; scutes peeling
C	Y	posterior carapace gone; plastron missing; falling apart, nasty
U	N	
C	Y	apparent skeg/prop damage to center carapace
C	Y	caught on hook and line, hook in throat; taken to Gulfarium
C	Y	prop wounds to right posterior carapace; heavy barnacles,small barnacles on skin
C	Y	2 apparent prop wounds across carapace
C	Y	skin and scutes peeling, very decomposed
C	Y	fishing line entangled around neck
C	Y	no head or flippers; damage to carapace - likely prop
C	Y	missing skull; carapace bones disarticulating due to decomp
C	Y	missing head and LFF, possible shark bites; gashes on plastron
U	N	
C	Y	carapace bones disarticulating due to decomp
C	Y	dried carcass; carapace broken across posterior; portions missing
U	N	caught on hook and line, hook removed and turtle released
U	N	
U	N	
U	N	
U	N	
U	N	caught by relocation trawler; ~50% coverage of thin oil sheen, also sheen in mouth
U	N	
U	N	
U	N	in pieces due to decomp, unable to salvage
U	N	
U	N	caught by relocation trawler; observer thought oiled, Gulfarium said algae
C	Y	
U	N	

U	N	
C	Y	wound/damage to throat area
C	Y	
C	Y	
U	N	
U	N	caught by relocation trawler; Gulfarium said not oiled
U	N	
C	Y	
U	N	
C	Y	
U	N	adult female, died on nesting beach, apparent shark bites around tail area
U	N	unable to dive, covered with algae
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
U	N	
C	Y	
C	Y	
C	Y	
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C	Y	
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C	Y	
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C	Y	

C	Y	parts only
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
C	Y	
U	N	
U	N	
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	taken to AOA for rehab
C	Y	
C	Y	
C	Y	
C	Y	swab sample taken
C	Y	swab sample taken
U	N	
C	Y	taken to AOA for rehab
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
C	Y	swab sample taken
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C	Y	
U	N	
C	Y	

U	N	
C	Y	
U	N	
U	N	
U	N	
C	Y	
U	N	
U	N	partial carcass, pieces only
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C	Y	
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C	Y	
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C	Y		
C	Y		Severely decomposed, on beach
C	Y		Severely decomposed, on beach
C	Y		
C	Y		
C	Y		
U	N		
U	N		
C	Y		
C	Y		
U	N		
C	Y	D-0029 IMMS	
C	Y	D-0030 IMMS	
C	Y	D-0031 IMMS	
C	Y	D-0032 IMMS	
C	Y	D-0033 IMMS	
C	Y	L-0001 IMMS	taken to IMMS, died in rehab, frozen for necropsy
C	Y	D-0001 IMMS	
C	Y	D-0002 IMMS	
C	Y	D-0003 IMMS	
C	Y	D-0004 IMMS	
C	Y	D-0005 IMMS	
C	Y	D-0006 IMMS	
C	Y	D-0034 IMMS	
C	Y	D-0007 IMMS	
C	Y	D-0008 IMMS	
C	Y	D-0009 IMMS	

C	Y	D-0010 IMMS	
C	Y	D-0011 IMMS	
C	Y	D-0012 IMMS	
C	Y	D-0013 IMMS	
C	Y	D-0014 IMMS	
C	Y	D-0015 IMMS	
C	Y	D-0016 IMMS	
C	Y	D-0017 IMMS	
C	Y	D-0018 IMMS	
C	Y	D-0019 IMMS	
C	Y	D-0020 IMMS	
C	Y	D-0021 IMMS	
C	Y	D-0022 IMMS	
C	Y	D-0023 IMMS	
C	Y	D-0024 IMMS	
C	Y	D-0025 IMMS	
C	Y	D-0026 IMMS	
C	Y	D-0027 IMMS	
C	Y	D-0028 IMMS	
C	Y	D-0035 IMMS	
C	Y	D-0036 IMMS	
C	Y	D-0037 IMMS	
C	Y	D-0038 IMMS	
C	Y	D-0039 IMMS	
C	Y	D-0040 IMMS	
C	Y	D-0041 IMMS	
C	Y	D-0042 IMMS	
C	Y	D-0043 IMMS	
C	Y	D-0044 IMMS	
C	Y	D-0045 IMMS	
C	Y	D-0046 IMMS	
C	Y	D-0047 IMMS	carcass in two pieces
C	Y	D-0048 IMMS	
C	Y	D-0049 IMMS	

C	Y	D-0050 IMMS		
C	Y	D-0051 IMMS		
C	Y	D-0052 IMMS		
C	Y	D-0053 IMMS		
C	Y	D-0054 IMMS		
C	Y	D-0055 IMMS		
C	Y	D-0056 IMMS		
C	Y	D-0057 IMMS		
C	Y	D-0058 IMMS		
C	Y	D-0063 IMMS	Decapitated, missing portions of flippers due to decomp; first reported on 5/8	
C	Y	D-0059 IMMS		
C	Y	D-0060 IMMS		
C	Y	D-0061 IMMS		
C	Y	D-0062 IMMS		
C	Y	D-0064 IMMS		
C	Y	D-0065 IMMS		
C	Y	D-0066 IMMS		
C	Y	D-0067 IMMS		
C	Y	D-0068 IMMS		
C	Y	D-0069 IMMS		
C	Y	D-0070 IMMS		
C	Y	D-0071 IMMS		
C	Y	D-0072 IMMS		
C	Y	D-0085 IMMS	field necropsy on beach; damaged LFF, carapace covered in barnacles; first rep 5/13	
C	Y	D-0073 IMMS		
C	Y	D-0074 IMMS		
C	Y	L-0002 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Mote Marine Lab 5/30/10	
C	Y	D-0075 IMMS		
C	Y	D-0076 IMMS	carapace cracked/broken	
C	Y	L-0003 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Clearwat	7/8/2010
C	Y	L-0004 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Clearwat	7/8/2010
C	Y	D-0086 IMMS	"chopped up", likely prop wounds to carapace	
C	Y	D-0077 IMMS	red slimy substance covering carapace	
C	Y	D-0087 IMMS	skeletal remains	

C	Y	D-0088 IMMS	skeletal remains	
C	Y	D-0078 IMMS		
C	Y	D-0089 IMMS		
C	Y	D-0090 IMMS	floating, picked up by NPS	
C	Y	L-0005 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Mote Ma	6/3/2010
C	Y	D-0079 IMMS	carapace only	
C	Y	D-0080 IMMS	carapace only	
C	Y	D-0091 IMMS	sample taken and logged, carcass painted and left on beach	
C	Y	D-0081 IMMS		
C	Y	D-0082 IMMS		
C	Y	L-0006 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Mote Ma	6/3/2010
C	Y	D-0083 IMMS		
C	Y	D-0092 IMMS	possible loggerhead, unsure of species ID	
C	Y	D-0093 IMMS		
C	Y	D-0094 IMMS	carcass in plastic bag before oil swab taken	
C	Y	D-0084 IMMS	rear portion of carcass missing	
C	Y	L-0008 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Disney 6/25/10	
C	Y	L-0009 IMMS	incidentally captured on hook and line; taken to IMMS for rehab	
C	Y	L-0010 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Disney 6/25/10	
C	Y	D-0095 IMMS	carcass in plastic bag before oil swab taken; severe prop damage	
C	Y	L-0011 IMMS	incidentally captured on hook and line; taken to IMMS for rehab	
C	Y	D-0161 IMMS		
C	Y	D-0096 IMMS	mangled caudal half of carcass	
C	Y	D-0097 IMMS		
C	Y	D-0098 IMMS		
C	Y	D-0099 IMMS	old injury to edge of carapace	
C	Y	D-0162 IMMS		
C	Y	D-0100 IMMS		
C	Y	D-0101 IMMS		
C	Y	D-0102 IMMS		
C	Y	D-0103 IMMS		
C	Y	D-0104 IMMS		
C	Y	D-0105 IMMS	scrapes along plastron	
C	Y	D-0106 IMMS	missing right edge of carapace, advanced decomp	

C	Y	D-0107 IMMS		
C	Y	D-0108 IMMS	extra costal scute on L side	
C	Y	D-0109 IMMS	edges of marginal scutes broken, postmortem	
C	Y	D-0110 IMMS	extra vertebral scute	
C	Y	D-0163 IMMS		
C	Y	D-0112 IMMS		
C	Y	D-0111 IMMS		
C	Y	D-0113 IMMS		
C	Y	D-0114 IMMS		
C	Y	D-0118 IMMS	severely mangled, no accurate meas possible	
C	Y	D-0119 IMMS	black substance in mouth	
C	Y	D-0115 IMMS		
C	Y	D-0116 IMMS		
C	Y	D-0117 IMMS		
C	Y	D-0120 IMMS		
C	Y	D-0121 IMMS		
C	Y	D-0122 IMMS		
C	Y	D-0123 IMMS		
C	Y	D-0124 IMMS		
C	Y	D-0125 IMMS		
C	Y	D-0126 IMMS		
C	Y	D-0127 IMMS		
C	Y	D-0128 IMMS		
C	Y	D-0129 IMMS		
C	Y	D-0130 IMMS		
C	Y	D-0164 IMMS		
C	Y	D-0165 IMMS		
C	Y	D-0166 IMMS		
C	Y	D-0167 IMMS		
C	Y	D-0168 IMMS		
C	Y	D-0169 IMMS		
C	Y	D-0131 IMMS		
C	Y	D-0132 IMMS		
C	Y	L-0015 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl	7/8/2010

C	Y	L-0014 IMMS	washed ashore alive	
C	Y	D-0133 IMMS		
C	Y	D-0134 IMMS		
C	Y	D-0135 IMMS		
C	Y	D-0136 IMMS		
C	Y	D-0137 IMMS		
C	Y	D-0138 IMMS		
C	Y	D-0139 IMMS		
C	Y	D-0140 IMMS		
C	Y	D-0141 IMMS		
C	Y	D-0142 IMMS		
C	Y	D-0143 IMMS		
C	Y	D-0144 IMMS		
C	Y	D-0145 IMMS		
C	Y	D-0146 IMMS		
C	Y	D-0147 IMMS		
C	Y	D-0155 IMMS		
C	Y	D-0148 IMMS		
C	Y	D-0149 IMMS		
C	Y	D-0150 IMMS		
C	Y	D-0151 IMMS		
C	Y	D-0152 IMMS		
C	Y	D-0153 IMMS		
C	Y	D-0154 IMMS		
C	Y	D-0172 IMMS		
C	Y	L-0016 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl	7/8/2010
C	Y	D-0156 IMMS		
C	Y	D-0157 IMMS		
C	Y	D-0158 IMMS		
C	Y	D-0159 IMMS		
C	Y	D-0170 IMMS		
C	Y	L-0017 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea World 6/25/10	
C	Y	L-0018 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea World 6/25/10	
C	Y	L-0019 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea World 6/25/10	

C	Y	L-0020 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl	7/8/2010
C	Y	D-0160 IMMS		
C	Y	D-0171 IMMS		
C	Y			
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C	Y	L-0021 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea World 6/25/10	
C	Y	L-0022 IMMS	incidentally captured on hook and line; taken to IMMS for rehab	
C	Y	L-0023 IMMS	incidentally captured on hook and line; taken to IMMS for rehab	
C	Y			
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C	Y	L-0024 IMMS	found floating in Ocean Springs Harbor	
C	Y			
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C	Y	L-0025 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl	7/8/2010
C	Y	L-0026 IMMS	incidentally captured on hook and line; taken to IMMS for rehab	
C	Y	L-0027 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl	7/8/2010
U	N			
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C	Y			
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C	Y	incidentally captured on hook and line; taken to IMMS for rehab, hook ingested
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C	Y	
C	Y	
C	Y	only RRF present, head missing, most internal organs gone
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C	Y	
U	N	
U	N	
U	N	
U	N	
U	N	
N	N	
N	Y	bones only
N	Y	
N	N	
N	N	oil on shell and flippers; plastic debris entangled around flippers, severely constricted
N	N	no visible oil; wound to posterior plastron, partially healed
N	N	oil on front flippers

Tag Numbers	PIT Tag Number	Release Lat	Release Long	Release Location

YYX735 / YYX734	483C0E4C20	Ten Thousand Islands, FL
YYX737 / YYX736	4856313F37	Ten Thousand Islands, FL

Date	Stranding Referen	Species	ReportType	Condition	Disposition	Status
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Comatose	Rehab	Rehab-IMMS
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Lepidochelys kem	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Lepidochelys kem	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Dead	Salvaged	IMMS-GV
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released	

7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Lepidochelys kem	Trawl Capture	Alive	Released
7/12/2010	20100712	Lepidochelys kem	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Lepidochelys kem	Trawl Capture	Alive	Released

State	Descriptive Location	Latitude	Longitude	External oil?	TempLocation	Stranding
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No

off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No

New	Alive	Symbol	Log #	Comments	Time Captured	Swab or Oil Sample?
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	N					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					
Yes	Y					

Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y

Release Latitude	Release Longitude	Flipper Tag Numbers	FT Applied or Recap?	PIT Tag Number

PT Applied or Recap?

Microsoft Outlook

From: Sheryan Epperly [Sheryan.Epperly@noaa.gov]
Sent: Friday, July 23, 2010 8:24 AM
To: Chris Sasso; Wendy Teas; Lisa Belskis; Lesley Stokes; Paul Richards; Kate L. Mansfield; jeanette wyneken alt.
Subject: small turtle identification

We have been asked to provide training (as early as tomorrow) for observers to be placed on skimmer vessels and burn unit vessels.
Likely, Carrie Horton will conduct that training, probably in New Orleans. We're have all the training materials we need, except for guide to identify very young turtles (post-hatchlings and oceanic stage). If you have anything that would help id those small turtles, please either point us to it or forward it. Thank you.

Microsoft Outlook

From: Sheryan Epperly [Sheryan.Epperly@noaa.gov]
Sent: Thursday, July 22, 2010 12:31 PM
To: Bonnie Ponwith; Theo Brainerd; Peter Thompson; Jim Bohnsack
Cc: Chris Sasso; Wendy Teas; Lisa Belskis; Lesley Stokes; Paul Richards; Kate L. Mansfield; Aleta Hohn; Joanne B Mcneill; Larisa Avens; April Goodman
Subject: Turtle Update - July 22, 2010 - Deepwater Horizon MC252
Attachments: Sea Turtle Strandings and Live Captures - Deepwater Horizon.xls; DWHMC252_Turtles20100722.pdf

Wendy continues to coordinate the STSSN (see below and attached) and we receive daily reports and maps from the Wildlife Branch in Houma (see attached map; I will forward daily reports as soon as I get them).

The ACOE reported that a 3rd turtle was taken by a dredge, Terrapin Island, on 7/21. Only a fragmented head was recovered. Yesterday the relocation trawlers captured 11 loggerheads; 1 was oiled and dead (probably previously dead, not drowned in their trawl) and was taken to IMMS. Another 1 was a recaptured loggerhead that had been captured on 7/19 and relocated 6 miles NE of the borrow area. The summary of trawl captures to date follow:

TOTAL for 9-21 Jul 2010:
182 Total Turtles (178 relocated, 4 taken to IMMS facility)
173 Loggerheads
8 Kemp's ridley
1 Green turtle
10 Recaptured loggerheads
483 Total tows
CPUE = 0.38 Turtles/trawl tow
More from Dena: *Today, I coordinated with SHAW (Mr. Mark Zimmerman) for them to initiate efforts as necessary to get trawlers (2 capture and 2 non-capture) contracted and mobilized soon for the hopper dredging to be starting soon at St Bernard's Shoals borrow area. Approval for work to begin at St Bernard's Shoals may occur as early as Friday (7/23/10) but Mr. Zimmerman does not expect the hopper dredging to commence at St. Bernard's shoal until late Sunday (7/25/10) at the earliest. He confirmed that the dredges cannot begin work in the St. Bernard's shoal area until the trawlers are in place and that the trawlers need to have been working at least 12 hours prior to the dredges starting to dig in that area.*

Lisa is on travel, preparing to fly AMAPPS aerial surveys and Paul was standing down. The rest of the team still is in HAZWOPER training.

We have been asked to train observers to be deployed on skimmer trawls and on vessels associated with the burn units - perhaps as soon as Saturday. The tropical storm may impact those plans. We're discussing this with the Wildlife Branch today. Lisa is not available and likely Carrie Horton is not either (both are flying aerial surveys).

-------- Original Message --------
Subject:7/21 Strandings Update - Non-oiled and Oiled Turtles - Deepwater Horizon
Date: Wed, 21 Jul 2010 21:56:33 -0400
From: Wendy.Teas@noaa.gov

To: HoumaICC MMST <HoumaICC.MMST@noaa.gov>, MobileICC MMST <MobileICC.MMST@noaa.gov>, "Sheryan.Epperly" <Sheryan.Epperly@noaa.gov>, Bonnie Ponwith <Bonnie.Ponwith@noaa.gov>, Lisa Belskis <Lisa.Belskis@noaa.gov>, Chris Sasso <Chris.Sasso@noaa.gov>, Paul Richards <Paul.Richards@noaa.gov>, Brian Stacy <Brian.Stacy@noaa.gov>, "Karen.Mitchell" <Karen.Mitchell@noaa.gov>, _NMFS SER Emergency Consult <nmfs.ser.emergency.consult@noaa.gov>, Kristy Long <Kristy.Long@noaa.gov>

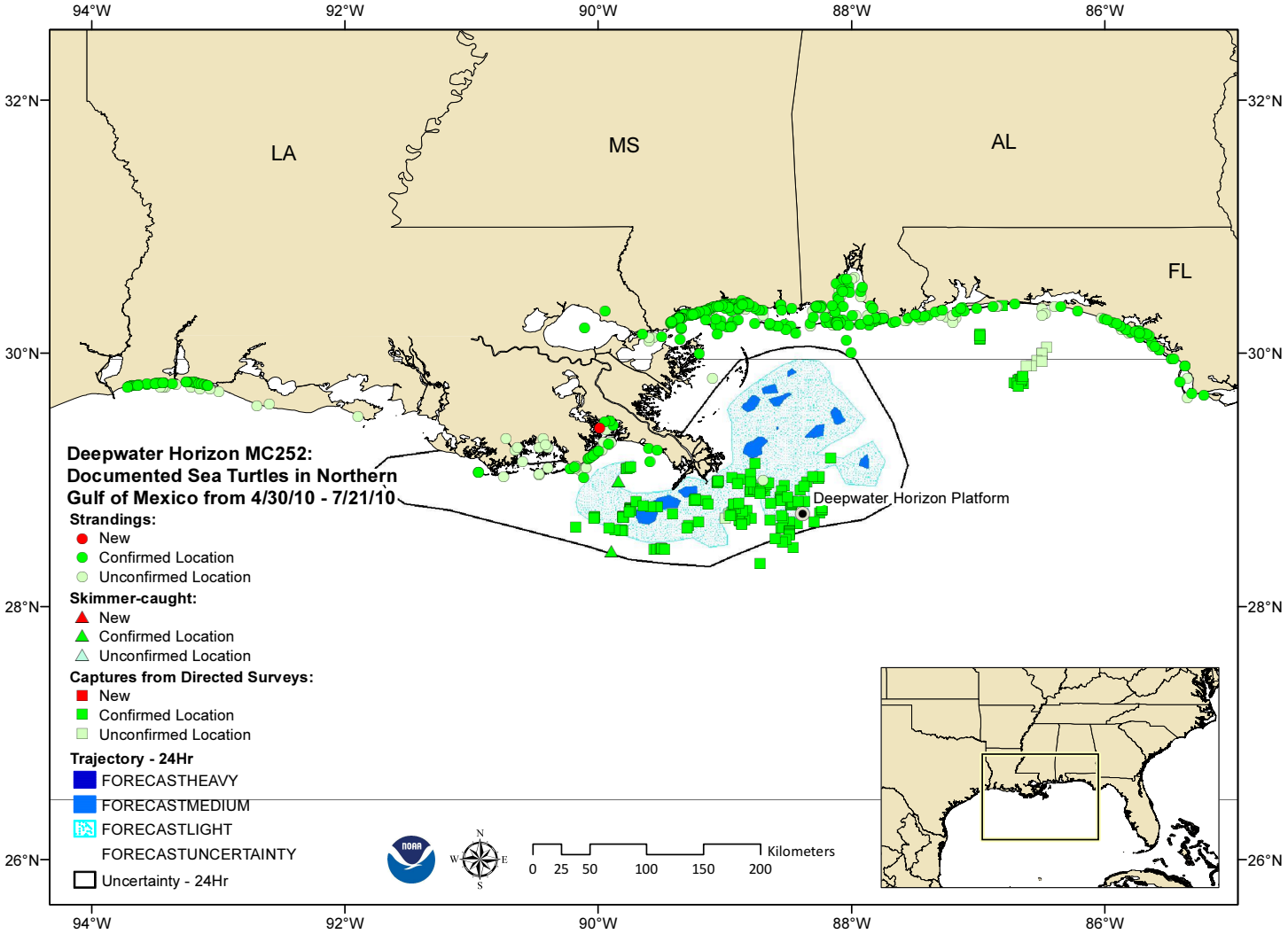
There was 1 turtle stranding reported / verified today:
FL - 0
AL - 0
MS - 0
LA - 1 dead unknown species, picked up by LDWF fisheries division and taken to Ft. Jackson - will be ID'd and taken to Audubon

The live capture boats did not go out today - Venice due to bad weather and Destin due to BP deactivating their capture vessel.

The trawlers working in front of the dredges on the LA berm project have captured a total of 171 turtles as of last night. There have also been a total of 3 turtles taken (killed) by the dredges, 2 of those in the past 24 hours.

See attached Excel file for details.

Happy 20th Wedding Anniversary Mike and Chris!!!


94°W
92°W
90°W
88°W
86°W
32°N
30°N
28°N
26°N
LA
MS
AL
FL
Deepwater Horizon MC252:
Documented Sea Turtles in Northern
Gulf of Mexico from 4/30/10 - 7/21/10
Deepwater Horizon Platform
Strandings:
New
Confirmed Location
Unconfirmed Location
Skimmer-caught:
New
Confirmed Location
Unconfirmed Location
Captures from Directed Surveys:
New
Confirmed Location
Unconfirmed Location
Trajectory - 24Hr
FORECASTHEAVY
FORECASTMEDIUM
FORECASTLIGHT
FORECASTUNCERTAINTY
Uncertainty - 24Hr
N
W
E
S
0 25 50 100 150 200
Kilometers

Date	Stranding Reference	Species	ReportType	Condition	Disposition	Status	State
5/2/2010	MRC20100502-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/2/2010	MRC20100502-02	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	SNW20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	JMI20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	MPW20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	SNW20100504-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	SNW20100504-02	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	FXM20100504-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/5/2010	MPW20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/5/2010	MRC20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/6/2010	MPW20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/6/2010	MPW20100506-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/7/2010	MPW20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/7/2010	MPW20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/8/2010	ANR20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/8/2010	JMI20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/10/2010	JMI20100510-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/11/2010	MPW20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MPW20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MPW20100513-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/14/2010	LAJ20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/16/2010	LAJ20100516-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/17/2010	MRC20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MRC20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/19/2010	LAJ20100519-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/19/2010	JMI20100519-01	Lepidochelys kempii	Stranding	Alive	Released		AL
5/20/2010	LAJ20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL

5/20/2010	LAJ20100520-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/20/2010	LAJ20100520-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/21/2010	MPW20100521-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/22/2010	RLR20100522-01	Lepidochelys kempii	Stranding	Alive	Rehab-Died	Necropsied	AL
5/22/2010	JMI20100522-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/22/2010	JMI20100522-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/23/2010	JMI20100523-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/23/2010	JMI20100523-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/28/2010	20100528	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/29/2010	20100529	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/3/2010	JMI20100603-01	Caretta caretta	Stranding	Alive	Rehab	Rehab-IMMS	AL
6/4/2010	20100604	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/5/2010	RLR20100605-01	Eretmochelys imbricata	Stranding	Alive	Rehab	Rehab-IMMS	AL
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/6/2010	20100606	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/6/2010	20100606	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/7/2010	20100607	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/9/2010	20100609	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/11/2010	20100611	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/16/2010	20100616	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL

6/21/2010	20100621	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/21/2010	20100621	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/23/2010	20100623	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/25/2010	20100625	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
6/27/2010	20100627	Unknown	Stranding	Dead	Salvaged	Frozen-DI	AL
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/30/2010	20100630	Chelonia mydas	Stranding	Alive	Rehab	Rehab-IMMS	AL
7/2/2010	20100702	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
7/2/2010	20100702	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	AL
7/5/2010	20100705	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
7/9/2010	20100709	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	AL
7/10/2010	20100710	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
7/11/2010	20100711	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
7/11/2010	20100711	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
7/14/2010	20100714	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
5/8/2010	NME20100508-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/8/2010	NME20100508-02	Caretta caretta	Stranding	Alive	Rehab-Died	Frozen-GV	FL
5/8/2010	NME20100508-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/10/2010	MEM20100510-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/11/2010	MAN20100511-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/12/2010	JWM20100512-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/13/2010	AVH20100513-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/14/2010	VEL20100514-01	Caretta caretta	Stranding	Alive	Rehab-Died	Frozen-GV	FL
5/14/2010	MEC20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/15/2010	NME20100515-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	NME20100517-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	MAN20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	MAN20100517-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	SSM20100517-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL

5/18/2010	WAJ20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/18/2010	JRJ20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/18/2010	CTS20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	NME20100519-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	NME20100519-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	MAN20100519-01	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
5/20/2010	WAJ20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	BAE20100520-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	20100520	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	MAN20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/21/2010	MAN20100521-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
5/24/2010	NME20100524-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/24/2010	GWG20100524-01	Caretta caretta	Stranding	Dead	Left on beach		FL
5/25/2010	NME20100525-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/27/2010	MJH20100527-01	Caretta caretta	Stranding	Dead	Buried		FL
5/28/2010	VXW20100528-01	Chelonia mydas	Stranding	Dead	Buried		FL
5/30/2010	NAD20100530-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/1/2010	NME20100601-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/6/2010	20100606	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/7/2010	NAD20100607-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/7/2010	NME20100607-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/9/2010	RAB20100609-01	Lepidochelys kempii	Stranding	Alive	Released		FL
6/10/2010	20100610	Eretmochelys imbricata	Stranding	Alive	Rehab	Rehab-GulfWorld	FL
6/11/2010	20100611	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/11/2010	20100611	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/12/2010	20100612	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
6/12/2010	20100612	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/12/2010	20100612	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/13/2010	20100613	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/14/2010	20100614	Caretta caretta	Stranding	Dead	Buried		FL
6/15/2010	20100615	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/16/2010	20100616	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/18/2010	20100618	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL

6/20/2010	20100620	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-GulfWorld	FL
6/22/2010	KEG20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/22/2010	NME20100622-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/22/2010	NME20100622-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/22/2010	20100622	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	FL
6/28/2010	SXH20100628-01	Chelonia mydas	Stranding	Alive	Rehab	Rehab-GulfWorld	FL
6/30/2010	20100630	Unknown	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/30/2010	20100630	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-NOAA	FL
7/4/2010	20100704	Chelonia mydas	Stranding	Dead	Salvaged	Taken to GV	FL
7/8/2010	20100708	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
7/12/2010	20100712	Chelonia mydas	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
7/12/2010	20100712	Caretta caretta	Stranding	Dead	Salvaged	Frozen-NOAA	FL
5/1/2010	MJF20100504-01	Unknown	Stranding	Dead	Left on beach		LA
5/1/2010	MJF20100504-02	Unknown	Stranding	Dead	Left on beach		LA
5/3/2010	XXX20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/3/2010	20100503	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/5/2010	JAL20100505-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
5/7/2010	MXC20100507-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-05	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-06	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-07	Caretta caretta	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-08	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-09	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-10	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-11	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-12	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-13	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-14	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	GXP20100507-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen	LA

5/10/2010	CSE20100510-01	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/10/2010	CSE20100510-02	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/10/2010	MXC20100510-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-05	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
5/11/2010	20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/11/2010	20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/12/2010	MXC20100512-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/12/2010	MXC20100512-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/12/2010	MXC20100512-03	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
5/12/2010	MXC20100512-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	MXT20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	JEB20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	MXC20100513-01	Eretmochelys imbricata	Stranding	Dead	Left on beach		LA
5/13/2010	MXC20100513-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/13/2010	20100513	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/14/2010	MXC20100514-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
5/16/2010	MXH20100516-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-05	Caretta caretta	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-06	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-07	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-08	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-09	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/17/2010	MXT20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/17/2010	AXL20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/18/2010	SDD20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/19/2010	20100519	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/20/2010	NXX20100520-01	Unknown	Stranding	Dead	Salvaged	Frozen	LA

5/22/2010	20100522	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/22/2010	20100522	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/23/2010	20100523	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/24/2010	20100524	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/24/2010	20100524	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/28/2010	20100528	Lepidochelys kempii	Skimmer	Alive	Rehab	Rehab-AOA	LA
5/29/2010	20100529	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/31/2010	20100531	Lepidochelys kempii	Skimmer	Alive	Rehab	Rehab-AOA	LA
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/7/2010	20100607	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/7/2010	20100607	Unknown	Stranding	Dead	Salvaged	Frozen	LA
6/8/2010	20100608	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/9/2010	20100609	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
6/9/2010	20100609	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/10/2010	20100610	Unknown	Stranding	Dead	Salvaged	Frozen	LA
6/12/2010	20100612	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/14/2010	20100614	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/15/2010	20100615	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/15/2010	20100615	Lepidochelys kempii	Stranding	Dead	Left on beach		LA

6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/17/2010	20100617	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
6/18/2010	20100618	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/21/2010	20100621	Caretta caretta	Stranding	Dead	Salvaged	Frozen	LA
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/25/2010	20100625	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-AOA	LA
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/27/2010	20100627	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/27/2010	20100627	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-will be trai	LA
7/4/2010	20100704	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Audubon	LA
7/4/2010	20100704	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-AOA	LA
7/10/2010	20100710	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-AOA	LA
7/12/2010	20100712	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Audubon	LA
7/12/2010	20100712	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-AOA	LA
4/26/2010	CNH20100426-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	CNH20100430-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	TTH20100430-01	Lepidochelys kempii	Stranding	Alive	Rehab-Died	Necropsied	MS
5/1/2010	KMF20100501-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	EXP20100501-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS

5/2/2010	KMF20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	KMF20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	KMF20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	EXP20100504-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/5/2010	WLH20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/5/2010	DKV20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	SXC20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JBT20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	CLM20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS

5/7/2010	JBT20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	MMK20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	SAH20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JKM20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	SAH20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JNF20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JNF20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JKM20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	WLH20100510-01	Caretta caretta	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/10/2010	WLH20100510-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/10/2010	ZHS20100510-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/11/2010	BTN20100511-01	Caretta caretta	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/13/2010	JXS20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/13/2010	CNH20100514-01	Caretta caretta	Stranding	Dead	Left on beach		MS
5/14/2010	JNF20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/14/2010	JNF20100514-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/14/2010	SAH20100514-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Mote	MS
5/15/2010	LMJ20100515-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/15/2010	LMJ20100515-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/15/2010	JKM20100515-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
5/15/2010	JKM20100515-02	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
5/15/2010	KMM20100515-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/16/2010	EXJ20100516-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/18/2010	KPB20100518-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS

5/18/2010	KPB20100518-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
5/18/2010	WLH20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/19/2010	MDH20100519-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/19/2010	MDH20100519-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/20/2010	TTH20100520-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
5/20/2010	JNF20100520-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/20/2010	JNF20100520-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/21/2010	RDS20100521-01	Caretta caretta	Stranding	Dead	Left on beach		MS
5/21/2010	JNF20100521-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/21/2010	JNF20100521-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/22/2010	TTH20100522-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
5/24/2010	WLH20100524-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/24/2010	AJD20100524-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	JXB20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	CNH20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	WLH20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/27/2010	JBT20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Disney	MS
5/27/2010	JKM20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/27/2010	MSB20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Disney	MS
5/28/2010	JNF20100528-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/28/2010	RAW20100528-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/3/2010	CNH20100603-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/4/2010	DKV20100604-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	KMM20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS

6/6/2010	JBT20100606-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	JRS20100608-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	WLH20100607-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	KMH20100607-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
6/8/2010	WLH20100608-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/8/2010	WLH20100608-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	WLH20100609-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	WLH20100609-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	WLH20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	WLH20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	TTH20100611-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS

6/11/2010	KMH20100611-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/11/2010	WLH20100611-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-09	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-10	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-11	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-12	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-13	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	CRS20100611-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	RCL20100612-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	CRS20100612-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	JKM20100612-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
6/13/2010	CRS20100613-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	CRS20100613-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	CRS20100613-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	LCB20100613-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	LCB20100613-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	JKM20100613-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-SeaWorld	MS
6/13/2010	JKM20100613-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-SeaWorld	MS
6/13/2010	JKM20100613-03	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-SeaWorld	MS

6/13/2010	JKM20100613-04	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
6/14/2010	WLH20100614-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/15/2010	LCB20100615-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	WLH20100617-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-SeaWorld	MS
6/17/2010	JBT20100617-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/17/2010	JBT20100617-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	TTJ20100619-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	SLE20100620-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
6/20/2010	JKM20100620-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/20/2010	MSB20100620-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS

6/21/2010	SKM20100621-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-09	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-10	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	TTJ20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	TTJ20100622-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	SKM20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/24/2010	SKM20100624-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/24/2010	SKM20100624-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/24/2010	TTJ20100624-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	TTJ20100625-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	SKM20100625-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	SKM20100625-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/26/2010	JKM20100626-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/26/2010	SKM20100626-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/26/2010	SKM20100626-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/26/2010	SKM20100626-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/27/2010	JKM20100627-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/27/2010	JKM20100627-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/28/2010	JKM20100628-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/28/2010	SKM20100628-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/28/2010	SKM20100628-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/6/2010	20100706	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/6/2010	20100706	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/6/2010	20100706	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS

7/7/2010	20100707	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/8/2010	20100708	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/8/2010	20100708	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/8/2010	20100708	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/11/2010	20100711	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
5/18/2010	BXW20100518-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/20/2010	MXT20100520-01	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA	
5/20/2010	MXT20100520-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-07	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-01	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-02	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-03	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-07	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-08	Eretmochelys imbricata	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-10	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	XXX20100601-01	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied	
6/1/2010	XXX20100601-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	XXX20100601-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	XXX20100601-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	XXX20100601-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	

6/6/2010	BAS20100606-01	Eretmochelys imbricata	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-05	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied
6/10/2010	BAS20100610-01	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied
6/10/2010	BAS20100610-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/10/2010	BAS20100610-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/10/2010	BAS20100610-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-08	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-09	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	20100613	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	20100613	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-08	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-10	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-11	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA

6/15/2010	BAS20100615-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-05	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-06	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-07	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-02	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/18/2010	20100618	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/20/2010	20100620	Chelonia mydas	Directed Capture	Dead	Salvaged	Frozen
6/21/2010	MCT20100621-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-02	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-05	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-06	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-08	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-10	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/22/2010	BAS20100622-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/24/2010	BAS20100624-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/24/2010	BAS20100624-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA

6/24/2010	BAS20100624-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/25/2010	BAS20100625-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-03	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-04	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-06	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/2/2010	20100702	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Temp-Ft.Jackson

7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Temp-Venice?	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/11/2010	20100711	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/11/2010	20100711	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/11/2010	20100711	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/11/2010	20100711	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/12/2010	20100712	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/15/2010	20100715	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-NOAA	FL
7/15/2010	20100715	Unknown	Stranding	Dead	Salvaged	Frozen-DI	AL
7/15/2010	20100715	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/15/2010	20100715	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/15/2010	20100715	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/15/2010	20100715	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/15/2010	20100715	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/15/2010	20100715	Eretmochelys imbricata	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/15/2010	20100715	Chelonia mydas	Directed Capture	Dead	Salvaged	Frozen-Audubon	
7/15/2010	20100715	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/16/2010	20100716	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Bon Secou	AL
7/16/2010	20100716	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/16/2010	20100716	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/17/2010	20100717	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Audubon	LA
7/18/2010	20100718	Chelonia mydas	Stranding	Dead	Salvaged	Frozen – NMFS	FL
7/18/2010	20100718	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/18/2010	20100718	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/18/2010	20100718	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld	

7/18/2010	20100718	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/18/2010	20100718	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/18/2010	20100718	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/18/2010	20100718	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/18/2010	20100718	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/18/2010	20100718	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/19/2010	20100719	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
7/19/2010	20100719	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
7/19/2010	20100719	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/19/2010	20100719	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/19/2010	20100719	Caretta caretta	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/19/2010	20100719	Caretta caretta	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/19/2010	20100719	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/19/2010	20100719	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/19/2010	20100719	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/19/2010	20100719	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/19/2010	20100719	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/20/2010	20100720	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-NOAA	FL
7/20/2010	20100720	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
7/20/2010	20100720	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/20/2010	20100720	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-Audubon	LA
7/20/2010	20100720	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/20/2010	20100720	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/20/2010	20100720	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/20/2010	20100720	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/20/2010	20100720	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/20/2010	20100720	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/20/2010	20100720	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/20/2010	20100720	Lepidochelys kempii	Directed Capture	Alive	Released		
7/21/2010	20100721	Unknown	Stranding	Dead	Salvaged	Frozen-Ft Jackson	LA

Descriptive Location	Latitude	Longitude	External oil?	TempLocation	Stranding	New
"Lots of Sand Dunes" Condo, Baldwin Co	30.232019	-87.936861	N	No	Yes	N
eastern point of Dauphin Island	30.250125	-88.075553	N	No	Yes	N
Dauphin Island	30.248253	-88.125822	N	No	Yes	N
floating 2 miles North of Fort Gaines	30.268880	-88.071720	N	No	Yes	N
Dauphin Island	30.332274	-88.132595	N	No	Yes	N
Dauphin Island	30.248253	-88.125822	N	No	Yes	N
Mobile Bay, 4 miles south of Fowl River	30.395431	-88.107261	N	No	Yes	N
Mobile Bay, 7287 Bay Rd	30.552467	-88.123317	N	No	Yes	N
floating off of Bayou La Batre	30.368167	-88.278317	N	No	Yes	N
Coden	30.445639	-88.109028	N	No	Yes	N
Dauphin Island	30.250164	-88.162886	N	No	Yes	N
Donnie Grace, bay side	30.249856	-88.202100	N	No	Yes	N
outside Weeks Bay toward Fish River Reef	30.367914	-87.839833	N	No	Yes	N
18261 Scenic Hwy 98	30.492133	-87.929833	N	No	Yes	N
Dauphin Island	30.249450	-88.172633	N	No	Yes	N
Gulf Shores	30.253417	-87.823317	N	No	Yes	N
Bayou La Batre	30.381033	-88.267233	N	No	Yes	N
pier across from Fort Morgan Museum	30.230283	-88.023694	N	No	Yes	N
Baldwin Co	30.250570	-87.828960	N	No	Yes	N
Baldwin Co	30.228430	-87.861390	N	No	Yes	N
Baldwin Co	30.231160	-87.928990	N	No	Yes	N
200 yds SE of city pier	30.245610	-88.124230	N	No	Yes	N
Hwy 193 past Hwy 188, Mobile Co	30.370900	-88.109670	N	No	Yes	N
east of Dauphin Is public fishing pier on Sand Is	30.247186	-88.125303	N	No	Yes	N
Little Dauphin Is, north side	30.274270	-88.111150	N	No	Yes	N
Audubon Place beach	30.243830	-88.092890	N	No	Yes	N
bay side of Sand Island	30.227653	-88.113175	N	No	Yes	N
Coden	30.377883	-88.241517	N	No	Yes	N
Mobile Bay, 1 mile south of Fowl River	30.425728	-88.103975	N	No	Yes	N
Hwy 98 on county rd 1, near Pelican Island	30.378320	-87.851020	N	No	Yes	N
Dauphin Island	30.247530	-88.124480	N	No	Yes	N
mouth of Bayou La Batre, Mobile Bay	30.375000	-88.285000	N	No	Yes	N
Dauphin Island, west end	30.386400	-88.560983	N	No	Yes	N

Dauphin Island, west end	30.386400	-88.560983	N	No	Yes	N
Coden	30.006272	-88.004007	N	No	Yes	N
Dauphin Island	30.244817	-88.114433	N	No	Yes	N
Bayou La Batre	30.381586	-88.257034	N	No	Yes	N
floating near Bayou La Batre	30.376750	-88.258480	N	No	Yes	N
Mobile Bay	30.591497	-88.063306	N	No	Yes	N
Shore Rd of CR12	30.358870	-87.832670	N	No	Yes	N
Plash Island	30.282700	-87.751230	N	No	Yes	N
Dauphin Island	30.250000	-88.200000	N	Yes	Yes	N
Dauphin Island	30.270000	-88.150000	N	Yes	Yes	N
Mobile Bay	30.400000	-88.100000	N	Yes	Yes	N
Mobile Bay	30.500000	-88.100000	N	Yes	Yes	N
Mobile Bay	30.300000	-87.750000	N	Yes	Yes	N
west end of Dauphin Island	30.220000	-88.330000	N	Yes	Yes	N
Dauphin Island, bayside	30.260000	-88.110000	N	Yes	Yes	N
Mobile Bay	30.300000	-87.970000	N	Yes	Yes	N
floating in MS Sound near Coden Bayou	30.350000	-88.220000	N	Yes	Yes	N
floating in Perdido Pass near Orange Beach	30.278471	-87.555537	Y	No	Yes	N
floating south of Coden	30.374000	-88.240000	N	Yes	Yes	N
East Beach, Baldwin County	30.248301	-87.676815	Y	No	Yes	N
Bon Secour Bay	30.300000	-87.875000	N	Yes	Yes	N
W Dauphin Island	30.250000	-88.060000	N	Yes	Yes	N
floating off of Bayou La Batre	30.340000	-88.310000	N	Yes	Yes	N
Mobile Bay, east side	30.450000	-87.930000	N	Yes	Yes	N
Mobile Bay, west side	30.450000	-88.090000	N	Yes	Yes	N
Gulf Shores	30.251060	-87.653670	N	No	Yes	N
Bayou La Batre	30.366460	-88.244330	N	No	Yes	N
~100 ft from Fairhope Municipal Pier	30.525780	-87.917040	N	No	Yes	N
Orange Beach	30.260000	-87.570000	Y	Yes	Yes	N
floating in Mobile Bay, Mobile side of bay	30.600000	-87.980000	N	Yes	Yes	N
floating in Bon Secour Bay	30.267240	-87.787240	N	No	Yes	N
floating in Bon Secour Bay	30.280430	-87.766780	N	No	Yes	N
floating in Mobile Bay, SE of Gaillard Island	30.371770	-88.065410	N	No	Yes	N
floating in Mobile Bay, NE of Dauphin Is. Bridge	30.332983	-88.130400	N	No	Yes	N

floating in Mobile Bay, btwn Dog River Bridge and Gaillard Is	30.531760	-88.022900	N	No	Yes	N
floating in Mobile Bay, NE of Fort Morgan	30.298020	-87.997720	N	No	Yes	N
northern part of Mobile Bay	30.590000	-88.000000	N	Yes	Yes	N
Mobile Bay, west side near Dog River	30.530000	-88.070000	N	Yes	Yes	N
Orange Beach	30.260000	-87.580000	Y	Yes	Yes	N
Bon Secour Bay	30.25917	-87.86152	N	No	Yes	N
Bayou La Batre	30.370583	-88.2809	N	No	Yes	N
a bay 2mi N. of Dauphin Island (part of Mobile Bay)	30.290183	-88.208166	N	No	Yes	N
Bon Secour Bay	30.27595	-87.76513	N	No	Yes	N
200 yds off of Gilliard Island in Mobile Bay	30.49744	-88.04932	N	No	Yes	N
Secador industrial west in Mobile bay	30.50712	-88.0789	Y	No	Yes	N
Dauphin Island	30.23	-88.15	Y	Yes	Yes	N
east part of Pelican Is, near Dauphin Is pier	30.2255	-88.1089	Y	No	Yes	N
floating 2 mi SW of Mobile Bay buoy, ~10 mi offshore	30.105	-88.04166	Y	No	Yes	N
Orange Beach, Perdido Bay, just N of 31735 Shoalwater Dr	30.29965	-87.4859	N	No	Yes	N
~1 mile N of west end of Dauphin Island, in bay	30.23985	-88.32628	Y	No	Yes	N
~1 mi SE of Berkley Field Pier in Mobile Bay	30.59365	-88.0398	N	No	Yes	N
Bon Secour Bay, just S of Intercoastal channel	30.27726	-87.76435	N	No	Yes	N
Bon Secour Bay, near the Intercoastal channel	30.2849	-87.7642	Y	No	Yes	N
SE of Guillard Island in Mobile Bay	30.48597	-88.01768	N	No	Yes	N
Panama City Beach	30.19650	-85.84358	N	No	Yes	N
Panama City Beach	30.2442	-85.93718	N	No	Yes	N
Panama City Beach	30.16782	-85.794	N	No	Yes	N
Panama City Beach	30.21513	-85.87758	N	No	Yes	N
Pensacola Beach	30.32589	-87.17208	N	No	Yes	N
St. Joseph Peninsula State Park	29.77851	-85.40833	N	No	Yes	N
Perdido Key State Park	30.28801	-87.47814	N	No	Yes	N
East Walton County Beach, Orange St access	30.2724	-86.00381	N	No	Yes	N
Naval Live Oaks (Headquarters), GUIS	30.36422	-87.12725	N	No	Yes	N
Tyndall AFB, Archery Rd beach, east of marina	30.08165	-85.62992	N	No	Yes	N
Panama City Beach	30.18925	-85.83112	N	No	Yes	N
Perdido Key area of Gulf Islands NS	30.30350	-87.39394	N	No	Yes	N
Santa Rosa area of Gulf Islands NS	30.35489	-87.01419	N	No	Yes	N
west Walton County	30.37170	-86.34960	N	No	Yes	N

Crooked Island east, Tyndall AFB	29.95664	-85.47378	N	No	Yes	N
Crooked Island west, Tyndall AFB	30.02786	-85.56911	N	No	Yes	N
Walton County, east of Draper Lake	30.34060	-86.21480	N	No	Yes	N
Panama City Beach	30.26268	-85.97958	N	No	Yes	N
St. Andrews Bay, Bunkers Cove at yacht club	30.14250	-85.64920	N	No	Yes	N
Pensacola Beach	30.33619	-87.11075	N	No	Yes	N
Tyndall AFB, Crooked Island east at boardwalk	29.95634	-85.45734	N	No	Yes	N
St. Joe Beach	29.90192	-85.36683	N	No	Yes	N
Rosemary Beach, Walton County	30.28000	-86.03000	N	Yes	Yes	N
Naval Live Oaks, south beach on Santa Rosa sound	30.36074	-87.14003	N	No	Yes	N
Perdido Key	30.29619	-87.42647	N	No	Yes	N
Panama City, Baypoint Marina Yacht Club	30.14352	-85.72778	N	No	Yes	N
Navarre Beach	30.37590	-86.88760	N	No	Yes	N
St. Andrews Bay	30.16385	-85.68565	N	No	Yes	N
Pensacola Naval Air Station, Trout Point Beach	30.33185	-87.34040	N	No	Yes	N
W Escambia County, inshore, floating	30.31250	-87.49710	N	No	Yes	N
Cape San Blas	29.68224	-85.31182	N	No	Yes	N
St. Andrews Bay, Sun Harbor Marina, Panama City	30.18415	-85.73262	N	No	Yes	N
Panama City Beach	30.16000	-85.81000	N	Yes	Yes	N
St. Vincent NWR	29.67590	-85.21767	N	No	Yes	N
Port of Panama City	30.17795	-85.72493	N	No	Yes	N
Pensacola	30.29000	-87.25000	N	Yes	Yes	N
Panama City, Inlet Beach	30.19000	-85.87000	N	Yes	Yes	N
West Miramar Beach	30.37000	-86.40000	N	Yes	Yes	N
Pensacola	30.30000	-87.30000	N	Yes	Yes	N
Navarre Beach	30.37000	-86.85000	N	Yes	Yes	N
approx 1 mile off of Pensacola Beach	30.28000	-87.18000	Y	Yes	Yes	N
Eglin AFB, just east of Navarre Beach	30.37000	-86.86000	N	Yes	Yes	N
Pensacola Beach	30.25000	-87.20000	N	Yes	Yes	N
Pensacola Beach	30.30000	-87.20000	N	Yes	Yes	N
Pensacola Beach	30.27000	-87.45000	N	Yes	Yes	N
approx 1 mile off of Destin	30.35800	-86.49900	N	Yes	Yes	N
Port St. Joe, Mexico Beach	29.90475	-85.36946	N	No	Yes	N
Tyndall AFB	30.06000	-85.62000	N	Yes	Yes	N

floating in St. Joe Bay	29.80000	-85.35000	N	Yes	Yes	N
Eglin AFB, 100 yds east of A-11	30.39469	-86.71058	N	No	Yes	N
Panama City, access 59 west of city pier	30.21607	-85.87965	N	No	Yes	N
Panama City, Navy base behind the dive school	30.17280	-85.75803	N	No	Yes	N
Pensacola	30.30000	-87.20000	N	Yes	Yes	N
offshore Destin area	30.32000	-86.47000	N	Yes	Yes	N
St. Andrews Bay	30.14	-85.7	N	Yes	Yes	N
Panama City area	30.23488	-85.90698	Y	No	Yes	N
Perdido Key	30.29	-87.43	Y	Yes	Yes	N
St. Andrews State Park	30.1297	-85.7242	N	No	Yes	N
Cape San Blas	29.65	-85.35	N	Yes	Yes	N
floating offshore Destin	30.3	-86.5	N	Yes	Yes	N
Grand Bay, near Pensacola	30.346239	-87.285679	N	No	Yes	N
Tyndall AFB	30.05625	-85.60641	N	No	Yes	N
Elmers Island	29.17027	-90.08316	N	No	Yes	N
Elmers Island	29.18166	-90.06428	N	No	Yes	N
Slidell area, Lake Borgne	30.13447	-89.50054	N	No	Yes	N
Grand Isle	29.24	-89.98	N	Yes	Yes	N
Elmers Island	29.17235	-90.07981	N	No	Yes	N
Rutherford Beach	29.76692	-93.16193	N	No	Yes	N
Rutherford Beach	29.76879	-93.17164	N	No	Yes	N
Rutherford Beach	29.76972	-93.17667	N	No	Yes	N
Rutherford Beach	29.77171	-93.18671	N	No	Yes	N
Rutherford Beach	29.7732	-93.19467	N	No	Yes	N
Rutherford Beach	29.77341	-93.19683	N	No	Yes	N
Rutherford Beach	29.77354	-93.19756	N	No	Yes	N
Rutherford Beach	29.77576	-93.21589	N	No	Yes	N
Rutherford Beach	29.77738	-93.2461	N	No	Yes	N
Rutherford Beach	29.77728	-93.25497	N	No	Yes	N
Rutherford Beach	29.77728	-93.25497	N	No	Yes	N
Rutherford Beach	29.76578	-93.15643	N	No	Yes	N
Rutherford Beach	29.76119	-93.13665	N	No	Yes	N
Rutherford Beach	29.75513	-93.11017	N	No	Yes	N
floating near Slidell - Rigolets Pass	30.1588	-89.6505	N	No	Yes	N

Elmers Island	29.18184	-90.06364	N	No	Yes	N
Grand Isle	29.20786	-90.03112	N	No	Yes	N
Holly Beach	29.76897	-93.4392	N	No	Yes	N
Holly Beach	29.76879	-93.43438	N	No	Yes	N
Holly Beach	29.76922	-93.45638	N	No	Yes	N
Holly Beach	29.76897	-93.48772	N	No	Yes	N
Holly Beach	29.76771	-93.50714	N	No	Yes	N
Constance Beach	29.76031	-93.56936	N	No	Yes	N
Fourchon Beach	29.11	-90.18	N	Yes	Yes	N
Fourchon Beach	29.11	-90.18	N	Yes	Yes	N
Mae's Beach	29.74595	-93.68512	N	No	Yes	N
Mae's Beach	29.74582	-93.68592	N	No	Yes	N
Mae's Beach	29.7423	-93.70653	N	No	Yes	N
Grand Isle	30.1086	-89.3545	N	No	Yes	N
Grand Terre	29.209166	-90.029166	N	No	Yes	N
Grand Isle	29.28435	-89.92149	N	No	Yes	N
Holly Beach	29.74232	-93.7065	N	No	Yes	N
Holly Beach	29.76391	-93.36438	N	No	Yes	N
found floating, location?	29.23	-89.99	N	Yes	Yes	N
Mae's Beach	29.7424	-93.7062	N	No	Yes	N
Long Beach	29.7534	-93.6293	N	No	Yes	N
Long Beach	29.7509	-93.6492	N	No	Yes	N
Mae's Beach	29.7396	-93.7208	N	No	Yes	N
Constance Beach	29.7605	-93.5674	N	No	Yes	N
Holly Beach	29.7683	-93.5018	N	No	Yes	N
Holly Beach	29.7689	-93.441	N	No	Yes	N
Rutherford Beach	29.7555	-93.1114	N	No	Yes	N
Rutherford Beach	29.7513	-93.0941	N	No	Yes	N
Rutherford Beach	29.7498	-93.0873	N	No	Yes	N
Bayou Rigaud, floating	29.14436	-89.59246	N	No	Yes	N
Lake Pontchartrain, floating	30.205	-90.11194	N	No	Yes	N
Fourchon Beach	29.09	-90.21566	N	No	Yes	N
near Cocodrie	29.24	-90.66	N	Yes	Yes	N
4 mi NE of Fishing Smack Bay	30.003805	-89.20633	N	No	Yes	N

Grand Isle Beach	29.24	-89.99	N	Yes	Yes	N
Empire Jetty Beach	29.25412	-89.60345	N	No	Yes	N
Grand Terre	29.28	-89.92	N	Yes	Yes	N
Bayou Terrebonne by Bayou La Fleur	29.26	-90.64	N	Yes	Yes	N
Lake Chien	29.33	-90.44	N	Yes	Yes	N
Bayou Trove	29.2386	-89.53792	N	No	Yes	N
Grand Isle State Park	29.24	-89.97	Y	Yes	Yes	N
Queen Bess Island	29.3	-89.96	N	Yes	Yes	N
Lake Felicity, North of Timbalier Island	29.26	-90.4	N	Yes	Yes	N
Lake Felicity, North of Timbalier Island	29.26	-90.47	N	Yes	Yes	N
Lake Felicity, North of Timbalier Island	29.28	-90.42	N	Yes	Yes	N
Grand Isle Beach	29.2	-90.04	N	Yes	Yes	N
skimmer found ~50 mi S of Louisiana coastline, brought intc	28.4375	-89.8958	Y	No	Skimmer	N
Cameron Parish beach	29.76	-93.34	N	Yes	Yes	N
skimmer found ~17 mi offshore Grand Isle	28.9932	-89.8412	Y	No	Skimmer	N
Timbalier Island	29.04	-90.47	N	Yes	Yes	N
floating just offshore western LA beaches	29.76	-93.46	N	Yes	Yes	N
western Louisiana beaches	29.74	-93.42	N	Yes	Yes	N
western Louisiana beaches	29.74	-93.44	N	Yes	Yes	N
western Louisiana beaches	29.74	-93.46	N	Yes	Yes	N
Coup A Bel Pass	29.3	-89.9	Y	Yes	Yes	N
Marsh Island	29.5	-91.9	N	Yes	Yes	N
Barataria Bay	29.4	-89.94	Y	Yes	Yes	N
north Barataria Bay	29.43308	-89.88585	Y	No	Yes	N
western Louisiana, nearshore waters	29.7	-93	N	Yes	Yes	N
Fourchon Beach	29.08	-90.14	N	Yes	Yes	N
no location info - est location in Chandeleur Sound	29.8	-89.1	N	Yes	Yes	N
Rutherford Beach	29.74	-93.22	N	Yes	Yes	N
Rutherford Beach	29.72	-93.15	N	Yes	Yes	N
Rutherford Beach	29.72	-93.07	N	Yes	Yes	N
Fourchon Beach	29.1	-90.1	N	Yes	Yes	N
Slidell area	30.13	-89.57	N	Yes	Yes	N
Rollover Bayou (W LA near Rockefeller Refuge)	29.59	-92.7	N	Yes	Yes	N
Rollover Bayou (W LA near Rockefeller Refuge)	29.6	-92.6	N	Yes	Yes	N

Whiskey Island chain, south of Cocodrie	29.03	-90.75	N	Yes	Yes	N
Timbalier Island area - floating?	29.05	-90.47	N	Yes	Yes	N
west of Bayou La Fourche, north of jetties at Port Fourchon	29.1	-90.18	N	Yes	Yes	N
Timbalier Bay	29.1	-90.4	N	Yes	Yes	N
Lake Borgne	30.1	-89.6	N	Yes	Yes	N
floating in Terrebonne Bay, ~4-5 mi S of Cocodrie	29.15	-90.6	N	Yes	Yes	N
floating in Houma navigational channel	29.33	-90.73	N	Yes	Yes	N
Fourchon Beach	29.09139	-90.22365	N	No	Yes	N
Racoon Island	29.06263	-90.94988	N	No	Yes	N
Racoon Island	29.0624	-90.94663	N	No	Yes	N
off shore S.E. Of Port Fourchon	29.01988	-90.11865	Y	No	Yes	N
Grand Isle Beach	29.19899	-90.04115	N	No	Yes	N
Grand Isle Beach	29.22781	-90.00005	N	No	Yes	N
Rigolets Pass, near Slidell	30.13	-89.6	N	Yes	Yes	N
Port Fourchon, on sandbar	29.09	-90.19	N	Yes	Yes	N
Bay Wilkinson	29.46985	-89.91005	Y	No	Yes	N
N Barataria Bay, in canal off of Wilkinson Canal	29.46278	-89.95111	N	No	Yes	N
location? Off of LA	29	-88.7	N	Yes	Yes	N
Bay St. Louis	30.30880	-89.32590	N	No	Yes	N
Bay St. Louis	30.29410	-89.34320	N	No	Yes	N
Waveland	30.26410	-89.39200	N	No	Yes	N
Waveland	30.27260	-89.37750	N	No	Yes	N
Waveland	30.27360	-89.37640	N	No	Yes	N
Long Beach	30.34780	-89.13900	N	No	Yes	N
Pass Christian	30.31481	-89.24207	N	No	Yes	N
Pass Christian	30.31071	-89.25556	N	No	Yes	N
Pass Christian	30.31460	-89.24252	N	No	Yes	N
Pass Christian	30.31080	-89.25728	N	No	Yes	N
Pass Christian	30.31295	-89.24477	N	No	Yes	N
Pass Christian	30.31082	-89.25535	N	No	Yes	N
Ocean Springs	30.40980	-88.84080	N	No	Yes	N
Bay St. Louis	30.31900	-89.32230	N	No	Yes	N
Waveland	30.28830	-89.36000	N	No	Yes	N
Waveland	30.28680	-89.36260	N	No	Yes	N

Pass Christian	30.30650	-89.26858	N	No	Yes	N
Pass Christian	30.30725	-89.26653	N	No	Yes	N
Bay St. Louis	30.30562	-89.32865	N	No	Yes	N
Pass Christian	30.32834	-89.19923	N	No	Yes	N
Pass Christian	30.30529	-89.27249	N	No	Yes	N
Pass Christian	30.32620	-89.20892	N	No	Yes	N
Pass Christian	30.32460	-89.21450	N	No	Yes	N
Biloxi	30.39289	-88.94716	N	No	Yes	N
Waveland	30.28865	-89.35290	N	No	Yes	N
Pass Christian	30.32824	-89.19985	N	No	Yes	N
Pass Christian	30.33144	-89.18568	N	No	Yes	N
Pass Christian	30.32144	-89.22351	N	No	Yes	N
Pass Christian	30.30750	-89.26659	N	No	Yes	N
Bay St. Louis	30.31558	-89.29004	N	No	Yes	N
Pass Christian	30.30525	-89.27421	N	No	Yes	N
Pass Christian	30.30989	-89.25963	N	No	Yes	N
Waveland	30.26362	-89.39346	N	No	Yes	N
Waveland	30.28670	-89.36321	N	No	Yes	N
Gulfport	30.35567	-89.11807	N	No	Yes	N
Waveland	30.24120	-89.42470	N	No	Yes	N
Gulfport	30.36948	-89.07825	N	No	Yes	N
Biloxi	30.39169	-88.95027	N	No	Yes	N
Biloxi	30.39271	-88.87608	N	No	Yes	N
Waveland	30.27834	-89.37222	N	No	Yes	N
Gulfport	30.37689	-89.04778	N	No	Yes	N
Waveland	30.27006	-89.38032	N	No	Yes	N
Bay St. Louis	30.30022	-89.33346	N	No	Yes	N
Pass Christian	30.32762	-89.20251	N	No	Yes	N
floating N of Ship Island	30.25080	-88.94120	N	No	Yes	N
Waveland	30.25685	-89.41499	N	No	Yes	N
Waveland	30.26483	-89.39040	N	No	Yes	N
Waveland	30.26471	-89.39070	N	No	Yes	N
Pass Christian, floating by Henderson Point	30.30320	-89.29570	N	No	Yes	N
Waveland	30.28749	-89.36136	N	No	Yes	N

Waveland	30.28790	-89.36065	N	No	Yes	N
Gulfport	30.36129	-89.10089	N	No	Yes	N
Long Beach	30.33749	-89.16818	N	No	Yes	N
Pass Christian	30.32775	-89.20048	N	No	Yes	N
Pass Christian	30.31166	-89.25018	N	No	Yes	N
Pass Christian	30.30335	-89.28335	N	No	Yes	N
Waveland	30.28267	-89.36761	N	No	Yes	N
Biloxi	30.39147	-88.95452	N	No	Yes	N
Biloxi	30.39385	-88.91407	N	No	Yes	N
Horn Island	30.22831	-88.64799	N	No	Yes	N
Pass Christian	30.31300	-89.24830	N	No	Yes	N
Pass Christian	30.31190	-89.29050	N	No	Yes	N
Gulfport	30.38250	-89.02280	N	No	Yes	N
Gulfport	30.38150	-89.02610	N	No	Yes	N
floating ~1/2 mile south of Biloxi bridge	30.38960	-88.84190	N	No	Yes	N
Waveland Beach at Nicholson Ave	30.29410	-89.35910	N	No	Yes	N
Pass Christian	30.32320	-89.21840	N	No	Yes	N
Gulfport Beach	30.35582	-89.11698	N	No	Yes	N
Gulfport Beach	30.33215	-89.18207	N	No	Yes	N
Lakeshore/Waveland	30.25117	-89.42138	N	No	Yes	N
Bay St. Louis	30.29545	-89.34080	N	No	Yes	N
Waveland	30.26715	-89.38553	N	No	Yes	N
Bay St. Louis	30.30980	-89.32553	N	No	Yes	N
West Ship Island	30.2115	-88.98480	N	No	Yes	N
Waveland	30.28248	-89.36733	N	No	Yes	N
Pass Christian	30.31406	-89.24347	N	No	Yes	N
Gulfport	30.37421	-89.04382	N	No	Yes	N
Bay St. Louis	30.30883	-89.32583	N	No	Yes	N
Waveland	30.27683	-89.37367	N	No	Yes	N
Waveland	30.28064	-89.36495	N	No	Yes	N
Waveland	30.28127	-89.36557	N	No	Yes	N
Pascagoula Beach	30.3433	-88.55500	N	No	Yes	N
Waveland	30.27234	-89.37753	N	No	Yes	N
SE Horn Island	30.2207	-88.59330	N	No	Yes	N

southside Cat Island	30.2283	-89.07330	N	No	Yes	N
Pass Christian	30.31352	-89.24396	N	No	Yes	N
Bellefontaine Beach	30.3433	-88.70330	N	No	Yes	N
water south of Cadet Point, Biloxi	30.3877	-88.85890	N	No	Yes	N
Waveland	30.28063	-89.36495	N	No	Yes	N
Biloxi Bay	30.40980	-88.86906	N	No	Yes	N
Biloxi Bay	30.40980	-88.86906	N	No	Yes	N
Horn Island, ~3000' from W end	30.2398	-88.76870	N	No	Yes	N
Waveland	30.28655	-89.36330	N	No	Yes	N
Pass Christian	30.30725	-89.26660	N	No	Yes	N
Waveland	30.28063	-89.36495	N	No	Yes	N
Long Beach	30.33743	-89.16837	N	No	Yes	N
Biloxi Beach	30.39154	-88.95600	N	No	Yes	N
north side of Horn Island	30.22307	-88.62952	N	No	Yes	N
Bangs Lake off of Pascagoula	30.3588	-88.47300	N	No	Yes	N
Biloxi, Back Bay	30.40079	-88.85896	N	No	Yes	N
Ocean Springs, McPherson Pier	30.40397	-88.83031	N	No	Yes	N
Waveland	30.28063	-89.36495	N	No	Yes	N
Ocean Springs	30.40397	-88.83031	N	No	Yes	N
Biloxi, near Palace Casino	30.3959	-88.85830	N	No	Yes	N
Ocean Springs	30.40397	-88.83031	N	No	Yes	N
Ocean Springs	30.4075	-88.83540	N	No	Yes	N
Gulfport	30.35487	-89.12191	N	No	Yes	N
Waveland	30.26605	-89.38722	N	No	Yes	N
Long Beach	30.34084	-89.15894	N	No	Yes	N
Biloxi, near harbor	30.39268	-88.88209	N	No	Yes	N
Gautier / Belle Fontaine Beach	30.3457	-88.74080	N	No	Yes	N
Biloxi	30.39158	-88.94994	N	No	Yes	N
Biloxi	30.39184	-88.94596	N	No	Yes	N
Biloxi	30.39183	-88.94596	N	No	Yes	N
Biloxi	30.39184	-88.94576	N	No	Yes	N
Biloxi	30.39262	-88.93246	N	No	Yes	N
Biloxi Beach	30.3932	-88.90645	N	No	Yes	N
Biloxi Beach	30.39353	-88.92310	N	No	Yes	N

Biloxi Beach	30.39382	-88.91889	N	No	Yes	N
Biloxi Beach	30.39375	-88.92016	N	No	Yes	N
Biloxi Beach	30.39108	-88.96432	N	No	Yes	N
Biloxi Beach	30.38968	-88.97850	N	No	Yes	N
Ocean Springs / Belle Fontaine Beach	30.34316	-88.72950	N	No	Yes	N
Gulfport Beach	30.3597	-89.10686	N	No	Yes	N
Biloxi Beach	30.3938	-88.91200	N	No	Yes	N
Gulfport Beach	30.37834	-89.04083	N	No	Yes	N
Gulfport Beach	30.38538	-89.01003	N	No	Yes	N
Gulfport Beach	30.37825	-89.04118	N	No	Yes	N
Gulfport Beach	30.3844	-89.01535	N	No	Yes	N
Biloxi Beach	30.38942	-88.98023	N	No	Yes	N
Biloxi Beach	30.39028	-88.97433	N	No	Yes	N
Biloxi Beach	30.39357	-88.89623	N	No	Yes	N
Gulfport Beach	30.3831	-89.0192	N	No	Yes	N
Biloxi Beach	30.3914	-89.0069	N	No	Yes	N
Biloxi Beach	30.39	-88.9756	N	No	Yes	N
Biloxi Beach	30.3875	-88.9942	N	No	Yes	N
Biloxi Beach	30.3889	-88.9847	N	No	Yes	N
Gulfport Beach	30.37058	-89.0742	N	No	Yes	N
Gulfport Beach	30.3706	-89.07417	N	No	Yes	N
Gulfport Beach	30.37131	-89.07161	N	No	Yes	N
Gulfport Beach	30.37158	-89.07066	N	No	Yes	N
Gulfport Beach	30.3768	-89.07045	N	No	Yes	N
Gulfport Beach	30.37262	-89.06721	N	No	Yes	N
Gulfport	30.38075	-89.02951	N	No	Yes	N
Gulfport	30.38097	-89.02944	N	No	Yes	N
Gulfport	30.38048	-89.03049	N	No	Yes	N
Gulfport	30.38016	-89.03156	N	No	Yes	N
Biloxi	30.3799	-89.03266	N	No	Yes	N
Biloxi	30.38032	-89.03104	N	No	Yes	N
Gulfport Beach	30.37746	-89.0433	N	No	Yes	N
Gulfport Beach	30.37819	-89.0416	N	No	Yes	N
Waveland	30.2806	-89.3449	N	No	Yes	N

Biloxi, Acadia Ave	30.39277	-88.9312	N	No	Yes	N
Gulfport Beach	30.37819	-89.0416	N	No	Yes	N
Gulfport Beach	30.37819	-89.0416	N	No	Yes	N
Gulfport Beach	30.37843	-89.0413	N	No	Yes	N
Gulfport Beach	30.37837	-89.04101	N	No	Yes	N
Gulfport Beach	30.37457	-89.0563	N	No	Yes	N
Gulfport Beach	30.37456	-89.05634	N	No	Yes	N
Biloxi Beach	30.3887	-88.98878	N	No	Yes	N
Biloxi Beach	30.38877	-88.98797	N	No	Yes	N
Biloxi Beach	30.38877	-88.98797	N	No	Yes	N
Biloxi Beach	30.38886	-88.9741	N	No	Yes	N
Biloxi Beach	30.38886	-88.98734	N	No	Yes	N
Pass Christian Beach	30.32762	-89.20251	N	No	Yes	N
Gulfport Beach	30.38188	-89.02495	N	No	Yes	N
Gulfport Beach	30.38393	-89.01701	N	No	Yes	N
Gulfport Beach	30.38583	-89.00827	N	No	Yes	N
Biloxi Beach	30.39357	-88.89818	N	No	Yes	N
Biloxi Beach	30.39182	-88.94774	N	No	Yes	N
Biloxi Beach	30.39328	-88.92583	N	No	Yes	N
Biloxi Beach	30.37561	-89.09052	N	No	Yes	N
Biloxi Beach	30.37571	-89.05148	N	No	Yes	N
Biloxi Beach	30.38738	-89	N	No	Yes	N
Biloxi Beach	30.38746	-88.99895	N	No	Yes	N
near Horn Island - floating?	30.2333	-88.53093	N	No	Yes	N
floating off of Gulfport	30.32007	-89.17917	N	No	Yes	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	N
Biloxi Beach	30.39383	-88.91076	N	No	Yes	N
Biloxi Beach	30.39167	-88.89817	N	No	Yes	N
Biloxi Beach	30.39383	-88.91895	N	No	Yes	N
Gulfport Beach	30.37125	-89.07175	N	No	Yes	N
west side of Deer Island, Biloxi	30.26278	-88.89885	N	No	Yes	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	N

Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Biloxi Beach	30.38722	-89.00137	N	No	Yes	N
Ocean Springs	30.3603	-88.7642	N	No	Yes	N
Ocean Springs	30.369965	-88.779549	N	No	Yes	N
Biloxi	30.392	-88.87	N	No	Yes	N
Long Beach	30.35226	-89.12932	N	No	Yes	N
Long Beach, Jeff Davis Ave	30.3437	-89.1498	N	No	Yes	N
Long Beach	30.3397	-89.94848	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
3 Oaks Bayou (Bayou Caddy), outside Waveland	30.24575	-89.43206	N	No	Yes	N
Pass Christian	30.32465	-89.2142	N	No	Yes	N
Long Beach	30.33843	-89.16594	N	No	Yes	N
Long Beach	30.34897	-89.13697	N	No	Yes	N
floating off of NE corner of Ship Island	30.22236	-88.94848	N	No	Yes	N
floating off NE coast of Cat Island	30.2596	-89.037	N	No	Yes	N
floating east Cat Island	30.2211	-89.0336	N	No	Yes	N
in MS Sound ~2 mi offshore Biloxi, brought in to Ocean Spri	30.368	-88.958	N	No	Yes	N
Deer Island, Biloxi Harbor	30.21851	-88.48135	N	No	Yes	N
Biloxi Harbor	30.19418	-88.52193	N	No	Yes	N
Biloxi Harbor, NW end Horn Island	30.16057	-88.44111	N	No	Yes	N
Gulfport Harbor	30.1523	-89.0633	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
floating off of Biloxi	30.37	-88.92	N	Yes	Yes	N
floating off of Biloxi	30.365	-88.89	N	Yes	Yes	N
floating off of Biloxi	30.36	-88.86	N	Yes	Yes	N
floating off of Biloxi	30.35	-88.84	N	Yes	Yes	N
floating off of Biloxi Beach	30.3505	-88.9066	N	No	Yes	N
floating off of Biloxi Beach	30.389	-88.8865	N	No	Yes	N
floating off of Biloxi Beach	30.3531	-88.937	N	No	Yes	N
floating off of Biloxi Beach	30.3379	-88.9542	N	No	Yes	N

floating off of Cat Island, Long Beach	30.2736	-89.0744	N	No	Yes	N
floating off of Biloxi Beach	30.3498	-88.892	N	No	Yes	N
floating off of Biloxi Beach	30.3651	-88.8896	N	No	Yes	N
floating off of Biloxi Beach	30.3667	-88.8944	N	No	Yes	N
floating off of Biloxi Beach	30.356	-88.9961	N	No	Yes	N
floating off of Biloxi Beach	30.356	-88.898	N	No	Yes	N
Biloxi Beach	30.38757	-88.99525	N	No	Yes	N
Gulfport Beach	30.37807	-89.04175	N	No	Yes	N
Ocean Springs	30.40376	-88.82699	N	No	Yes	N
Long Beach	30.34	-89.16059	N	No	Yes	N
Gulfport	30.37314	-89.0655	N	No	Yes	N
Biloxi Beach	30.38498	-89.01112	N	No	Yes	N
floating off of Long Beach	30.32185	-89.1497	N	No	Yes	N
floating in Back Bay of Biloxi	30.41678	-88.86855	N	No	Yes	N
Bay St. Louis, on beach, Lakeshore area	30.24835	-89.42323	N	No	Yes	N
Biloxi Beach	30.38	-88.89	N	Yes	Yes	N
floating off of Jackson County	30.3	-88.7	N	Yes	Yes	N
Ocean Springs Pier, Jackson County	30.40398	-88.82962	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Harrison County	30.37537	-88.81745	N	No	Yes	N
Harrison County	30.37762	-88.1543	N	No	Yes	N
Jackson County	30.40048	-88.84228	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Pass Christian	30.34114	-89.15825	N	No	Yes	N
Long Beach	30.32659	-89.2067	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Bay St. Louis	30.3	-89.3	N	Yes	Yes	N
Long Beach	30.33	-89.16	N	Yes	Yes	N
Long Beach	30.345	-89.1	N	Yes	Yes	N
Bay St. Louis	30.24918	-89.42303	N	No	Yes	N
Pass Christian	30.31637	-89.23715	N	No	Yes	N
Pass Christian, on beach	30.31161	-89.25247	N	No	Yes	N

floating off of Biloxi	30.39065	-88.87007	N	No	Yes	N
floating off west end of Deer Island, near Biloxi	30.38	-88.89	N	Yes	Yes	N
floating off west end of Deer Island, near Biloxi	30.375	-88.87	N	Yes	Yes	N
floating by Biloxi Schooner Pier	30.39	-88.87	N	Yes	Yes	N
floating ~1 mi offshore of Mississippi Coliseum	30.21919	-88.58492	N	No	Yes	N
Cat Island	30.36698	-88.97193	N	No	Yes	N
East Beach, Davis Bayou	30.39609	-88.81237	N	No	Yes	N
inside Point Cadet Harbor, N side of seawall	30.38839	-88.85983	N	No	Yes	N
Ship Island, ~1 mile east of pier	30.21271	-88.95624	N	No	Yes	N
Directed Capture	28.4665	-88.46116	Y	No	No	N
Directed Capture	28.96778	-88.79333	Y	No	No	N
Directed Capture	28.90722	-88.80167	Y	No	No	N
Directed Capture	28.9597	-88.5342	Y	No	No	N
Directed Capture	28.9182	-88.5552	Y	No	No	N
Directed Capture	28.865	-88.5658	Y	No	No	N
Directed Capture	28.8538	-88.5617	Y	No	No	N
Directed Capture	28.847	-88.5588	Y	No	No	N
Directed Capture	28.8405	-88.5557	Y	No	No	N
Directed Capture	28.6573	-88.4313	Y	No	No	N
Directed Capture	28.8045	-88.4771	Y	No	No	N
Directed Capture	28.804483	-88.4771	Y	No	No	N
Directed Capture	28.80725	-88.47808	Y	No	No	N
Directed Capture	28.813483	-88.480383	Y	No	No	N
Directed Capture	28.81535	-88.479233	Y	No	No	N
Directed Capture	28.81669	-88.47803	Y	No	No	N
Directed Capture	28.828083	-88.37115	Y	No	No	N
Directed Capture	28.829617	-88.471267	Y	No	No	N
Directed Capture	28.826867	-88.464933	Y	No	No	N
Directed Capture	28.834317	-88.42455	Y	No	No	N
Directed Capture - LDWF	29.09	-89.78	Y	No	No	N
Directed Capture - LDWF	29.0919	-89.7781	Y	No	No	N
Directed Capture - LDWF	29.0932	-89.7747	Y	No	No	N
Directed Capture - LDWF	29.0998	-89.7574	Y	No	No	N
Directed Capture - LDWF	29.1065	-89.748	Y	No	No	N

Directed Capture	29.01025	-88.26369	Y	No	No	N
Directed Capture	29.01025	-88.26369	Y	No	No	N
Directed Capture	29.01025	-88.26369	Y	No	No	N
Directed Capture	29.02569	-88.25586	Y	No	No	N
Directed Capture	29.17372	-88.16519	Y	No	No	N
Directed Capture	28.7538	-88.85602	Y	No	No	N
Directed Capture	28.75114	-88.84875	Y	No	No	N
Directed Capture	28.62252	-88.55688	Y	No	No	N
Directed Capture	28.76398	-88.82482	Y	No	No	N
Directed Capture	28.66965	-88.49193	Y	No	No	N
Directed Capture	28.91208	-88.68748	Y	No	No	N
Directed Capture	28.70114	-88.53979	Y	No	No	N
Directed Capture	28.92108	-88.7991	Y	No	No	N
Directed Capture	28.92094	-88.79822	Y	No	No	N
Directed Capture	28.92891	-88.77321	Y	No	No	N
Directed Capture	28.928	-88.7701	Y	No	No	N
Directed Capture	28.92558	-88.74215	Y	No	No	N
Directed Capture	28.93916	-88.71402	Y	No	No	N
Directed Capture	28.94739	-88.70053	Y	No	No	N
Directed Capture	28.96491	-88.67766	Y	No	No	N
Directed Capture	28.98004	-88.65568	Y	No	No	N
Directed Capture - LDWF	28.72474	-88.55243	Y	No	No	N
Directed Capture - LDWF	28.81743	-88.63998	Y	No	No	N
Directed Capture	28.62361	-88.54351	Y	No	No	N
Directed Capture	28.60264	-88.49568	Y	No	No	N
Directed Capture	28.59733	-88.49236	Y	No	No	N
Directed Capture	28.59501	-88.49054	Y	No	No	N
Directed Capture	28.57604	-88.49573	Y	No	No	N
Directed Capture	28.57271	-88.49434	Y	No	No	N
Directed Capture	28.56876	-88.49416	Y	No	No	N
Directed Capture	28.52956	-88.51617	Y	No	No	N
Directed Capture	28.50794	-88.54434	Y	No	No	N
Directed Capture	28.53647	-88.60338	Y	No	No	N
Directed Capture	28.69822	-88.79404	Y	No	No	N

Directed Capture	28.90896	-88.72726	Y	No	No	N
Directed Capture	28.6881	-88.84448	Y	No	No	N
Directed Capture	28.67472	-88.88646	Y	No	No	N
Directed Capture	28.68382	-88.88902	Y	No	No	N
Directed Capture	28.8945	-88.72223	Y	No	No	N
Directed Capture	28.6575	-88.87042	Y	No	No	N
Directed Capture	28.65178	-88.86879	Y	No	No	N
Directed Capture	28.6833	-88.64572	Y	No	No	N
Directed Capture	28.74405	-88.2535	Y	No	No	N
Directed Capture	28.7637	-88.23549	Y	No	No	N
Directed Capture	28.7666	-88.23471	Y	No	No	N
Directed Capture	28.78214	-88.23679	Y	No	No	N
Directed Capture	28.87021	-88.50445	Y	No	No	N
Directed Capture - LDWF	28.67327	-88.29708	Y	No	No	N
Directed Capture - LDWF, 42 mi SW Grand Isle	28.71517	-89.80517	Y	No	No	N
Directed Capture - LDWF, 42 mi SW Grand Isle	28.714	-89.806	Y	No	No	N
Directed Capture - LDWF, 42 mi SW Grand Isle	28.714	-89.806	Y	No	No	N
Directed Capture - LDWF, 42 mi SW Grand Isle	28.709	-89.80267	Y	No	No	N
Directed Capture - LDWF, 42 mi SW Grand Isle	28.70783	-89.80433	Y	No	No	N
Directed Capture - LDWF, 42 mi SW Grand Isle	28.70783	-89.80433	Y	No	No	N
Directed Capture - LDWF, floating ~50 miles offshore Grand	28.62647	-90.18168	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.78182	-89.7506	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.77712	-89.74897	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.77405	-89.74953	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.76734	-89.747	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.76683	-89.7453	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.76467	-89.74487	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.76212	-89.74383	Y	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.75873	-89.74536	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.75897	-89.74525	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.7489	-89.75946	Y	No	No	N
Directed Capture	28.34139	-88.72183	Y	No	No	N
Directed Capture	28.92028	-88.40833	Y	No	No	N
Directed Capture	28.98478	-88.35519	Y	No	No	N

Directed Capture	29.02858	-88.30956	Y	No	No	N
Directed Capture	28.95217	-88.37383	Y	No	No	N
Directed Capture	29.00767	-88.90133	Y	No	No	N
Directed Capture	29.00914	-88.88017	Y	No	No	N
Directed Capture	29.05264	-88.79911	Y	No	No	N
Directed Capture	29.13067	-88.76469	Y	No	No	N
Directed Capture	28.97922	-89.06208	Y	No	No	N
Directed Capture	28.98544	-89.05781	Y	No	No	N
Directed Capture	28.98914	-89.05772	Y	No	No	N
Directed Capture	28.99314	-89.05647	Y	No	No	N
Directed Capture	28.99411	-89.05583	Y	No	No	N
Directed Capture	28.99439	-89.05569	Y	No	No	N
Directed Capture	29.01933	-88.94467	Y	No	No	N
Directed Capture	28.83391	-89.70232	N	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.77967	-86.6597	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.76232	-86.64677	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.78245	-86.66177	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.79148	-86.66885	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.79648	-86.67315	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.79063	-86.68507	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.79198	-86.6845	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.76888	-86.71662	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.76633	-86.69712	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.78413	-86.6638	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.74103	-86.68613	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.798	-86.65583	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.8186	-86.64862	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.82193	-86.64973	Y	No	No	N
Directed Capture - LDWF, approx 50 mi S of Grand Isle	28.60669	-89.81942	Y	No	No	N
Directed Capture - LDWF, approx 50 mi S of Grand Isle	28.60237	-89.80797	Y	No	No	N
Directed Capture - LDWF, approx 50 mi S of Grand Isle	28.5988	-89.82002	Y	No	No	N
Directed Capture - LDWF, approx 50 mi S of Grand Isle	28.60407	-89.86728	Y	No	No	N
Directed Capture - LDWF, approx 50 mi S of Grand Isle	28.62131	-89.91562	Y	No	No	N
Directed Capture - BirdTeam - location? Off of LA	28.7	-89	Y	Yes	No	N

Directed Capture - LDWF - location? Off of LA	28.73	-88.97	N	Yes	No	N
Directed Capture, off of Destin, FL	30	-86.5	Y	Yes	No	N
Directed Capture, off of Venice, LA	28.45497	-89.56168	Y	No	No	N
Directed Capture, off of Venice, LA	28.45473	-89.54215	Y	No	No	N
Directed Capture, off of Venice, LA	28.46103	-89.50808	Y	No	No	N
Directed Capture, off of Venice, LA	28.4621	-89.50258	Y	No	No	N
Directed Capture, off of Venice, LA	28.46322	-89.50012	Y	No	No	N
Directed Capture, off of Venice, LA	28.45018	-89.47792	Y	No	No	N
Directed Capture, off of Venice, LA	28.64048	-89.28675	Y	No	No	N
Directed Capture, off of Venice, LA	28.62377	-89.3015	Y	No	No	N
Directed Capture, off of Venice, LA	28.66903	-89.20977	Y	No	No	N
Directed Capture, off of Destin, FL	30.05	-86.46	Y	Yes	No	N
Directed Capture, off of Destin, FL	30	-86.5	Y	Yes	No	N
Directed Capture, off of Destin, FL	29.95	-86.54	Y	Yes	No	N
Directed Capture, off of Destin, FL	29.9	-86.58	Y	Yes	No	N
Directed Capture, off of Destin, FL	29.9	-86.62	Y	Yes	No	N
St Andrews Bay, 711 West Beach Dr, behind Buccaneer Mot	30.15885	-85.66962	N	No	Yes	N
on beach in intercoastal just S of Plash Island	30.28118	-87.75023	N	No	Yes	N
1/4 mi NE of Horn Island, floating	30.23691	-88.64885	N	No	Yes	N
Directed Capture, off of Venice, LA	28.75257	-88.94568	Y	No	No	N
Directed Capture - LDWF, ~35 mi off of Grand Isle, LA	28.71372	-90.03227	Y	No	No	N
Directed Capture - LDWF, ~35 mi off of Grand Isle, LA	28.70544	-90.03028	N	No	No	N
Directed Capture - LDWF, ~35 mi off of Grand Isle, LA	28.69817	-90.03405	Y	No	No	N
Directed Capture – LDWF	28.7903833	-89.5349	Y	No	No	N
Directed Capture – LDWF	28.7893	-89.5873	Y	No	No	N
Directed Capture – LDWF	28.7986333	-89.6489167	Y	No	No	N
Bon Secour Bay near channel #119	30.28468	-87.81596	Y	No	Yes	N
Directed Capture, off of Venice, LA	28.98318	-88.79832	Y	No	No	N
Directed Capture, off of Venice, LA	28.97088	-88.90232	Y	No	No	N
Long Beach	29.75189	-93.64085	N	No	Yes	N
Panama City Beach	30.16263	-85.72866	N	No	Yes	N
Harrison County, on beach	30.38180	-89.02513	Y	No	Yes	N
Directed Capture-Destin	30.14361	-86.98861	Y	No	No	N
Directed Capture-Destin	30.11292	-86.98772	Y	No	No	N

Directed Capture-Destin	30.38378	-86.81031	Y	No	No	N
Directed Capture-Destin	30.15225	-86.98911	Y	No	No	N
Directed Capture-Destin	30.11900	-86.98850	Y	No	No	N
Directed Capture-Destin	30.14361	-86.98861	Y	No	No	N
Directed Capture – Venice	28.75343	-88.86237	Y	No	No	N
Directed Capture – LDWF	28.77887	-88.91952	Y	No	No	N
Bon Secour Bay, 3 mi NE of Pines Boat Ramp	30.26892	-87.86847	N	No	Yes	N
Mobile Bay, ~4 mi NE of Katrina Cut	30.28768	-88.30526	N	No	Yes	N
S of Bayou Caddy, floating	30.19785	-89.34733	N	No	Yes	N
S of Bayou Caddy, floating	30.19953	-89.34225	N	No	Yes	N
~3 mi S of Cat Island, floating	30.26915	-89.15201	N	No	Yes	N
Waveland/Bayou Caddy, on beach ~1 mi E of Silver Slipper (	30.25122	-89.42133	N	No	Yes	N
Directed Capture - Venice	28.81003	-88.93257	Y	No	No	N
Directed Capture - Venice	28.72075	-88.95385	Y	No	No	N
Directed Capture - Venice	28.72342	-88.95933	Y	No	No	N
Directed Capture - Venice	28.81473	-88.93203	Y	No	No	N
Directed Capture - LDWF	28.81630	-88.89377	Y	No	No	N
Tyndall AFB	30.03000	-85.57000	N	Yes	Yes	N
Theodore Industrial Canal, S of Guillard Island in Mobile Bay	30.49486	-88.07144	N	No	Yes	N
Gulfport, on beach at Hwy 90 and Oak Ave	30.37461	-89.05309	N	No	Yes	N
Fourchon Beach	29.10122	-90.19025	N	No	Yes	N
Directed Capture - Venice	28.84333	-89.23893	Y	No	No	N
Directed Capture - Venice	28.73598	-89.41370	Y	No	No	N
Directed Capture - Venice	28.83838	-89.14943	Y	No	No	N
Directed Capture - Venice	28.84902	-89.23713	Y	No	No	N
Directed Capture - Venice	28.84020	-89.24598	Y	No	No	N
Directed Capture - Venice	28.81298	-89.13493	Y	No	No	N
Directed Capture - Venice	28.84588	-89.23438	Y	No	No	N
Directed Capture - Destin, ~ 30 miles offshore	29.94000	-86.50000	Y	Yes	No	N
near Myrtle Grove			N	Yes	Yes	Y

Alive	Symbol	Confirmed	Log #	Comments
N	C	Y		outside of area of concern
N	C	Y		outside of area of concern
N	C	Y		outside of area of concern
N	C	Y		outside of area of concern
N	C	Y		outside of area of concern
N	C	Y		outside of area of concern
N	C	Y		outside of area of concern
N	C	Y		outside of area of concern
N	C	Y	D-0002 BSNWR	
N	C	Y	D-0001 BSNWR	
N	C	Y	D-0003 BSNWR	
N	C	Y	D-0004 BSNWR	
N	C	Y	D-0005 BSNWR	
N	C	Y	D-0006 BSNWR	
N	C	Y	D-0007 BSNWR	
N	C	Y	D-0008 BSNWR	
N	C	Y	D-0009 BSNWR	
N	C	Y	D-0010 BSNWR	
N	C	Y	D-0015 BSNWR	
N	C	Y	D-0014 BSNWR	
N	C	Y	D-0011 BSNWR	
N	C	Y	D-0012 BSNWR	
N	C	Y	D-0013 BSNWR	
N	C	Y	D-0016 BSNWR	
N	C	Y	D-0017 BSNWR	dried carcass
N	C	Y	D-0018 BSNWR	
N	C	Y	D-0019 BSNWR	
N	C	Y	D-0020 BSNWR	
N	C	Y	D-0021 BSNWR	
N	C	Y	D-0023 BSNWR	
N	C	Y	D-0022 BSNWR	
Y	C	Y	L-0001 BSNWR	
N	C	Y	D-0024 BSNWR	

N	C	Y	D-0025 BSNWR	
N	C	Y	D-0026 BSNWR	
N	C	Y	D-0027 BSNWR	
Y	C	Y	L-0007 IMMS	emaciated; taken to IMMS for rehab; died 5/25, shipped to UF for necropsy
N	C	Y	D-0028 BSNWR	
N	C	Y	D-0029 BSNWR	
N	C	Y	D-0030 BSNWR	
N	C	Y	D-0031 BSNWR	
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	U	N		
Y	C	Y	L-0012 IMMS	found floating next to boom; externally oiled turtle; taken to IMMS for rehab
N	U	N		
Y	C	Y	L-0013 IMMS	externally oiled turtle; taken to IMMS for rehab
N	U	N		
N	U	N		too decomposed for necropsy
N	U	N		
N	U	N		
N	U	N		
N	C	Y		parts only - head, guts and 1 flipper
N	C	Y		
N	C	Y		
N	U	N		
N	U	N		
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		

N	C	Y	
N	C	Y	
N	U	N	
N	U	N	
N	U	N	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	only back flippers and a bit of carapace
N	C	Y	
Y	U	N	
N	C	Y	
Y	C	Y	
N	C	Y	
Y	C	Y	older damage to carapace, scrape on head and possible constriction to LRF
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	very emaciated, missing part of RRF
Y	C	Y	very emaciated; taken to Gulf World, died soon after recovery
N	C	Y	no head, flippers or internal organs
N	C	Y	brown algae on carapace; some small barnacles on skin; adult female
N	C	Y	prop damage to right side of carapace
N	C	Y	no wounds; barnacles and algae on carapace; adult male
N	C	Y	missing notch from right side carapace; barnacle and algae growth
Y	C	Y	barnacles on carapace and flippers; taken to Gulf World, died same day
N	C	Y	apparent piece of metal in ventral LFF near insertion
N	C	Y	dried carcass; little skin remaining, bones visible
N	C	Y	no head or front flippers, shark bites
N	C	Y	missing both front flippers and lrf
N	C	Y	carapace completely covered w/barnacles and algae; adult female
N	C	Y	emaciated, lots of barnacles, damage to base of front flippers and neck

N	C	Y	
N	C	Y	
N	C	Y	in pieces, decomposed
N	C	Y	carapace broken, pieces missing
N	C	Y	skin and scutes peeling
Y	C	Y	numerous barnacles and light algae on carapace; taken to Gulfarium
N	C	Y	old wound to posterior marginals; scutes peeling
N	C	Y	posterior carapace gone; plastron missing; falling apart, nasty
N	U	N	
N	C	Y	apparent skeg/prop damage to center carapace
Y	C	Y	caught on hook and line, hook in throat; taken to Gulfarium
N	C	Y	prop wounds to right posterior carapace; heavy barnacles,small barnacles on skin
N	C	Y	2 apparent prop wounds across carapace
N	C	Y	skin and scutes peeling, very decomposed
N	C	Y	fishing line entangled around neck
N	C	Y	no head or flippers; damage to carapace - likely prop
N	C	Y	missing skull; carapace bones disarticulating due to decomp
N	C	Y	missing head and LFF, possible shark bites; gashes on plastron
N	U	N	
N	C	Y	carapace bones disarticulating due to decomp
N	C	Y	dried carcass; carapace broken across posterior; portions missing
Y	U	N	caught on hook and line, hook removed and turtle released
Y	U	N	
N	U	N	
Y	U	N	
N	U	N	
Y	U	N	caught by relocation trawler; ~50% coverage of thin oil sheen, also sheen in mouth
N	U	N	
N	U	N	
N	U	N	in pieces due to decomp, unable to salvage
N	U	N	
Y	U	N	caught by relocation trawler; observer thought oiled, Gulfarium said algae
N	C	Y	
N	U	N	

Y	U	N	
N	C	Y	wound/damage to throat area
N	C	Y	
N	C	Y	
N	U	N	
Y	U	N	caught by relocation trawler; Gulfarium said not oiled
N	U	N	
Y	C	Y	
N	U	N	
N	C	Y	
N	U	N	adult female, died on nesting beach, apparent shark bites around tail area
Y	U	N	unable to dive, covered with algae
Y	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	U	N	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	

N	C	Y	parts only
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	U	N	
N	U	N	
N	C	Y	swab sample taken
N	C	Y	swab sample taken
Y	C	Y	taken to AOA for rehab
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	U	N	
Y	C	Y	taken to AOA for rehab
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	C	Y	
N	C	Y	
N	C	Y	
N	U	N	
N	C	Y	

N	U	N	
N	C	Y	
N	U	N	
N	U	N	
N	U	N	
N	C	Y	
N	U	N	
N	U	N	partial carcass, pieces only
N	U	N	
N	U	N	
N	U	N	
N	U	N	
Y	C	Y	
N	U	N	
Y	C	Y	
N	U	N	
N	U	N	
N	U	N	
N	U	N	
N	U	N	
N	U	N	
N	U	N	
N	U	N	
N	C	Y	
Y	U	N	
N	U	N	
Y	U	N	
N	U	N	
N	U	N	
N	U	N	
N	U	N	
N	U	N	
N	U	N	
N	U	N	

N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	C	Y		
N	C	Y		Severely decomposed, on beach
N	C	Y		Severely decomposed, on beach
Y	C	Y		
N	C	Y		
N	C	Y		
Y	U	N		
N	U	N		
N	C	Y		
Y	C	Y		
N	U	N		
N	C	Y	D-0029 IMMS	
N	C	Y	D-0030 IMMS	
N	C	Y	D-0031 IMMS	
N	C	Y	D-0032 IMMS	
N	C	Y	D-0033 IMMS	
Y	C	Y	L-0001 IMMS	taken to IMMS, died in rehab, frozen for necropsy
N	C	Y	D-0001 IMMS	
N	C	Y	D-0002 IMMS	
N	C	Y	D-0003 IMMS	
N	C	Y	D-0004 IMMS	
N	C	Y	D-0005 IMMS	
N	C	Y	D-0006 IMMS	
N	C	Y	D-0034 IMMS	
N	C	Y	D-0007 IMMS	
N	C	Y	D-0008 IMMS	
N	C	Y	D-0009 IMMS	

N	C	Y	D-0010 IMMS	
N	C	Y	D-0011 IMMS	
N	C	Y	D-0012 IMMS	
N	C	Y	D-0013 IMMS	
N	C	Y	D-0014 IMMS	
N	C	Y	D-0015 IMMS	
N	C	Y	D-0016 IMMS	
N	C	Y	D-0017 IMMS	
N	C	Y	D-0018 IMMS	
N	C	Y	D-0019 IMMS	
N	C	Y	D-0020 IMMS	
N	C	Y	D-0021 IMMS	
N	C	Y	D-0022 IMMS	
N	C	Y	D-0023 IMMS	
N	C	Y	D-0024 IMMS	
N	C	Y	D-0025 IMMS	
N	C	Y	D-0026 IMMS	
N	C	Y	D-0027 IMMS	
N	C	Y	D-0028 IMMS	
N	C	Y	D-0035 IMMS	
N	C	Y	D-0036 IMMS	
N	C	Y	D-0037 IMMS	
N	C	Y	D-0038 IMMS	
N	C	Y	D-0039 IMMS	
N	C	Y	D-0040 IMMS	
N	C	Y	D-0041 IMMS	
N	C	Y	D-0042 IMMS	
N	C	Y	D-0043 IMMS	
N	C	Y	D-0044 IMMS	
N	C	Y	D-0045 IMMS	
N	C	Y	D-0046 IMMS	
N	C	Y	D-0047 IMMS	carcass in two pieces
N	C	Y	D-0048 IMMS	
N	C	Y	D-0049 IMMS	

N	C	Y	D-0050 IMMS	
N	C	Y	D-0051 IMMS	
N	C	Y	D-0052 IMMS	
N	C	Y	D-0053 IMMS	
N	C	Y	D-0054 IMMS	
N	C	Y	D-0055 IMMS	
N	C	Y	D-0056 IMMS	
N	C	Y	D-0057 IMMS	
N	C	Y	D-0058 IMMS	
N	C	Y	D-0063 IMMS	Decapitated, missing portions of flippers due to decomp; first reported on 5/8
N	C	Y	D-0059 IMMS	
N	C	Y	D-0060 IMMS	
N	C	Y	D-0061 IMMS	
N	C	Y	D-0062 IMMS	
N	C	Y	D-0064 IMMS	
N	C	Y	D-0065 IMMS	
N	C	Y	D-0066 IMMS	
N	C	Y	D-0067 IMMS	
N	C	Y	D-0068 IMMS	
N	C	Y	D-0069 IMMS	
N	C	Y	D-0070 IMMS	
N	C	Y	D-0071 IMMS	
N	C	Y	D-0072 IMMS	
N	C	Y	D-0085 IMMS	field necropsy on beach; damaged LFF, carapace covered in barnacles; first rep 5/13
N	C	Y	D-0073 IMMS	
N	C	Y	D-0074 IMMS	
Y	C	Y	L-0002 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Mote Ma
N	C	Y	D-0075 IMMS	
N	C	Y	D-0076 IMMS	carapace cracked/broken
Y	C	Y	L-0003 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Clearwat
Y	C	Y	L-0004 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Clearwat
N	C	Y	D-0086 IMMS	"chopped up", likely prop wounds to carapace
N	C	Y	D-0077 IMMS	red slimy substance covering carapace
N	C	Y	D-0087 IMMS	skeletal remains

N	C	Y	D-0088 IMMS	skeletal remains
N	C	Y	D-0078 IMMS	
N	C	Y	D-0089 IMMS	
N	C	Y	D-0090 IMMS	floating, picked up by NPS
Y	C	Y	L-0005 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Mote Ma
N	C	Y	D-0079 IMMS	carapace only
N	C	Y	D-0080 IMMS	carapace only
N	C	Y	D-0091 IMMS	sample taken and logged, carcass painted and left on beach
N	C	Y	D-0081 IMMS	
N	C	Y	D-0082 IMMS	
Y	C	Y	L-0006 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Mote Ma
N	C	Y	D-0083 IMMS	
N	C	Y	D-0092 IMMS	possible loggerhead, unsure of species ID
N	C	Y	D-0093 IMMS	
N	C	Y	D-0094 IMMS	carcass in plastic bag before oil swab taken
N	C	Y	D-0084 IMMS	rear portion of carcass missing
Y	C	Y	L-0008 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Disney 6/
Y	C	Y	L-0009 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
Y	C	Y	L-0010 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Disney 6/
N	C	Y	D-0095 IMMS	carcass in plastic bag before oil swab taken; severe prop damage
Y	C	Y	L-0011 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
N	C	Y	D-0161 IMMS	
N	C	Y	D-0096 IMMS	mangled caudal half of carcass
N	C	Y	D-0097 IMMS	
N	C	Y	D-0098 IMMS	
N	C	Y	D-0099 IMMS	old injury to edge of carapace
N	C	Y	D-0162 IMMS	
N	C	Y	D-0100 IMMS	
N	C	Y	D-0101 IMMS	
N	C	Y	D-0102 IMMS	
N	C	Y	D-0103 IMMS	
N	C	Y	D-0104 IMMS	
N	C	Y	D-0105 IMMS	scrapes along plastron
N	C	Y	D-0106 IMMS	missing right edge of carapace, advanced decomp

N	C	Y	D-0107 IMMS	
N	C	Y	D-0108 IMMS	extra costal scute on L side
N	C	Y	D-0109 IMMS	edges of marginal scutes broken, postmortem
N	C	Y	D-0110 IMMS	extra vertebral scute
N	C	Y	D-0163 IMMS	
N	C	Y	D-0112 IMMS	
N	C	Y	D-0111 IMMS	
N	C	Y	D-0113 IMMS	
N	C	Y	D-0114 IMMS	
N	C	Y	D-0118 IMMS	severely mangled, no accurate meas possible
N	C	Y	D-0119 IMMS	black substance in mouth
N	C	Y	D-0115 IMMS	
N	C	Y	D-0116 IMMS	
N	C	Y	D-0117 IMMS	
N	C	Y	D-0120 IMMS	
N	C	Y	D-0121 IMMS	
N	C	Y	D-0122 IMMS	
N	C	Y	D-0123 IMMS	
N	C	Y	D-0124 IMMS	
N	C	Y	D-0125 IMMS	
N	C	Y	D-0126 IMMS	
N	C	Y	D-0127 IMMS	
N	C	Y	D-0128 IMMS	
N	C	Y	D-0129 IMMS	
N	C	Y	D-0130 IMMS	
N	C	Y	D-0164 IMMS	
N	C	Y	D-0165 IMMS	
N	C	Y	D-0166 IMMS	
N	C	Y	D-0167 IMMS	
N	C	Y	D-0168 IMMS	
N	C	Y	D-0169 IMMS	
N	C	Y	D-0131 IMMS	
N	C	Y	D-0132 IMMS	
Y	C	Y	L-0015 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl

Y	C	Y	L-0014 IMMS	washed ashore alive
N	C	Y	D-0133 IMMS	
N	C	Y	D-0134 IMMS	
N	C	Y	D-0135 IMMS	
N	C	Y	D-0136 IMMS	
N	C	Y	D-0137 IMMS	
N	C	Y	D-0138 IMMS	
N	C	Y	D-0139 IMMS	
N	C	Y	D-0140 IMMS	
N	C	Y	D-0141 IMMS	
N	C	Y	D-0142 IMMS	
N	C	Y	D-0143 IMMS	
N	C	Y	D-0144 IMMS	
N	C	Y	D-0145 IMMS	
N	C	Y	D-0146 IMMS	
N	C	Y	D-0147 IMMS	
N	C	Y	D-0155 IMMS	
N	C	Y	D-0148 IMMS	
N	C	Y	D-0149 IMMS	
N	C	Y	D-0150 IMMS	
N	C	Y	D-0151 IMMS	
N	C	Y	D-0152 IMMS	
N	C	Y	D-0153 IMMS	
N	C	Y	D-0154 IMMS	
N	C	Y	D-0172 IMMS	
Y	C	Y	L-0016 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl
N	C	Y	D-0156 IMMS	
N	C	Y	D-0157 IMMS	
N	C	Y	D-0158 IMMS	
N	C	Y	D-0159 IMMS	
N	C	Y	D-0170 IMMS	
Y	C	Y	L-0017 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl
Y	C	Y	L-0018 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl
Y	C	Y	L-0019 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl

Y	C	Y	L-0020 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl
N	C	Y	D-0160 IMMS	
N	C	Y	D-0171 IMMS	
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		
Y	C	Y	L-0021 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl
Y	C	Y	L-0022 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
Y	C	Y	L-0023 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		
Y	C	Y	L-0024 IMMS	found floating in Ocean Springs Harbor
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		
Y	C	Y	L-0025 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl
Y	C	Y	L-0026 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
Y	C	Y	L-0027 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		

N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	U	N	
N	U	N	
Y	C	Y	incidentally captured on hook and line; taken to IMMS for rehab, hook ingested
Y	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
N	C	Y	
N	C	Y	
Y	C	Y	
N	U	N	
N	U	N	
N	U	N	
N	C	Y	
N	C	Y	
N	C	Y	

N	C	Y
N	U	N
N	U	N
N	U	N
N	C	Y
N	C	Y
N	C	Y
N	C	Y
N	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
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Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
N	C	Y	only RRF present, head missing, most internal organs gone
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
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Y	C	Y
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Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	U	N

Y	U	N	
Y	U	N	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	U	N	
Y	U	N	
Y	U	N	
Y	U	N	
Y	U	N	
N	C	Y	
N	C	Y	bones only
N	C	Y	
Y	C	Y	Lat/lon changed 7/18, p.richards – e-mails To w.Teas
Y	C	Y	oil on shell and flippers; plastic debris entangled around flippers, severely constricted
Y	C	Y	no visible oil; wound to posterior plastron, partially healed
Y	C	Y	oil on front flippers
Y	C	Y	oiling: some – head & ft. flippers
N	C	Y	oiling: not much, found dead
Y	C	Y	oiling: some – head & ft. flippers
N	C	Y	
Y	C	Y	Lat/lon changed 7/18, p.richards – e-mails To w.Teas;
Y	C	Y	Lat/lon changed 7/18, p.richards – e-mails To w.Teas
N	C	Y	As of 7/18 it was in the lake Charles Office, will be going to Audubon.
N	C	Y	Location is est. by stranding coord. from google maps via address (24 Grand Handron (
N	C	Y	
Y	C	Y	
Y	C	Y	

Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
N	U	N	
N	C	Y	
N	C	Y	
N	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	U	N	1/2" x 1/4" smudge of oil, cleaned off by sampling gauze
N	N	N	

Date Released	Tag Numbers	PIT Tag Number	Release Lat	Release Long	Release Location

rine Lab 5/30/10

7/8/2010
7/8/2010

6/3/2010 YYX735 / YYX734 483C0E4C20 Ten Thousand Islands, FL

6/3/2010 YYX737 / YYX736 4856313F37 Ten Thousand Islands, FL

'25/10

'25/10

7/8/2010

7/8/2010

d 6/25/10
d 6/25/10
d 6/25/10

7/8/2010

d 6/25/10

7/8/2010

7/8/2010

sp?) drive, Pannama City)

7/20/2010

Date	Stranding I	Species	ReportTyp	Condition	Disposition	Status	State
7/19/2010	20100719	Unknown	Stranding	Alive	Rehab-died	Shipped to Brian	MS

Descriptive	Latitude	Longitude	External oi	Temp	Locat	Stranding	New	Alive	Symbol
Ship Island,	30.21005	-88.95234	N		No	Yes	N	Y	C

Confirmed	Log #	Comments	Date Relea	Tag Numbe	PIT Tag Nu	Release La	Release Lo	Release Lo
Y								

cation

Date	Stranding Referenc	Species	ReportType	Condition	Disposition	Status
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Comatose	Rehab	Rehab-IMMS
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Lepidochelys kem	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Lepidochelys kem	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Dead	Salvaged	IMMS-GV
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released	

7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Lepidochelys kem	Trawl Capture	Alive	Released
7/12/2010	20100712	Lepidochelys kem	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Lepidochelys kem	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released

7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Lepidochelys kem	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Rehab	Rehab-IMMS
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Lepidochelys kem	Trawl Capture	Alive	Released	
7/16/2010	20100716	Chelonia mydas	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Dredge Capture	Dead	Salvaged	Frozen?
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/18/2010	20100718	Caretta caretta	Trawl Capture	Alive	Released	

7/18/2010	20100718	Caretta caretta	Trawl Capture	Alive	Released	
7/18/2010	20100718	Caretta caretta	Trawl Capture	Alive	Released	
7/18/2010	20100718	Caretta caretta	Trawl Capture	Alive	Released	
7/18/2010	20100718	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Lepidochelys kem	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Dredge Capture	Dead	Salvaged	Frozen?
7/21/2010	20100721	Unknown	Dredge Capture	Dead	Salvaged	Frozen?

State	Descriptive Location	Latitude	Longitude	External oil?	TempLocation	Stranding
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
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In borrow site near Chand	30.0444	-88.5309	N	Yes	No
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off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
In borrow site near Chandeleur Islands	N	Yes	No
In borrow site near Chandeleur Islands	N	Yes	No

New	Alive	Symbol	Log #	Comments	Time Captured	Swab or Oil Sample?
Yes	Y					
Yes	Y					
Yes	Y					

Yes	Y
Yes	Y
Yes	Y

Yes	Y
Yes	Y
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Release Latitude	Release Longitude	Flipper Tag Numbers	FT Applied or Recap?	PIT Tag Number

PT Applied or Recap?

Microsoft Outlook

From: Jeanette Wyneken [jwyneken@gmail.com]
Sent: Friday, July 23, 2010 9:38 AM
To: Sheryan Epperly
Cc: Chris Sasso; Wendy Teas; Lisa Belskis; Lesley Stokes; Paul Richards; Kate L. Mansfield
Subject: Re: small turtle identification
Attachments: Hatchling habitats.pdf

HI Sherry- I can send you photos of pelagic stage loggerheads, greens, hawksbills and ridleys (alive) but I'm not sure if that is what you are asking for. Do you want ID pix or do you want to know how to look for them. That is a sightly different question. That involves training one's eye to look for shapes and irregularities, turtles in the spaces of sargassum, and knowing a bit about their behavior in each habitat. Blair Witherington is likely to be able to help you with this, particularly for ridleys in the GoM.
I'm attaching a paper that Mike and his student wrote on habitat selection and use by hatchling greens and loggerheads. If you want the pictures too, I'll send them along. I am assuming no hatchling leatherbacks.
Cheers!
Jeanette

On Fri, Jul 23, 2010 at 8:23 AM, Sheryan Epperly <Sheryan.Epperly@noaa.gov> wrote:

> We have been asked to provide training (as early as tomorrow) for observers to be placed on skimmer vessels and burn unit vessels. Likely, Carrie Horton will conduct that training, probably in New Orleans. We're have all the training materials we need, except for guide to identify very young turtles (post-hatchlings and oceanic stage). If you have anything that would help id those small turtles, please either point us to it or forward it. Thank you.

Marine Turtle Newsletter 126:9-13, 2009

A Comparison between the habitat Choices made by Hatchling and Juvenile Green Turtles (*Chelonia mydas*) and Loggerheads (*Caretta caretta*)

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Hatchling green turtles and loggerheads emerge from underground nests at night, crawl to the ocean, and swim offshore during a "frenzy" period that lasts about 24 h (Wyneken and Salmon 1992). By the end of the frenzy period, the turtles are typically in deep oceanic waters where they remain for several years (Bjorndal *et al.* 2000; Reich *et al.* 2007).

Many hatchling and juvenile marine turtles fail to survive (Heppell *et al.* 2003) because they are unable to defend themselves against their predators (Gyuris 1994; Pilcher *et al.* 2000). Their best option may be to avoid detection. In the Western Atlantic, postfrenzy loggerheads (*Caretta caretta*) probably accomplish that feat by minimizing movement in open water and by associating with mats of *Sargassum* which the turtles resemble in color and in "texture" (Musick and Limpus 1997; Witherington 2002). This association makes them difficult at least for humans to distinguish from an algal background although whether their natural predators are similarly affected remains unknown.

Much less is known about how hatchling green turtles (*Chelonia mydas*) avoid detection by predators except that when released in the ocean after the frenzy period, they are not inactive like loggerheads. Instead, young (2 – 8 week old) green turtles swim vigorously, make frequent shallow dives and only briefly return to the ocean surface to breathe (Salmon *et al.* 2004), probably because at that location they are vulnerable to avian predators (such as frigate birds; Carr and Meylan 1980). Their counter-shaded coloration has led to the hypothesis that both hatchlings and small juveniles prefer open water (Musick and Limpus 1997) even though in the absence of cover many predators take small turtles (Stancyk 1982). Nevertheless, the "open water" hypothesis was until recently supported by the apparent absence of juvenile green turtles from the same *Sargassum* mats where juvenile loggerheads were abundant (Witherington 2002), and by a behavioral study done in large tanks demonstrating that young green turtles avoided floating mats (plastic "plants") and swam instead in the tank's "open" areas (Mellgren *et al.* 2003).

Evidence to the contrary was provided by Carr (1986a, 1986b). He proposed that downwelling areas at oceanic fronts were rich sites of organic material (including floating alga

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such as *Sargassum*) where small juvenile loggerheads and green turtles during their "lost years" could find sufficient food to survive. He listed sightings of both species at these locations made personally, as well as by others. Recently, Witherington and Hirama (2006) found several species of juvenile turtles, including green turtles, resting in *Sargassum* mats located in the northeastern Gulf of Mexico.

Thus, the data on green turtles are equivocal and inspired us to initiate this study. We released hatchling and juvenile green turtles near a *Sargassum* mat under both laboratory and field conditions and noted whether the turtles remained where they were released, swam away, or associated with the mat (by crawling over its surface). Loggerheads of the same age were similarly tested to enable comparisons. Our results indicate that both species associate with *Sargassum,* but that they do so differently. We hypothesize that those differences reflect independently evolved anti-predator strategies.

All observations and experiments were done between July – September, 2005-2006, using hatchlings from nests deposited in Palm Beach and Broward Counties, Florida, USA (26.14° N, 80.08°W to 26. 37° N, 80.11° W**).**

Laboratory observations. Observations were made on 120 turtles (10 hatchlings per nest from 6 nests of each species). Turtles were either captured inside the nest just below the sand surface on the day they would have emerged, or obtained in the early evening as they naturally emerged. They were taken to our marine laboratory at the Gumbo Limbo Environmental Complex in Boca Raton where they were weighed, measured (SCL using calipers), marked with non-toxic nail polish and held at ambient shaded beach temperatures in covered Styrofoam boxes containing a layer of moist sand. At about midnight, they were released inside a seawater-filled rectangular blue polypropylene tank (1.83 x 0.91 x 0.23 m deep; capacity, ~ 382 L). One end of the tank was filled with a rectangular mat of fresh *Sargassum* about 10 cm thick, kept in place from below by a net. The mat occupied ~ 25 % of the water surface inside the tank.

The tank was illuminated to supplement the natural light cycle (~ 14L:10D) by two 40 W fluorescent tubes (one Zoo-Med™ 5.0; one Verilux™ full spectrum UV) centered 46 cm above the tank and oriented parallel to the tank's long axis. Sand-filtered ocean water (23 - 27º C, depending upon the season) entered the tank at each corner (flow rate, 9 L/min) and exited the tank through a central standpipe covered with plastic mesh screening to prevent hatchling entrapment.

After the lights were switched on the next morning, the location of each turtle (in "open water" or on the *Sargassum* mat) was tallied during a brief morning, afternoon and an evening (1-2 h after dark) count that took place over three days. At night the turtles were observed using a small dim flashlight whose beam passed through a red filter. Each set of 3-day counts was replicated 6 times using 10 turtles from a different nest. During half of the replicates the *Sargassum* mat was located at the opposite end of the tank. Because the morning and afternoon counts yielded similar values they were averaged for each day. The turtles were not otherwise disturbed, nor were they fed until the morning after the last (night 3) count.

The laboratory results are based upon data from 55 loggerheads (5 turtles died for unknown reasons during observations) and 57 green turtles (3 turtles died; Fig. 1). During morning and afternoon observations on day 1 (averaged), the two species showed no statistical differences in

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distribution (33 green turtles in open water and 24 over *Sargassum;* 30 loggerheads in open water and 25 over *Sargassum;* $X^2 = 0.03$, 1 d.f., n.s.). However, in the later daylight (days 2 and 3) observations and during the three night observations, more green turtles were observed over *Sargassum* than in open water whereas more loggerheads were observed in open water than over *Sargassum* (Fig. 1). Averages during the light period of days 2 and 3 were 36 green turtles over *Sargassum* and 21 in open water, whereas for loggerheads they were 16 and 39, respectively ($X^2 = 13.1$, $p < 0.0001$). At night the average of the nocturnal observations was 39 green turtles over *Sargassum* and 18 in open water, and for loggerheads 17 and 38, respectively ($X^2 = 15.8$, $p < 0.0001$).

The mean green turtle distribution under illumination during days 2 and 3 did not differ from the mean distribution at night ($X^2 = 0.35$, n.s.). However, both the diurnal and nocturnal distribution differed significantly from a distribution based upon the expectation that the turtles would be evenly distributed inside the tank (e.g., 75 % in open water and 25 % over *Sargassum*). For n = 57 turtles, that expected ratio was 43 and 14 ($X^2 = 17.2$ [days 2-3] and $X^2 = 22.0$ [nights 1-3]; $p < 0.0001$).

The mean loggerhead distribution under illumination during days 2 and 3 also failed to differ from the mean distribution at night ($X^2 = 0.04$, n.s.). Neither distribution differed statistically from one based upon habitat area for n = 55 turtles (expected: 41 in open water and 14 over *Sargassum*; n.s. during the day or at night).

When the tank was approached during the day to make counts, loggerheads on the mat showed no reaction; however, an average of 6 of the green turtles observed on the mat during days 2 and 3 dove into the water.

Field trials. We also determined how both species, when released in the ocean, responded to the presence of a natural *Sargassum* mat. Green turtles and loggerheads used in these trials were captured from four pairs of nests that were temporally matched (hatchlings emerged within 3 days of one another). Hatchlings were isolated by species and reared in identically large holding tanks supplied with sand-filtered ocean water. No *Sargassum* was present. Beginning on day 3 post emergence, the turtles were fed once daily by suspending raw shrimp or tuna inside the tank. Between 15 – 30 days post emergence, an equal number of age-matched loggerheads and green turtles was taken 2-6 km offshore by boat on a search for a *Sargassum* mat of sufficient size ($\geq$ 4 m in diameter; $\geq$ 20 cm in thickness) to use in trials. Trips were scheduled for days when wind velocities were light ($\leq$ 10 knots) and wave elevation was low ($\leq$ 0.3 m) as under these conditions, underwater visibility was 10 – 20 m in the horizontal plane and the mats remained intact long enough to be located and used.

When a suitable mat was found, each turtle experienced a single trial carried out as follows. The boat was positioned ~ 60 m downwind from the mat. Two swimmers with snorkeling gear swam away from the boat to the mat holding a single turtle (one of each species) just above the water surface. Swimmers positioned themselves on opposite sides of the mat then held the turtle at the water surface. On a prearranged signal, each turtle was released at an arm's length, facing away from the swimmer and ~ 5-10 cm from the mat's edge. At release, the turtle's long body axis was parallel to the mat's edge so that the mat was visible on one side and the open ocean on the opposite side of the turtle's body. Each swimmer remained motionless while noting how their turtle responded: (i) remained where released without moving, (ii) swam away from the mat

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toward open water, or (iii) swam toward and crawled/swam over the mat. For turtles selecting option (iii), swimmers also noted where each turtle was located on the mat once it ceased moving (on the mat surface or within the mat itself). Both turtles were then recaptured and returned to the boat.

Swimmers reported how each turtle behaved to an observer on board who recorded the information as field notes. Both swimmers were then given a new turtle and the process was repeated. Each swimmer released an equal number of green turtles and loggerheads, alternating species between trials. Swimmers were always on opposite sides of the mat but for each trial they rotated their position at the mat periphery clockwise so that each turtle had to swim in a different direction (relative to the direction of wind, waves, the sun's location and the boat) to swim toward the mat. After all of the turtles were tested once, they were release near the mat.

More than half of the turtles (11 of 17 green turtles; 13 of 17 loggerheads) swam to the mat. The loggerhead (but not the green turtle) distribution differed statistically from equivalence ($p = 0.05$ by a 2-tailed binomial test) but the two species distributions did not differ from one another by a Fisher Exact test ($p = 0.71$). Other aspects of their behavior differed. Green turtles remaining in open water immediately dove and swam away; their recapture required a brief but vigorous chase. Loggerheads in open water assumed a "tuck" position (fore flippers flexed over the carapace) and remained motionless at the surface. Nine of the 11 green turtles that swam over the mat submerged their carapace beneath the algae so that only their head was visible from above (Fig. 2, top). All of the 13 loggerheads that swam over the mat remained fully exposed at the water surface (Fig. 2, below).

Our purpose in this study was to determine whether hatchling and young juvenile green turtles differed from loggerheads of similar age in their choice of habitat. Our results suggest that under laboratory and field conditions, both species associate with *Sargassum* but that they do so differently. We speculate below that those differences arise because the two species differ in how they avoid their predators.

Algal mats at oceanic fronts are locations that from the turtles' perspective have both benefits and costs. The benefits consist of added habitat complexity that the turtles can exploit to hide from predators, to conserve energy by reducing their swimming costs (Witherington 2002), and to find sufficient food to avoid starvation. But there are costs as productive habitats also attract predators that are known to capture small turtles in the area (Witham 1974; Carr and Meylan 1980). Thus, selection should favor behavioral adaptations that achieve the best balance between the conflicting demands associated with predator avoidance (which favors hiding and/or lack of movement) and efficient foraging (that usually requires searches and movement; Krebs and Davies 1997). Unfortunately, with few exceptions (e.g., Witherington's [2002] study on loggerheads) there is little information available on the nature of those adaptations for hatchlings of any species of marine turtle.

The solution adopted by loggerheads is resemblance to background (*crypsis;* Edmunds 1974) or more specifically, *masquerade* (Endler 1986) in which the animal resembles an object that is inedible (e.g., floating algae for a carnivore). The turtles' combine this form of crypsis with reduced movement ("float and wait" foragers; Witherington 2002), common elements among predators found in the *Sargassum* community (e.g., Hacker and Madin 1991) that not only enhance their ability to capture prey but also reduce the probability of detection by their own

predators. Additional benefits may accrue to loggerhead hatchlings through color polymorphism (colors range from light brown to almost black; Dodd 1988) which might allow some individuals to better match one of the many backgrounds presented by the assorted flotsam that accumulate at downwelling sites.

Because loggerheads resemble inedible objects that also fragment locally, they do not necessary have to reside *within* the mat to receive protection. That may be why during our laboratory observations many of the turtles did not directly associate with the algal mat but instead remained in "open water". A larger proportion of the field-released turtles crawled on the algae then the turtles used under laboratory conditions, perhaps because habitat choices in the field were made under more stressful conditions (shortly after being handled). Alternatively, as they age the turtles might more strongly prefer to reside over the mat.

Green turtles differ most noticeably from loggerheads in their carapace coloration and in its surface texture; both make it relatively easy (for a human observer) to distinguish the turtle from a *Sargassum* background. Why, then, did the majority of the turtles under laboratory conditions choose the mat? The answer may be that the turtles are most vulnerable when swimming in open water and so residing on the mat affords at least some protection by reducing potential detection by fish predators. But, resting above the mat may increase vulnerability to avian predators. Hiding within the mat when it is thick and/or dense enough, that is, by covering the body (*anachoresis*; Edmunds 1974; Fig. 2), may be the best option for avoiding detection by any predators. It is also a common anti-predator adaptation used by many marine animals (e.g., decorator crabs; Hultgren and Stachowicz 2008).

Green turtles couple this primary defense with a secondary defense – leaving the head uncovered to watch for approaching predators, and an escape dive (Frick 1976; Salmon et al. 2004) that takes advantage of their ability to swim in rapid bursts (Carr 1967). If the "flight distance" that elicits this behavior exceeds the detection distance of the predator, the turtle will go unnoticed. That may be why until recently (e.g., Witherington and Hirama 2006) young green turtles were not often observed in *Sargassum* (but see Carr 1986b).

While hatchling green turtles are counter-shaded, it does not necessarily follow from that observation that *they prefer* open water or that they reside in it under all circumstances. The more appropriate conclusion is that countershading renders them *less likely to be detected* at a distance by underwater predators (McFall-Ngai 1990). Countershading may not provide protection from avian predators while small turtles swim near to or are exposed at the water surface (Carr and Meylan 1980), nor does it necessarily make turtles once detected in open water less vulnerable to their many faster swimming, pelagic fish predators (listed in Hirth 1997). Early in development when the turtles are small, hiding in floating algae may be more likely to promote survival but clearly additional field observations and quantitative data are needed to settle this issue.

Our laboratory results with green turtles differ from those reported by Mellgren *et al.* (2003), probably because of methodology. Their observations on green turtle hatchlings were made over a short observation period (a 15 min pretest followed by a test period of equal length) that may not have given the turtles time to adjust to changes in their surroundings. Hatchlings were presented with artificial (plastic) weed but in tests done later with older turtles, *Sargassum* proved to be more attractive. Finally, their tanks were outdoors and partially shaded, resulting in

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exaggerated differences in light intensity. Green turtles were apparently attracted to the brighter areas of the tank, a response that would not occur in open water and that might have inhibited or interfered with an attraction to floating material.

In summary, our results are consistent with the hypothesis that both small loggerheads and green turtles find *Sargassum* habitats attractive but that the two species use the algae in different ways and occupy a different microhabitat. These contrasts have probably co-evolved with other species-specific traits such as coloration, body size and shape, and differences in swimming speed and maneuverability (Wyneken 1997). That there are differences between small loggerheads and green turtles in these respects is not surprising since the two species have had a separate evolution for an estimated 50 million years (Avise *et al.* 1992), enough time in which to independently develop unique anti-predator strategies.

Acknowledgments.---This paper represents a portion of a Masters thesis prepared by MMS. We thank A. Cornett for his assistance in the field, E. Proffitt for statistical advice, and J. Wyneken, B. E. Witherington, two referees and the Editor for suggestions that improved the manuscript. K. Rusenko and the marine turtle specialists at the Gumbo Limbo Environmental Complex helped us locate nests and hatchlings. Financial support was provided by generous contributors to the Nelligan Sea Turtle fund of Florida Atlantic University (FAU). This study was approved by the FAU Institutional Animal Care Committee (A06-05) and was authorized by the Florida Fish and Wildlife Conservation Commission (Turtle Permit - 173).

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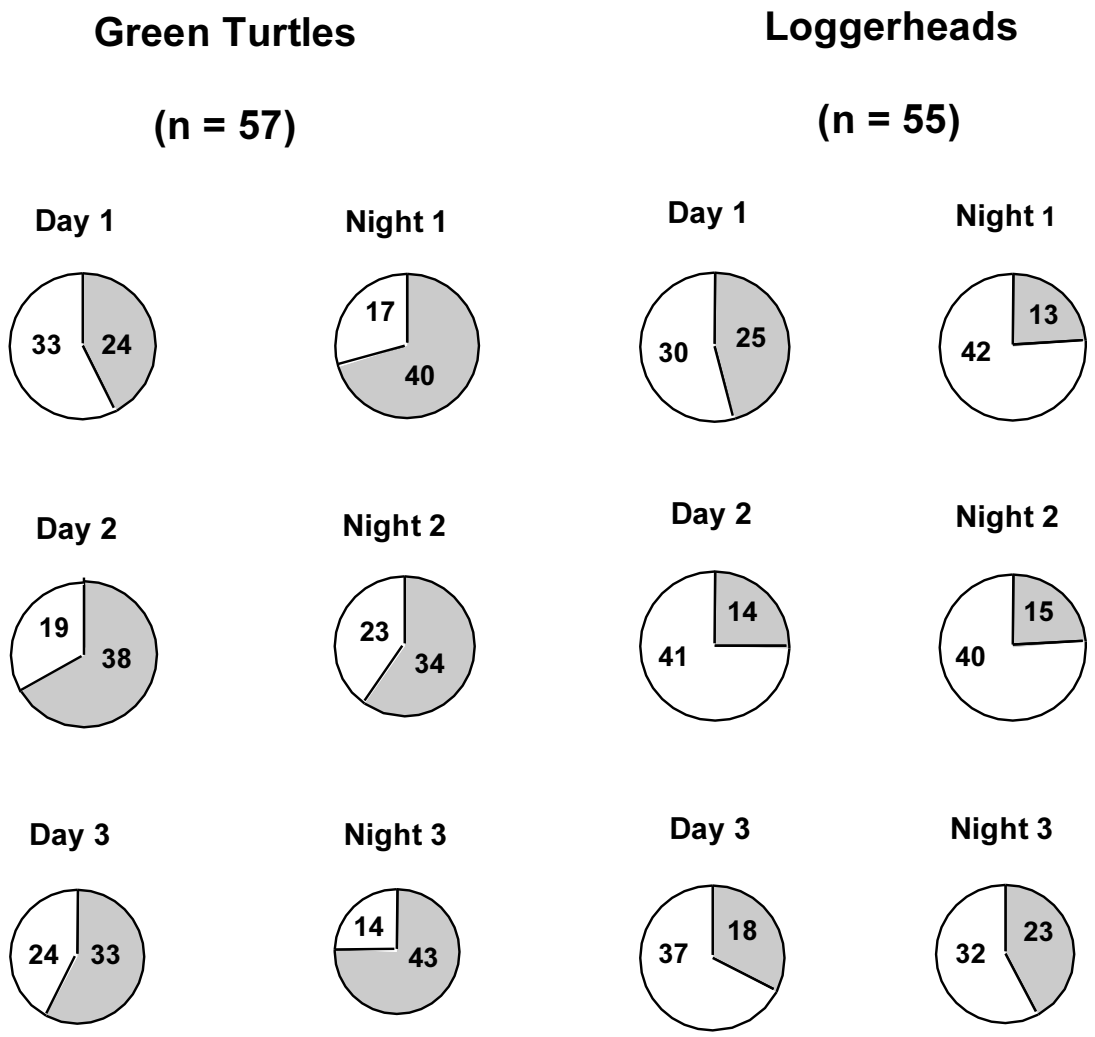


Figure 1. Number of green turtle (left two columns) and loggerhead (right two columns) hatchlings found in open water (clear portion of each circle) and above *Sargassum* (shaded portion of each circle) during a three days of laboratory observations. One observation was made each night. Daytime values are the average of a morning and afternoon observation.

Figure 2. Juvenile green turtle resting within (top) and a juvenile loggerhead resting upon (below) a mat of *Sargassum.* Both pictures were taken within minutes after each turtle was released in the ocean near a mat of floating algae (photos by A. Cornett).

Document ID: 0.7.57.358.1

Microsoft Outlook

From: Sheryan Epperly [Sheryan.Epperly@noaa.gov]
Sent: Sunday, July 25, 2010 11:25 AM
To: Bonnie Ponwith; Theo Brainerd; Peter Thompson; Jim Bohnsack
Cc: Chris Sasso; Wendy Teas; Lisa Belskis; Lesley Stokes; Paul Richards; Kate L. Mansfield; Aleta Hohn; Joanne B Mcneill; Larisa Avens; April Goodman
Subject: Turtle Update - July 25, 2010 - Deepwater Horizon MC252
Attachments: Sea Turtle Strandings and Live Captures - Deepwater Horizon.xls; DWHMC252_Turtles20100725.pdf

Wendy continues to coordinate the STSSN (see below and attached) and we receive daily reports from the Wildlife Branch in Houma (see attached map; I will forward report as soon as I get it).

As a result of discussions with F/PR Permits Division last week, Sherry drafted a permit modification (ESA Sec. 10a1a scientific research permit #1551) that will be discussed by the Permit Division. This involves shifting takes from the NC section of our permit (thanks Joanne etl al.) to the Gulf for 2010 only. If they deem that request a minor modification (there is no change in the total number of takes in our permit), we'll submit a formal request for the modification around midweek. On Thursday we learned that a major permit modification will take a minimum of 6 months and possibly a year. This is a very unsatisfactory situation for the agency in that any damage assessment must be planned with existing permits in mind; getting a new permit or a major modification in a timely manner simply isn't possible under the current regulatory structure. Hopefully, this problem can be addressed so that the agency will not be so handicapped during the next national emergency.

Yesterday, Carrie Horton conducted training in New Orleans for observers to be deployed on oil skimmer vessels and burn unit vessels. We coordinated that training through Miami and were requested to do this by personnel at the JIC (Sara McNulty and Teresa Tuck).

Due to Tropical Depression Bonnie, all hopper dredging and relocation trawling operations were halted at midnight on 7/23/2010 for the Hewes Point borrow site. Hopper dredging and relocation trawling activities are expected to resume within the next few days at Hewes Point once the storm has past and the vessels can reposition.

-------- Original Message --------
Subject:7/24 Strandings Update - Non-oiled and Oiled Turtles - Deepwater Horizon
Date: Sat, 24 Jul 2010 20:53:33 -0400
From: Wendy.Teas@noaa.gov
To: HoumaICC MMST <HoumaICC.MMST@noaa.gov>, MobileICC MMST <MobileICC.MMST@noaa.gov>, "Sheryan.Epperly" <Sheryan.Epperly@noaa.gov>, Bonnie Ponwith <Bonnie.Ponwith@noaa.gov>, Lisa Belskis <Lisa.Belskis@noaa.gov>, Chris Sasso <Chris.Sasso@noaa.gov>, Paul Richards <Paul.Richards@noaa.gov>, Brian Stacy <Brian.Stacy@noaa.gov>, _NMFS SER Emergency Consult <nmfs.ser.emergency.consult@noaa.gov>, "Karen.Mitchell" <Karen.Mitchell@noaa.gov>, Kristy Long <Kristy.Long@noaa.gov>

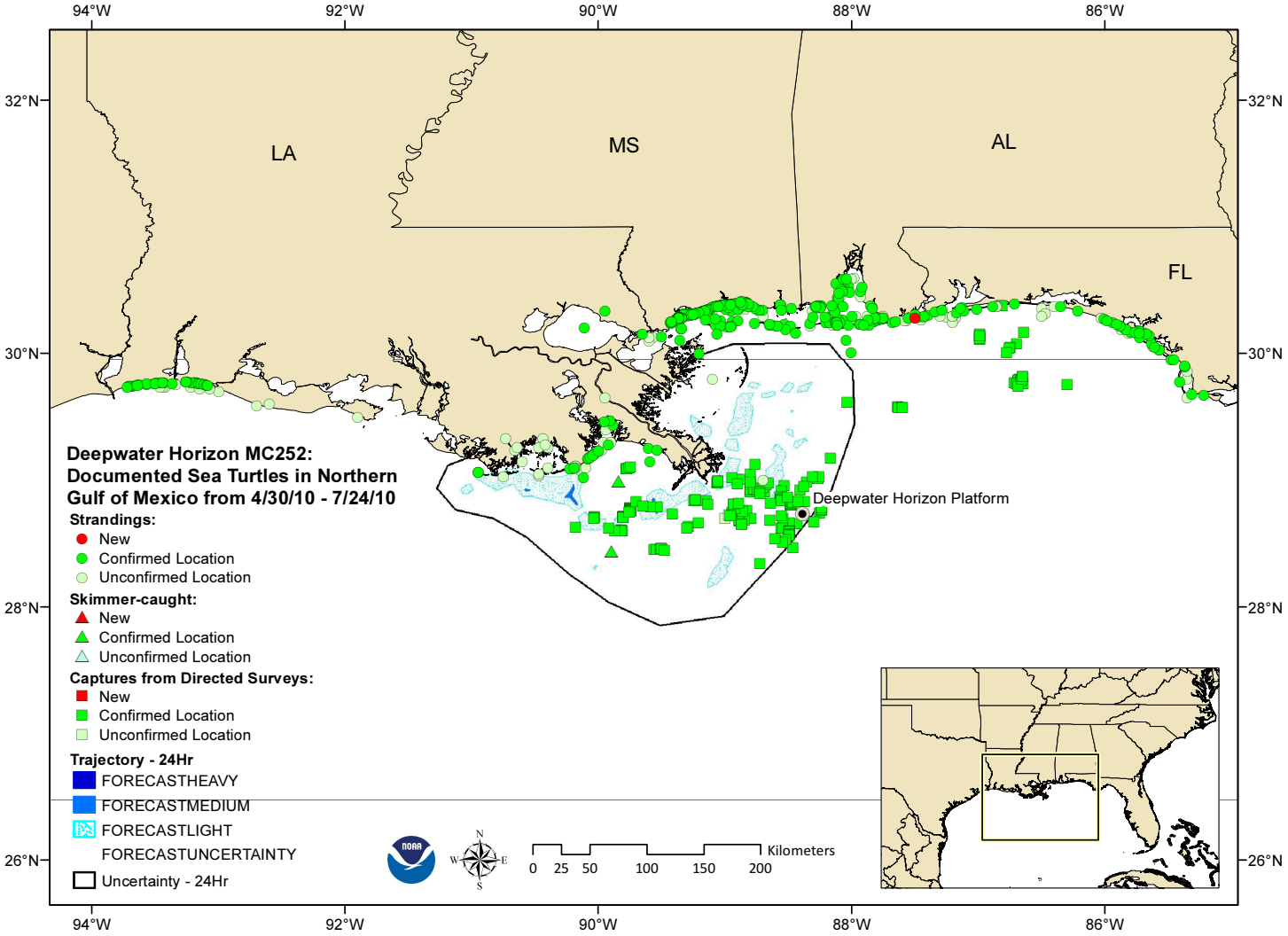
There was 1 turtle stranding reported / verified today:
FL - 1 dead Kemp's ridley, not oiled
AL - 0

MS - 0
LA - 0

On-water capture crews were not out today due to weather.

As of last night (7/23) the trawlers working in front of the dredges working on the LA berm building project had captured a total of 194 turtles (185 loggerheads, 8 Kemp's ridleys and 1 green turtle); 189 of the turtles have been relocated away from the dredge site, 3 have been found dead in the trawls and 2 have been debilitated and were taken to rehab. There have also been 3 loggerhead turtles killed by dredges working on this project.

See attached Excel file for details.


94°W
92°W
90°W
88°W
86°W
32°N
30°N
28°N
26°N
LA
MS
AL
FL
Deepwater Horizon MC252:
Documented Sea Turtles in Northern
Gulf of Mexico from 4/30/10 - 7/24/10
Strandings:
New
Confirmed Location
Unconfirmed Location
Skimmer-caught:
New
Confirmed Location
Unconfirmed Location
Captures from Directed Surveys:
New
Confirmed Location
Unconfirmed Location
Trajectory - 24Hr
FORECASTHEAVY
FORECASTMEDIUM
FORECASTLIGHT
FORECASTUNCERTAINTY
Uncertainty - 24Hr
Deepwater Horizon Platform
Kilometers
0 25 50 100 150 200

Date	Stranding Reference	Species	ReportType	Condition	Disposition	Status	State
5/2/2010	MRC20100502-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/2/2010	MRC20100502-02	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	SNW20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	JMI20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/3/2010	MPW20100503-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	SNW20100504-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	SNW20100504-02	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/4/2010	FXM20100504-01	Lepidochelys kempii	Stranding	Dead	Buried		AL
5/5/2010	MPW20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/5/2010	MRC20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/6/2010	MPW20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/6/2010	MPW20100506-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/7/2010	MPW20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/7/2010	MPW20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/8/2010	ANR20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/8/2010	JMI20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/10/2010	JMI20100510-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/11/2010	MPW20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MPW20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MPW20100513-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/13/2010	MRC20100513-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/14/2010	LAJ20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/16/2010	LAJ20100516-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/17/2010	MRC20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MPW20100518-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/18/2010	MRC20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/19/2010	LAJ20100519-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/19/2010	JMI20100519-01	Lepidochelys kempii	Stranding	Alive	Released		AL
5/20/2010	LAJ20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL

5/20/2010	LAJ20100520-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/20/2010	LAJ20100520-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/21/2010	MPW20100521-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/22/2010	RLR20100522-01	Lepidochelys kempii	Stranding	Alive	Rehab-Died	Necropsied	AL
5/22/2010	JMI20100522-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/22/2010	JMI20100522-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/23/2010	JMI20100523-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/23/2010	JMI20100523-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/24/2010	20100524	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
5/28/2010	20100528	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
5/29/2010	20100529	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/3/2010	JMI20100603-01	Caretta caretta	Stranding	Alive	Rehab	Rehab-IMMS	AL
6/4/2010	20100604	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/5/2010	RLR20100605-01	Eretmochelys imbricata	Stranding	Alive	Rehab	Rehab-IMMS	AL
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/6/2010	20100606	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/6/2010	20100606	Unknown	Stranding	Dead	Salvaged	Frozen-GV	AL
6/7/2010	20100607	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/9/2010	20100609	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/11/2010	20100611	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/16/2010	20100616	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	AL
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL

6/21/2010	20100621	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/21/2010	20100621	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/23/2010	20100623	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	AL
6/25/2010	20100625	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
6/27/2010	20100627	Unknown	Stranding	Dead	Salvaged	Frozen-DI	AL
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
6/30/2010	20100630	Chelonia mydas	Stranding	Alive	Rehab	Rehab-IMMS	AL
7/2/2010	20100702	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
7/2/2010	20100702	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	AL
7/5/2010	20100705	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
7/9/2010	20100709	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	AL
7/10/2010	20100710	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
7/11/2010	20100711	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
7/11/2010	20100711	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-BSNWR	AL
7/14/2010	20100714	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
5/8/2010	NME20100508-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/8/2010	NME20100508-02	Caretta caretta	Stranding	Alive	Rehab-Died	Frozen-GV	FL
5/8/2010	NME20100508-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/10/2010	MEM20100510-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/11/2010	MAN20100511-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/12/2010	JWM20100512-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/13/2010	AVH20100513-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/14/2010	VEL20100514-01	Caretta caretta	Stranding	Alive	Rehab-Died	Frozen-GV	FL
5/14/2010	MEC20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/15/2010	NME20100515-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	NME20100517-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	MAN20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	MAN20100517-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/17/2010	SSM20100517-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL

5/18/2010	WAJ20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/18/2010	JRJ20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/18/2010	CTS20100518-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	NME20100519-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	NME20100519-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/19/2010	MAN20100519-01	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
5/20/2010	WAJ20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	BAE20100520-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	20100520	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/20/2010	MAN20100520-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
5/21/2010	MAN20100521-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
5/24/2010	NME20100524-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
5/24/2010	GWG20100524-01	Caretta caretta	Stranding	Dead	Left on beach		FL
5/25/2010	NME20100525-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
5/27/2010	MJH20100527-01	Caretta caretta	Stranding	Dead	Buried		FL
5/28/2010	VXW20100528-01	Chelonia mydas	Stranding	Dead	Buried		FL
5/30/2010	NAD20100530-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/1/2010	NME20100601-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/6/2010	20100606	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/7/2010	NAD20100607-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/7/2010	NME20100607-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/9/2010	RAB20100609-01	Lepidochelys kempii	Stranding	Alive	Released		FL
6/10/2010	20100610	Eretmochelys imbricata	Stranding	Alive	Rehab	Rehab-GulfWorld	FL
6/11/2010	20100611	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/11/2010	20100611	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/12/2010	20100612	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-GV	FL
6/12/2010	20100612	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/12/2010	20100612	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/13/2010	20100613	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/14/2010	20100614	Caretta caretta	Stranding	Dead	Buried		FL
6/15/2010	20100615	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/16/2010	20100616	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	FL
6/18/2010	20100618	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL

6/20/2010	20100620	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-GulfWorld	FL
6/22/2010	KEG20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/22/2010	NME20100622-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/22/2010	NME20100622-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	FL
6/22/2010	20100622	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/24/2010	20100624	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	FL
6/28/2010	SXH20100628-01	Chelonia mydas	Stranding	Alive	Rehab	Rehab-GulfWorld	FL
6/30/2010	20100630	Unknown	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL
6/30/2010	20100630	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-NOAA	FL
7/4/2010	20100704	Chelonia mydas	Stranding	Dead	Salvaged	Taken to GV	FL
7/8/2010	20100708	Caretta caretta	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
7/12/2010	20100712	Chelonia mydas	Stranding	Alive	Rehab	Rehab-Gulfarium	FL
7/12/2010	20100712	Caretta caretta	Stranding	Dead	Salvaged	Frozen-NOAA	FL
5/1/2010	MJF20100504-01	Unknown	Stranding	Dead	Left on beach		LA
5/1/2010	MJF20100504-02	Unknown	Stranding	Dead	Left on beach		LA
5/3/2010	XXX20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/3/2010	20100503	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/5/2010	JAL20100505-01	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
5/7/2010	MXC20100507-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-05	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-06	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-07	Caretta caretta	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-08	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-09	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-10	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-11	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-12	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-13	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	MXC20100507-14	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/7/2010	GXP20100507-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen	LA

5/10/2010	CSE20100510-01	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/10/2010	CSE20100510-02	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/10/2010	MXC20100510-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-05	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/10/2010	MXC20100510-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
5/11/2010	20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/11/2010	20100511-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/12/2010	MXC20100512-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/12/2010	MXC20100512-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/12/2010	MXC20100512-03	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
5/12/2010	MXC20100512-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	MXT20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	JEB20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/13/2010	MXC20100513-01	Eretmochelys imbricata	Stranding	Dead	Left on beach		LA
5/13/2010	MXC20100513-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/13/2010	20100513	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/14/2010	MXC20100514-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
5/16/2010	MXH20100516-01	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-02	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-03	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-04	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-05	Caretta caretta	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-06	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-07	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-08	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/16/2010	MXH20100516-09	Lepidochelys kempii	Stranding	Dead	Left on beach		LA
5/17/2010	MXT20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/17/2010	AXL20100517-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/18/2010	SDD20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/19/2010	20100519	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/20/2010	NXX20100520-01	Unknown	Stranding	Dead	Salvaged	Frozen	LA

5/22/2010	20100522	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/22/2010	20100522	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/23/2010	20100523	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/24/2010	20100524	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/24/2010	20100524	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/25/2010	20100525	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/26/2010	20100526	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/27/2010	20100527	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
5/28/2010	20100528	Lepidochelys kempii	Skimmer	Alive	Rehab	Rehab-AOA	LA
5/29/2010	20100529	Unknown	Stranding	Dead	Salvaged	Frozen	LA
5/31/2010	20100531	Lepidochelys kempii	Skimmer	Alive	Rehab	Rehab-AOA	LA
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/5/2010	20100605	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/6/2010	20100606	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/7/2010	20100607	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/7/2010	20100607	Unknown	Stranding	Dead	Salvaged	Frozen	LA
6/8/2010	20100608	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/9/2010	20100609	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	LA
6/9/2010	20100609	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/10/2010	20100610	Unknown	Stranding	Dead	Salvaged	Frozen	LA
6/12/2010	20100612	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/13/2010	20100613	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/14/2010	20100614	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/15/2010	20100615	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/15/2010	20100615	Lepidochelys kempii	Stranding	Dead	Left on beach		LA

6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/17/2010	20100617	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
6/18/2010	20100618	Chelonia mydas	Stranding	Dead	Salvaged	Frozen	LA
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/21/2010	20100621	Caretta caretta	Stranding	Dead	Salvaged	Frozen	LA
6/24/2010	20100624	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen	LA
6/25/2010	20100625	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-AOA	LA
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/26/2010	20100626	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/27/2010	20100627	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-AOA	LA
6/27/2010	20100627	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-will be trai	LA
6/27/2010	20100627	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-will be trai	LA
7/4/2010	20100704	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Audubon	LA
7/4/2010	20100704	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-AOA	LA
7/10/2010	20100710	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-AOA	LA
7/12/2010	20100712	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Audubon	LA
7/12/2010	20100712	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-AOA	LA
4/26/2010	CNH20100426-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	CNH20100430-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	EXP20100430-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
4/30/2010	TTH20100430-01	Lepidochelys kempii	Stranding	Alive	Rehab-Died	Necropsied	MS
5/1/2010	KMF20100501-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	KMF20100501-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/1/2010	EXP20100501-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	CLC20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS

5/2/2010	KMF20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	KMF20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	KMF20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/2/2010	MSB20100502-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	MSB20100503-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/3/2010	WLH20100503-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	EXP20100504-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/4/2010	CLC20100504-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/5/2010	WLH20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/5/2010	DKV20100505-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	EXJ20100506-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/6/2010	SXC20100506-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JBT20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	CLM20100507-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS

5/7/2010	JBT20100507-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/7/2010	JNF20100507-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	MMK20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	SAH20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JKM20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	SAH20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JNF20100508-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JNF20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	JKM20100508-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/8/2010	WLH20100510-01	Caretta caretta	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/9/2010	KMM20100509-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/10/2010	WLH20100510-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/10/2010	ZHS20100510-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/11/2010	BTN20100511-01	Caretta caretta	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/12/2010	ZHS20100512-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/13/2010	JXS20100513-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Necropsied	MS
5/13/2010	CNH20100514-01	Caretta caretta	Stranding	Dead	Left on beach		MS
5/14/2010	JNF20100514-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/14/2010	JNF20100514-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/14/2010	SAH20100514-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Mote	MS
5/15/2010	LMJ20100515-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/15/2010	LMJ20100515-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/15/2010	JKM20100515-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
5/15/2010	JKM20100515-02	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
5/15/2010	KMM20100515-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/16/2010	EXJ20100516-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/18/2010	KPB20100518-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS

5/18/2010	KPB20100518-02	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
5/18/2010	WLH20100518-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/19/2010	MDH20100519-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/19/2010	MDH20100519-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/20/2010	TTH20100520-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
5/20/2010	JNF20100520-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/20/2010	JNF20100520-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/21/2010	RDS20100521-01	Caretta caretta	Stranding	Dead	Left on beach		MS
5/21/2010	JNF20100521-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/21/2010	JNF20100521-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/22/2010	TTH20100522-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
5/24/2010	WLH20100524-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/24/2010	AJD20100524-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	JXB20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	CNH20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/26/2010	WLH20100526-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/27/2010	JBT20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Disney	MS
5/27/2010	JKM20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
5/27/2010	MSB20100527-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-Disney	MS
5/28/2010	JNF20100528-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
5/28/2010	RAW20100528-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/3/2010	CNH20100603-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/4/2010	DKV20100604-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/5/2010	JNF20100605-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	KMM20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	MJK20100606-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS

6/6/2010	JBT20100606-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/6/2010	JBT20100606-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	JRS20100608-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	WLH20100607-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/7/2010	KMH20100607-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
6/8/2010	WLH20100608-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/8/2010	WLH20100608-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	WLH20100609-01	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	WLH20100609-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-02	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/9/2010	JBT20100609-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	SLE20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	RAW20100610-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	KMH20100610-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	WLH20100610-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/10/2010	WLH20100610-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	TTH20100611-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS

6/11/2010	KMH20100611-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/11/2010	WLH20100611-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-09	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-10	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-11	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-12	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	WLH20100611-13	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	JBT20100611-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/11/2010	CRS20100611-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	WLH20100612-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	RCL20100612-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	CRS20100612-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-GV	MS
6/12/2010	JKM20100612-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
6/13/2010	CRS20100613-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	CRS20100613-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	CRS20100613-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	LCB20100613-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	LCB20100613-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/13/2010	JKM20100613-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-SeaWorld	MS
6/13/2010	JKM20100613-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-SeaWorld	MS
6/13/2010	JKM20100613-03	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-SeaWorld	MS

6/13/2010	JKM20100613-04	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
6/14/2010	WLH20100614-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/15/2010	LCB20100615-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/16/2010	20100616	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	WLH20100617-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-SeaWorld	MS
6/17/2010	JBT20100617-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/17/2010	JBT20100617-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/17/2010	20100617	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Unknown	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/18/2010	20100618	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	TTJ20100619-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/19/2010	20100619	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	SLE20100620-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
6/20/2010	JKM20100620-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/20/2010	MSB20100620-01	Lepidochelys kempii	Stranding	Alive	Rehab	Released	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/20/2010	20100620	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-04	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS

6/21/2010	SKM20100621-05	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-06	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-07	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-08	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-09	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/21/2010	SKM20100621-10	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	TTJ20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	TTJ20100622-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/22/2010	SKM20100622-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/23/2010	YBS20100623-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-GV	MS
6/24/2010	SKM20100624-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/24/2010	SKM20100624-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/24/2010	TTJ20100624-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	TTJ20100625-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	SKM20100625-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/25/2010	SKM20100625-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/26/2010	JKM20100626-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/26/2010	SKM20100626-01	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/26/2010	SKM20100626-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/26/2010	SKM20100626-03	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/27/2010	JKM20100627-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/27/2010	JKM20100627-02	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/28/2010	JKM20100628-01	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/28/2010	SKM20100628-01	Caretta caretta	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/28/2010	SKM20100628-02	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Alive	Rehab	Rehab-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
6/29/2010	20100629	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/6/2010	20100706	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/6/2010	20100706	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/6/2010	20100706	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS

7/7/2010	20100707	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/8/2010	20100708	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/8/2010	20100708	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/8/2010	20100708	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/11/2010	20100711	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/12/2010	20100712	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
5/18/2010	BXW20100518-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/20/2010	MXT20100520-01	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA	
5/20/2010	MXT20100520-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
5/31/2010	BAS20100531-07	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-01	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-02	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-03	Lepidochelys kempii	Directed Capture	Alive	Rehab-Died?	Necropsied?	
6/1/2010	BAS20100601-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-07	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-08	Eretmochelys imbricata	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	BAS20100601-10	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	XXX20100601-01	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied	
6/1/2010	XXX20100601-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	XXX20100601-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	XXX20100601-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	
6/1/2010	XXX20100601-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA	

6/6/2010	BAS20100606-01	Eretmochelys imbricata	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/6/2010	BAS20100606-05	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied
6/10/2010	BAS20100610-01	Lepidochelys kempii	Directed Capture	Dead	Salvaged	Necropsied
6/10/2010	BAS20100610-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/10/2010	BAS20100610-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/10/2010	BAS20100610-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/12/2010	BAS20100612-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-08	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	BAS20100613-09	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	20100613	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/13/2010	20100613	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-08	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-10	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/14/2010	BAS20100614-11	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-AOA

6/15/2010	BAS20100615-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-05	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-06	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/15/2010	BAS20100615-07	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-02	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/16/2010	BAS20100616-06	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/18/2010	20100618	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/19/2010	20100619	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/20/2010	20100620	Chelonia mydas	Directed Capture	Dead	Salvaged	Frozen
6/21/2010	MCT20100621-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-02	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-05	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-06	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-08	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-09	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/21/2010	MCT20100621-10	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-AOA
6/22/2010	BAS20100622-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/24/2010	BAS20100624-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/24/2010	BAS20100624-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA

6/24/2010	BAS20100624-03	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-AOA
6/25/2010	BAS20100625-01	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-03	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
6/26/2010	BAS20100626-04	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-01	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-02	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-03	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-04	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-05	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-06	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
6/27/2010	BAS20100627-07	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/2/2010	20100702	Caretta caretta	Directed Capture	Alive	Rehab	Rehab-Audubon
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/8/2010	20100708	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon
7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Temp-Ft.Jackson

7/9/2010	20100709	Chelonia mydas	Directed Capture	Alive	Rehab	Temp-Venice?	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/10/2010	20100710	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/11/2010	20100711	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/11/2010	20100711	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/11/2010	20100711	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/11/2010	20100711	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/12/2010	20100712	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/15/2010	20100715	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-NOAA	FL
7/15/2010	20100715	Unknown	Stranding	Dead	Salvaged	Frozen-DI	AL
7/15/2010	20100715	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/15/2010	20100715	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/15/2010	20100715	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/15/2010	20100715	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/15/2010	20100715	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/15/2010	20100715	Eretmochelys imbricata	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/15/2010	20100715	Chelonia mydas	Directed Capture	Dead	Salvaged	Frozen-Audubon	
7/15/2010	20100715	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/16/2010	20100716	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Bon Secou	AL
7/16/2010	20100716	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/16/2010	20100716	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/17/2010	20100717	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Audubon	LA
7/18/2010	20100718	Chelonia mydas	Stranding	Dead	Salvaged	Frozen – NMFS	FL
7/18/2010	20100718	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/18/2010	20100718	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/18/2010	20100718	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-GulfWorld	

7/18/2010	20100718	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/18/2010	20100718	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/18/2010	20100718	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/18/2010	20100718	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/18/2010	20100718	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/18/2010	20100718	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/19/2010	20100719	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
7/19/2010	20100719	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
7/19/2010	20100719	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/19/2010	20100719	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/19/2010	20100719	Caretta caretta	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/19/2010	20100719	Caretta caretta	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/19/2010	20100719	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/19/2010	20100719	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/19/2010	20100719	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/19/2010	20100719	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/19/2010	20100719	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/20/2010	20100720	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-NOAA	FL
7/20/2010	20100720	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
7/20/2010	20100720	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/20/2010	20100720	Chelonia mydas	Stranding	Dead	Salvaged	Frozen-Audubon	LA
7/20/2010	20100720	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/20/2010	20100720	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/20/2010	20100720	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/20/2010	20100720	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/20/2010	20100720	Chelonia mydas	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/20/2010	20100720	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/20/2010	20100720	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-Audubon	
7/20/2010	20100720	Lepidochelys kempii	Directed Capture	Alive	Released		
7/21/2010	20100721	Unknown	Stranding	Dead	Salvaged	Frozen-Ft Jackson	LA
7/22/2010	20100722	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-DI	AL
7/22/2010	20100722	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/22/2010	20100722	Lepidochelys kempii	Directed Capture	Alive	Released		
7/22/2010	20100722	Lepidochelys kempii	Directed Capture	Alive	Released		

7/22/2010	20100722	Lepidochelys kempii	Directed Capture	Alive	Released		
7/22/2010	20100722	Lepidochelys kempii	Directed Capture	Alive	Rehab	Rehab-GulfWorld	
7/22/2010	20100722	Caretta caretta	Stranding	Dead	Salvaged	Frozen-DI	AL
7/23/2010	20100723	Caretta caretta	Stranding	Dead	Salvaged	Frozen-NOAA	FL
7/23/2010	20100723	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/23/2010	20100723	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-IMMS	MS
7/24/2010	20100724	Lepidochelys kempii	Stranding	Dead	Salvaged	Frozen-Gulfarium	FL

Descriptive Location	Latitude	Longitude	External oil?	TempLocation	Stranding	New
"Lots of Sand Dunes" Condo, Baldwin Co	30.232019	-87.936861	N	No	Yes	N
eastern point of Dauphin Island	30.250125	-88.075553	N	No	Yes	N
Dauphin Island	30.248253	-88.125822	N	No	Yes	N
floating 2 miles North of Fort Gaines	30.268880	-88.071720	N	No	Yes	N
Dauphin Island	30.332274	-88.132595	N	No	Yes	N
Dauphin Island	30.248253	-88.125822	N	No	Yes	N
Mobile Bay, 4 miles south of Fowl River	30.395431	-88.107261	N	No	Yes	N
Mobile Bay, 7287 Bay Rd	30.552467	-88.123317	N	No	Yes	N
floating off of Bayou La Batre	30.368167	-88.278317	N	No	Yes	N
Coden	30.445639	-88.109028	N	No	Yes	N
Dauphin Island	30.250164	-88.162886	N	No	Yes	N
Donnie Grace, bay side	30.249856	-88.202100	N	No	Yes	N
outside Weeks Bay toward Fish River Reef	30.367914	-87.839833	N	No	Yes	N
18261 Scenic Hwy 98	30.492133	-87.929833	N	No	Yes	N
Dauphin Island	30.249450	-88.172633	N	No	Yes	N
Gulf Shores	30.253417	-87.823317	N	No	Yes	N
Bayou La Batre	30.381033	-88.267233	N	No	Yes	N
pier across from Fort Morgan Museum	30.230283	-88.023694	N	No	Yes	N
Baldwin Co	30.250570	-87.828960	N	No	Yes	N
Baldwin Co	30.228430	-87.861390	N	No	Yes	N
Baldwin Co	30.231160	-87.928990	N	No	Yes	N
200 yds SE of city pier	30.245610	-88.124230	N	No	Yes	N
Hwy 193 past Hwy 188, Mobile Co	30.370900	-88.109670	N	No	Yes	N
east of Dauphin Is public fishing pier on Sand Is	30.247186	-88.125303	N	No	Yes	N
Little Dauphin Is, north side	30.274270	-88.111150	N	No	Yes	N
Audubon Place beach	30.243830	-88.092890	N	No	Yes	N
bay side of Sand Island	30.227653	-88.113175	N	No	Yes	N
Coden	30.377883	-88.241517	N	No	Yes	N
Mobile Bay, 1 mile south of Fowl River	30.425728	-88.103975	N	No	Yes	N
Hwy 98 on county rd 1, near Pelican Island	30.378320	-87.851020	N	No	Yes	N
Dauphin Island	30.247530	-88.124480	N	No	Yes	N
mouth of Bayou La Batre, Mobile Bay	30.375000	-88.285000	N	No	Yes	N
Dauphin Island, west end	30.386400	-88.560983	N	No	Yes	N

Dauphin Island, west end	30.386400	-88.560983	N	No	Yes	N
Coden	30.006272	-88.004007	N	No	Yes	N
Dauphin Island	30.244817	-88.114433	N	No	Yes	N
Bayou La Batre	30.381586	-88.257034	N	No	Yes	N
floating near Bayou La Batre	30.376750	-88.258480	N	No	Yes	N
Mobile Bay	30.591497	-88.063306	N	No	Yes	N
Shore Rd of CR12	30.358870	-87.832670	N	No	Yes	N
Plash Island	30.282700	-87.751230	N	No	Yes	N
Dauphin Island	30.250000	-88.200000	N	Yes	Yes	N
Dauphin Island	30.270000	-88.150000	N	Yes	Yes	N
Mobile Bay	30.400000	-88.100000	N	Yes	Yes	N
Mobile Bay	30.500000	-88.100000	N	Yes	Yes	N
Mobile Bay	30.300000	-87.750000	N	Yes	Yes	N
west end of Dauphin Island	30.220000	-88.330000	N	Yes	Yes	N
Dauphin Island, bayside	30.260000	-88.110000	N	Yes	Yes	N
Mobile Bay	30.300000	-87.970000	N	Yes	Yes	N
floating in MS Sound near Coden Bayou	30.350000	-88.220000	N	Yes	Yes	N
floating in Perdido Pass near Orange Beach	30.278471	-87.555537	Y	No	Yes	N
floating south of Coden	30.374000	-88.240000	N	Yes	Yes	N
East Beach, Baldwin County	30.248301	-87.676815	Y	No	Yes	N
Bon Secour Bay	30.300000	-87.875000	N	Yes	Yes	N
W Dauphin Island	30.250000	-88.060000	N	Yes	Yes	N
floating off of Bayou La Batre	30.340000	-88.310000	N	Yes	Yes	N
Mobile Bay, east side	30.450000	-87.930000	N	Yes	Yes	N
Mobile Bay, west side	30.450000	-88.090000	N	Yes	Yes	N
Gulf Shores	30.251060	-87.653670	N	No	Yes	N
Bayou La Batre	30.366460	-88.244330	N	No	Yes	N
~100 ft from Fairhope Municipal Pier	30.525780	-87.917040	N	No	Yes	N
Orange Beach	30.260000	-87.570000	Y	Yes	Yes	N
floating in Mobile Bay, Mobile side of bay	30.600000	-87.980000	N	Yes	Yes	N
floating in Bon Secour Bay	30.267240	-87.787240	N	No	Yes	N
floating in Bon Secour Bay	30.280430	-87.766780	N	No	Yes	N
floating in Mobile Bay, SE of Gaillard Island	30.371770	-88.065410	N	No	Yes	N
floating in Mobile Bay, NE of Dauphin Is. Bridge	30.332983	-88.130400	N	No	Yes	N

floating in Mobile Bay, btwn Dog River Bridge and Gaillard Is	30.531760	-88.022900	N	No	Yes	N
floating in Mobile Bay, NE of Fort Morgan	30.298020	-87.997720	N	No	Yes	N
northern part of Mobile Bay	30.590000	-88.000000	N	Yes	Yes	N
Mobile Bay, west side near Dog River	30.530000	-88.070000	N	Yes	Yes	N
Orange Beach	30.260000	-87.580000	Y	Yes	Yes	N
Bon Secour Bay	30.25917	-87.86152	N	No	Yes	N
Bayou La Batre	30.370583	-88.2809	N	No	Yes	N
a bay 2mi N. of Dauphin Island (part of Mobile Bay)	30.290183	-88.208166	N	No	Yes	N
Bon Secour Bay	30.27595	-87.76513	N	No	Yes	N
200 yds off of Gilliard Island in Mobile Bay	30.49744	-88.04932	N	No	Yes	N
Secador industrial west in Mobile bay	30.50712	-88.0789	Y	No	Yes	N
Dauphin Island	30.23	-88.15	Y	Yes	Yes	N
east part of Pelican Is, near Dauphin Is pier	30.2255	-88.1089	Y	No	Yes	N
floating 2 mi SW of Mobile Bay buoy, ~10 mi offshore	30.105	-88.04166	Y	No	Yes	N
Orange Beach, Perdido Bay, just N of 31735 Shoalwater Dr	30.29965	-87.4859	N	No	Yes	N
~1 mile N of west end of Dauphin Island, in bay	30.23985	-88.32628	Y	No	Yes	N
~1 mi SE of Berkley Field Pier in Mobile Bay	30.59365	-88.0398	N	No	Yes	N
Bon Secour Bay, just S of Intercoastal channel	30.27726	-87.76435	N	No	Yes	N
Bon Secour Bay, near the Intercoastal channel	30.2849	-87.7642	Y	No	Yes	N
SE of Guillard Island in Mobile Bay	30.48597	-88.01768	N	No	Yes	N
Panama City Beach	30.19650	-85.84358	N	No	Yes	N
Panama City Beach	30.2442	-85.93718	N	No	Yes	N
Panama City Beach	30.16782	-85.794	N	No	Yes	N
Panama City Beach	30.21513	-85.87758	N	No	Yes	N
Pensacola Beach	30.32589	-87.17208	N	No	Yes	N
St. Joseph Peninsula State Park	29.77851	-85.40833	N	No	Yes	N
Perdido Key State Park	30.28801	-87.47814	N	No	Yes	N
East Walton County Beach, Orange St access	30.2724	-86.00381	N	No	Yes	N
Naval Live Oaks (Headquarters), GUIS	30.36422	-87.12725	N	No	Yes	N
Tyndall AFB, Archery Rd beach, east of marina	30.08165	-85.62992	N	No	Yes	N
Panama City Beach	30.18925	-85.83112	N	No	Yes	N
Perdido Key area of Gulf Islands NS	30.30350	-87.39394	N	No	Yes	N
Santa Rosa area of Gulf Islands NS	30.35489	-87.01419	N	No	Yes	N
west Walton County	30.37170	-86.34960	N	No	Yes	N

Crooked Island east, Tyndall AFB	29.95664	-85.47378	N	No	Yes	N
Crooked Island west, Tyndall AFB	30.02786	-85.56911	N	No	Yes	N
Walton County, east of Draper Lake	30.34060	-86.21480	N	No	Yes	N
Panama City Beach	30.26268	-85.97958	N	No	Yes	N
St. Andrews Bay, Bunkers Cove at yacht club	30.14250	-85.64920	N	No	Yes	N
Pensacola Beach	30.33619	-87.11075	N	No	Yes	N
Tyndall AFB, Crooked Island east at boardwalk	29.95634	-85.45734	N	No	Yes	N
St. Joe Beach	29.90192	-85.36683	N	No	Yes	N
Rosemary Beach, Walton County	30.28000	-86.03000	N	Yes	Yes	N
Naval Live Oaks, south beach on Santa Rosa sound	30.36074	-87.14003	N	No	Yes	N
Perdido Key	30.29619	-87.42647	N	No	Yes	N
Panama City, Baypoint Marina Yacht Club	30.14352	-85.72778	N	No	Yes	N
Navarre Beach	30.37590	-86.88760	N	No	Yes	N
St. Andrews Bay	30.16385	-85.68565	N	No	Yes	N
Pensacola Naval Air Station, Trout Point Beach	30.33185	-87.34040	N	No	Yes	N
W Escambia County, inshore, floating	30.31250	-87.49710	N	No	Yes	N
Cape San Blas	29.68224	-85.31182	N	No	Yes	N
St. Andrews Bay, Sun Harbor Marina, Panama City	30.18415	-85.73262	N	No	Yes	N
Panama City Beach	30.16000	-85.81000	N	Yes	Yes	N
St. Vincent NWR	29.67590	-85.21767	N	No	Yes	N
Port of Panama City	30.17795	-85.72493	N	No	Yes	N
Pensacola	30.29000	-87.25000	N	Yes	Yes	N
Panama City, Inlet Beach	30.19000	-85.87000	N	Yes	Yes	N
West Miramar Beach	30.37000	-86.40000	N	Yes	Yes	N
Pensacola	30.30000	-87.30000	N	Yes	Yes	N
Navarre Beach	30.37000	-86.85000	N	Yes	Yes	N
approx 1 mile off of Pensacola Beach	30.28000	-87.18000	Y	Yes	Yes	N
Eglin AFB, just east of Navarre Beach	30.37000	-86.86000	N	Yes	Yes	N
Pensacola Beach	30.25000	-87.20000	N	Yes	Yes	N
Pensacola Beach	30.30000	-87.20000	N	Yes	Yes	N
Pensacola Beach	30.27000	-87.45000	N	Yes	Yes	N
approx 1 mile off of Destin	30.35800	-86.49900	N	Yes	Yes	N
Port St. Joe, Mexico Beach	29.90475	-85.36946	N	No	Yes	N
Tyndall AFB	30.06000	-85.62000	N	Yes	Yes	N

floating in St. Joe Bay	29.80000	-85.35000	N	Yes	Yes	N
Eglin AFB, 100 yds east of A-11	30.39469	-86.71058	N	No	Yes	N
Panama City, access 59 west of city pier	30.21607	-85.87965	N	No	Yes	N
Panama City, Navy base behind the dive school	30.17280	-85.75803	N	No	Yes	N
Pensacola	30.30000	-87.20000	N	Yes	Yes	N
offshore Destin area	30.32000	-86.47000	N	Yes	Yes	N
St. Andrews Bay	30.14	-85.7	N	Yes	Yes	N
Panama City area	30.23488	-85.90698	Y	No	Yes	N
Perdido Key	30.29	-87.43	Y	Yes	Yes	N
St. Andrews State Park	30.1297	-85.7242	N	No	Yes	N
Cape San Blas	29.65	-85.35	N	Yes	Yes	N
floating offshore Destin	30.3	-86.5	N	Yes	Yes	N
Grand Bay, near Pensacola	30.346239	-87.285679	N	No	Yes	N
Tyndall AFB	30.05625	-85.60641	N	No	Yes	N
Elmers Island	29.17027	-90.08316	N	No	Yes	N
Elmers Island	29.18166	-90.06428	N	No	Yes	N
Slidell area, Lake Borgne	30.13447	-89.50054	N	No	Yes	N
Grand Isle	29.24	-89.98	N	Yes	Yes	N
Elmers Island	29.17235	-90.07981	N	No	Yes	N
Rutherford Beach	29.76692	-93.16193	N	No	Yes	N
Rutherford Beach	29.76879	-93.17164	N	No	Yes	N
Rutherford Beach	29.76972	-93.17667	N	No	Yes	N
Rutherford Beach	29.77171	-93.18671	N	No	Yes	N
Rutherford Beach	29.7732	-93.19467	N	No	Yes	N
Rutherford Beach	29.77341	-93.19683	N	No	Yes	N
Rutherford Beach	29.77354	-93.19756	N	No	Yes	N
Rutherford Beach	29.77576	-93.21589	N	No	Yes	N
Rutherford Beach	29.77738	-93.2461	N	No	Yes	N
Rutherford Beach	29.77728	-93.25497	N	No	Yes	N
Rutherford Beach	29.77728	-93.25497	N	No	Yes	N
Rutherford Beach	29.76578	-93.15643	N	No	Yes	N
Rutherford Beach	29.76119	-93.13665	N	No	Yes	N
Rutherford Beach	29.75513	-93.11017	N	No	Yes	N
floating near Slidell - Rigolets Pass	30.1588	-89.6505	N	No	Yes	N

Elmers Island	29.18184	-90.06364	N	No	Yes	N
Grand Isle	29.20786	-90.03112	N	No	Yes	N
Holly Beach	29.76897	-93.4392	N	No	Yes	N
Holly Beach	29.76879	-93.43438	N	No	Yes	N
Holly Beach	29.76922	-93.45638	N	No	Yes	N
Holly Beach	29.76897	-93.48772	N	No	Yes	N
Holly Beach	29.76771	-93.50714	N	No	Yes	N
Constance Beach	29.76031	-93.56936	N	No	Yes	N
Fourchon Beach	29.11	-90.18	N	Yes	Yes	N
Fourchon Beach	29.11	-90.18	N	Yes	Yes	N
Mae's Beach	29.74595	-93.68512	N	No	Yes	N
Mae's Beach	29.74582	-93.68592	N	No	Yes	N
Mae's Beach	29.7423	-93.70653	N	No	Yes	N
Grand Isle	30.1086	-89.3545	N	No	Yes	N
Grand Terre	29.209166	-90.029166	N	No	Yes	N
Grand Isle	29.28435	-89.92149	N	No	Yes	N
Holly Beach	29.74232	-93.7065	N	No	Yes	N
Holly Beach	29.76391	-93.36438	N	No	Yes	N
found floating, location?	29.23	-89.99	N	Yes	Yes	N
Mae's Beach	29.7424	-93.7062	N	No	Yes	N
Long Beach	29.7534	-93.6293	N	No	Yes	N
Long Beach	29.7509	-93.6492	N	No	Yes	N
Mae's Beach	29.7396	-93.7208	N	No	Yes	N
Constance Beach	29.7605	-93.5674	N	No	Yes	N
Holly Beach	29.7683	-93.5018	N	No	Yes	N
Holly Beach	29.7689	-93.441	N	No	Yes	N
Rutherford Beach	29.7555	-93.1114	N	No	Yes	N
Rutherford Beach	29.7513	-93.0941	N	No	Yes	N
Rutherford Beach	29.7498	-93.0873	N	No	Yes	N
Bayou Rigaud, floating	29.14436	-89.59246	N	No	Yes	N
Lake Pontchartrain, floating	30.205	-90.11194	N	No	Yes	N
Fourchon Beach	29.09	-90.21566	N	No	Yes	N
near Cocodrie	29.24	-90.66	N	Yes	Yes	N
4 mi NE of Fishing Smack Bay	30.003805	-89.20633	N	No	Yes	N

Grand Isle Beach	29.24	-89.99	N	Yes	Yes	N
Empire Jetty Beach	29.25412	-89.60345	N	No	Yes	N
Grand Terre	29.28	-89.92	N	Yes	Yes	N
Bayou Terrebonne by Bayou La Fleur	29.26	-90.64	N	Yes	Yes	N
Lake Chien	29.33	-90.44	N	Yes	Yes	N
Bayou Trove	29.2386	-89.53792	N	No	Yes	N
Grand Isle State Park	29.24	-89.97	Y	Yes	Yes	N
Queen Bess Island	29.3	-89.96	N	Yes	Yes	N
Lake Felicity, North of Timbalier Island	29.26	-90.4	N	Yes	Yes	N
Lake Felicity, North of Timbalier Island	29.26	-90.47	N	Yes	Yes	N
Lake Felicity, North of Timbalier Island	29.28	-90.42	N	Yes	Yes	N
Grand Isle Beach	29.2	-90.04	N	Yes	Yes	N
skimmer found ~50 mi S of Louisiana coastline, brought intc	28.4375	-89.8958	Y	No	Skimmer	N
Cameron Parish beach	29.76	-93.34	N	Yes	Yes	N
skimmer found ~17 mi offshore Grand Isle	28.9932	-89.8412	Y	No	Skimmer	N
Timbalier Island	29.04	-90.47	N	Yes	Yes	N
floating just offshore western LA beaches	29.76	-93.46	N	Yes	Yes	N
western Louisiana beaches	29.74	-93.42	N	Yes	Yes	N
western Louisiana beaches	29.74	-93.44	N	Yes	Yes	N
western Louisiana beaches	29.74	-93.46	N	Yes	Yes	N
Coup A Bel Pass	29.3	-89.9	Y	Yes	Yes	N
Marsh Island	29.5	-91.9	N	Yes	Yes	N
Barataria Bay	29.4	-89.94	Y	Yes	Yes	N
north Barataria Bay	29.43308	-89.88585	Y	No	Yes	N
western Louisiana, nearshore waters	29.7	-93	N	Yes	Yes	N
Fourchon Beach	29.08	-90.14	N	Yes	Yes	N
no location info - est location in Chandeleur Sound	29.8	-89.1	N	Yes	Yes	N
Rutherford Beach	29.74	-93.22	N	Yes	Yes	N
Rutherford Beach	29.72	-93.15	N	Yes	Yes	N
Rutherford Beach	29.72	-93.07	N	Yes	Yes	N
Fourchon Beach	29.1	-90.1	N	Yes	Yes	N
Slidell area	30.13	-89.57	N	Yes	Yes	N
Rollover Bayou (W LA near Rockefeller Refuge)	29.59	-92.7	N	Yes	Yes	N
Rollover Bayou (W LA near Rockefeller Refuge)	29.6	-92.6	N	Yes	Yes	N

Whiskey Island chain, south of Cocodrie	29.03	-90.75	N	Yes	Yes	N
Timbalier Island area - floating?	29.05	-90.47	N	Yes	Yes	N
west of Bayou La Fourche, north of jetties at Port Fourchon	29.1	-90.18	N	Yes	Yes	N
Timbalier Bay	29.1	-90.4	N	Yes	Yes	N
Lake Borgne	30.1	-89.6	N	Yes	Yes	N
floating in Terrebonne Bay, ~4-5 mi S of Cocodrie	29.15	-90.6	N	Yes	Yes	N
floating in Houma navigational channel	29.33	-90.73	N	Yes	Yes	N
Fourchon Beach	29.09139	-90.22365	N	No	Yes	N
Racoon Island	29.06263	-90.94988	N	No	Yes	N
Racoon Island	29.0624	-90.94663	N	No	Yes	N
off shore S.E. Of Port Fourchon	29.01988	-90.11865	Y	No	Yes	N
Grand Isle Beach	29.19899	-90.04115	N	No	Yes	N
Grand Isle Beach	29.22781	-90.00005	N	No	Yes	N
Rigolets Pass, near Slidell	30.13	-89.6	N	Yes	Yes	N
Port Fourchon, on sandbar	29.09	-90.19	N	Yes	Yes	N
Bay Wilkinson	29.46985	-89.91005	Y	No	Yes	N
N Barataria Bay, in canal off of Wilkinson Canal	29.46278	-89.95111	N	No	Yes	N
location? Off of LA	29	-88.7	N	Yes	Yes	N
Bay St. Louis	30.30880	-89.32590	N	No	Yes	N
Bay St. Louis	30.29410	-89.34320	N	No	Yes	N
Waveland	30.26410	-89.39200	N	No	Yes	N
Waveland	30.27260	-89.37750	N	No	Yes	N
Waveland	30.27360	-89.37640	N	No	Yes	N
Long Beach	30.34780	-89.13900	N	No	Yes	N
Pass Christian	30.31481	-89.24207	N	No	Yes	N
Pass Christian	30.31071	-89.25556	N	No	Yes	N
Pass Christian	30.31460	-89.24252	N	No	Yes	N
Pass Christian	30.31080	-89.25728	N	No	Yes	N
Pass Christian	30.31295	-89.24477	N	No	Yes	N
Pass Christian	30.31082	-89.25535	N	No	Yes	N
Ocean Springs	30.40980	-88.84080	N	No	Yes	N
Bay St. Louis	30.31900	-89.32230	N	No	Yes	N
Waveland	30.28830	-89.36000	N	No	Yes	N
Waveland	30.28680	-89.36260	N	No	Yes	N

Pass Christian	30.30650	-89.26858	N	No	Yes	N
Pass Christian	30.30725	-89.26653	N	No	Yes	N
Bay St. Louis	30.30562	-89.32865	N	No	Yes	N
Pass Christian	30.32834	-89.19923	N	No	Yes	N
Pass Christian	30.30529	-89.27249	N	No	Yes	N
Pass Christian	30.32620	-89.20892	N	No	Yes	N
Pass Christian	30.32460	-89.21450	N	No	Yes	N
Biloxi	30.39289	-88.94716	N	No	Yes	N
Waveland	30.28865	-89.35290	N	No	Yes	N
Pass Christian	30.32824	-89.19985	N	No	Yes	N
Pass Christian	30.33144	-89.18568	N	No	Yes	N
Pass Christian	30.32144	-89.22351	N	No	Yes	N
Pass Christian	30.30750	-89.26659	N	No	Yes	N
Bay St. Louis	30.31558	-89.29004	N	No	Yes	N
Pass Christian	30.30525	-89.27421	N	No	Yes	N
Pass Christian	30.30989	-89.25963	N	No	Yes	N
Waveland	30.26362	-89.39346	N	No	Yes	N
Waveland	30.28670	-89.36321	N	No	Yes	N
Gulfport	30.35567	-89.11807	N	No	Yes	N
Waveland	30.24120	-89.42470	N	No	Yes	N
Gulfport	30.36948	-89.07825	N	No	Yes	N
Biloxi	30.39169	-88.95027	N	No	Yes	N
Biloxi	30.39271	-88.87608	N	No	Yes	N
Waveland	30.27834	-89.37222	N	No	Yes	N
Gulfport	30.37689	-89.04778	N	No	Yes	N
Waveland	30.27006	-89.38032	N	No	Yes	N
Bay St. Louis	30.30022	-89.33346	N	No	Yes	N
Pass Christian	30.32762	-89.20251	N	No	Yes	N
floating N of Ship Island	30.25080	-88.94120	N	No	Yes	N
Waveland	30.25685	-89.41499	N	No	Yes	N
Waveland	30.26483	-89.39040	N	No	Yes	N
Waveland	30.26471	-89.39070	N	No	Yes	N
Pass Christian, floating by Henderson Point	30.30320	-89.29570	N	No	Yes	N
Waveland	30.28749	-89.36136	N	No	Yes	N

Waveland	30.28790	-89.36065	N	No	Yes	N
Gulfport	30.36129	-89.10089	N	No	Yes	N
Long Beach	30.33749	-89.16818	N	No	Yes	N
Pass Christian	30.32775	-89.20048	N	No	Yes	N
Pass Christian	30.31166	-89.25018	N	No	Yes	N
Pass Christian	30.30335	-89.28335	N	No	Yes	N
Waveland	30.28267	-89.36761	N	No	Yes	N
Biloxi	30.39147	-88.95452	N	No	Yes	N
Biloxi	30.39385	-88.91407	N	No	Yes	N
Horn Island	30.22831	-88.64799	N	No	Yes	N
Pass Christian	30.31300	-89.24830	N	No	Yes	N
Pass Christian	30.31190	-89.29050	N	No	Yes	N
Gulfport	30.38250	-89.02280	N	No	Yes	N
Gulfport	30.38150	-89.02610	N	No	Yes	N
floating ~1/2 mile south of Biloxi bridge	30.38960	-88.84190	N	No	Yes	N
Waveland Beach at Nicholson Ave	30.29410	-89.35910	N	No	Yes	N
Pass Christian	30.32320	-89.21840	N	No	Yes	N
Gulfport Beach	30.35582	-89.11698	N	No	Yes	N
Gulfport Beach	30.33215	-89.18207	N	No	Yes	N
Lakeshore/Waveland	30.25117	-89.42138	N	No	Yes	N
Bay St. Louis	30.29545	-89.34080	N	No	Yes	N
Waveland	30.26715	-89.38553	N	No	Yes	N
Bay St. Louis	30.30980	-89.32553	N	No	Yes	N
West Ship Island	30.2115	-88.98480	N	No	Yes	N
Waveland	30.28248	-89.36733	N	No	Yes	N
Pass Christian	30.31406	-89.24347	N	No	Yes	N
Gulfport	30.37421	-89.04382	N	No	Yes	N
Bay St. Louis	30.30883	-89.32583	N	No	Yes	N
Waveland	30.27683	-89.37367	N	No	Yes	N
Waveland	30.28064	-89.36495	N	No	Yes	N
Waveland	30.28127	-89.36557	N	No	Yes	N
Pascagoula Beach	30.3433	-88.55500	N	No	Yes	N
Waveland	30.27234	-89.37753	N	No	Yes	N
SE Horn Island	30.2207	-88.59330	N	No	Yes	N

southside Cat Island	30.2283	-89.07330	N	No	Yes	N
Pass Christian	30.31352	-89.24396	N	No	Yes	N
Bellefontaine Beach	30.3433	-88.70330	N	No	Yes	N
water south of Cadet Point, Biloxi	30.3877	-88.85890	N	No	Yes	N
Waveland	30.28063	-89.36495	N	No	Yes	N
Biloxi Bay	30.40980	-88.86906	N	No	Yes	N
Biloxi Bay	30.40980	-88.86906	N	No	Yes	N
Horn Island, ~3000' from W end	30.2398	-88.76870	N	No	Yes	N
Waveland	30.28655	-89.36330	N	No	Yes	N
Pass Christian	30.30725	-89.26660	N	No	Yes	N
Waveland	30.28063	-89.36495	N	No	Yes	N
Long Beach	30.33743	-89.16837	N	No	Yes	N
Biloxi Beach	30.39154	-88.95600	N	No	Yes	N
north side of Horn Island	30.22307	-88.62952	N	No	Yes	N
Bangs Lake off of Pascagoula	30.3588	-88.47300	N	No	Yes	N
Biloxi, Back Bay	30.40079	-88.85896	N	No	Yes	N
Ocean Springs, McPherson Pier	30.40397	-88.83031	N	No	Yes	N
Waveland	30.28063	-89.36495	N	No	Yes	N
Ocean Springs	30.40397	-88.83031	N	No	Yes	N
Biloxi, near Palace Casino	30.3959	-88.85830	N	No	Yes	N
Ocean Springs	30.40397	-88.83031	N	No	Yes	N
Ocean Springs	30.4075	-88.83540	N	No	Yes	N
Gulfport	30.35487	-89.12191	N	No	Yes	N
Waveland	30.26605	-89.38722	N	No	Yes	N
Long Beach	30.34084	-89.15894	N	No	Yes	N
Biloxi, near harbor	30.39268	-88.88209	N	No	Yes	N
Gautier / Belle Fontaine Beach	30.3457	-88.74080	N	No	Yes	N
Biloxi	30.39158	-88.94994	N	No	Yes	N
Biloxi	30.39184	-88.94596	N	No	Yes	N
Biloxi	30.39183	-88.94596	N	No	Yes	N
Biloxi	30.39184	-88.94576	N	No	Yes	N
Biloxi	30.39262	-88.93246	N	No	Yes	N
Biloxi Beach	30.3932	-88.90645	N	No	Yes	N
Biloxi Beach	30.39353	-88.92310	N	No	Yes	N

Biloxi Beach	30.39382	-88.91889	N	No	Yes	N
Biloxi Beach	30.39375	-88.92016	N	No	Yes	N
Biloxi Beach	30.39108	-88.96432	N	No	Yes	N
Biloxi Beach	30.38968	-88.97850	N	No	Yes	N
Ocean Springs / Belle Fontaine Beach	30.34316	-88.72950	N	No	Yes	N
Gulfport Beach	30.3597	-89.10686	N	No	Yes	N
Biloxi Beach	30.3938	-88.91200	N	No	Yes	N
Gulfport Beach	30.37834	-89.04083	N	No	Yes	N
Gulfport Beach	30.38538	-89.01003	N	No	Yes	N
Gulfport Beach	30.37825	-89.04118	N	No	Yes	N
Gulfport Beach	30.3844	-89.01535	N	No	Yes	N
Biloxi Beach	30.38942	-88.98023	N	No	Yes	N
Biloxi Beach	30.39028	-88.97433	N	No	Yes	N
Biloxi Beach	30.39357	-88.89623	N	No	Yes	N
Gulfport Beach	30.3831	-89.0192	N	No	Yes	N
Biloxi Beach	30.3914	-89.0069	N	No	Yes	N
Biloxi Beach	30.39	-88.9756	N	No	Yes	N
Biloxi Beach	30.3875	-88.9942	N	No	Yes	N
Biloxi Beach	30.3889	-88.9847	N	No	Yes	N
Gulfport Beach	30.37058	-89.0742	N	No	Yes	N
Gulfport Beach	30.3706	-89.07417	N	No	Yes	N
Gulfport Beach	30.37131	-89.07161	N	No	Yes	N
Gulfport Beach	30.37158	-89.07066	N	No	Yes	N
Gulfport Beach	30.3768	-89.07045	N	No	Yes	N
Gulfport Beach	30.37262	-89.06721	N	No	Yes	N
Gulfport	30.38075	-89.02951	N	No	Yes	N
Gulfport	30.38097	-89.02944	N	No	Yes	N
Gulfport	30.38048	-89.03049	N	No	Yes	N
Gulfport	30.38016	-89.03156	N	No	Yes	N
Biloxi	30.3799	-89.03266	N	No	Yes	N
Biloxi	30.38032	-89.03104	N	No	Yes	N
Gulfport Beach	30.37746	-89.0433	N	No	Yes	N
Gulfport Beach	30.37819	-89.0416	N	No	Yes	N
Waveland	30.2806	-89.3449	N	No	Yes	N

Biloxi, Acadia Ave	30.39277	-88.9312	N	No	Yes	N
Gulfport Beach	30.37819	-89.0416	N	No	Yes	N
Gulfport Beach	30.37819	-89.0416	N	No	Yes	N
Gulfport Beach	30.37843	-89.0413	N	No	Yes	N
Gulfport Beach	30.37837	-89.04101	N	No	Yes	N
Gulfport Beach	30.37457	-89.0563	N	No	Yes	N
Gulfport Beach	30.37456	-89.05634	N	No	Yes	N
Biloxi Beach	30.3887	-88.98878	N	No	Yes	N
Biloxi Beach	30.38877	-88.98797	N	No	Yes	N
Biloxi Beach	30.38877	-88.98797	N	No	Yes	N
Biloxi Beach	30.38886	-88.9741	N	No	Yes	N
Biloxi Beach	30.38886	-88.98734	N	No	Yes	N
Pass Christian Beach	30.32762	-89.20251	N	No	Yes	N
Gulfport Beach	30.38188	-89.02495	N	No	Yes	N
Gulfport Beach	30.38393	-89.01701	N	No	Yes	N
Gulfport Beach	30.38583	-89.00827	N	No	Yes	N
Biloxi Beach	30.39357	-88.89818	N	No	Yes	N
Biloxi Beach	30.39182	-88.94774	N	No	Yes	N
Biloxi Beach	30.39328	-88.92583	N	No	Yes	N
Biloxi Beach	30.37561	-89.09052	N	No	Yes	N
Biloxi Beach	30.37571	-89.05148	N	No	Yes	N
Biloxi Beach	30.38738	-89	N	No	Yes	N
Biloxi Beach	30.38746	-88.99895	N	No	Yes	N
near Horn Island - floating?	30.2333	-88.53093	N	No	Yes	N
floating off of Gulfport	30.32007	-89.17917	N	No	Yes	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	N
Biloxi Beach	30.39383	-88.91076	N	No	Yes	N
Biloxi Beach	30.39167	-88.89817	N	No	Yes	N
Biloxi Beach	30.39383	-88.91895	N	No	Yes	N
Gulfport Beach	30.37125	-89.07175	N	No	Yes	N
west side of Deer Island, Biloxi	30.26278	-88.89885	N	No	Yes	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	N
Waveland Pier	30.2806	-89.3449	N	No	Yes	N

Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Biloxi Beach	30.38722	-89.00137	N	No	Yes	N
Ocean Springs	30.3603	-88.7642	N	No	Yes	N
Ocean Springs	30.369965	-88.779549	N	No	Yes	N
Biloxi	30.392	-88.87	N	No	Yes	N
Long Beach	30.35226	-89.12932	N	No	Yes	N
Long Beach, Jeff Davis Ave	30.3437	-89.1498	N	No	Yes	N
Long Beach	30.3397	-89.94848	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
3 Oaks Bayou (Bayou Caddy), outside Waveland	30.24575	-89.43206	N	No	Yes	N
Pass Christian	30.32465	-89.2142	N	No	Yes	N
Long Beach	30.33843	-89.16594	N	No	Yes	N
Long Beach	30.34897	-89.13697	N	No	Yes	N
floating off of NE corner of Ship Island	30.22236	-88.94848	N	No	Yes	N
floating off NE coast of Cat Island	30.2596	-89.037	N	No	Yes	N
floating east Cat Island	30.2211	-89.0336	N	No	Yes	N
in MS Sound ~2 mi offshore Biloxi, brought in to Ocean Spri	30.368	-88.958	N	No	Yes	N
Deer Island, Biloxi Harbor	30.21851	-88.48135	N	No	Yes	N
Biloxi Harbor	30.19418	-88.52193	N	No	Yes	N
Biloxi Harbor, NW end Horn Island	30.16057	-88.44111	N	No	Yes	N
Gulfport Harbor	30.1523	-89.0633	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
floating off of Biloxi	30.37	-88.92	N	Yes	Yes	N
floating off of Biloxi	30.365	-88.89	N	Yes	Yes	N
floating off of Biloxi	30.36	-88.86	N	Yes	Yes	N
floating off of Biloxi	30.35	-88.84	N	Yes	Yes	N
floating off of Biloxi Beach	30.3505	-88.9066	N	No	Yes	N
floating off of Biloxi Beach	30.389	-88.8865	N	No	Yes	N
floating off of Biloxi Beach	30.3531	-88.937	N	No	Yes	N
floating off of Biloxi Beach	30.3379	-88.9542	N	No	Yes	N

floating off of Cat Island, Long Beach	30.2736	-89.0744	N	No	Yes	N
floating off of Biloxi Beach	30.3498	-88.892	N	No	Yes	N
floating off of Biloxi Beach	30.3651	-88.8896	N	No	Yes	N
floating off of Biloxi Beach	30.3667	-88.8944	N	No	Yes	N
floating off of Biloxi Beach	30.356	-88.9961	N	No	Yes	N
floating off of Biloxi Beach	30.356	-88.898	N	No	Yes	N
Biloxi Beach	30.38757	-88.99525	N	No	Yes	N
Gulfport Beach	30.37807	-89.04175	N	No	Yes	N
Ocean Springs	30.40376	-88.82699	N	No	Yes	N
Long Beach	30.34	-89.16059	N	No	Yes	N
Gulfport	30.37314	-89.0655	N	No	Yes	N
Biloxi Beach	30.38498	-89.01112	N	No	Yes	N
floating off of Long Beach	30.32185	-89.1497	N	No	Yes	N
floating in Back Bay of Biloxi	30.41678	-88.86855	N	No	Yes	N
Bay St. Louis, on beach, Lakeshore area	30.24835	-89.42323	N	No	Yes	N
Biloxi Beach	30.38	-88.89	N	Yes	Yes	N
floating off of Jackson County	30.3	-88.7	N	Yes	Yes	N
Ocean Springs Pier, Jackson County	30.40398	-88.82962	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Harrison County	30.37537	-88.81745	N	No	Yes	N
Harrison County	30.37762	-88.1543	N	No	Yes	N
Jackson County	30.40048	-88.84228	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Pass Christian	30.34114	-89.15825	N	No	Yes	N
Long Beach	30.32659	-89.2067	N	No	Yes	N
Waveland Pier	30.28063	-89.36495	N	No	Yes	N
Bay St. Louis	30.3	-89.3	N	Yes	Yes	N
Long Beach	30.33	-89.16	N	Yes	Yes	N
Long Beach	30.345	-89.1	N	Yes	Yes	N
Bay St. Louis	30.24918	-89.42303	N	No	Yes	N
Pass Christian	30.31637	-89.23715	N	No	Yes	N
Pass Christian, on beach	30.31161	-89.25247	N	No	Yes	N

floating off of Biloxi	30.39065	-88.87007	N	No	Yes	N
floating off west end of Deer Island, near Biloxi	30.38	-88.89	N	Yes	Yes	N
floating off west end of Deer Island, near Biloxi	30.375	-88.87	N	Yes	Yes	N
floating by Biloxi Schooner Pier	30.39	-88.87	N	Yes	Yes	N
floating ~1 mi offshore of Mississippi Coliseum	30.21919	-88.58492	N	No	Yes	N
Cat Island	30.36698	-88.97193	N	No	Yes	N
East Beach, Davis Bayou	30.39609	-88.81237	N	No	Yes	N
inside Point Cadet Harbor, N side of seawall	30.38839	-88.85983	N	No	Yes	N
Ship Island, ~1 mile east of pier	30.21271	-88.95624	N	No	Yes	N
Directed Capture	28.4665	-88.46116	Y	No	No	N
Directed Capture	28.96778	-88.79333	Y	No	No	N
Directed Capture	28.90722	-88.80167	Y	No	No	N
Directed Capture	28.9597	-88.5342	Y	No	No	N
Directed Capture	28.9182	-88.5552	Y	No	No	N
Directed Capture	28.865	-88.5658	Y	No	No	N
Directed Capture	28.8538	-88.5617	Y	No	No	N
Directed Capture	28.847	-88.5588	Y	No	No	N
Directed Capture	28.8405	-88.5557	Y	No	No	N
Directed Capture	28.6573	-88.4313	Y	No	No	N
Directed Capture	28.8045	-88.4771	Y	No	No	N
Directed Capture	28.804483	-88.4771	Y	No	No	N
Directed Capture	28.80725	-88.47808	Y	No	No	N
Directed Capture	28.813483	-88.480383	Y	No	No	N
Directed Capture	28.81535	-88.479233	Y	No	No	N
Directed Capture	28.81669	-88.47803	Y	No	No	N
Directed Capture	28.828083	-88.37115	Y	No	No	N
Directed Capture	28.829617	-88.471267	Y	No	No	N
Directed Capture	28.826867	-88.464933	Y	No	No	N
Directed Capture	28.834317	-88.42455	Y	No	No	N
Directed Capture - LDWF	29.09	-89.78	Y	No	No	N
Directed Capture - LDWF	29.0919	-89.7781	Y	No	No	N
Directed Capture - LDWF	29.0932	-89.7747	Y	No	No	N
Directed Capture - LDWF	29.0998	-89.7574	Y	No	No	N
Directed Capture - LDWF	29.1065	-89.748	Y	No	No	N

Directed Capture	29.01025	-88.26369	Y	No	No	N
Directed Capture	29.01025	-88.26369	Y	No	No	N
Directed Capture	29.01025	-88.26369	Y	No	No	N
Directed Capture	29.02569	-88.25586	Y	No	No	N
Directed Capture	29.17372	-88.16519	Y	No	No	N
Directed Capture	28.7538	-88.85602	Y	No	No	N
Directed Capture	28.75114	-88.84875	Y	No	No	N
Directed Capture	28.62252	-88.55688	Y	No	No	N
Directed Capture	28.76398	-88.82482	Y	No	No	N
Directed Capture	28.66965	-88.49193	Y	No	No	N
Directed Capture	28.91208	-88.68748	Y	No	No	N
Directed Capture	28.70114	-88.53979	Y	No	No	N
Directed Capture	28.92108	-88.7991	Y	No	No	N
Directed Capture	28.92094	-88.79822	Y	No	No	N
Directed Capture	28.92891	-88.77321	Y	No	No	N
Directed Capture	28.928	-88.7701	Y	No	No	N
Directed Capture	28.92558	-88.74215	Y	No	No	N
Directed Capture	28.93916	-88.71402	Y	No	No	N
Directed Capture	28.94739	-88.70053	Y	No	No	N
Directed Capture	28.96491	-88.67766	Y	No	No	N
Directed Capture	28.98004	-88.65568	Y	No	No	N
Directed Capture - LDWF	28.72474	-88.55243	Y	No	No	N
Directed Capture - LDWF	28.81743	-88.63998	Y	No	No	N
Directed Capture	28.62361	-88.54351	Y	No	No	N
Directed Capture	28.60264	-88.49568	Y	No	No	N
Directed Capture	28.59733	-88.49236	Y	No	No	N
Directed Capture	28.59501	-88.49054	Y	No	No	N
Directed Capture	28.57604	-88.49573	Y	No	No	N
Directed Capture	28.57271	-88.49434	Y	No	No	N
Directed Capture	28.56876	-88.49416	Y	No	No	N
Directed Capture	28.52956	-88.51617	Y	No	No	N
Directed Capture	28.50794	-88.54434	Y	No	No	N
Directed Capture	28.53647	-88.60338	Y	No	No	N
Directed Capture	28.69822	-88.79404	Y	No	No	N

Directed Capture	28.90896	-88.72726	Y	No	No	N
Directed Capture	28.6881	-88.84448	Y	No	No	N
Directed Capture	28.67472	-88.88646	Y	No	No	N
Directed Capture	28.68382	-88.88902	Y	No	No	N
Directed Capture	28.8945	-88.72223	Y	No	No	N
Directed Capture	28.6575	-88.87042	Y	No	No	N
Directed Capture	28.65178	-88.86879	Y	No	No	N
Directed Capture	28.6833	-88.64572	Y	No	No	N
Directed Capture	28.74405	-88.2535	Y	No	No	N
Directed Capture	28.7637	-88.23549	Y	No	No	N
Directed Capture	28.7666	-88.23471	Y	No	No	N
Directed Capture	28.78214	-88.23679	Y	No	No	N
Directed Capture	28.87021	-88.50445	Y	No	No	N
Directed Capture - LDWF	28.67327	-88.29708	Y	No	No	N
Directed Capture - LDWF, 42 mi SW Grand Isle	28.71517	-89.80517	Y	No	No	N
Directed Capture - LDWF, 42 mi SW Grand Isle	28.714	-89.806	Y	No	No	N
Directed Capture - LDWF, 42 mi SW Grand Isle	28.714	-89.806	Y	No	No	N
Directed Capture - LDWF, 42 mi SW Grand Isle	28.709	-89.80267	Y	No	No	N
Directed Capture - LDWF, 42 mi SW Grand Isle	28.70783	-89.80433	Y	No	No	N
Directed Capture - LDWF, 42 mi SW Grand Isle	28.70783	-89.80433	Y	No	No	N
Directed Capture - LDWF, floating ~50 miles offshore Grand	28.62647	-90.18168	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.78182	-89.7506	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.77712	-89.74897	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.77405	-89.74953	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.76734	-89.747	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.76683	-89.7453	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.76467	-89.74487	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.76212	-89.74383	Y	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.75873	-89.74536	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.75897	-89.74525	N	No	No	N
Directed Capture - LDWF, floating ~35 miles offshore Grand	28.7489	-89.75946	Y	No	No	N
Directed Capture	28.34139	-88.72183	Y	No	No	N
Directed Capture	28.92028	-88.40833	Y	No	No	N
Directed Capture	28.98478	-88.35519	Y	No	No	N

Directed Capture	29.02858	-88.30956	Y	No	No	N
Directed Capture	28.95217	-88.37383	Y	No	No	N
Directed Capture	29.00767	-88.90133	Y	No	No	N
Directed Capture	29.00914	-88.88017	Y	No	No	N
Directed Capture	29.05264	-88.79911	Y	No	No	N
Directed Capture	29.13067	-88.76469	Y	No	No	N
Directed Capture	28.97922	-89.06208	Y	No	No	N
Directed Capture	28.98544	-89.05781	Y	No	No	N
Directed Capture	28.98914	-89.05772	Y	No	No	N
Directed Capture	28.99314	-89.05647	Y	No	No	N
Directed Capture	28.99411	-89.05583	Y	No	No	N
Directed Capture	28.99439	-89.05569	Y	No	No	N
Directed Capture	29.01933	-88.94467	Y	No	No	N
Directed Capture	28.83391	-89.70232	N	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.77967	-86.6597	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.76232	-86.64677	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.78245	-86.66177	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.79148	-86.66885	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.79648	-86.67315	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.79063	-86.68507	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.79198	-86.6845	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.76888	-86.71662	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.76633	-86.69712	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.78413	-86.6638	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.74103	-86.68613	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.798	-86.65583	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.8186	-86.64862	Y	No	No	N
Directed Capture, floating approx 40 mi S/SW of Destin, FL	29.82193	-86.64973	Y	No	No	N
Directed Capture - LDWF, approx 50 mi S of Grand Isle	28.60669	-89.81942	Y	No	No	N
Directed Capture - LDWF, approx 50 mi S of Grand Isle	28.60237	-89.80797	Y	No	No	N
Directed Capture - LDWF, approx 50 mi S of Grand Isle	28.5988	-89.82002	Y	No	No	N
Directed Capture - LDWF, approx 50 mi S of Grand Isle	28.60407	-89.86728	Y	No	No	N
Directed Capture - LDWF, approx 50 mi S of Grand Isle	28.62131	-89.91562	Y	No	No	N
Directed Capture - BirdTeam - location? Off of LA	28.7	-89	Y	Yes	No	N

Directed Capture - LDWF - location? Off of LA	28.73	-88.97	N	Yes	No	N
Directed Capture, off of Destin, FL	30.16789	-86.64061	Y	No	No	N
Directed Capture, off of Venice, LA	28.45497	-89.56168	Y	No	No	N
Directed Capture, off of Venice, LA	28.45473	-89.54215	Y	No	No	N
Directed Capture, off of Venice, LA	28.46103	-89.50808	Y	No	No	N
Directed Capture, off of Venice, LA	28.4621	-89.50258	Y	No	No	N
Directed Capture, off of Venice, LA	28.46322	-89.50012	Y	No	No	N
Directed Capture, off of Venice, LA	28.45018	-89.47792	Y	No	No	N
Directed Capture, off of Venice, LA	28.64048	-89.28675	Y	No	No	N
Directed Capture, off of Venice, LA	28.62377	-89.3015	Y	No	No	N
Directed Capture, off of Venice, LA	28.66903	-89.20977	Y	No	No	N
Directed Capture, off of Destin, FL	30.08125	-86.69628	Y	No	No	N
Directed Capture, off of Destin, FL	30.05086	-86.74683	Y	No	No	N
Directed Capture, off of Destin, FL	30.04306	-86.75436	Y	No	No	N
Directed Capture, off of Destin, FL	30.00972	-86.77508	Y	No	No	N
Directed Capture, off of Destin, FL	30.38017	-86.82553	Y	No	No	N
St Andrews Bay, 711 West Beach Dr, behind Buccaneer Mot	30.15885	-85.66962	N	No	Yes	N
on beach in intercoastal just S of Plash Island	30.28118	-87.75023	N	No	Yes	N
1/4 mi NE of Horn Island, floating	30.23691	-88.64885	N	No	Yes	N
Directed Capture, off of Venice, LA	28.75257	-88.94568	Y	No	No	N
Directed Capture - LDWF, ~35 mi off of Grand Isle, LA	28.71372	-90.03227	Y	No	No	N
Directed Capture - LDWF, ~35 mi off of Grand Isle, LA	28.70544	-90.03028	N	No	No	N
Directed Capture - LDWF, ~35 mi off of Grand Isle, LA	28.69817	-90.03405	Y	No	No	N
Directed Capture – LDWF	28.7903833	-89.5349	Y	No	No	N
Directed Capture – LDWF	28.7893	-89.5873	Y	No	No	N
Directed Capture – LDWF	28.7986333	-89.6489167	Y	No	No	N
Bon Secour Bay near channel #119	30.28468	-87.81596	Y	No	Yes	N
Directed Capture, off of Venice, LA	28.98318	-88.79832	Y	No	No	N
Directed Capture, off of Venice, LA	28.97088	-88.90232	Y	No	No	N
Long Beach	29.75189	-93.64085	N	No	Yes	N
Panama City Beach	30.16263	-85.72866	N	No	Yes	N
Harrison County, on beach	30.38180	-89.02513	Y	No	Yes	N
Directed Capture-Destin	30.14361	-86.98861	Y	No	No	N
Directed Capture-Destin	30.11292	-86.98772	Y	No	No	N

Directed Capture-Destin	30.38378	-86.81031	Y	No	No	N
Directed Capture-Destin	30.15225	-86.98911	Y	No	No	N
Directed Capture-Destin	30.11900	-86.98850	Y	No	No	N
Directed Capture-Destin	30.14361	-86.98861	Y	No	No	N
Directed Capture – Venice	28.75343	-88.86237	Y	No	No	N
Directed Capture – LDWF	28.77887	-88.91952	Y	No	No	N
Bon Secour Bay, 3 mi NE of Pines Boat Ramp	30.26892	-87.86847	N	No	Yes	N
Mobile Bay, ~4 mi NE of Katrina Cut	30.28768	-88.30526	N	No	Yes	N
S of Bayou Caddy, floating	30.19785	-89.34733	N	No	Yes	N
S of Bayou Caddy, floating	30.19953	-89.34225	N	No	Yes	N
~3 mi S of Cat Island, floating	30.26915	-89.15201	N	No	Yes	N
Waveland/Bayou Caddy, on beach ~1 mi E of Silver Slipper C	30.25122	-89.42133	N	No	Yes	N
Directed Capture - Venice	28.81003	-88.93257	Y	No	No	N
Directed Capture - Venice	28.72075	-88.95385	Y	No	No	N
Directed Capture - Venice	28.72342	-88.95933	Y	No	No	N
Directed Capture - Venice	28.81473	-88.93203	Y	No	No	N
Directed Capture - LDWF	28.81630	-88.89377	Y	No	No	N
Tyndall AFB	30.03000	-85.57000	N	Yes	Yes	N
Theodore Industrial Canal, S of Guillard Island in Mobile Bay	30.49486	-88.07144	N	No	Yes	N
Gulfport, on beach at Hwy 90 and Oak Ave	30.37461	-89.05309	N	No	Yes	N
Fourchon Beach	29.10122	-90.19025	N	No	Yes	N
Directed Capture - Venice	28.84333	-89.23893	Y	No	No	N
Directed Capture - Venice	28.73598	-89.41370	Y	No	No	N
Directed Capture - Venice	28.83838	-89.14943	Y	No	No	N
Directed Capture - Venice	28.84902	-89.23713	Y	No	No	N
Directed Capture - Venice	28.84020	-89.24598	Y	No	No	N
Directed Capture - Venice	28.81298	-89.13493	Y	No	No	N
Directed Capture - Venice	28.84588	-89.23438	Y	No	No	N
Directed Capture - Destin, ~ 30 miles offshore	29.75869	-86.29614	Y	No	No	N
near Myrtle Grove	29.65000	-89.95000	N	Yes	Yes	N
Mobile Bay, 10295 Kearns Rd, Theodore, on rocks	30.47717	-88.09851	N	No	Yes	N
Directed Capture - Orange Beach, AL	29.62042	-88.03522	Y	No	No	N
Directed Capture - Orange Beach, AL	29.58008	-87.63642	Y	No	No	N
Directed Capture - Orange Beach, AL	29.57822	-87.62947	Y	No	No	N

Directed Capture - Orange Beach, AL	29.57583	-87.60200	Y	No	No	N
Directed Capture - Orange Beach, AL	29.57647	-87.59758	Y	No	No	N
Ft. Morgan, just west of Surfside Drive	30.23022	-87.90641	N	No	Yes	N
Port St. Joe, Windmark Beach area	29.86000	-85.35000	N	Yes	Yes	N
Biloxi area, floating in Back Bay, against rocky shore	30.40881	-88.87754	N	No	Yes	N
Biloxi area, on beach	30.39161	-88.95627	N	No	Yes	N
Perdido Key, 16335 Perdido Key Dr.			N	Yes	Yes	Y

Alive	Symbol	Confirmed	Log #	Comments
N	C	Y		outside of area of concern
N	C	Y		outside of area of concern
N	C	Y		outside of area of concern
N	C	Y		outside of area of concern
N	C	Y		outside of area of concern
N	C	Y		outside of area of concern
N	C	Y		outside of area of concern
N	C	Y		outside of area of concern
N	C	Y	D-0002 BSNWR	
N	C	Y	D-0001 BSNWR	
N	C	Y	D-0003 BSNWR	
N	C	Y	D-0004 BSNWR	
N	C	Y	D-0005 BSNWR	
N	C	Y	D-0006 BSNWR	
N	C	Y	D-0007 BSNWR	
N	C	Y	D-0008 BSNWR	
N	C	Y	D-0009 BSNWR	
N	C	Y	D-0010 BSNWR	
N	C	Y	D-0015 BSNWR	
N	C	Y	D-0014 BSNWR	
N	C	Y	D-0011 BSNWR	
N	C	Y	D-0012 BSNWR	
N	C	Y	D-0013 BSNWR	
N	C	Y	D-0016 BSNWR	
N	C	Y	D-0017 BSNWR	dried carcass
N	C	Y	D-0018 BSNWR	
N	C	Y	D-0019 BSNWR	
N	C	Y	D-0020 BSNWR	
N	C	Y	D-0021 BSNWR	
N	C	Y	D-0023 BSNWR	
N	C	Y	D-0022 BSNWR	
Y	C	Y	L-0001 BSNWR	
N	C	Y	D-0024 BSNWR	

N	C	Y	D-0025 BSNWR	
N	C	Y	D-0026 BSNWR	
N	C	Y	D-0027 BSNWR	
Y	C	Y	L-0007 IMMS	emaciated; taken to IMMS for rehab; died 5/25, shipped to UF for necropsy
N	C	Y	D-0028 BSNWR	
N	C	Y	D-0029 BSNWR	
N	C	Y	D-0030 BSNWR	
N	C	Y	D-0031 BSNWR	
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	U	N		
Y	C	Y	L-0012 IMMS	found floating next to boom; externally oiled turtle; taken to IMMS for rehab
N	U	N		
Y	C	Y	L-0013 IMMS	externally oiled turtle; taken to IMMS for rehab
N	U	N		
N	U	N		too decomposed for necropsy
N	U	N		
N	U	N		
N	U	N		
N	C	Y		parts only - head, guts and 1 flipper
N	C	Y		
N	C	Y		
N	U	N		
N	U	N		
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		

N	C	Y	
N	C	Y	
N	U	N	
N	U	N	
N	U	N	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	only back flippers and a bit of carapace
N	C	Y	
Y	U	N	
N	C	Y	
Y	C	Y	
N	C	Y	
Y	C	Y	older damage to carapace, scrape on head and possible constriction to LRF
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	very emaciated, missing part of RRF
Y	C	Y	very emaciated; taken to Gulf World, died soon after recovery
N	C	Y	no head, flippers or internal organs
N	C	Y	brown algae on carapace; some small barnacles on skin; adult female
N	C	Y	prop damage to right side of carapace
N	C	Y	no wounds; barnacles and algae on carapace; adult male
N	C	Y	missing notch from right side carapace; barnacle and algae growth
Y	C	Y	barnacles on carapace and flippers; taken to Gulf World, died same day
N	C	Y	apparent piece of metal in ventral LFF near insertion
N	C	Y	dried carcass; little skin remaining, bones visible
N	C	Y	no head or front flippers, shark bites
N	C	Y	missing both front flippers and lrf
N	C	Y	carapace completely covered w/barnacles and algae; adult female
N	C	Y	emaciated, lots of barnacles, damage to base of front flippers and neck

N	C	Y	
N	C	Y	
N	C	Y	in pieces, decomposed
N	C	Y	carapace broken, pieces missing
N	C	Y	skin and scutes peeling
Y	C	Y	numerous barnacles and light algae on carapace; taken to Gulfarium
N	C	Y	old wound to posterior marginals; scutes peeling
N	C	Y	posterior carapace gone; plastron missing; falling apart, nasty
N	U	N	
N	C	Y	apparent skeg/prop damage to center carapace
Y	C	Y	caught on hook and line, hook in throat; taken to Gulfarium
N	C	Y	prop wounds to right posterior carapace; heavy barnacles,small barnacles on skin
N	C	Y	2 apparent prop wounds across carapace
N	C	Y	skin and scutes peeling, very decomposed
N	C	Y	fishing line entangled around neck
N	C	Y	no head or flippers; damage to carapace - likely prop
N	C	Y	missing skull; carapace bones disarticulating due to decomp
N	C	Y	missing head and LFF, possible shark bites; gashes on plastron
N	U	N	
N	C	Y	carapace bones disarticulating due to decomp
N	C	Y	dried carcass; carapace broken across posterior; portions missing
Y	U	N	caught on hook and line, hook removed and turtle released
Y	U	N	
N	U	N	
Y	U	N	
N	U	N	
Y	U	N	caught by relocation trawler; ~50% coverage of thin oil sheen, also sheen in mouth
N	U	N	
N	U	N	
N	U	N	in pieces due to decomp, unable to salvage
N	U	N	
Y	U	N	caught by relocation trawler; observer thought oiled, Gulfarium said algae
N	C	Y	
N	U	N	

Y	U	N	
N	C	Y	wound/damage to throat area
N	C	Y	
N	C	Y	
N	U	N	
Y	U	N	caught by relocation trawler; Gulfarium said not oiled
N	U	N	
Y	C	Y	
N	U	N	
N	C	Y	
N	U	N	adult female, died on nesting beach, apparent shark bites around tail area
Y	U	N	unable to dive, covered with algae
Y	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	U	N	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	

N	C	Y	parts only
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	U	N	
N	U	N	
N	C	Y	swab sample taken
N	C	Y	swab sample taken
Y	C	Y	taken to AOA for rehab
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	U	N	
Y	C	Y	taken to AOA for rehab
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	C	Y	swab sample taken
N	C	Y	
N	C	Y	
N	C	Y	
N	U	N	
N	C	Y	

N	U	N	
N	C	Y	
N	U	N	
N	U	N	
N	U	N	
N	C	Y	
N	U	N	
N	U	N	partial carcass, pieces only
N	U	N	
N	U	N	
N	U	N	
N	U	N	
Y	C	Y	
N	U	N	
Y	C	Y	
N	U	N	
N	U	N	
N	U	N	
N	U	N	
N	U	N	
N	U	N	
N	U	N	
N	U	N	
N	C	Y	
Y	U	N	
N	U	N	
Y	U	N	
N	U	N	
N	U	N	
N	U	N	
N	U	N	
N	U	N	
N	U	N	
N	U	N	

N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	C	Y		
N	C	Y		Severely decomposed, on beach
N	C	Y		Severely decomposed, on beach
Y	C	Y		
N	C	Y		
N	C	Y		
Y	U	N		
N	U	N		
N	C	Y		
Y	C	Y		
N	U	N		
N	C	Y	D-0029 IMMS	
N	C	Y	D-0030 IMMS	
N	C	Y	D-0031 IMMS	
N	C	Y	D-0032 IMMS	
N	C	Y	D-0033 IMMS	
Y	C	Y	L-0001 IMMS	taken to IMMS, died in rehab, frozen for necropsy
N	C	Y	D-0001 IMMS	
N	C	Y	D-0002 IMMS	
N	C	Y	D-0003 IMMS	
N	C	Y	D-0004 IMMS	
N	C	Y	D-0005 IMMS	
N	C	Y	D-0006 IMMS	
N	C	Y	D-0034 IMMS	
N	C	Y	D-0007 IMMS	
N	C	Y	D-0008 IMMS	
N	C	Y	D-0009 IMMS	

N	C	Y	D-0010 IMMS	
N	C	Y	D-0011 IMMS	
N	C	Y	D-0012 IMMS	
N	C	Y	D-0013 IMMS	
N	C	Y	D-0014 IMMS	
N	C	Y	D-0015 IMMS	
N	C	Y	D-0016 IMMS	
N	C	Y	D-0017 IMMS	
N	C	Y	D-0018 IMMS	
N	C	Y	D-0019 IMMS	
N	C	Y	D-0020 IMMS	
N	C	Y	D-0021 IMMS	
N	C	Y	D-0022 IMMS	
N	C	Y	D-0023 IMMS	
N	C	Y	D-0024 IMMS	
N	C	Y	D-0025 IMMS	
N	C	Y	D-0026 IMMS	
N	C	Y	D-0027 IMMS	
N	C	Y	D-0028 IMMS	
N	C	Y	D-0035 IMMS	
N	C	Y	D-0036 IMMS	
N	C	Y	D-0037 IMMS	
N	C	Y	D-0038 IMMS	
N	C	Y	D-0039 IMMS	
N	C	Y	D-0040 IMMS	
N	C	Y	D-0041 IMMS	
N	C	Y	D-0042 IMMS	
N	C	Y	D-0043 IMMS	
N	C	Y	D-0044 IMMS	
N	C	Y	D-0045 IMMS	
N	C	Y	D-0046 IMMS	
N	C	Y	D-0047 IMMS	carcass in two pieces
N	C	Y	D-0048 IMMS	
N	C	Y	D-0049 IMMS	

N	C	Y	D-0050 IMMS	
N	C	Y	D-0051 IMMS	
N	C	Y	D-0052 IMMS	
N	C	Y	D-0053 IMMS	
N	C	Y	D-0054 IMMS	
N	C	Y	D-0055 IMMS	
N	C	Y	D-0056 IMMS	
N	C	Y	D-0057 IMMS	
N	C	Y	D-0058 IMMS	
N	C	Y	D-0063 IMMS	Decapitated, missing portions of flippers due to decomp; first reported on 5/8
N	C	Y	D-0059 IMMS	
N	C	Y	D-0060 IMMS	
N	C	Y	D-0061 IMMS	
N	C	Y	D-0062 IMMS	
N	C	Y	D-0064 IMMS	
N	C	Y	D-0065 IMMS	
N	C	Y	D-0066 IMMS	
N	C	Y	D-0067 IMMS	
N	C	Y	D-0068 IMMS	
N	C	Y	D-0069 IMMS	
N	C	Y	D-0070 IMMS	
N	C	Y	D-0071 IMMS	
N	C	Y	D-0072 IMMS	
N	C	Y	D-0085 IMMS	field necropsy on beach; damaged LFF, carapace covered in barnacles; first rep 5/13
N	C	Y	D-0073 IMMS	
N	C	Y	D-0074 IMMS	
Y	C	Y	L-0002 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Mote Ma
N	C	Y	D-0075 IMMS	
N	C	Y	D-0076 IMMS	carapace cracked/broken
Y	C	Y	L-0003 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Clearwat
Y	C	Y	L-0004 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Clearwat
N	C	Y	D-0086 IMMS	"chopped up", likely prop wounds to carapace
N	C	Y	D-0077 IMMS	red slimy substance covering carapace
N	C	Y	D-0087 IMMS	skeletal remains

N	C	Y	D-0088 IMMS	skeletal remains
N	C	Y	D-0078 IMMS	
N	C	Y	D-0089 IMMS	
N	C	Y	D-0090 IMMS	floating, picked up by NPS
Y	C	Y	L-0005 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Mote Ma
N	C	Y	D-0079 IMMS	carapace only
N	C	Y	D-0080 IMMS	carapace only
N	C	Y	D-0091 IMMS	sample taken and logged, carcass painted and left on beach
N	C	Y	D-0081 IMMS	
N	C	Y	D-0082 IMMS	
Y	C	Y	L-0006 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Mote Ma
N	C	Y	D-0083 IMMS	
N	C	Y	D-0092 IMMS	possible loggerhead, unsure of species ID
N	C	Y	D-0093 IMMS	
N	C	Y	D-0094 IMMS	carcass in plastic bag before oil swab taken
N	C	Y	D-0084 IMMS	rear portion of carcass missing
Y	C	Y	L-0008 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Disney 6/
Y	C	Y	L-0009 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
Y	C	Y	L-0010 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Disney 6/
N	C	Y	D-0095 IMMS	carcass in plastic bag before oil swab taken; severe prop damage
Y	C	Y	L-0011 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
N	C	Y	D-0161 IMMS	
N	C	Y	D-0096 IMMS	mangled caudal half of carcass
N	C	Y	D-0097 IMMS	
N	C	Y	D-0098 IMMS	
N	C	Y	D-0099 IMMS	old injury to edge of carapace
N	C	Y	D-0162 IMMS	
N	C	Y	D-0100 IMMS	
N	C	Y	D-0101 IMMS	
N	C	Y	D-0102 IMMS	
N	C	Y	D-0103 IMMS	
N	C	Y	D-0104 IMMS	
N	C	Y	D-0105 IMMS	scrapes along plastron
N	C	Y	D-0106 IMMS	missing right edge of carapace, advanced decomp

N	C	Y	D-0107 IMMS	
N	C	Y	D-0108 IMMS	extra costal scute on L side
N	C	Y	D-0109 IMMS	edges of marginal scutes broken, postmortem
N	C	Y	D-0110 IMMS	extra vertebral scute
N	C	Y	D-0163 IMMS	
N	C	Y	D-0112 IMMS	
N	C	Y	D-0111 IMMS	
N	C	Y	D-0113 IMMS	
N	C	Y	D-0114 IMMS	
N	C	Y	D-0118 IMMS	severely mangled, no accurate meas possible
N	C	Y	D-0119 IMMS	black substance in mouth
N	C	Y	D-0115 IMMS	
N	C	Y	D-0116 IMMS	
N	C	Y	D-0117 IMMS	
N	C	Y	D-0120 IMMS	
N	C	Y	D-0121 IMMS	
N	C	Y	D-0122 IMMS	
N	C	Y	D-0123 IMMS	
N	C	Y	D-0124 IMMS	
N	C	Y	D-0125 IMMS	
N	C	Y	D-0126 IMMS	
N	C	Y	D-0127 IMMS	
N	C	Y	D-0128 IMMS	
N	C	Y	D-0129 IMMS	
N	C	Y	D-0130 IMMS	
N	C	Y	D-0164 IMMS	
N	C	Y	D-0165 IMMS	
N	C	Y	D-0166 IMMS	
N	C	Y	D-0167 IMMS	
N	C	Y	D-0168 IMMS	
N	C	Y	D-0169 IMMS	
N	C	Y	D-0131 IMMS	
N	C	Y	D-0132 IMMS	
Y	C	Y	L-0015 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl

Y	C	Y	L-0014 IMMS	washed ashore alive
N	C	Y	D-0133 IMMS	
N	C	Y	D-0134 IMMS	
N	C	Y	D-0135 IMMS	
N	C	Y	D-0136 IMMS	
N	C	Y	D-0137 IMMS	
N	C	Y	D-0138 IMMS	
N	C	Y	D-0139 IMMS	
N	C	Y	D-0140 IMMS	
N	C	Y	D-0141 IMMS	
N	C	Y	D-0142 IMMS	
N	C	Y	D-0143 IMMS	
N	C	Y	D-0144 IMMS	
N	C	Y	D-0145 IMMS	
N	C	Y	D-0146 IMMS	
N	C	Y	D-0147 IMMS	
N	C	Y	D-0155 IMMS	
N	C	Y	D-0148 IMMS	
N	C	Y	D-0149 IMMS	
N	C	Y	D-0150 IMMS	
N	C	Y	D-0151 IMMS	
N	C	Y	D-0152 IMMS	
N	C	Y	D-0153 IMMS	
N	C	Y	D-0154 IMMS	
N	C	Y	D-0172 IMMS	
Y	C	Y	L-0016 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl
N	C	Y	D-0156 IMMS	
N	C	Y	D-0157 IMMS	
N	C	Y	D-0158 IMMS	
N	C	Y	D-0159 IMMS	
N	C	Y	D-0170 IMMS	
Y	C	Y	L-0017 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl
Y	C	Y	L-0018 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl
Y	C	Y	L-0019 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl

Y	C	Y	L-0020 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl
N	C	Y	D-0160 IMMS	
N	C	Y	D-0171 IMMS	
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		
Y	C	Y	L-0021 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl
Y	C	Y	L-0022 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
Y	C	Y	L-0023 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		
Y	C	Y	L-0024 IMMS	found floating in Ocean Springs Harbor
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		
Y	C	Y	L-0025 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl
Y	C	Y	L-0026 IMMS	incidentally captured on hook and line; taken to IMMS for rehab
Y	C	Y	L-0027 IMMS	incidentally captured on hook and line; taken to IMMS for rehab; transfer to Sea Worl
N	U	N		
N	U	N		
N	U	N		
N	U	N		
N	C	Y		
N	C	Y		
N	C	Y		
N	C	Y		

N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	U	N	
N	U	N	
Y	C	Y	incidentally captured on hook and line; taken to IMMS for rehab, hook ingested
Y	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
N	C	Y	
N	C	Y	
Y	C	Y	
N	U	N	
N	U	N	
N	U	N	
N	C	Y	
N	C	Y	
N	C	Y	

N	C	Y
N	U	N
N	U	N
N	U	N
N	C	Y
N	C	Y
N	C	Y
N	C	Y
N	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
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Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
N	C	Y
Y	C	Y
Y	C	Y
Y	C	Y
Y	C	Y

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Y	C	Y

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Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
N	C	Y	only RRF present, head missing, most internal organs gone
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	

Y	C	Y
Y	C	Y
Y	C	Y

Y	U	N	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
N	C	Y	
N	C	Y	bones only
N	C	Y	
Y	C	Y	Lat/lon changed 7/18, p.richards – e-mails To w.Teas
Y	C	Y	oil on shell and flippers; plastic debris entangled around flippers, severely constricted
Y	C	Y	no visible oil; wound to posterior plastron, partially healed
Y	C	Y	oil on front flippers
Y	C	Y	oiling: some – head & ft. flippers
N	C	Y	oiling: not much, found dead
Y	C	Y	oiling: some – head & ft. flippers
N	C	Y	
Y	C	Y	Lat/lon changed 7/18, p.richards – e-mails To w.Teas;
Y	C	Y	Lat/lon changed 7/18, p.richards – e-mails To w.Teas
N	C	Y	As of 7/18 it was in the lake Charles Office, will be going to Audubon.
N	C	Y	Location is est. by stranding coord. from google maps via address (24 Grand Handron (
N	C	Y	
Y	C	Y	
Y	C	Y	

Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
N	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
N	U	N	
N	C	Y	
N	C	Y	
N	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	1/2" x 1/4" smudge of oil, cleaned off by sampling gauze
N	U	N	
N	C	Y	
Y	C	Y	
Y	C	Y	
Y	C	Y	

Y	C	Y	
Y	C	Y	
N	C	Y	
N	U	N	
N	C	Y	carapace broken - possible prop damage
N	C	Y	something on carapace - algae? - may be oil but didn't think so
N	N	N	

Date Released	Tag Numbers	PIT Tag Number	Release Lat	Release Long	Release Location

rine Lab 5/30/10

7/8/2010
7/8/2010

6/3/2010 YYX735 / YYX734 483C0E4C20 Ten Thousand Islands, FL

6/3/2010 YYX737 / YYX736 4856313F37 Ten Thousand Islands, FL

'25/10

'25/10

7/8/2010

7/8/2010

d 6/25/10
d 6/25/10
d 6/25/10

7/8/2010

d 6/25/10

7/8/2010

7/8/2010

sp?) drive, Pannama City)

7/20/2010

Date	Stranding I	Species	ReportTyp	Condition	Disposition	Status	State
7/19/2010	20100719	Unknown	Stranding	Alive	Rehab-died	Shipped to Brian	MS

Descriptive	Latitude	Longitude	External oi	Temp	Locat	Stranding	New	Alive	Symbol
Ship Island,	30.21005	-88.95234	N		No	Yes	N	Y	C

Confirmed	Log #	Comments	Date Relea	Tag Numbe	PIT Tag Nu	Release La	Release Lo	Release Lo
Y								

cation

Date	Stranding Referenc	Species	ReportType	Condition	Disposition	Status
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Comatose	Rehab	Rehab-IMMS
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Lepidochelys kem	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Lepidochelys kem	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/9/2010	20100709	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Dead	Salvaged	Necropsy-GV
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/10/2010	20100710	Caretta caretta	Trawl Capture	Alive	Released	
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released	

7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/11/2010	20100711	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Caretta caretta	Trawl Capture	Alive	Released
7/12/2010	20100712	Lepidochelys kem	Trawl Capture	Alive	Released
7/12/2010	20100712	Lepidochelys kem	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Caretta caretta	Trawl Capture	Alive	Released
7/13/2010	20100713	Lepidochelys kem	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/14/2010	20100714	Caretta caretta	Trawl Capture	Alive	Released
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released

7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Caretta caretta	Trawl Capture	Alive	Released	
7/15/2010	20100715	Lepidochelys kem	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Rehab	Rehab-IMMS
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Trawl Capture	Alive	Released	
7/16/2010	20100716	Lepidochelys kem	Trawl Capture	Alive	Released	
7/16/2010	20100716	Chelonia mydas	Trawl Capture	Alive	Released	
7/16/2010	20100716	Caretta caretta	Dredge Capture	Dead	Salvaged	Frozen?
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/17/2010	20100717	Caretta caretta	Trawl Capture	Alive	Released	
7/18/2010	20100718	Caretta caretta	Trawl Capture	Alive	Released	

7/18/2010	20100718	Caretta caretta	Trawl Capture	Alive	Released	
7/18/2010	20100718	Caretta caretta	Trawl Capture	Alive	Released	
7/18/2010	20100718	Caretta caretta	Trawl Capture	Alive	Released	
7/18/2010	20100718	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Caretta caretta	Trawl Capture	Alive	Released	
7/19/2010	20100719	Lepidochelys kem	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Trawl Capture	Alive	Released	
7/20/2010	20100720	Caretta caretta	Dredge Capture	Dead	Salvaged	Frozen?
7/21/2010	20100721	Unknown	Dredge Capture	Dead	Salvaged	Frozen?
7/21/2010	20100721	Caretta caretta	Trawl Capture	Dead	Salvaged	Necropsy-GV

7/21/2010	20100721	Caretta caretta	Trawl Capture	Alive	Released	
7/21/2010	20100721	Caretta caretta	Trawl Capture	Alive	Released	
7/21/2010	20100721	Caretta caretta	Trawl Capture	Alive	Released	
7/21/2010	20100721	Caretta caretta	Trawl Capture	Alive	Released	
7/21/2010	20100721	Caretta caretta	Trawl Capture	Alive	Released	
7/21/2010	20100721	Caretta caretta	Trawl Capture	Alive	Released	
7/21/2010	20100721	Caretta caretta	Trawl Capture	Alive	Released	
7/21/2010	20100721	Caretta caretta	Trawl Capture	Alive	Released	
7/21/2010	20100721	Caretta caretta	Trawl Capture	Alive	Released	
7/21/2010	20100721	Caretta caretta	Trawl Capture	Alive	Released	
7/22/2010	20100722	Caretta caretta	Trawl Capture	Alive	Released	
7/22/2010	20100722	Caretta caretta	Trawl Capture	Alive	Released	
7/23/2010	20100723	Caretta caretta	Trawl Capture	Dead	Salvaged	Shipped to Bria
7/23/2010	20100723	Caretta caretta	Trawl Capture	Alive	Released	
7/23/2010	20100723	Caretta caretta	Trawl Capture	Alive	Released	
7/23/2010	20100723	Caretta caretta	Trawl Capture	Alive	Released	
7/23/2010	20100723	Caretta caretta	Trawl Capture	Alive	Released	
7/23/2010	20100723	Caretta caretta	Trawl Capture	Alive	Released	
7/23/2010	20100723	Caretta caretta	Trawl Capture	Alive	Released	
7/23/2010	20100723	Caretta caretta	Trawl Capture	Alive	Released	
7/23/2010	20100723	Caretta caretta	Trawl Capture	Alive	Released	
7/23/2010	20100723	Caretta caretta	Trawl Capture	Alive	Released	

State	Descriptive Location	Latitude	Longitude	External oil?	TempLocation	Stranding
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No
	off of Chandeleur Islands			N	Yes	No

off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No

off of Chandeleur Islands			N	Yes	No
off of Chandeleur Islands			N	Yes	No
off of Chandeleur Islands			N	Yes	No
off of Chandeleur Islands			N	Yes	No
off of Chandeleur Islands			N	Yes	No
off of Chandeleur Islands			N	Yes	No
off of Chandeleur Islands			N	Yes	No
off of Chandeleur Islands			N	Yes	No
off of Chandeleur Islands			N	Yes	No
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off of Chandeleur Islands			N	Yes	No
off of Chandeleur Islands			N	Yes	No
off of Chandeleur Islands			N	Yes	No
off of Chandeleur Islands			N	Yes	No
In borrow site near Chand	30.0444	-88.5309	N	Yes	No
off of Chandeleur Islands			N	Yes	No
off of Chandeleur Islands			N	Yes	No
off of Chandeleur Islands			N	Yes	No
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off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No
In borrow site near Chandeleur Islands	N	Yes	No
In borrow site near Chandeleur Islands	N	Yes	No
off of Chandeleur Islands	N	Yes	No

	off of Chandeleur Islands	N	Yes	No
	off of Chandeleur Islands	N	Yes	No
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n?	off of Chandeleur Islands	N	Yes	No
	off of Chandeleur Islands	N	Yes	No
	off of Chandeleur Islands	N	Yes	No
	off of Chandeleur Islands	N	Yes	No
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	off of Chandeleur Islands	N	Yes	No
	off of Chandeleur Islands	N	Yes	No
	off of Chandeleur Islands	N	Yes	No
	off of Chandeleur Islands	N	Yes	No

New	Alive	Symbol	Log #	Comments	Time Captured	Swab or Oil Sample?
Yes	Y					
Yes	Y					
Yes	Y					

Yes	Y
Yes	Y
Yes	Y

Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
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Yes	Y
Yes	Y
Yes	Y
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Yes	N
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Yes	Y
Yes	N
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y
Yes	Y

Release Latitude	Release Longitude	Flipper Tag Numbers	FT Applied or Recap?	PIT Tag Number

PT Applied or Recap?

Microsoft Outlook

From: Sheryan Epperly [Sheryan.Epperly@noaa.gov]

Sent: Monday, July 26, 2010 3:05 PM

To: Chris Sasso; Wendy Teas; Lisa Belskis; Lesley Stokes; Paul Richards; Kate L. Mansfield; Aleta Hohn; Joanne B Mcneill; Larisa Avens; April Goodman

Subject: Fwd: AMAPPS survey "off the ground"

FYI

-------- Original Message --------
Subject:AMAPPS survey "off the ground"
Date: Mon, 26 Jul 2010 14:55:23 -0400
From: Lance Garrison <Lance.Garrison@noaa.gov>
To: Richard Merrick <Richard.Merrick@noaa.gov>, Debra Palka <dpalka@mercury.wh.whoi.edu>, "Epperson, Deborah" <Deborah.Epperson@mms.gov>, Sheryan Epperly <Sheryan.Epperly@noaa.gov>, Keith D Mullin <Keith.D.Mullin@noaa.gov>, Kevin Barry <Kevin.Barry@noaa.gov>, Tim Cole <tcole@mercury.wh.whoi.edu>

Hi all - The SE portion of the AMAPPS aerial survey started off big over the weekend. They flew out of St. Augustine, FL on Saturday and Sunday covering lines from Cape Canaveral to north of the Florida/Georgia border. They made their transit today to Charleston, SC. The TOIL aircraft seems to be working out particularly well, the extended duration (6+ hours in the air) really helps burn the tracklines up and take advantage of good weather days. 48 marine mammal groups sighted so far along with 350+ turtle sightings (loggerhead, green, Kemp's, and Leatherbacks). The two-team method seems to be working well, with both teams seeing the track-line and having a reasonable number of duplicate sightings to allow estimation of g(0). The weather forecast is good for the remainder of the week with winds of 5-10 knots forecast throughout the Georgia and SC coasts through Friday.

Just wanted to give you a quick update and let you know we are off and running...Lance

Microsoft Outlook

From: Sheryan Epperly [Sheryan.Epperly@noaa.gov]

Sent: Monday, July 26, 2010 3:07 PM

To: Bonnie Ponwith; Theo Brainerd; Peter Thompson; Jim Bohnsack

Cc: Chris Sasso; Wendy Teas; Lisa Belskis; Lesley Stokes; Paul Richards; Kate L. Mansfield; Aleta Hohn; Joanne B Mcneill; Larisa Avens; April Goodman

Subject: Fwd: Daily Report for Marine Mammals and Sea Turtles July 26 (for activities on July 25) - Deepwater Horizon MC252

Attachments: Mammal_Turtle_Data_25_July_Summary.pdf; Attached Message Part.htm; MMST_Health_and_Stranding_Update_for_26_July_FINAL.doc; Attached Message Part.htm; Mammal_Turtle_Data_25_July.xls; Attached Message Part.htm; DWHMC252_Turtles20100726.pdf

I've attached the map, too.

-------- Original Message --------
Subject: Daily Report for Marine Mammals and Sea Turtles July 26 (for activities on July 25) - Deepwater Horizon MC252
Date: Mon, 26 Jul 2010 13:59:56 -0500
From: Michael Ziccardi <mhziccardi@ucdavis.edu>
To: DWHreport.Wildlife@noaa.gov, nmfs.ser.emergency.consult@noaa.gov, john.a.quinlan@noaa.gov
CC: HoumaICC.MMST@noaa.gov, MobileICC.MMST@noaa.gov, StPeteICC.MMST@noaa.gov

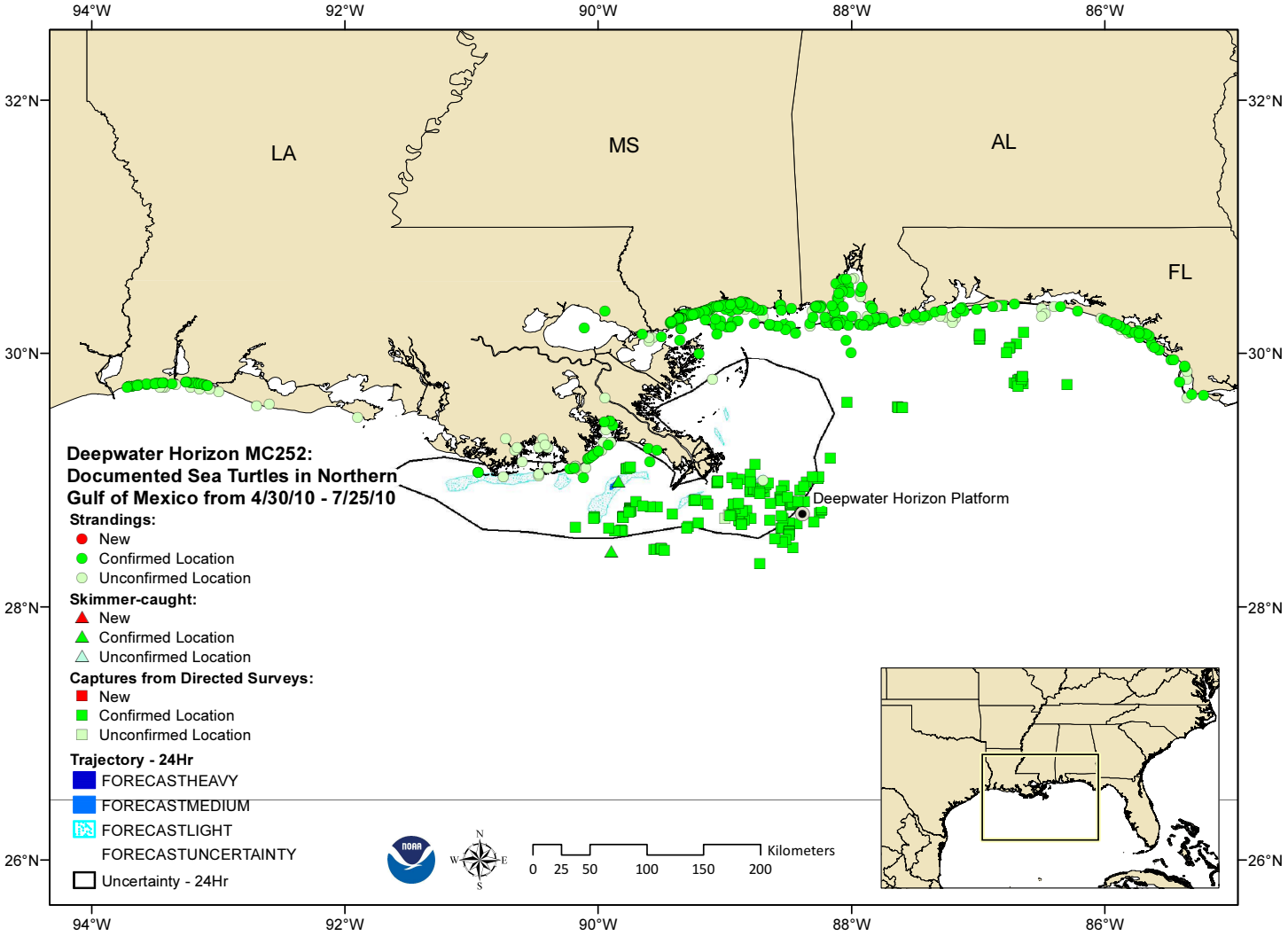
Hi All,

Attached please find the daily summary from the Marine Mammal and Sea Turtle Health and Stranding Response Programs operating under the Unified Command. There are three files: a Word document narrative, an Excel spreadsheet that provides a breakdown by species, and aPDF that contains just the daily summary totals.

Please let us know if you have any questions.

Thanks!

Mike & the Team


94°W
92°W
90°W
88°W
86°W
32°N
30°N
28°N
26°N
LA
MS
AL
FL
Deepwater Horizon MC252:
Documented Sea Turtles in Northern
Gulf of Mexico from 4/30/10 - 7/25/10
Deepwater Horizon Platform
Strandings:
New
Confirmed Location
Unconfirmed Location
Skimmer-caught:
New
Confirmed Location
Unconfirmed Location
Captures from Directed Surveys:
New
Confirmed Location
Unconfirmed Location
Trajectory - 24Hr
FORECASTHEAVY
FORECASTMEDIUM
FORECASTLIGHT
FORECASTUNCERTAINTY
Uncertainty - 24Hr
N
W
E
S
0 25 50 100 150 200
Kilometers

****

Michael Ziccardi DVM MPVM PhD
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Assoc. Professor, Clinical Wildlife Health
Wildlife Health Center
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www.owcn.org

Oiling Criteria

Defined Categories of Stranded Marine Mammals/Sea Turtles During MC 252 Spill

1) Visibly Oiled
   a. Evidence of external oiling (live or dead animals); or
   b. Evidence of internal oiling on initial exam: Oil in oral cavity, nares or blowhole (live or dead animals); or
   c. Evidence of internal oiling on necropsy: Oil in esophagus, gastrointestinal tract and/or respiratory tract (dead animals).
2) Not Visibly Oiled: Do not meet criteria above. Note not visibly oiled does not imply cause of death nor whether this event impacted the animal.

Procedures for Determining Oiling Status in Marine Mammals or Sea Turtles

1) Upon report of stranded animal, designated members of the Wildlife Branch (trained to appropriate evidence collection and Chain of Custody procedure) will be dispatched to the site for initial evaluation.

2) All animals within the "designated spill area" will be immediately externally evaluated, sampled, and photographed following NOAA's "Marine Mammal Oil Spill Response Guidelines" or the established "Sea Turtle MS 252 Response Guidelines".
   a. All animals within a specified distance that affected mammals or turtles may travel or float after being affected (distance to be determined upon daily consultation with the Envt Unit within the Planning Section and the NRDA Unit) will be immediately externally evaluated and, if suspicious, will be externally sampled.
   b. Those animals not within or adjacent to the "designated spill area" should *not* be considered as part of this spill and not be accounted for in the spill documentation (but standard stranding procedures should be followed).

3) All stranded animals will be grossly evaluated by necropsy (cetacea at site of stranding, at the primary care facility, or at a pre-determined necropsy site if logistically feasible, sea turtles at the primary care facility or at a designated remote pathology center).
   a. For certain carcasses, such as turtles with open coelomic cavities or dolphins in advanced state of decomposition and no intact GI tract, it may not be possible to pathologically determine cause of death or pathologies and collect useable tissues. The sampling of these animals will be for the presence of external oil only.

4) Oiling status will be determined based on external and internal gross evaluation. NOTE THAT THE DETERMINATION OF OILING STATUS DOES NOT ESTABLISH SUB-APPARENT OIL EXPOSURE OR THE CAUSE OF DEATH. In fact, some gross pathological changes, such as respiratory damage or significant irritation to ocular tissues or mucous membranes, can be associated with oil exposure. The determination of these types of impacts must come from further evaluation of the samples and other evidence, such as histopathological evaluation of tissues and/or PAH analysis of the biological samples.

Summary Totals

	TOTAL Dolphins								TOTAL Whales							
	Live			Dead					Live			Dead				
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Date Totals	Released	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Date Totals	Released
Subtotal 30 Apr-31 May	0	0	0	1	33	0	34	0	0	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	1	4	0	2	17	2	26	1	0	0	0	0	0	1	1	0
Subtotal 1 Jul-15 Jul	0	0	0	0	2	3	5	0	0	0	0	0	0	0	0	0
16-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18-Jul-10	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
19-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Jul-10	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0
23-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category Totals	1	4	0	3	52	8	68	1	0	0	0	0	0	1	1	0

	TOTAL Turtles								Turtles - Translocation of Gulf Nests			
	Live			Dead					# of Nests Translocated		# of Hatchlings Released	
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Date Totals	Released	Loggerhead	Kemp's Ridley	Loggerhead	Kemp's Ridley
Subtotal 30 Apr-31 May	12	17	0	1	82	153	265	4	0	0	0	0
Subtotal 1 Jun-30 Jun	90	35	0	10	0	195	330	0	0	1	0	0
Subtotal 1 Jul-15 Jul	42	7	0	4	0	23	76	7	10	0	0	57
16-Jul-10	2	0	0	1	0	0	3	0	0	0	0	0
17-Jul-10	0	0	0	0	0	1	1	0	9	0	18	0
18-Jul-10	8	0	0	1	0	1	10	0	0	0	38	0
19-Jul-10	5	0	0	0	0	6	11	0	0	0	56	0
20-Jul-10	8	0	0	0	0	4	12	1	13	0	9	0
21-Jul-10	0	0	0	0	0	1	1	0	0	0	27	0
22-Jul-10	5	0	0	0	0	2	7	3	6	1	0	0
23-Jul-10	0	0	0	0	0	3	3	0	0	1	73	0
24-Jul-10	0	0	0	0	0	1	1	0	16	0	92	0
25-Jul-10	0	0	0	0	0	0	0	0	0	0	90	0
Category Totals	172	59	0	17	82	390	720	15	54	3	403	57

	TOTAL Dolphins								Dolphin Necropsy Status				
	Live			Dead			Date Totals	Released	Collected and Unable to Necropsy	Partially Necropsied	Fully Necropsied	Verified but Unable to Collect	To Be Necropsied
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending							
Yesterday Total	1	4	0	3	52	8	68	1	29	11	14	11	1
Today Totals	1	4	0	3	52	8	68	1	29	11	14	11	1
Difference	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	TOTAL Whales								Whale Necropsy Status				
	Live			Dead			Date Totals	Released	Collected and Unable to Necropsy	Partially Necropsied	Fully Necropsied	Verified but Unable to Collect	To Be Necropsied
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending							
Yesterday Total	0	0	0	0	0	1	1	0	0	0	0	1	0
Today Totals	0	0	0	0	0	1	1	0	0	0	0	1	0
Difference	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	TOTAL Turtles								Turtle Necropsy Status				
	Live			Dead			Date Totals	Released	Collected and Unable to Necropsy	Partially Necropsied	Fully Necropsied	Verified but Unable to Collect	To Be Necropsied
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending							
Yesterday Total	172	59	0	17	82	390	720	15	18	31	137	46	264
Today Totals	172	59	0	17	82	390	720	15	18	31	137	46	264
Difference	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Turtles - Translocation of Gulf Nests			
	# of Nests Translocated		# of Hatchlings Released	
	Loggerhead	Kemp's Ridley	Loggerhead	Kemp's Ridley
Yesterday Total	54	3	313	57
Today Totals	54	3	403	57
Difference	**0**	**0**	**90**	**0**

Status Summary

	Dolphin Status	Whale Status	Turtle Status - Stranded	Turtle Status - Captured	Turtle Status - Total
Verified Animals					
Total animals collected	**68**	**1**	542	178	720
Total dead animals	63	1	484	5	489
Total live animals	5	0	58	173	231
Total live animals stranded that died in care	3	0	4	3	7
Total live released animals	1	0	11	4	15
Total live animals currently in rehabilitation	1	0	43	166	209
Oiling Status					
Total dead oiled animals	3	0	13	4	17
Total live oiled animals	1	0	10	162	172
Animal Necropsy Status					
Number collected and unable to perform necropsies (e.g., advanced decomposition)	29	0	18		
Number of partial necropsies performed (e.g., due to scavenging or autolysis)	11	0	31		
Number of full necropsies performed	14	0	137		
Verified strandings but animals not collected due to stage of decomposition or unable to recover	11	1	46		
Carcasses to be necropsied, if decomposition stage warrants	1	0	264		

Dolphins

	Dolphins - ALABAMA							Dolphins - FLORIDA						
	Live			Dead				Live			Dead			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 26 Apr-31 May	0	0	0	0	3	0	0	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	1	0	0	0	2	1	1	2	0	0	1	0	0
Subtotal 1 Jul-15 Jul	0	0	0	0	0	1	0	0	0	0	0	0	0	0
16-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	0	1	0	0	3	3	1	1	2	0	0	1	0	0
Species Total	7							4						

	Dolphins - LOUISIANA							Dolphins - MISSISSIPPI						
	Live			Dead				Live			Dead			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 26 Apr-31 May	0	0	0	1	22	0	0	0	0	0	0	8	0	0
Subtotal 1 Jun-30 Jun	0	1	0	1	11	0	0	0	0	0	1	5	0	0
Subtotal 1 Jul-15 Jul	0	0	0	0	1	0	0	0	0	0	0	1	2	0
16-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	1	0
19-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	2	0
23-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Jul-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	0	1	0	2	34	0	0	0	0	0	1	14	5	0
Species Total	37							20						

Whales

	Whales - ALABAMA						
	Live			Dead			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	0	0
Subtotal 1 Jul-15 Jul	0	0	0	0	0	0	0
16-Jul-10	0	0	0	0	0	0	0
17-Jul-10	0	0	0	0	0	0	0
18-Jul-10	0	0	0	0	0	0	0
19-Jul-10	0	0	0	0	0	0	0
20-Jul-10	0	0	0	0	0	0	0
21-Jul-10	0	0	0	0	0	0	0
22-Jul-10	0	0	0	0	0	0	0
23-Jul-10	0	0	0	0	0	0	0
24-Jul-10	0	0	0	0	0	0	0
25-Jul-10	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Species Total	**0**						

	Whales - FLORIDA						
	Live			Dead			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	0	0
Subtotal 1 Jul-15 Jul	0	0	0	0	0	0	0
16-Jul-10	0	0	0	0	0	0	0
17-Jul-10	0	0	0	0	0	0	0
18-Jul-10	0	0	0	0	0	0	0
19-Jul-10	0	0	0	0	0	0	0
20-Jul-10	0	0	0	0	0	0	0
21-Jul-10	0	0	0	0	0	0	0
22-Jul-10	0	0	0	0	0	0	0
23-Jul-10	0	0	0	0	0	0	0
24-Jul-10	0	0	0	0	0	0	0
25-Jul-10	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Species Total	**0**						

	Whales - LOUISIANA						
	Live			Dead			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	0	0
Subtotal 1 Jul-15 Jul	0	0	0	0	0	0	0
16-Jul-10	0	0	0	0	0	0	0
17-Jul-10	0	0	0	0	0	0	0
18-Jul-10	0	0	0	0	0	0	0
19-Jul-10	0	0	0	0	0	0	0
20-Jul-10	0	0	0	0	0	0	0
21-Jul-10	0	0	0	0	0	0	0
22-Jul-10	0	0	0	0	0	0	0
23-Jul-10	0	0	0	0	0	0	0
24-Jul-10	0	0	0	0	0	0	0
25-Jul-10	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Species Total	**0**						

	Whales - MISSISSIPPI						
	Live			Dead			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	0	0
Subtotal 1 Jul-15 Jul	0	0	0	0	0	0	0
16-Jul-10	0	0	0	0	0	0	0
17-Jul-10	0	0	0	0	0	0	0
18-Jul-10	0	0	0	0	0	0	0
19-Jul-10	0	0	0	0	0	0	0
20-Jul-10	0	0	0	0	0	0	0
21-Jul-10	0	0	0	0	0	0	0
22-Jul-10	0	0	0	0	0	0	0
23-Jul-10	0	0	0	0	0	0	0
24-Jul-10	0	0	0	0	0	0	0
25-Jul-10	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Species Total	**0**						

	Whales - Off-Shore						
	Live			Dead			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	1	0
Subtotal 1 Jul-15 Jul	0	0	0	0	0	0	0
16-Jul-10	0	0	0	0	0	0	0
17-Jul-10	0	0	0	0	0	0	0
18-Jul-10	0	0	0	0	0	0	0
19-Jul-10	0	0	0	0	0	0	0
20-Jul-10	0	0	0	0	0	0	0
21-Jul-10	0	0	0	0	0	0	0
22-Jul-10	0	0	0	0	0	0	0
23-Jul-10	0	0	0	0	0	0	0
24-Jul-10	0	0	0	0	0	0	0
25-Jul-10	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**1**	**0**
Species Total	**1**						

Turtles

	Turtles - ALABAMA						
	Live Strandings			Dead Strandings			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 26 Apr-31 May	0	2	0	0	5	43	1
Subtotal 1 Jun-30 Jun	3	0	0	3	0	23	0
Subtotal 1 Jul-15 Jul	2	0	0	2	0	5	0
16-Jul-10	0	0	0	1	0	0	0
17-Jul-10	0	0	0	0	0	0	0
18-Jul-10	0	0	0	0	0	0	0
19-Jul-10	0	0	0	0	0	2	0
20-Jul-10	0	0	0	0	0	1	0
21-Jul-10	0	0	0	0	0	0	0
22-Jul-10	0	0	0	0	0	2	0
23-Jul-10	0	0	0	0	0	0	0
24-Jul-10	0	0	0	0	0	0	0
25-Jul-10	0	0	0	0	0	0	0
TOTALS	5	2	0	6	5	76	1
Species Total	94						

	Turtles - FLORIDA						
	Live Strandings			Dead Strandings			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 26 Apr-31 May	0	4	0	0	0	27	0
Subtotal 1 Jun-30 Jun	2	6	0	1	0	18	0
Subtotal 1 Jul-15 Jul	0	2	0	0	0	3	0
16-Jul-10	0	0	0	0	0	0	0
17-Jul-10	0	0	0	0	0	0	0
18-Jul-10	0	0	0	0	0	1	0
19-Jul-10	0	0	0	0	0	0	0
20-Jul-10	0	0	0	0	0	1	0
21-Jul-10	0	0	0	0	0	0	0
22-Jul-10	0	0	0	0	0	0	0
23-Jul-10	0	0	0	0	0	1	0
24-Jul-10	0	0	0	0	0	1	0
25-Jul-10	0	0	0	0	0	0	0
TOTALS	2	12	0	1	0	52	0
Species Total	67						

	Turtles - LOUISIANA						
	Live Strandings			Dead Strandings			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 26 Apr-31 May	2	2	0	1	2	61	0
Subtotal 1 Jun-30 Jun	1	2	0	3	0	27	0
Subtotal 1 Jul-15 Jul	0	2	0	1	0	2	0
16-Jul-10	0	0	0	0	0	0	0
17-Jul-10	0	0	0	0	0	1	0
18-Jul-10	0	0	0	0	0	0	0
19-Jul-10	0	0	0	0	0	0	0
20-Jul-10	0	0	0	0	0	1	0
21-Jul-10	0	0	0	0	0	1	0
22-Jul-10	0	0	0	0	0	0	0
23-Jul-10	0	0	0	0	0	0	0
24-Jul-10	0	0	0	0	0	0	0
25-Jul-10	0	0	0	0	0	0	0
TOTALS	3	6	0	5	2	93	0
Species Total	109						

	Turtles - MISSISSIPPI						
	Live Strandings			Dead Strandings			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 26 Apr-31 May	0	9	0	0	75	22	3
Subtotal 1 Jun-30 Jun	0	19	0	0	0	126	0
Subtotal 1 Jul-15 Jul	0	0	0	0	0	13	7
16-Jul-10	0	0	0	0	0	0	0
17-Jul-10	0	0	0	0	0	0	0
18-Jul-10	0	0	0	1	0	0	0
19-Jul-10	0	0	0	0	0	4	0
20-Jul-10	0	0	0	0	0	1	0
21-Jul-10	0	0	0	0	0	0	0
22-Jul-10	0	0	0	0	0	0	0
23-Jul-10	0	0	0	0	0	2	0
24-Jul-10	0	0	0	0	0	0	0
25-Jul-10	0	0	0	0	0	0	0
TOTALS	0	28	0	1	75	168	10
Species Total	272						

	Turtles - Dedicated On-Water Turtle Surveys						
	Live Directed Captures			Dead Directed Captures			
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Released
Subtotal 26 Apr-31 May	10	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	84	8	0	3	0	1	0
Subtotal 1 Jul-15 Jul	40	3	0	1	0	0	0
16-Jul-10	2	0	0	0	0	0	0
17-Jul-10							
18-Jul-10	8	0	0	0	0	0	0
19-Jul-10	5	0	0	0	0	0	0
20-Jul-10	8	0	0	0	0	0	1
21-Jul-10							
22-Jul-10	5	0	0	0	0	0	3
23-Jul-10							
24-Jul-10							
25-Jul-10							
TOTALS	162	11	0	4	0	1	4
Species Total	178						

Update through July 25, 2010 (as of 1800)

Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period

- No turtle strandings documented.
- 90 hatchlings released in Florida from translocated northern Gulf of Mexico nests.
- No dolphin strandings documented.
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols.

Sea Turtles

Total Turtle Numbers = 720 verified to date within the "designated spill area" (no change from July 25 report) **(**NOTE: Does NOT include captures from COE dredging project)

- 542 stranded* (no change from July 25 report)
  - 484 of the stranded were found dead (no change from July 25 report)
  - 58 of the stranded were found alive (no change from July 25 report)
    - 4 recovered alive but died in rehab (no change from July 25 report)
    - 11 turtles released alive (no change from July 25 report)
    - 43 live turtles in rehabilitation (no change from July 25 report)
- 178 turtles collected during directed turtle sampling efforts (no change from July 25 report)
  - 5 of the collected were found dead (no change from July 25 report)
  - 173 of the collected were found alive (no change from July 25 report)
    - 3 turtles recovered live that died in rehab (no change from July 25 report)
    - 4 turtles released alive (no change from July 25 report)
    - 166 live turtles in rehabilitation (no change from July 25 report)

*For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Total Turtle Nest/Hatchling Numbers

- 57 nests translocated from northern Gulf of Mexico (no change from July 25 report)
- 460 hatchlings released in Florida (increase of 90 from July 25 report)

Turtle Necropsy Status (of the 484 dead stranded, 5 dead directed capture, and 7 that died in rehab; dredge or relocation captured turtles not included):

- 18 assessed and unable to perform necropsies (i.e. advance decomposition) (no change from July 25 report)
- 31 partial necropsies (e.g. due to scavenging or autolysis) (no change from July 25 report)
- 137 full necropsies performed (no change from July 25 report)
- 46 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from July 25 report)

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- 264 carcasses to be necropsied, if decomposition stage warrants (no change from July 25 report)
- Of the initial 75 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. Further results are pending.

Information on Signs of Sea Turtle Oiling:

- To date, visible evidence of oil has been documented externally on 13 dead stranded sea turtle and 10 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 4 dead sea turtles and 162 live sea turtles captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 25 is 53.
- For comparison purposes, the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in the month of July (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-8 stranded sea turtles
    - Alabama: 1-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 7-29 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles since the inception of the oil spill; however, we do not believe this factor fully explains the increase.

COE/State of Louisiana Hopper Dredge Project and Associated Trawling for Turtles
(Note: these numbers are reported by COE and corrections are provided daily to us as they review the data, necessitating additions/deletions in numbers reported here)

- 197 unoiled sea turtles captured/entrained in relocation trawlers/hopper dredge (no change from July 25 report)
    - 3 turtles died in relocation trawl (no change from July 25)
    - 3 turtles killed in hopper dredge (no change from July 25)
    - 191 captured alive in relocation trawls (no change from July 25 report)
        - 189 turtles released alive (no change from July 25 report)
        - 2 live turtles in rehabilitation (no change from July 25 report)

Update through July 25, 2010 (as of 1800)

Marine Mammals

Total Mammal Numbers = 69 total verified to date (no change from July 25 report)

- 68 dolphins have been verified to date within the "designated spill area" (no change from July 25 report)
  - 63 were dead stranded* dolphins (no change from July 25 report)
  - 5 were live stranded dolphins (no change from July 25 report)
    - 2 died, 1 euthanized shortly after stranding (no change from July 25 report)
    - 1 stranded live and freed immediately (no change from July 25 report)
    - 1 live and in care (no change from July 25 report)
- 1 whale has been verified to date within the "designated spill area" (no change from July 25 report)
  - 1 dead stranded sperm whale (no change from July 25 report)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR
- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Mammal Necropsy Status (of the 63 dead stranded dolphins, 1 dead whale and 3 live stranded dolphins that died or were euthanized):

- 29 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 25 report)
- 11 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 25 report)
- 14 full necropsies performed (no change from July 25 report)
- 12 verified strandings (11 dolphins, 1 whale) but animals not collected due to stage of decomposition or unable to recover (no change from July 25 report)
- 1 carcass to be necropsied, if decomposition stage warrants (no change from July 25 report)
- Necropsy results are pending for all animals necropsied to date.

Information on Signs of Mammal Oiling:

- Dolphins: Four of the verified dolphins had evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to determine whether the three dead stranded animals were externally oiled pre- or post-mortem. All other necropsy findings are pending.
- Whale: The verified whale had no evidence of external oil.

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Historical Mammal Strandings

- The total number of dolphin strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 25 is 8. The total number of whale strandings that we have documented is 0.
- For comparison purposes, the number of dolphin strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in July (2003-2007) is as follows:
    - Louisiana: 0-2 stranded dolphins, 0 whales
    - Mississippi: 0-1 stranded dolphins, 0 whales
    - Alabama: 0-3 stranded dolphins, 0 whales
    - Florida panhandle: 0-1 stranded dolphins, 0 whales
- The total number of strandings during this event is higher than the number of marine mammal strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.

Summary of Action Plan Items:

- Due to the projected track of Tropical Storm Bonnie, all field operations are standing down over the weekend, following the Deepwater Horizon Severe Weather Plan. On-water capture activities will resume on Monday, July 26.
- The Master Service Agreement for activation of additional observers for skimmer vessels was signed the morning of July 23. An 8-hour training course with the first group of 12 observers occurred on July 24 in New Orleans. The observers will be deploying aboard skimmer vessels on Monday, July 26. An additional 12 observers are scheduled to arrive on Wednesday if needed to provide coverage of the skimmer fleet.
- No hopper dredge/relocation trawling activities were conducted on Sunday, July 25 due to the weather stand down.
- No in situ burn activities were conducted on July 25.

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Summary Totals

	TOTAL Dolphins							
	Live			Dead				
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Date Totals	Released
Subtotal 30 Apr-31 May	0	0	0	1	33	0	34	0
Subtotal 1 Jun-30 Jun	1	4	0	2	17	2	26	1
Subtotal 1 Jul-15 Jul	0	0	0	0	2	3	5	0
16-Jul-10	0	0	0	0	0	0	0	0
17-Jul-10	0	0	0	0	0	0	0	0
18-Jul-10	0	0	0	0	0	1	1	0
19-Jul-10	0	0	0	0	0	0	0	0
20-Jul-10	0	0	0	0	0	0	0	0
21-Jul-10	0	0	0	0	0	0	0	0
22-Jul-10	0	0	0	0	0	2	2	0
23-Jul-10	0	0	0	0	0	0	0	0
24-Jul-10	0	0	0	0	0	0	0	0
25-Jul-10	0	0	0	0	0	0	0	0
Category Totals	1	4	0	3	52	8	68	1

	TOTAL Whales							
	Live			Dead				
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Date Totals	Released
Subtotal 30 Apr-31 May	0	0	0	0	0	0	0	0
Subtotal 1 Jun-30 Jun	0	0	0	0	0	1	1	0
Subtotal 1 Jul-15 Jul	0	0	0	0	0	0	0	0
16-Jul-10	0	0	0	0	0	0	0	0
17-Jul-10	0	0	0	0	0	0	0	0
18-Jul-10	0	0	0	0	0	0	0	0
19-Jul-10	0	0	0	0	0	0	0	0
20-Jul-10	0	0	0	0	0	0	0	0
21-Jul-10	0	0	0	0	0	0	0	0
22-Jul-10	0	0	0	0	0	0	0	0
23-Jul-10	0	0	0	0	0	0	0	0
24-Jul-10	0	0	0	0	0	0	0	0
25-Jul-10	0	0	0	0	0	0	0	0
Category Totals	0	0	0	0	0	1	1	0

	TOTAL Turtles							
	Live			Dead				
	Visibly Oiled	Not Visibly Oiled	Pending	Visibly Oiled	Not Visibly Oiled	Pending	Date Totals	Released
Subtotal 30 Apr-31 May	12	17	0	1	82	153	265	4
Subtotal 1 Jun-30 Jun	90	35	0	10	0	195	330	0
Subtotal 1 Jul-15 Jul	42	7	0	4	0	23	76	7
16-Jul-10	2	0	0	1	0	0	3	0
17-Jul-10	0	0	0	0	0	1	1	0
18-Jul-10	8	0	0	1	0	1	10	0
19-Jul-10	5	0	0	0	0	6	11	0
20-Jul-10	8	0	0	0	0	4	12	1
21-Jul-10	0	0	0	0	0	1	1	0
22-Jul-10	5	0	0	0	0	2	7	3
23-Jul-10	0	0	0	0	0	3	3	0
24-Jul-10	0	0	0	0	0	1	1	0
25-Jul-10	0	0	0	0	0	0	0	0
Category Totals	172	59	0	17	82	390	720	15

Turtles - Translocation of Gulf Nests			
# of Nests Translocated		# of Hatchlings Released	
Loggerhead	Kemp's Ridley	Loggerhead	Kemp's Ridley
0	0	0	0
0	1	0	0
10	0	0	57
0	0	0	0
9	0	18	0
0	0	38	0
0	0	56	0
13	0	9	0
0	0	27	0
6	1	0	0
0	1	73	0
16	0	92	0
0	0	90	0
54	3	403	57

Update through July 7, 2010 (as of 1800)

Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period

- Increase of two turtle strandings (2 dead in MS – 1 was a late report from July 6).
- No dolphin strandings were confirmed.
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols. Discussions are underway regarding expansion to the west into Texas and evaluation of assets needed for such expansion is occurring.

Sea Turtles

Total Turtle Numbers (includes various corrections/edits from prior dates as data go through QA/QC; these corrections are not reflected in increase-decrease statements, those statements refer only to yesterday's stranding/capture events)

606 total sea turtles verified to date within the "designated spill area" (increase of 2 from July 7 report)

- 499 stranded* (increase of 2 from July 7 report)
  - 445 of the stranded were found dead (increase of 2 from July 7 report)
  - 54 of the stranded were found alive (no change from July 7 report)
    - 4 recovered alive but died in rehab (no change from July 7 report)
    - 4 turtles released alive (no change from July 7 report)
    - 46 live turtles in rehabilitation (no change from July 7 report)
- 107 turtles collected during directed turtle sampling efforts (no change from July 7 report)
  - 100 live turtles in rehabilitation (no change from July 7 report)
  - 4 turtles collected dead (no change from July 7 report)
  - 3 turtles died in rehabilitation (no change from July 7 report)

* For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 445 dead stranded, 4 dead directed capture, and 7 that died in rehab):

- 7 assessed and unable to perform necropsies (i.e. advance decomposition) (no change from July 7 report)
- 17 partial necropsies (e.g. due to scavenging or autolysis) (no change from July 7 report)
- 59 full necropsies performed (no change from July 7 report)
- 46 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from July 7 report)

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- 327 carcasses to be necropsied, if decomposition stage warrants (increase of 2 from July 7 report)
- Of the initial 75 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. Further results are pending.

Information on Signs of Sea Turtle Oiling:

- To date, visible evidence of oil has been documented externally on 9 dead stranded sea turtle and 10 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 94 live sea turtles and 3 dead sea turtle captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1- July 7 is 10.
- For comparison purposes, the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in the month of July (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-8 stranded sea turtles
    - Alabama: 1-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 7-29 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles since the inception of the oil spill; however, we do not believe this factor fully explains the increase.

Marine Mammals

Total Mammal Numbers

58 dolphins have been verified to date within the "designated spill area"

- 53 were dead stranded* dolphins (no change from July 7 report)
- 5 were live stranded dolphins (no change from July 7 report)
    - 2 died shortly after stranding (no change from July 7 report)
    - 1 euthanized upon stranding (no change from July 7 report)
    - 1 stranded live and freed immediately (no change from July 7 report)
    - 1 live and in care (no change from July 7 report)

1 dead stranded sperm whale has been verified to date within the "designated spill area" (no change from July 7 report)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR

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- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status (of the 53 dead stranded and 3 live stranded dolphins that died or were euthanized):

- 27 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 7 report)
- 11 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 7 report)
- 11 full necropsies performed (no change from July 7 report)
- 6 verified strandings but animals not collected due to stage of decomposition or unable to recover (no change from July 7 report)
- 1 carcass to be necropsied, if decomposition stage warrants (no change from July 7 report)
- Necropsy results are pending for all animals necropsied to date.

Whale Necropsy Status (of the 1 dead stranded):

- 0 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 7 report)
- 0 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 7 report)
- 0 full necropsies performed (no change from July 7 report)
- 1 verified stranding but animal not collected due to stage of decomposition or unable to recover (no change from July 7 report)
- 0 carcasses to be necropsied, if decomposition stage warrants (no change from July 7 report)

Information on Signs of Mammal Oiling:

- Dolphins: Five of the verified dolphins had evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to determine whether the three dead stranded animals were externally oiled pre- or post-mortem. All other necropsy findings are pending.
- Whales: The verified whale had no evidence of external oil.

Historical Dolphin Strandings

- The total number of dolphin strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 7 is 2.
- For comparison purposes, the number of dolphin strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in July (2003-2007) is as follows:
    - Louisiana: 0-2 stranded dolphins

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- Mississippi: 0-1 stranded dolphins
- Alabama : 0-3 stranded dolphins
- Florida panhandle: 0-1 stranded dolphins

- The total number of strandings during this event is higher than the number of marine mammal strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.

Historical Whale Strandings

- The total number of whale strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 7 is 0.
- For comparison purposes, there are no records of stranded whales in the designated spill area for July (2003-2007).

Summary of Action Plan Items:

- On-water direct turtle capture operations under Unified Command's Wildlife Branch were not able to leave port on July 7 due to weather, as determined by BP. Aerial operations were conducted and several convergence lines were sighted and will be targeted on July 8.
- Nest translocations will resume this week in the northern Gulf, number of nests translocated and number of hatchlings released by day have been added to the daily excel spreadsheet on the Summary Total tab. USFWS is working with the JIC to organize a press event for Friday June 9.
- We have identified significant issues with the Vessels of Opportunity program, specifically out of the Mobile command post. Problems with the availability of VOO vessels to assist with wildlife (especially sea turtle) recovery continue, despite the designation of boats specifically for the use of the wildlife branch. Additionally, there have been continuing challenges with distribution of the rescue/recovery protocol for VOO operators. We will continue to work on these issues by investigating the status of designated VOOs and distribution of the protocols, but are encountering a continuously changing baseline from the Unified Command. These issues are complicating and interfering with our efforts to ensure we are able to respond in an effective manner to reports of sea turtles.
- Update on the Observer Program: The $7.5M contract for the Gulf-wide observer program (maximum of 60 observers) is under review at Area Command (New Orleans) and has not yet been signed. There is an approved contract (maximum of 20 observers) that we are currently staffing the program through; the observer program will have 6 observers trained and equipped by Saturday. This will allow us to have 2 observers for each of the 3 in situ burn teams. Additional equipment is needed for the additional observers (up to 14) under the existing contract and a requisition has been submitted. This requisition is pending, and the approval is critical to ensure that the observers coming on board after Saturday will have sufficient equipment to operate. The Marine Mammal/Sea Turtle Group in Houma will continue to work with their Wildlife Branch Director to get this request processed.

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Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period

- Three turtle strandings (1 dead in FL, 1 dead oiled in MS, 1 dead - late report from MS from 7/17).
- Eight live oiled turtles captured by directed on-water search teams (6 in FL, 2 in LA).
- 18 hatchlings released in Florida from translocated northern Gulf of Mexico nests.
- One dolphin stranding (1 dead in MS)
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols.

Sea Turtles

Total Turtle Numbers = 685 verified to date within the "designated spill area" (increase of 11 from July 18 report) (NOTE: Does NOT include captures from COE dredging project)

- 525 stranded* (increase of 3 from July 18 report)
  - 467 of the stranded were found dead (increase of 3 from July 18 report)
  - 58 of the stranded were found alive (no change from July 18 report)
    - 4 recovered alive but died in rehab (no change from July 18 report)
    - 11 turtles released alive (no change from July 18 report)
    - 43 live turtles in rehabilitation (no change from July 18 report)
- 160 turtles collected during directed turtle sampling efforts (increase of 8 from July 18 report)
  - 5 of the collected were found dead (no change from July 18 report)
  - 155 of the collected were found alive (increase of 8 from July 18 report)
    - 3 turtles recovered live that died in rehab (no change from July 18 report)
    - 0 turtles released alive (no change from July 18 report)
    - 152 live turtles in rehabilitation (increase of 8 from July 18 report)

*For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 464 dead stranded, 5 dead directed capture, and 7 that died in rehab; dredge or relocation captured turtles not included):

- 18 assessed and unable to perform necropsies (i.e. advance decomposition) (no change from July 18 report)
- 31 partial necropsies (e.g. due to scavenging or autolysis) (no change from July 18 report)
- 137 full necropsies performed (no change from July 18 report)
- 46 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from July 18 report)
- 244 carcasses to be necropsied, if decomposition stage warrants (no change from July 18 report)

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- Of the initial 75 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. Further results are pending.

Information on Signs of Sea Turtle Oiling:

- To date, visible evidence of oil has been documented externally on 13 dead stranded sea turtle and 10 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 4 dead sea turtles and 144 live sea turtles captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 18 is 36.
- For comparison purposes, the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in the month of July (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-8 stranded sea turtles
    - Alabama: 1-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 7-29 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles since the inception of the oil spill; however, we do not believe this factor fully explains the increase.

COE/State of Louisiana Hopper Dredge Project and Associated Trawling for Turtles

- 135 unoiled sea turtles captured in relocation trawlers/hopper dredge (increase of 5 from July 18 report)
    - 1 turtle died in relocation trawl (no change from July 18 report)
    - 1 turtle killed in hopper dredge (no change from July 18; moved to independent bullet for this report)
    - 133 captured alive in relocation trawls (increase of 5 from July 18 report)
        - 131 turtles released alive (increase of 5 from July 18 report)
        - 2 live turtles in rehabilitation (increase of 1 from July 18 report)

Marine Mammals

Total Mammal Numbers = 67 total verified to date (increase of 1 from July 18 report)

- 66 dolphins have been verified to date within the "designated spill area" (increase of 1 from July 18 report)
    - 61 were dead stranded* dolphins (increase of 1 from July 18 report)
    - 5 were live stranded dolphins (no change from July 18 report)
        - 2 died, 1 euthanized shortly after stranding (no change from July 18 report)

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        - 1 stranded live and freed immediately (no change from July 18 report)
        - 1 live and in care (no change from July 18 report)
- 1 whale has been verified to date within the "designated spill area" (no change from July 18 report)
    - 1 was a dead stranded sperm whale (no change from July 18 report)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR
- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status (of the 61 dead stranded and 3 live stranded dolphins that died or were euthanized):

- 29 assessed and unable to perform necropsies (e.g. advanced decomposition) (increase of 1 from July 18 report)
- 11 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 18 report)
- 13 full necropsies performed (no change from July 18 report)
  10 verified strandings but animals not collected due to stage of decomposition or unable to recover (no change from July 18 report)
- 1 carcass to be necropsied, if decomposition stage warrants (no change from July 18 report)
- Necropsy results are pending for all animals necropsied to date.

Whale Necropsy Status (of the 1 dead stranded):

- 0 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 18 report)
- 0 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 18 report)
- 0 full necropsies performed (no change from July 18 report)
- 1 verified stranding but animal not collected due to stage of decomposition or unable to recover (no change from July 18 report)
- 0 carcasses to be necropsied, if decomposition stage warrants (no change from July 18 report)

Information on Signs of Mammal Oiling:

- Dolphins: Four of the verified dolphins had evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to determine whether the three dead stranded animals were externally oiled pre- or post-mortem. All other necropsy findings are pending.

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- Whales: The verified whale had no evidence of external oil.

Historical Dolphin Strandings

- The total number of dolphin strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 18 is 6.
- For comparison purposes, the number of dolphin strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in July (2003-2007) is as follows:
    - Louisiana: 0-2 stranded dolphins
    - Mississippi: 0-1 stranded dolphins
    - Alabama : 0-3 stranded dolphins
    - Florida panhandle: 0-1 stranded dolphins
- The total number of strandings during this event is higher than the number of marine mammal strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.

Historical Whale Strandings

- The total number of whale strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 18 is 0.
- For comparison purposes, there are no records of stranded whales in the designated spill area for July (2003-2007).

<u>Summary of Action Plan Items:</u>

- On-water direct turtle capture operations under the Wildlife Branch were operational on July 18 out of Venice, LA and Destin, FL.
- The Master Service Agreement for activation of additional observers for skimmer vessels is currently being negotiated. Logistical details and a staffing plan are currently being developed by the on-site Observer Coordinator.
- The hopper dredges continue to operate in the borrow areas near the Chandeleur Islands and required relocation trawling continues.
- Efforts are underway to transfer 19 previously oiled turtles from one of our primary turtle de-oiling rehab centers, Gulf World (FL), to Sea World (FL), one of our designated secondary holding rehab facilities. The transfer is planned for Tuesday, July 20th. This transfer protocol was developed and is being implemented to keep space open at the primary de-oiling facilities for incoming turtles and to focus care on new turtles coming in for de-oiling and initial critical care. Discussions regarding release locations and release timing are underway between USFWS and NOAA.
- The On water dolphin assessment team arrived on July 18 and will begin operations on July 19 in the Orange Beach area.
- No in situ burn activities were conducted on July 18. Five observers remain at sea with the burn task forces.

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Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period

- Four turtle strandings (1 dead in FL, 1 dead in AL, 1 dead in MS, 1 dead in LA).
- Eight live oiled turtles captured by directed on-water search teams; one turtle with a smudge of oil was cleaned and released from the vessel in clear, unoiled water
- 56 hatchlings released in Florida from translocated northern Gulf of Mexico nests.
- 21 unoiled turtles captured in relocation trawlers working near hopper dredge at State of Louisiana berm project.
- No dolphin strandings were confirmed.
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols.

Sea Turtles

Total Turtle Numbers = 708 verified to date within the "designated spill area" (increase of 17 from July 20 report, includes correction of underreporting on July 19 report) **(**NOTE: Does NOT include captures from COE dredging project)

- 535 stranded* (increase of 4 from July 20 report)
  - 477 of the stranded were found dead (increase of 4 from July 20 report)
  - 58 of the stranded were found alive (no change from July 20 report)
    - 4 recovered alive but died in rehab (no change from July 20 report)
    - 11 turtles released alive (no change from July 20 report)
    - 43 live turtles in rehabilitation (no change from July 20 report)
- 173 turtles collected during directed turtle sampling efforts (increase of 8 from July 20 report)
  - 5 of the collected were found dead (no change from July 20 report)
  - 168 of the collected were found alive (increase of 8 from July 20 report)
    - 3 turtles recovered live that died in rehab (no change from July 20 report)
    - 1 turtle released alive (increase of 1 from July 20 report)
    - 164 live turtles in rehabilitation (increase of 7 from July 20 report)

*For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 477 dead stranded, 5 dead directed capture, and 7 that died in rehab; dredge or relocation captured turtles not included):

- 18 assessed and unable to perform necropsies (i.e. advance decomposition) (no change from July 20 report)
- 31 partial necropsies (e.g. due to scavenging or autolysis) (no change from July 20 report)
- 137 full necropsies performed (no change from July 20 report)

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- 46 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from July 20 report)
- 257 carcasses to be necropsied, if decomposition stage warrants (increase of 4, plus correction from July 20 report)
- Of the initial 75 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. Further results are pending.

Information on Signs of Sea Turtle Oiling:

- To date, visible evidence of oil has been documented externally on 13 dead stranded sea turtle and 10 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 4 dead sea turtles and 157 live sea turtles captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 20 is 46.
- For comparison purposes, the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in the month of July (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-8 stranded sea turtles
    - Alabama: 1-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 7-29 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles since the inception of the oil spill; however, we do not believe this factor fully explains the increase.

COE/State of Louisiana Hopper Dredge Project and Associated Trawling for Turtles

- 156 unoiled sea turtles captured in relocation trawlers/hopper dredge (increase of 21 from July 20 report)
    - 1 turtle died in relocation trawl (no change from July 20 report)
    - 1 turtle killed in hopper dredge (no change from July 20)
    - 154 captured alive in relocation trawls (increase of 21 from July 20 report)
        - 152 turtles released alive (increase of 21 from July 20 report)
        - 2 live turtles in rehabilitation (no change from July 20 report)

Marine Mammals

Total Mammal Numbers = 67 total verified to date (no change from July 20 report)

- 66 dolphins have been verified to date within the "designated spill area" (no change from July 20 report)
    - 61 were dead stranded* dolphins (no change from July 20 report)

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- 5 were live stranded dolphins (no change from July 20 report)
  - 2 died, 1 euthanized shortly after stranding (no change from July 20 report)
  - 1 stranded live and freed immediately (no change from July 20 report)
  - 1 live and in care (no change from July 20 report)

- 1 whale has been verified to date within the "designated spill area" (no change from July 20 report)
  - 1 dead stranded sperm whale (no change from July 20 report)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR
- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status (of the 61 dead stranded and 3 live stranded dolphins that died or were euthanized):

- 29 assessed and unable to perform necropsies (e.g. advanced decomposition) no change from July 20 report)
- 11 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 20 report)
- 13 full necropsies performed (no change from July 20 report)
  10 verified strandings but animals not collected due to stage of decomposition or unable to recover (no change from July 20 report)
- 1 carcass to be necropsied, if decomposition stage warrants (no change from July 20 report)
- Necropsy results are pending for all animals necropsied to date.

Whale Necropsy Status (of the 1 dead stranded):

- 0 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 20 report)
- 0 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 20 report)
- 0 full necropsies performed (no change from July 20 report)
- 1 verified stranding but animal not collected due to stage of decomposition or unable to recover (no change from July 20 report)
- 0 carcasses to be necropsied, if decomposition stage warrants (no change from July 20 report)

Information on Signs of Mammal Oiling:

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- Dolphins: Four of the verified dolphins had evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to determine whether the three dead stranded animals were externally oiled pre- or post-mortem. All other necropsy findings are pending.
- Whales: The verified whale had no evidence of external oil.

Historical Dolphin Strandings

- The total number of dolphin strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 20 is 6.
- For comparison purposes, the number of dolphin strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in July (2003-2007) is as follows:
    - Louisiana: 0-2 stranded dolphins
    - Mississippi: 0-1 stranded dolphins
    - Alabama : 0-3 stranded dolphins
    - Florida panhandle: 0-1 stranded dolphins
- The total number of strandings during this event is higher than the number of marine mammal strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.

Historical Whale Strandings

- The total number of whale strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 20 is 0.
- For comparison purposes, there are no records of stranded whales in the designated spill area for July (2003-2007).

<u>Summary of Action Plan Items:</u>

- On-water direct turtle capture operations under the Wildlife Branch were operational on July 20 out of Venice, LA and Destin, FL.
- Nineteen (19) previously oiled turtles were transferred from Gulf World, FL to Sea World, FL in accordance with protocols to move turtles from primary de-oiling facilities to secondary holding facilities prior to release.
- The Master Service Agreement for activation of additional observers for skimmer vessels is currently being negotiated. Logistical details and a staffing plan are currently being developed by the on-site Observer Coordinator.
- The hopper dredges continue to operate in the borrow areas near the Chandeleur Islands and required relocation trawling continues.
- The dolphin assessment team was on the water on July 20 in the Perdido Bay Complex.
- No in situ burn activities were conducted on July 20.

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Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period

- One turtle stranding (1 dead in AL).
- Five oiled turtles captured in directed search efforts; 3 very lightly oiled cleaned and released at sea, 2 brought into care.
- Seven northern GOM nests translocated to east central Florida.
- 27 hatchlings released in Florida from translocated northern Gulf of Mexico nests.
- 11 turtles captured in relocation trawlers working near hopper dredge at State of Louisiana berm project, 10 unoiled released in unoiled waters, 1 taken to IMMS; the turtle brought in was DOA but it remains unclear whether died in the relocation trawl or during transport; it was transported to UF for necropsy.
- Two dolphin strandings (2 dead in MS)
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols.

Sea Turtles

Total Turtle Numbers = 715 verified to date within the "designated spill area" (increase of 6 from July 22 report) **(**NOTE: Does NOT include captures from COE dredging project)

- 537 stranded* (increase of 1 from July 22 report)
  - 479 of the stranded were found dead (increase of 1 from July 22 report)
  - 58 of the stranded were found alive (no change from July 22 report)
    - 4 recovered alive but died in rehab (no change from July 22 report)
    - 11 turtles released alive (no change from July 22 report)
    - 43 live turtles in rehabilitation (no change from July 22 report)
- 178 turtles collected during directed turtle sampling efforts (increase of 5 from July 22 report)
  - 5 of the collected were found dead (no change from July 22 report)
  - 173 of the collected were found alive (increase of 5 from July 22 report)
    - 3 turtles recovered live that died in rehab (no change from July 22 report)
    - 4 turtles released alive (increase of 3 from July 22 report)
    - 166 live turtles in rehabilitation (increase of 2 from July 22 report)

*For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 478 dead stranded, 5 dead directed capture, and 7 that died in rehab; dredge or relocation captured turtles not included):

- 18 assessed and unable to perform necropsies (i.e. advance decomposition) (no change from July 22 report)
- 31 partial necropsies (e.g. due to scavenging or autolysis) (no change from July 22 report)

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- 137 full necropsies performed (no change from July 22 report)
- 46 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from July 22 report)
- 259 carcasses to be necropsied, if decomposition stage warrants (increase of 1 from July 22 report)
- Of the initial 75 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. Further results are pending.

Information on Signs of Sea Turtle Oiling:

- To date, visible evidence of oil has been documented externally on 13 dead stranded sea turtle and 10 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 4 dead sea turtles and 162 live sea turtles captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 22 is 48.
- For comparison purposes, the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in the month of July (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-8 stranded sea turtles
    - Alabama: 1-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 7-29 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles since the inception of the oil spill; however, we do not believe this factor fully explains the increase.

COE/State of Louisiana Hopper Dredge Project and Associated Trawling for Turtles (note: these numbers are reported by COE and corrections are provided daily to us as they review the data, necessitating additions/deletions in numbers reported here)

- 185 unoiled sea turtles captured/entrained in relocation trawlers/hopper dredge (increase of 11from July 22 report)
    - 1 turtle died in relocation trawl (no change from July 22 report)
    - 1 turtle pending determination captured in relocation trawl (increase of 1 from July 22 report)
    - 3 turtles killed in hopper dredge (no change from July 22)
    - 180 captured alive in relocation trawls (increase of 10 from July 22 report)
        - 178 turtles released alive (increase of 10 from July 22 report)
        - 2 live turtles in rehabilitation (no change from July 22 report)

Marine Mammals

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Total Mammal Numbers = 69 total verified to date (increase of 2 from July 22 report)

- 68 dolphins have been verified to date within the "designated spill area" (increase of 2 from July 22 report)
  - 63 were dead stranded* dolphins (increase of 2 from July 22 report)
  - 5 were live stranded dolphins (no change from July 22 report)
    - 2 died, 1 euthanized shortly after stranding (no change from July 22 report)
    - 1 stranded live and freed immediately (no change from July 22 report)
    - 1 live and in care (no change from July 22 report)
- 1 whale has been verified to date within the "designated spill area" (no change from July 22 report)
  - 1 dead stranded sperm whale (no change from July 22 report)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR
- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status (of the 63 dead stranded and 3 live stranded dolphins that died or were euthanized):

- 29 assessed and unable to perform necropsies (e.g. advanced decomposition) increase of 1 from July 22 report)
- 11 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 22 report)
- 13 full necropsies performed (no change from July 22 report)
- 11 verified strandings but animals not collected due to stage of decomposition or unable to recover (no change from July 22 report)
- 2 carcass to be necropsied, if decomposition stage warrants (increase of 1 from July 22 report)
- Necropsy results are pending for all animals necropsied to date.

Whale Necropsy Status (of the 1 dead stranded):

- 0 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 22 report)
- 0 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 22 report)
- 0 full necropsies performed (no change from July 22 report)
- 1 verified stranding but animal not collected due to stage of decomposition or unable to recover (no change from July 22 report)

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- 0 carcasses to be necropsied, if decomposition stage warrants (no change from July 22 report)

Information on Signs of Mammal Oiling:

- Dolphins: Four of the verified dolphins had evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to determine whether the three dead stranded animals were externally oiled pre- or post-mortem. All other necropsy findings are pending.
- Whales: The verified whale had no evidence of external oil.

Historical Dolphin Strandings

- The total number of dolphin strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 22 is 8.
- For comparison purposes, the number of dolphin strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in July (2003-2007) is as follows:
    - Louisiana: 0-2 stranded dolphins
    - Mississippi: 0-1 stranded dolphins
    - Alabama : 0-3 stranded dolphins
    - Florida panhandle: 0-1 stranded dolphins
- The total number of strandings during this event is higher than the number of marine mammal strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.

Historical Whale Strandings

- The total number of whale strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 22 is 0.
- For comparison purposes, there are no records of stranded whales in the designated spill area for July (2003-2007).

<u>Summary of Action Plan Items:</u>

- Due to the projected track of Tropical Storm Bonnie, all field operations are standing down over the weekend, following the Deepwater Horizon Severe Weather Plan. All Vessels of Opportunity were released (furloughed) for severe weather. Our Venice onwater capture team members have relocated to either New Orleans or returned home, and onwater activities are planned to resume early next week, after personnel return and the VOOs are brought back online.
- A new on-water turtle capture operation was initiated out of Orange Beach, FL on July 22, led by the Florida Fish and Wildlife Conservation Commission. On-water direct turtle capture operations were not operational on July 22 out of Venice, LA and Destin, FL; the Destin team was unable to go out due to the release of all VoO's. When VoO's for FL come back on line, we expect our two vessels to be among the first reactivated.

Update through July 22, 2010 (as of 1800)

- The Master Service Agreement for activation of additional observers for skimmer vessels was signed the morning of July 23. Training with the first group of observers will occur tomorrow (Saturday July 24) in New Orleans, with the teams available to deploy on Monday. Additional logistical details and a staffing plan are currently being developed by the on-site Observer Coordinators.
- The hopper dredges continue to operate in the borrow areas near the Chandeleur Islands and required relocation trawling continues. Two more relocation trawlers are expected to be added, bringing the total to four with closed nets and two with open nets.
- The dolphin assessment team completed their on water work in Perdido Bay Complex and returned home.
- No in situ burn activities were conducted on July 22.

Update through July 17, 2010 (as of 1800)

Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period

- No turtle strandings or on-water captures.
- No dolphin strandings reported.
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols.

Sea Turtles

Total Turtle Numbers = 674 verified to date within the "designated spill area" (no change from July 17 report) **(**NOTE: Does NOT include captures from COE dredging project)

- 522 stranded* (no change from July 17 report)
  - 464 of the stranded were found dead (no change from July 17 report)
  - 58 of the stranded were found alive (no change from July 17 report)
    - 4 recovered alive but died in rehab (no change from July 17 report)
    - 11 turtles released alive (no change from July 17 report)
    - 43 live turtles in rehabilitation (no change from July 17 report)
- 152 turtles collected during directed turtle sampling efforts (no change from July 17 report)
  - 5 of the collected were found dead (no change from July 17 report)
  - 147 of the collected were found alive (no change from July 17 report)
    - 3 turtles recovered live that died in rehab (no change from July 17 report)
    - 0 turtles released alive (no change from July 17 report)
    - 144 live turtles in rehabilitation (no change from July 17 report)

*For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 464 dead stranded, 5 dead directed capture, and 7 that died in rehab; dredge or relocation captured turtles not included):

- 18 assessed and unable to perform necropsies (i.e. advance decomposition) (increase of 4 from July 17 report)
- 31 partial necropsies (e.g. due to scavenging or autolysis) (increase of 7 from July 17 report)
- 137 full necropsies performed (increase of 31 from July 17 report)
- 46 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from July 17 report)
- 244 carcasses to be necropsied, if decomposition stage warrants (decrease of 42 from July 17 report)

Update through July 17, 2010 (as of 1800)

- Of the initial 75 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. Further results are pending.

Information on Signs of Sea Turtle Oiling:

- To date, visible evidence of oil has been documented externally on 12 dead stranded sea turtle and 10 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 4 dead sea turtles and 136 live sea turtles captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 17 is 33.
- For comparison purposes, the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in the month of July (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-8 stranded sea turtles
    - Alabama: 1-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 7-29 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles since the inception of the oil spill; however, we do not believe this factor fully explains the increase.

COE/State of Louisiana Hopper Dredge Project and Associated Trawling for Turtles

- 130 unoiled sea turtles captured in relocation trawlers/hopper dredge (increase of 55 from July 17 report, report received from COE covering most recent 72 hour period)
    - 1 turtle died in relocation trawl (decrease of 1 from July 17 report; 1 dead turtle moved to dredge kill see bullet below)
    - 1 turtle killed in hopper dredge (no change from July 17; moved to independent bullet for this report)
    - 128 of the captured were alive (increase of 55 from July 17 report)
        - 126 turtles released alive (increase of 54 from July 17 report)
        - 2 live turtles in rehabilitation (increase of 1 from July 17 report)

Marine Mammals

Total Mammal Numbers = 66 total verified to date (no change from July 17 report)

- 65 dolphins have been verified to date within the "designated spill area" (no change from July 17 report)
    - 60 were dead stranded* dolphins (no change from July 17 report)
    - 5 were live stranded dolphins (no change from July 17 report)

        - 2 died, 1 euthanized shortly after stranding (no change from July 17 report)
        - 1 stranded live and freed immediately (no change from July 17 report)
        - 1 live and in care (no change from July 17 report)
- 1 whale has been verified to date within the "designated spill area" (no change from July 17 report)
    - 1 was a dead stranded sperm whale (no change from July 17 report)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR
- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status (of the 60 dead stranded and 3 live stranded dolphins that died or were euthanized):

- 28 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 17 report)
- 11 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 17 report)
- 13 full necropsies performed (no change from July 17 report)
  10 verified strandings but animals not collected due to stage of decomposition or unable to recover (no change from July 17 report)
- 1 carcass to be necropsied, if decomposition stage warrants (no change from July 17 report)
- Necropsy results are pending for all animals necropsied to date.

Whale Necropsy Status (of the 1 dead stranded):

- 0 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 17 report)
- 0 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 17 report)
- 0 full necropsies performed (no change from July 17 report)
- 1 verified stranding but animal not collected due to stage of decomposition or unable to recover (no change from July 17 report)
- 0 carcasses to be necropsied, if decomposition stage warrants (no change from July 17 report)

Information on Signs of Mammal Oiling:

- Dolphins: Four of the verified dolphins had evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to

determine whether the three dead stranded animals were externally oiled pre- or post-mortem. All other necropsy findings are pending.

- Whales: The verified whale had no evidence of external oil.

Historical Dolphin Strandings

- The total number of dolphin strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 17 is 5.
- For comparison purposes, the number of dolphin strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in July (2003-2007) is as follows:
    - Louisiana: 0-2 stranded dolphins
    - Mississippi: 0-1 stranded dolphins
    - Alabama : 0-3 stranded dolphins
    - Florida panhandle: 0-1 stranded dolphins
- The total number of strandings during this event is higher than the number of marine mammal strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.

Historical Whale Strandings

- The total number of whale strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 17 is 0.
- For comparison purposes, there are no records of stranded whales in the designated spill area for July (2003-2007).

<u>Summary of Action Plan Items:</u>

- On-water direct turtle capture operations under the Wildlife Branch were not operational on July 17 out of Venice, LA and Destin, FL due to weather and resupply.
- The Master Service Agreement for activation of additional observers for skimmer vessels is currently being negotiated. Logistical details and a staffing plan are currently being developed by the on-site Observer Coordinator.
- The hopper dredges continue to operate in the borrow areas near the Chandeleur Islands and required relocation trawling continues. An update was received from the Corps of Engineers covering the most recent 72 hour period. The need for daily updates has been re-emphasized.
- In situ burn activities were conducted on July 17, with 1 burn lasting 25 min. Five observers were at sea with the burn task forces, and the initial reports are that this level of coverage is allowing for adequate observations of all burns.
- The Best Management Practices for oil spill response activities and NMFS and USFWS protected species are fully integrated into the Houma ICC Operational Assignments, and are being reviewed by Area Command.

Update through July 14, 2010 (as of 1800)

Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period

- Increase of 1 turtle strandings (1 dead in AL).
- Increase of 11 sea turtles recovered in relocation trawls in association with the Louisiana berm dredge project.
- Two nests were translocated from the Florida panhandle to the East coast of Florida
- No dolphin strandings reported.
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols.

Sea Turtles

Total Turtle Numbers (includes various corrections/edits from prior dates as data go through QA/QC; these corrections are not reflected in increase-decrease statements, those statements refer only to yesterday's stranding/capture events)

NOTE: Turtles captured in the COE/State of LA dredging project and associated trawler effort are not included in the numbers directly below, but have their own individual summary information following these summaries.

661 total sea turtles verified to date within the "designated spill area" (increase of 1 from July 14 report)

- 518 stranded* (increase of 1 from July 14 report)
  - 460 of the stranded were found dead (increase of 1 from July 14 report)
  - 58 of the stranded were found alive (no change from July 14 report)
    - 4 recovered alive but died in rehab (no change from July 14 report)
    - 11 turtles released alive (no change from July 14 report)
    - 43 live turtles in rehabilitation (no change from July 14 report)
- 143 turtles collected during directed turtle sampling efforts (no change from July 14 report)
  - 4 of the collected were found dead (no change from July 14 report)
  - 139 of the collected were found alive (no change from July 14 report)
    - 3 turtles recovered live that died in rehab (no change from July 14 report)
    - 0 turtles released alive (no change from July 14 report)
    - 136 live turtles in rehabilitation (no change from July 14 report)

* For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 460 dead stranded, 4 dead directed capture, and 7 that died in rehab):

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- 14 assessed and unable to perform necropsies (i.e. advance decomposition) (increase of 7 from July 14 report)
- 24 partial necropsies (e.g. due to scavenging or autolysis) (increase of 7 from July 14 report)
- 106 full necropsies performed (increase of 47 from July 14 report)
- 46 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from July 14 report)
- 281 carcasses to be necropsied, if decomposition stage warrants (increase of 1 from July 14 report)
- Of the initial 75 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. Further results are pending.

Information on Signs of Sea Turtle Oiling:

- To date, visible evidence of oil has been documented externally on 11 dead stranded sea turtle and 10 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 3 dead sea turtles and 129 live sea turtles captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 14 is 29.
- For comparison purposes, the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in the month of July (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-8 stranded sea turtles
    - Alabama: 1-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 7-29 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles since the inception of the oil spill; however, we do not believe this factor fully explains the increase.

COE/State of Louisiana Hopper Dredge Project and Associated Trawling for Turtles

- 74 sea turtles captured in trawlers working near the dredging site (increase of 11 from July 14 report)
    - 1 of the captured was dead (no change from July 14 report)
    - 73 of the captured were alive (increase of 11 from July 14 report)
        - 72 unoiled turtles released alive (increase of 11 from July 14 report)
        - 1 unoiled live turtle in rehabilitation (no change from July 14 report)

Update through July 14, 2010 (as of 1800)

Marine Mammals

Total Mammal Numbers
64 total marine mammals have been verified to date (no change from July 14 report)

- 63 dolphins have been verified to date within the "designated spill area" (no change from July 14 report)
  - 58 were dead stranded* dolphins (no change from July 14 report)
  - 5 were live stranded dolphins (no change from July 14 report)
    - 2 died shortly after stranding (no change from July 14 report)
    - 1 euthanized upon stranding (no change from July 14 report)
    - 1 stranded live and freed immediately (no change from July 14 report)
    - 1 live and in care (no change from July 14 report)
- 1 dead whale has been verified to date within the "designated spill area" (no change from July 14 report)
  - 1 was a dead stranded sperm whale (no change from July 14 report)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR
- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status (of the 58 dead stranded and 3 live stranded dolphins that died or were euthanized):

- 28 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 14 report)
- 11 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 14 report)
- 13 full necropsies performed (no change from July 14 report)
- 8 verified strandings but animals not collected due to stage of decomposition or unable to recover (no change from July 14 report)
- 1 carcass to be necropsied, if decomposition stage warrants (no change from July 14 report)
- Necropsy results are pending for all animals necropsied to date.

Whale Necropsy Status (of the 1 dead stranded):

- 0 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 14 report)
- 0 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 14 report)
- 0 full necropsies performed (no change from July 14 report)

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- 1 verified stranding but animal not collected due to stage of decomposition or unable to recover (no change from July 14 report)
- 0 carcasses to be necropsied, if decomposition stage warrants (no change from July 14 report)

Information on Signs of Mammal Oiling:

- Dolphins: Five of the verified dolphins had evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to determine whether the three dead stranded animals were externally oiled pre- or post-mortem. All other necropsy findings are pending.
- Whales: The verified whale had no evidence of external oil.

Historical Dolphin Strandings

- The total number of dolphin strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 14 is 5.
- For comparison purposes, the number of dolphin strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in July (2003-2007) is as follows:
    - Louisiana: 0-2 stranded dolphins
    - Mississippi: 0-1 stranded dolphins
    - Alabama : 0-3 stranded dolphins
    - Florida panhandle: 0-1 stranded dolphins
- The total number of strandings during this event is higher than the number of marine mammal strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.

Historical Whale Strandings

- The total number of whale strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 14 is 0.
- For comparison purposes, there are no records of stranded whales in the designated spill area for July (2003-2007).

<u>Summary of Action Plan Items:</u>

- On-water direct turtle capture operations under the Wildlife Branch were operational on July 13 out of both Venice, LA and Destin, FL. No turtles were captured.
- Multiple discussions with Unified and Area Commands (including with NOAA SSCs) have occurred on the Gulf-wide observer program (maximum of 60 observers). A phased approach to the program has been developed. Movement on the contract is anticipated on July 15 by BP, following meetings between NMFS leadership (Rauch and Golde) and members of the Unified Command.
- The hopper dredges continue to operate in the borrow areas near the Chandeleur Islands and required relocation trawling continues, with 1 capture trawler and 2 open net trawlers (which are used to disturb animals but does not bring them on board). One sea turtle died

during the capture trawler tows. A fourth trawler, which will be used to conduct captures,was expected today. No takes of turtles have been reported from the hopper dredges, only from the trawlers.

- In situ burn activities were conducted on July 14, with a record number of 26 burns for a total of 10 hours 2 min. Five observers were at sea with the burn task forces. Reports from the observers are pending. Discussions are underway with the supervisors of the Controlled Burn Unit regarding the optimum number of protected resources observers.
- The JIC is planning a virtual media event for the press on Friday July 16 with in-person agency experts in New Orleans, LA. Sea turtle staff continue to conduct many interviews for various print media at the request of the JIC and NOAA Public Affairs. A NMFS videographer is accompanying the Venice capture team today to obtain B-roll footage to share with other media outlets. It's also been arranged for photographers to meet the crew when they return to the dock to get photographs of any captured turtles as they are brought in.
- The Best Management Practices for oil spill response activities and NMFS and USFWS protected species were signed by Area Command yesterday. Houma and Mobile staff are now working on operationalizing them within the Incident Action Plan and pushing the information down to the branches.
- An on-water dolphin assessment team will be in Orange Beach, Alabama beginning Sunday, July 18, 2010 to conduct additional follow up visual health assessments on the resident bottlenose dolphins in the Perdido Bay complex. There have been repeated reports of sick animals in the area which have not been confirmed by marine mammal experts. The team will be comprised of PR and SERO staff who will be accompanied by a non-governmental marine mammal veterinarian. The team will be on the water for two days utilizing a VOO.

Update through July 10, 2010 (as of 1800)

Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period

- Increase of two turtle strandings (1 dead in AL, 1 dead in LA - oiled).
- Increase of 10 turtles captured during directed search efforts from Destin, Florida and Venice, LA (1 live oiled from Destin operations; 9 live oiled from Venice operations).
- Increase of 25 turtles captured by trawlers working near State of Louisiana and Corps of Engineers hopper dredging for LA berm (all unoiled, all released).
- Increase of one dolphin stranding (1 dead in LA).
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols.

Sea Turtles

Total Turtle Numbers (includes various corrections/edits from prior dates as data go through QA/QC; these corrections are not reflected in increase-decrease statements, those statements refer only to yesterday's stranding/capture events)

NOTE: Turtles captured in the COE/State of LA dredging project and associated trawler effort are not included in the numbers directly below, but have their own individual summary information following these summaries.

643 total sea turtles verified to date within the "designated spill area" (increase of 12 from July 10 report)

- 506 stranded* (increase of 2 from July 10 report)
  - 450 of the stranded were found dead (increase of 2 from July 10 report)
  - 56 of the stranded were found alive (no change from July 10 report)
    - 4 recovered alive but died in rehab (no change from July 10 report)
    - 11 turtles released alive (no change from July 10 report)
    - 41 live turtles in rehabilitation (no change from July 10 report)
- 137 turtles collected during directed turtle sampling efforts (increase of 10 from July 10 report)
  - 130 live turtles in rehabilitation (increase of 10 from July 10 report)
  - 4 turtles collected dead (no change from July 10 report)
  - 3 turtles died in rehabilitation (no change from July 10 report)

* For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 450 dead stranded, 4 dead directed capture, and 7 that died in rehab):

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- 7 assessed and unable to perform necropsies (i.e. advance decomposition) (no change from July 10 report)
- 17 partial necropsies (e.g. due to scavenging or autolysis) (no change from July 10 report)
- 59 full necropsies performed (no change from July 10 report)
- 46 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from July 10 report)
- 332 carcasses to be necropsied, if decomposition stage warrants (increase of 2 from July 10 report)
- Of the initial 75 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. Further results are pending.

Information on Signs of Sea Turtle Oiling:

- To date, visible evidence of oil has been documented externally on 10 dead stranded sea turtle and 11 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 123 live sea turtles and 3 dead sea turtle captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1- July 10 is 17.
- For comparison purposes, the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in the month of July (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-8 stranded sea turtles
    - Alabama: 1-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 7-29 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles since the inception of the oil spill; however, we do not believe this factor fully explains the increase.

COE/State of Louisiana Hopper Dredge Project and Associated Trawling for Turtles

- 39 sea turtles captured in trawlers working near the dredging site.
    - 0 of the captured were dead (no change from July 10 report)
    - 39 of the captured were alive (increase of 25 from July 10 report)
        - 38 unoiled turtles immediately released alive (increase of 25 from July 10 report)
        - 1 unoiled live turtle in rehabilitation (no change from July 10 report)

Marine Mammals

Total Mammal Numbers

62 dolphins have been verified to date within the "designated spill area"

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- 57 were dead stranded* dolphins (increase of 1 from July 10 report)
- 5 were live stranded dolphins (no change from July 10 report)
    - 2 died shortly after stranding (no change from July 10 report)
    - 1 euthanized upon stranding (no change from July 10 report)
    - 1 stranded live and freed immediately (no change from July 10 report)
    - 1 live and in care (no change from July 10 report)

1 dead stranded sperm whale has been verified to date within the "designated spill area" (no change from July 10 report)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR
- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status (of the 57 dead stranded and 3 live stranded dolphins that died or were euthanized):

- 28 assessed and unable to perform necropsies (e.g. advanced decomposition) (increase of 1 from July 10 report)
- 11 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 10 report)
- 12 full necropsies performed (increase of 1 from July 10 report)
- 8 verified strandings but animals not collected due to stage of decomposition or unable to recover (no change from July 10 report)
- 1 carcass to be necropsied, if decomposition stage warrants (decrease of 1 from July 10 report)
- Necropsy results are pending for all animals necropsied to date.

Whale Necropsy Status (of the 1 dead stranded):

- 0 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 10 report)
- 0 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 10 report)
- 0 full necropsies performed (no change from July 10 report)
- 1 verified stranding but animal not collected due to stage of decomposition or unable to recover (no change from July 10 report)
- 0 carcasses to be necropsied, if decomposition stage warrants (no change from July 10 report)

Information on Signs of Mammal Oiling:

Update through July 10, 2010 (as of 1800)

- Dolphins: Five of the verified dolphins had evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to determine whether the three dead stranded animals were externally oiled pre- or post-mortem. All other necropsy findings are pending.
- Whales: The verified whale had no evidence of external oil.

Historical Dolphin Strandings

- The total number of dolphin strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 10 is 4.
- For comparison purposes, the number of dolphin strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in July (2003-2007) is as follows:
    - Louisiana: 0-2 stranded dolphins
    - Mississippi: 0-1 stranded dolphins
    - Alabama : 0-3 stranded dolphins
    - Florida panhandle: 0-1 stranded dolphins
- The total number of strandings during this event is higher than the number of marine mammal strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.

Historical Whale Strandings

- The total number of whale strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 10 is 0.
- For comparison purposes, there are no records of stranded whales in the designated spill area for July (2003-2007).

<u>Summary of Action Plan Items:</u>

- On-water direct turtle capture operations under Unified Command's Wildlife Branch were operational on July 10 out of Destin, FL.
- On-water direct turtle capture operations under Unified Command's Wildlife Branch were operational on July 10 out of Venice, LA.
- Update on the Observer Program: The $7.5M contract for the Gulf-wide observer program (maximum of 60 observers) has been at Area Command since July 5. The Marine Mammal/Sea Turtle unit will be briefing the Unified Command staff today (July 11) with additional background on this issue.
- In situ burn activities were conducted on July 10. Reports from the observers are pending.
- The Environmental Unit provided an overview of the expected oil trajectories with regards to expansion to Texas. The oceanographic currents are expected to shift to be from the West to East, which will direct the surface oil anomaly away from Texas and should minimize the potential for nearshore oil and shoreline impacts. Therefore, the Wildlife Branch will be instituting a phased approach to preparedness. The oil sampling protocols will not be implemented for all stranded animals (individual animals may be

sampled on a case-by-case basis). Facilities in northern Texas are being provisioned with personal protective equipment and supplies for oil sample collection if signs of visible oil are observed on stranded animals, either externally or internally upon necropsy. We are assessing the need for staging an additional freezer at the NMFS Galveston Laboratory to be able to retain oiled carcasses (if recovered). No deoiling/primary care facility for live animals will be set up at this time, as the likelihood of receiving a live, visibly oiled stranded animal in Texas is expected to be very small. In the event a live, oiled animal is rescued, it will preferentially be transported to Audubon Aquarium in New Orleans for care. We will continue to be flexible in case additional impacts are predicted due to tropical weather systems or other oceanographic changes.

Update through June 26, 2010 (as of 1800)

Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period

- Increase of 8 turtle strandings (3 dead in AL,3 dead in MS,, 2 dead in LA)
- Increase of 4 live oiled turtle recovered during directed capture surveys
- Increase of 1 dead dolphin stranding (1dead dolphin reported late on 25 June necropsied by IMMS)
- Efforts continue within Unified Command to work through all logistics to place observers on various clean up activities, including burns and skimmers, in a manner that ensures observer safety, which is of paramount concern and must be addressed.
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols.

Sea Turtles

Total Turtle Numbers
567 total sea turtles verified to date within the "designated spill area" (increase of 12from June 26 report)

- 469 stranded* (increase of 8 from June 26)
  - 425 of the stranded were found dead (increase of 8 from June 26)
  - 44 of the stranded were found alive (no change from June 26)
    - 4 recovered alive but died in rehab (no change from June 26)
    - 4 turtles released alive (no change from June 26)
    - 36 live turtles in rehabilitation (no change from June 26)
- 98 turtles collected during directed turtle sampling efforts (increase of 4 from June 26)
  - 91 live turtles in rehabilitation (increase of 4 from June 26)
  - 4 turtles collected dead (no change from June 26)
  - 3 turtles died in rehabilitation (no change from June 26)

* For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 425 dead stranded, 4 dead directed capture, and 7 that died in rehab):

- 7 assessed and unable to perform necropsies (i.e. advance decomposition) (no change from June 26)
- 17 partial necropsies (e.g. due to scavenging or autolysis) (no change from June 26)
- 59 full necropsies performed (no change from June 26)
- 46 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from June 26)

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- 307 carcasses to be necropsied, if decomposition stage warrants (increase of 8 from June 26)
- Of the initial 75 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. Further results are pending.

Information on Signs of Sea Turtle Oiling:

- To date, visible evidence of oil has been documented externally on 6 dead stranded sea turtle and 6 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 86 live sea turtles and 3 dead sea turtle captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from June 1- June 26 is 213.
- This is much higher than the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. The breakdown by state for the range of animals historically stranding in the month of June (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-1 stranded sea turtles
    - Alabama: 0-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 5-17 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles; however, we do not believe this factor fully explains the increase.

Marine Mammals

Total Mammal Numbers

55 dolphins have been verified to date within the "designated spill area" (increase of 1 from June 26).

- 50 were dead stranded* dolphins (increase of 1 from June 26)
- 5 were live stranded dolphins (no change from June 26)
    - 2 died shortly after stranding (no changefrom June 26)
    - 1 euthanized upon stranding (no change from June 26)
    - 1 stranded live and freed immediately (no change from June 26)
    - 1 live and in care (no change from June 26)

1 dead stranded sperm whale has been verified to date within the "designated spill area" (no change from June 26)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR

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- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status (of the 50 dead stranded and 3 live stranded dolphins that died or were euthanized):

- 27 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from June 26)
- 7 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from June 26)
- 11 full necropsies performed (increase of 2 from June 26)
- 5 verified strandings but animals not collected due to stage of decomposition or unable to recover (no change from June 26)
- 3 carcasses to be necropsied, if decomposition stage warrants (decreaseof 1 from June 26)
- Necropsy results are pending for all animals necropsied to date.

Whale Necropsy Status (of the 1 dead stranded):

- 0 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from June 26)
- 0 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from June 26)
- 0 full necropsies performed (no change from June 26)
- 1 verified stranding but animal not collected due to stage of decomposition or unable to recover (no change from June 26)
- 0 carcasses to be necropsied, if decomposition stage warrants (no change from June 26)

Information on Signs of Mammal Oiling:

- Dolphins: Five of the verified dolphins had evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to determine whether the three dead stranded animals were externally oiled pre- or post-mortem. All other necropsy findings are pending.
- Whales: The verified whale had no evidence of external oil.

Historical Dolphin Strandings

- The total number of dolphin strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from June 1 - June 26 is 25.
- This is higher than the number of marine mammal strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.
- The breakdown by state for the range of animals historically stranding in the month of June (2003-2007) is as follows:

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- Louisiana: 0-5 stranded dolphins
- Mississippi: 0-1 stranded dolphins
- Alabama : 0-1 stranded dolphins
- Florida panhandle: 0-4 stranded dolphins

Historical Whale Strandings

- The total number of whale strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from June 1 - June 26 is 1.
- There are no records of stranded whales in the Gulf of Mexico for the month of June (2003-2007).

Summary of Action Plan Items:

- The plan for movement of northern Gulf of Mexico sea turtle nests to Atlantic Florida has been implemented, one early season nest was moved; no additional nests will be affected for approximately 10-14 days.
- A NOAA team from PR and SERO has arrived in the Florida panhandle and Alabama to work with the local community on dolphin assessments and information regarding impacts on dolphins from this event and has started an on water pilot project for assessment of the health and behavior of dolphins in near shore areas as part of our pro-active response efforts.
- Plans for severe weather evacuations and personnel reporting are being finalized by the Wildlife Branch and Unified Command.
-

Update through July 6, 2010 (as of 1800)

Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period

- Increase of three turtle strandings (2 dead in MS, 1 dead in AL – late report from 7/5).
- No dolphin strandings were confirmed today.
- A dolphin was reported (July 5) but unconfirmed as being trapped behind boom in a receding tide in Weeks Bay (off of Mobile Bay). The public opened the boom and left it open for the dolphin to escape. This report is not included in the tallies on either the excel sheet or the word document.
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols. Discussions continueon expansion to the west into Texas.

Sea Turtles

Total Turtle Numbers (includes various corrections/edits from prior dates as data go through QA/QC; these corrections are not reflected in increase-decrease statements, those statements refer only to yesterday's stranding/capture events)

604 total sea turtles verified to date within the "designated spill area" (increase of 3 from July 6 report)

- 497 stranded* (increase of 3 from July 6 report)
  - 443 of the stranded were found dead (increase of 3 from July 6 report)
  - 54 of the stranded were found alive (no change from July 6 report)
    - 4 recovered alive but died in rehab (no change from July 6 report)
    - 4 turtles released alive (no change from July 6 report)
    - 46 live turtles in rehabilitation (no change from July 6 report)
- 107 turtles collected during directed turtle sampling efforts (no change from July 6 report)
  - 100 live turtles in rehabilitation (no change from July 6 report)
  - 4 turtles collected dead (no change from July 6 report)
  - 3 turtles died in rehabilitation (no change from July 6 report)

* For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 443 dead stranded, 4 dead directed capture, and 7 that died in rehab):

- 7 assessed and unable to perform necropsies (i.e. advance decomposition) (no change from July 6 report)
- 17 partial necropsies (e.g. due to scavenging or autolysis) (no change from July 6 report)
- 59 full necropsies performed (no change from July 6 report)

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- 46 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from July 6 report)
- 325 carcasses to be necropsied, if decomposition stage warrants (increase of 3 from July 6 report)
- Of the initial 75 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. Further results are pending.

Information on Signs of Sea Turtle Oiling:

- To date, visible evidence of oil has been documented externally on 9 dead stranded sea turtle and 10 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 94 live sea turtles and 3 dead sea turtle captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from June 1- July 6 is 237.
- This is much higher than the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. The breakdown by state for the range of animals historically stranding in the month of June (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-1 stranded sea turtles
    - Alabama: 0-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 5-17 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles; however, we do not believe this factor fully explains the increase.

Marine Mammals

Total Mammal Numbers

58 dolphins have been verified to date within the "designated spill area"

- 53 were dead stranded* dolphins (increase of 1 from July 6 report)
- 5 were live stranded dolphins (no change from July 6 report)
    - 2 died shortly after stranding (no change from July 6 report)
    - 1 euthanized upon stranding (no change from July 6 report)
    - 1 stranded live and freed immediately (no change from July 6 report)
    - 1 live and in care (no change from July 6 report)

1 dead stranded sperm whale has been verified to date within the "designated spill area" (no change from July 6 report)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR

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- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status (of the 53 dead stranded and 3 live stranded dolphins that died or were euthanized):

- 27 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 6 report)
- 11 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 6 report)
- 11 full necropsies performed (no change from July 6 report; previous number was an error and this is the correct total)
- 6 verified strandings but animals not collected due to stage of decomposition or unable to recover (no change from July 6 report)
- 1 carcass to be necropsied, if decomposition stage warrants (decrease of 1from July 6 report)
- Necropsy results are pending for all animals necropsied to date.

Whale Necropsy Status (of the 1 dead stranded):

- 0 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 6 report)
- 0 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 6 report)
- 0 full necropsies performed (no change from July 6 report)
- 1 verified stranding but animal not collected due to stage of decomposition or unable to recover (no change from July 6 report)
- 0 carcasses to be necropsied, if decomposition stage warrants (no change from July 6 report)

Information on Signs of Mammal Oiling:

- Dolphins: Five of the verified dolphins had evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to determine whether the three dead stranded animals were externally oiled pre- or post-mortem. All other necropsy findings are pending.
- Whales: The verified whale had no evidence of external oil.

Historical Dolphin Strandings

- The total number of dolphin strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 6 is 2
- The total number of strandings during this event is higher than the number of marine mammal strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.

Update through July 6, 2010 (as of 1800)

- The breakdown by state for the range of animals historically stranding in June (2003-2007) is as follows:
  - Louisiana: 0-5 stranded dolphins
  - Mississippi: 0-1 stranded dolphins
  - Alabama : 0-1 stranded dolphins
  - Florida panhandle: 0-4 stranded dolphins

Historical Whale Strandings

- The total number of whale strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 6 is 0.
- There are no records of stranded whales in the Gulf of Mexico for June (2003-2007).

Summary of Action Plan Items:

- On-water direct turtle capture operations under Unified Command's Wildlife Branch were not able to leave port today due to weather, as determined by BP. Aerial operations were grounded by weather as well.
- Nest translocations will resume this week in the northern Gulf, number of nests translocated and number of hatchlings released by day have been added to the daily excel spreadsheet on the Summary Total tab. USFWS is working with the JIC to organize remote and in-person press events for Friday 7/9 and Monday 7/12, respectively.
- Necropsies of turtles resumed this week, summary totals will be updated at the end of each week. Formal reporting of necropsy results will be completed once necropsies from each state have been completed, for all carcasses currently in Gainesville. Public Affairs has arranged for a New York Times interview on site with Dr. Brian Stacy in Gainesville today.
- Observer training continues as new observers become available. The first two trained observers remain on station, so they can accompany the In-Situ Burn Unit as soon as they are deployed.
- The SER Stranding Coordinator will be arriving in Houma ICC today and will work with the incident pathologist to review all marine mammal intake records and necropsy results.

Update through June 9 2010 (as of 1800)

Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period:

- Increase of 9 turtle strandings, all dead (1 live unoiled in FL – caught on hook and line - released, 1 dead in AL, 5 dead in MS, 1 live oiled status pending and 1 dead oiled in LA)
- No verified dolphin strandings
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols.

Sea Turtles:

331 total sea turtles verified to date within the "designated spill area" (increase of 9 from June 8 report)

- 301 stranded* (increase of 9 from June 8)
  - 277 of the stranded were found dead (increase of 7 from June 8)
  - 24 of the stranded were found alive (increase of 2 from June 8)
    - 3 recovered alive but died in rehab (no change from June 8)
    - 4 turtles released alive (increase of 1 from June 8)
    - 17 live turtles in rehabilitation (increase of 1 from June 8)
- 30 turtles collected during directed turtle sampling efforts (no change from June 8)
  - 25 live turtles in rehabilitation (no change from June 8)
  - 2 turtles collected dead (no change from June 8)
  - 3 turtles died in rehabilitation (no change from June 8)

* For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 277 dead stranded, 2 dead directed capture, and 6 that died in rehab):

- 7 assessed and unable to perform necropsies (i.e. advance decomposition) (no change from June 8)
- 17 partial necropsies (e.g. due to scavenging or autolysis) (no change from June 8)
- 56 full necropsies performed (increase of 1 from June 8)
- 46 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from June 8)
- 159 carcasses to be necropsied, if decomposition stage warrants (increase of 6 from June 8)
- Of the initial 73 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. The oiled turtle recovered today has been necropsied; oil was found in the mouth and esophagus, and further results are pending.

Information on Signs of Sea Turtle Oiling:

Update through June 9 2010 (as of 1800)

- To date, visible evidence of oil has been documented externally on 4 dead stranded sea turtle and 4 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 28 live sea turtles and 2 dead sea turtle captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from April 30 through June 9 is 331.
- This is much higher than the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. The breakdown by state for the range of animals historically stranding in the month of June (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-1 stranded sea turtles
    - Alabama: 0-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 5-17 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles; however, we do not believe this factor fully explains the increase.

Marine Mammals:

- 38 dolphins have been verified to date within the "designated spill area" (no change from June 8).
    - 36 were dead stranded* dolphins (no change from June 8)
    - 2 were live stranded dolphins, one of which that died shortly after stranding, one that was euthanized upon stranding (no change from June 8)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR
- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status (of the 38 dead stranded and 2 live stranded that died or were euthanized):

- 13 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from June 8)
- 8 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from June 8)
- 6 full necropsies performed (no change from June 8)

Update through June 9 2010 (as of 1800)

- 9 verified strandings but animals not collected due to stage of decomposition or unable to recover (no change from June 8)
- 2 carcasses to be necropsied, if decomposition stage warrants (no change from June 8)
- Necropsy results are pending for all animals necropsied to date.

Information on Signs of Dolphin Oiling:

- Two of the verified dolphins have evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to determine whether the animal was externally oiled pre- or post-mortem.

Historical Dolphin Strandings

- Since April 30, the observed dolphin stranding rate is higher than the historical averages that have been documented in recent years (2003-2007) in Louisiana, Mississippi, and Alabama. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.
- The breakdown by state for the range of animals historically stranding in the month of June (2003-2007) is as follows:
    - Louisiana: 0-5 stranded dolphins
    - Mississippi: 0-1 stranded dolphins
    - Alabama : 0-1 stranded dolphins
    - Florida panhandle: 0-4 stranded dolphins

<u>Summary of Action Plan Items:</u>

- The directed turtle survey operating under Unified Command was on the water today, no captures were made. Efforts on 6/10 will attempt to focus inside the 'burn box' in coordination with Burn Unit Operations.
- Due to the documented presence of manatees in Mobile Bay and shoreline oil in the area, an aerial survey under the Wildlife Branch to assess the risk to these animals was flown today. Two airplanes flew simultaneous surveys, one in Alabama and one in Mississippi/part of Louisiana. Reports from the observers should be available tomorrow.
- Several reports were received of dolphins perceived to be in distress, both in and outside of oiled areas. All reports were investigated, and responders either did not relocate the animals or found dolphins exhibiting normal behavior. We are continuing to work with SCAT teams and other field responders to educate them regarding the behavior known as "strand feeding," which may look like the animals are in distress to untrained observers.

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Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period

- Increase of 6 turtle strandings (1 live in FL, 3 dead in MS, 1 live and 1 dead in LA).
- Increase of 1 oiled turtles captured during directed search efforts.
- Six loggerhead nests translocated from northern Gulf to east coast Florida.
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols.

Sea Turtles

Total Turtle Numbers (includes various corrections/edits from prior dates as data go through QA/QC; these corrections are not reflected in increase-decrease statements, those statements refer only to yesterday's stranding/capture events)

NOTE: Turtles captured in the COE/State of LA dredging project and associated trawler effort are not included in the numbers directly below, but have their own individual summary information following these summaries.

658 total sea turtles verified to date within the "designated spill area" (increase of 7 from July 12 report)

- 515 stranded* (increase of 6 from July 12 report)
  - 457 of the stranded were found dead (increase of 4 from July 12 report)
  - 58 of the stranded were found alive (increase of 2 from July 12 report)
    - 4 recovered alive but died in rehab (no change from July 12 report)
    - 11 turtles released alive (no change from July 12 report)
    - 43 live turtles in rehabilitation (increase of 2 from July 12 report)
- 143 turtles collected during directed turtle sampling efforts (increase of 1 from July 12 report)
  - 4 of the collected were found dead (no change from July 12 report)
  - 139 of the collected were found alive (increase of 1 from July 12 report)
    - 3 turtles recovered live that died in rehab (no change from July 12 report)
    - 0 turtles released alive (no change from July 12 report)
    - 136 live turtles in rehabilitation (increase of 1 from July 12 report)

* For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 457 dead stranded, 4 dead directed capture, and 7 that died in rehab):

- 7 assessed and unable to perform necropsies (i.e. advance decomposition) (no change from July 12 report)

Update through July 12, 2010 (as of 1800)

- 17 partial necropsies (e.g. due to scavenging or autolysis) (no change from July 12 report)
- 59 full necropsies performed (no change from July 12 report)
- 46 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from July 12 report)
- 339 carcasses to be necropsied, if decomposition stage warrants (increase of 4 from July 12 report)
- Of the initial 75 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. Further results are pending.

Information on Signs of Sea Turtle Oiling:

- To date, visible evidence of oil has been documented externally on 11 dead stranded sea turtle and 10 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 3 dead sea turtles and 129 live sea turtles captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 12 is 26.
- For comparison purposes, the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in the month of July (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-8 stranded sea turtles
    - Alabama: 1-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 7-29 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles since the inception of the oil spill; however, we do not believe this factor fully explains the increase.

COE/State of Louisiana Hopper Dredge Project and Associated Trawling for Turtles

- 63 sea turtles captured in trawlers working near the dredging site (increase of 11 from July 12 report)
    - 1 of the captured was dead (no change from July 12 report)
    - 62 of the captured were alive (increase of 11 from July 12 report)
        - 61 unoiled turtles released alive (increase of 11 from July 12 report)
        - 1 unoiled live turtle in rehabilitation (no change from July 12 report)

Marine Mammals

Total Mammal Numbers

64 total marine mammals have been verified to date (no change from July 12 report)

Update through July 12, 2010 (as of 1800)

- 63 dolphins have been verified to date within the "designated spill area" (no change from July 12 report)
  - 58 were dead stranded* dolphins (no change from July 12 report)
  - 5 were live stranded dolphins (no change from July 12 report)
    - 2 died shortly after stranding (no change from July 12 report)
    - 1 euthanized upon stranding (no change from July 12 report)
    - 1 stranded live and freed immediately (no change from July 12 report)
    - 1 live and in care (no change from July 12 report)
- 1 dead whale has been verified to date within the "designated spill area" (no change from July 12 report)
  - 1 was a dead stranded sperm whale (no change from July 12 report)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR
- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status (of the 58 dead stranded and 3 live stranded dolphins that died or were euthanized):

- 28 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 12 report)
- 11 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 12 report)
- 12 full necropsies performed (no change from July 12 report)
- 8 verified strandings but animals not collected due to stage of decomposition or unable to recover (no change from July 12 report)
- 2 carcass to be necropsied, if decomposition stage warrants (no change from July 12 report)
- Necropsy results are pending for all animals necropsied to date.

Whale Necropsy Status (of the 1 dead stranded):

- 0 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from July 12 report)
- 0 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from July 12 report)
- 0 full necropsies performed (no change from July 12 report)
- 1 verified stranding but animal not collected due to stage of decomposition or unable to recover (no change from July 12 report)
- 0 carcasses to be necropsied, if decomposition stage warrants (no change from July 12 report)

Deepwater Horizon MC252

Update through July 12, 2010 (as of 1800)

Information on Signs of Mammal Oiling:

- Dolphins: Five of the verified dolphins had evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to determine whether the three dead stranded animals were externally oiled pre- or post-mortem. All other necropsy findings are pending.
- Whales: The verified whale had no evidence of external oil.

Historical Dolphin Strandings

- The total number of dolphin strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 12 is 5.
- For comparison purposes, the number of dolphin strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle for the full month of July is given below. The breakdown by state for the range of animals historically stranding in July (2003-2007) is as follows:
    - Louisiana: 0-2 stranded dolphins
    - Mississippi: 0-1 stranded dolphins
    - Alabama : 0-3 stranded dolphins
    - Florida panhandle: 0-1 stranded dolphins
- The total number of strandings during this event is higher than the number of marine mammal strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.

Historical Whale Strandings

- The total number of whale strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from July 1 - July 12 is 0.
- For comparison purposes, there are no records of stranded whales in the designated spill area for July (2003-2007).

<u>Summary of Action Plan Items:</u>

- On-water direct turtle capture operations under the Wildlife Branch were operational on July 12 out of Destin, FL and Venice, LA.
- Multiple discussions with Unified and Area Commands (including with NOAA SSCs) have occurred on the Gulf-wide observer program (maximum of 60 observers). A phased approach to the program has been developed. Movement on the contract is anticipated on July 12 either by BP or by USCG's Federal Fund. The Environmental Unit in the Planning section has been working with the Logistics Section Chief to initiate the contract. The Logistics Section Chief and Legal have been advised of the importance of this contract.
- The hopper dredges continue to operate in the borrow areas near the Chandeleur Islands and required relocation trawling continues, with 1 capture trawler and 2 open net trawlers (which are used to disturb animals but does not bring them on board). One sea turtle died during the capture trawler tows. A fourth trawler, which will be used to conduct

captures, is expected on site within 48 hours. No takes of turtles have been reported from the hopper dredges, only from the trawlers.

- In situ burn activities were conducted on July 12. Five observers were at sea with the burn task forces. Reports from the observers are pending.

Update through 2 June 2010 (as of 1800)

Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period:

- Increase of 1 turtle stranding in FL
- Increase of 2 dolphin strandings, both in FL
- Both dolphin strandings on 2 June were offshore animals from the genus *Stenella*
- See photos of on-water turtle directed capture operations below

Sea Turtles:

278 total sea turtles verified to date within the "designated spill area" (increase of 1 from June 1)

- 253 stranded (increase of 1 from June 1)
    - 233 of the stranded were found dead (increase of 1 from June 1)
    - 20 of the stranded were found alive (no change from June 1)
        - 3 recovered alive but died in rehab (no change from June 1)
        - 1 turtle released alive (no change from June 1)
        - 16 live turtles in rehabilitation (no change from June 1)

- 25 turtles collected during directed turtle sampling efforts (no change from June 1)
    - 24 live turtles in rehabilitation (no change from June 1)
    - 1 turtle collected dead (no change from June 1)

* For this event, a true stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 233 dead stranded, 1 dead directed capture, and 3 that died in rehab):

- 7 assessed and unable to perform necropsies (i.e. advance decomposition) (no change from June 1)
- 17 partial necropsies (e.g. due to scavenging or autolysis) (no change from June 1)
- 50 full necropsies performed (no change from June 1)
- 44 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from June 1)
- 119 carcasses to be necropsied, if decomposition stage warrants (increase of 1 from June 1)
- Of the 67 full or partial necropsies completed, the two primary considerations for the cause of these strandings are forced submergence or acute toxicosis.

Information on Signs of Oiling:

- To date, visible evidence of oil has been documented externally on 1 dead stranded sea turtle, and 2 live stranded sea turtles caught in skimming operations.
- To date, visible evidence of oil has been documented externally on 24 live sea turtles and one dead sea turtle captured during directed turtle surveys.

Historical Strandings:

Update through 2 June 2010 (as of 1800)

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from April 30th through June 2nd is 253.
- This is much higher than the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, and Alabama during this time frame (combined range of 4-30 for LA, MS, and AL)
    - Overall Northern Gulf range for recent years has been 18-46.
    - From 2005 – 2009 the number of turtle strandings for the month of May has ranged from 1 to 15 in Louisiana
    - From 2005 – 2009 0 to 13 in Mississippi
    - From 2005 – 2009 1 to 15 in Alabama.
    - In the Florida panhandle, from 2003 – 2007, the number of strandings in May has ranged from 13 to 37
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles; however, we do not believe this factor fully explains the increase.

Marine Mammals:

- 31 dolphins have been verified to date within the "designated spill area" (increase of 2 from June 1).
    - 30 were dead stranded dolphins (increase of 1 from June 1)
    - 1 was a live stranded dolphin that died on the beach (increase of 1 from June 1)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR
- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status:

- 12 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from June 1)
- 7 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from June 1)
- 4 full necropsies performed (increase of 1 from June 1)
- 6 Verified strandings but animals not collected due to stage of decomposition or unable to recover (no change from June 1)
- 2 Carcasses to be necropsied, if decomposition stage warrants (increase of 2 from June 1)

Information on Signs of Oiling:

- One of the dolphins had evidence of external oil on its tongue and body and therefore is classified as oiled. Since the carcass was first reported in the water/oil line on the oiled

beach, we are unable at this time to determine whether the animal was externally covered in oil post mortem when the carcass came on shore or was oiled prior to death.

Historical Strandings

- Since 30 April 2010, the observed dolphin stranding rate is higher than the historical averages that have been documented in recent years (2003-2007) in Louisiana, Mississippi, and Alabama. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.
- For the entire Northern Gulf of Mexico, the combined observed range is 0-14 for the years 2003 to 2007 in LA, MS, AL, and FL (Panhandle). The breakdown by state for the range of animals historically stranding in the month of May (2003-2007) is as follows:
    - Louisiana: 0-4 stranded dolphins
    - Mississippi: 0-3 stranded dolphins
    - Alabama : 0-3 stranded dolphins
    - Florida panhandle: 0-4 stranded dolphins

Summary of Action Plan Items:

- The on–water directed turtle survey operating under Unified Command was not on the water due to weather today. Operations are expected to continue on June 3rd. Louisiana DWF did not report any new directed turtle captures, and it is unknown whether that operation was fielded on June 2.
- Additional coordination with beach cleanup operations out of Mobile was initiated to ensure that cleanup crews are operating in accordance with established protocols regarding sea turtle nests. With reports of oil anticipated to come ashore increasingly further east along the northern Gulf shoreline, the threats to incubating nests and nesting females are substantially increased.
- Skimmer vessels, especially a newly added vessel specifically deployed to suck up oiled *Sargassum* mats, are of significant concern as far as clean up operations go. An SEC staff member observed this prototype barge skimmer off the AL/MS coast on Jun 1 and provided a report to the Houma ICC. This particular vessel's operations were suspended due to US Coast Guard requirements, but it will likely be reactivated in the near future. We are working to place an observer aboard to monitor the operations to attempt to observer any interactions with sea turtles if/when the vessel reactivates. We continue to work to deploy observers on other types of skimmers.

Update through 2 June 2010 (as of 1800)

Photo 1: Searching convergence/oil areas for turtles. On-water operations under Wildlife Branch, Unified Command.

Photo 2: Live, oiled green turtle recovered from convergence/oil areas 1 June 2010. On-water operations under Wildlife Branch, Unified Command.

Deepwater Horizon MC252

Update through 2 June 2010 (as of 1800)

Photo 3. Live, oiled green turtle recovered from convergence/oil areas 1 June 2010. On-water operations under Wildlife Branch, Unified Command.

Photo 4. Live, oiled Kemp's ridley recovered from convergence/oil areas 1 June 2010.

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Update through 2 June 2010 (as of 1800)

Photo 4. Vessel of Opportunity contracted for directed on-water turtle search/capture operations, burning of surface convergence oil/Sargassum/mix in background.

Photo 6. Dr. Brian Stacy (NOAA OPR sea turtle veterinarian) conducting initial cleaning of oiled Kemp's ridley. On-water operations under Wildlife Branch, Unified Command.

Daily Update on Marine Mammal and Sea Turtle Health and Stranding Response
Deepwater Horizon Oil Spill

Date: 11 May 2010

Wildlife Updates

Sea Turtles

- Four dead turtles were reported today: 1 in FL, 0 in AL, 1 in MS, and 2 in LA. All four carcasses were collected for later necropsy. Additionally, a late report was received for 1 turtle that stranded on 8 May in Alabama.
- Necropsies continued today at IMMS.

Marine Mammals

- Two dead dolphins were reported on 11 May by USFWS aerial survey teams in Biloxi Marsh, LA near the Chandeleur Islands. Personnel from Audubon Aquarium will be responding on 12 May to confirm. If located, the team will collect samples and perform field necropsies on these animals.

See the Excel spreadsheet for updated summary details.

Action Plan Updates

- FWC visited the two Florida facilities to assess their preparedness and capability to receive, necropsy, and rehabilitate oiled sea turtles (Gulf World and Gulfarium) and marine mammals (Gulf World).
- The Wildlife Branch has compiled a list of experienced marine mammal and sea turtle veterinarians who will be on call and available to be deployed on the beach or at facilities as needed.
- Barbara and Teri met with the SCAT team leads to discuss reporting mechanisms and information/data collection for marine mammal and sea turtle strandings observed when the teams are in the field doing assessments.
- The Wildlife Branch has requested information from the Operations Section to determine whether staging areas would have lights at night that could have a negative impact on sea turtles. The Mobile Operations Section explained that no beach lights would be used. Efforts should be made to minimize potential impacts of lights on turtles.
- The equipment list for first responders has been finalized and supplies are being purchased.
- Mike Ziccardi and NMFS OLE will be visiting the Audubon Aquarium of the Americas tomorrow to review policies, procedures, chain of custody, evidence collection, and sampling procedures as well as review the facilities operational plan.

- NOAA Public Affairs has provided a template of talking points for sea turtles that must be updated every day.
- Sea Turtle nesting beach surveys along the FL Panhandle are scheduled to commence on May 15th and those in Alabama have already started.
- The Wildlife Hotline does not appear to be functioning efficiently. No calls were received on the Hotline in the last two days. BP has been alerted to the situation.
- The Wildlife Branch is completing a rotation staffing plan for Houma, Mobile, and St. Pete ICC as well as a rotation and staffing plan for all of the facilities and response areas.

Wildlife Operations Branch – Marine Mammal & Sea Turtle Staff on Scene on 5/11/10

Houma, LA **Incident Command Center**	**Gulfport, MS** **Institute for Marine Mammal Studies**	**Mobile, AL** **Incident Command Center**
Mike Ziccardi (UCDavis-OWCN)	Brian Stacy (NMFS-OPR)	Liz Touhy-Sheen (NMFS-SEFSC)
Teri Rowles (NMFS-OPR)	Chris Sasso (NMFS-SEFSC)	
Barbara Schroeder (NMFS-OPR)		
Jaclyn Taylor (NMFS-OPR)		
Sarah Wilkin (NMFS-SWR)		

Old News to Keep in Mind

- **Heads-Up:** The Institute for Marine Mammal Studies (IMMS) in MS sent NMFS OPR an e-mail on 5/8/10 stating that MS Department of Marine Resources has designated IMMS as the state agent authorized pursuant to MMPA Section 109(h) to respond to marine mammal strandings. Up to now, IMMS has been operating under a NMFS-issued Stranding Agreement pursuant to Section 112(c) of the MMPA. NMFS OPR staff will follow-up with SER and GCF on Monday to review the validity of this arrangement between IMMS and MS-DMR.
- **Heads-Up:** The Institute for Marine Mammal Studies (IMMS) in MS has had a dolphin in rehabilitation status at its facility for the past several months, which has been deemed non-releasable by NMFS (prior to the spill). IMMS would like to retain the dolphin as a captive display animal, and have engaged their Congressional representatives in their request. NMFS stated in a letter to IMMS that, due to the gravity of the oil spill situation, the dolphin must be quickly transferred to another facility to both (1) protect it from exposure to any incoming animals that will be contaminated with oil and potentially be carrying pathogens from the wild, and (2) free up pool space that may be needed by incoming oil spill patients. **UPDATE: On Tuesday (5/11/10), NMFS received a**

notice of intent to sue from IMMS to retain custody of the dolphin. IMMS lawyers have also requested a TRO (Temporary Restraining Order) to prevent moving the animal until the case is heard.

Update through June 25, 2010 (as of 1800)

Marine Mammal and Sea Turtle Health and Response

Noteworthy Developments During this Reporting Period

- Increase of 5 turtle strandings (1 dead in AL,1 live in MS, 2 dead in MS, 1 dead in LA)
- Increase of 1 live oiled turtle recovered during directed capture surveys
- Increase of 2 dead dolphin strandings (1 decomposed dolphin was sampled in the field and not recovered in LA and one dolphin was recovered in LA and taken to Audubon for necropsy)
- Efforts continue within Unified Command to work through all logistics to place observers on various clean up activities, including burns and skimmers, in a manner that ensures observer safety, which is of paramount concern and must be addressed.
- Numerous calls were received regarding dolphins in oil in Florida and Alabama. The dolphins were normal and not in distress or not seen when the response team(s) followed up on the calls.
- The current designated spill area encompasses the coastline from the Texas/Louisiana border to Apalachicola (Franklin County), Florida. All stranded animals within this geographic range are being examined following the oil spill response protocols.

Sea Turtles

Total Turtle Numbers

555 total sea turtles verified to date within the "designated spill area" (increase of 5 from June 25 report)

- 461 stranded* (increase of 5 from June 25)
  - 417 of the stranded were found dead (increase of 4 from June 25)
  - 44 of the stranded were found alive (increase of 1 from June 25)
    - 4 recovered alive but died in rehab (no change from June 25)
    - 4 turtles released alive (no change from June 25)
    - 36 live turtles in rehabilitation (increase of 1 from June 25)
- 94 turtles collected during directed turtle sampling efforts (increase of 1 from June 25)
  - 87 live turtles in rehabilitation (increase of 1 from June 25)
  - 4 turtles collected dead (no change from June 25)
  - 3 turtles died in rehabilitation (no change from June 25)

* For this event, a true turtle stranding is defined as a turtle that washes ashore dead or debilitated or is found floating dead or debilitated in the course of non-directed turtle surveys. Turtles observed and/or captured during directed sampling efforts are not categorized as strandings.

Turtle Necropsy Status (of the 417 dead stranded, 4 dead directed capture, and 7 that died in rehab):

- 7 assessed and unable to perform necropsies (i.e. advance decomposition) (no change from June 25)
- 17 partial necropsies (e.g. due to scavenging or autolysis) (no change from June 25)

Update through June 25, 2010 (as of 1800)

- 59 full necropsies performed (no change from June 25)
- 46 carcasses not collected due to decomposition state or unable to recover but marked and/or buried (no change from June 25)
- 299 carcasses to be necropsied, if decomposition stage warrants (increase of 4 from June 25)
- Of the initial 75 full or partial necropsies completed, the two primary considerations for the cause of death of the non-oiled recovered turtles are forced submergence or acute toxicosis. Further results are pending.

Information on Signs of Sea Turtle Oiling:

- To date, visible evidence of oil has been documented externally on 6 dead stranded sea turtle and 6 live stranded turtles (2 of which were caught in skimming operations).
- To date, visible evidence of oil has been documented externally on 82 live sea turtles and 3 dead sea turtle captured during directed turtle surveys.

Historical Sea Turtle Strandings:

- The total number of sea turtle strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from June 1- June 25 is 205.
- This is much higher than the number of turtle strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this approximate time frame. The breakdown by state for the range of animals historically stranding in the month of June (2005-2009) is as follows:
    - Louisiana: 0-3 stranded sea turtles
    - Mississippi: 0-1 stranded sea turtles
    - Alabama: 0-4 stranded sea turtles
    - Florida panhandle (Escambia – Wakulla Co.): 5-17 stranded sea turtles
- There has been an increase in awareness and human presence in the northern Gulf of Mexico, which likely has resulted in some of the increased documentation of stranded turtles; however, we do not believe this factor fully explains the increase.

Marine Mammals

Total Mammal Numbers

54 dolphins have been verified to date within the "designated spill area" (increase of 2 from June 23).

- 49 were dead stranded* dolphins (increase of 2 from June 25)
- 5 were live stranded dolphins (no change from June 25)
    - 2 died shortly after stranding (no changefrom June 25)
    - 1 euthanized upon stranding (no change from June 25)
    - 1 stranded live and freed immediately (no change from June 25)
    - 1 live and in care (no change from June 25)

1 dead stranded sperm whale has been verified to date within the "designated spill area" (no change from June 25)

Update through June 25, 2010 (as of 1800)

* Under the Marine Mammal Protection Act Section 409.3, a marine mammal stranding is defined as an event in the wild where:

- A marine mammal is dead and is on the beach or shore of the United States or in waters under the jurisdiction of the United States (including any navigable waters); OR
- A marine mammal is alive and is on a beach or shore of the United States and unable to return to the water, on a beach or shore of the United States and, although able to return to the water, is an apparent need of medical attention or in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.

Dolphin Necropsy Status (of the 49 dead stranded and 3 live stranded dolphins that died or were euthanized):

- 27 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change fromJune 25)
- 7 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from June 25)
- 9 full necropsies performed (increase of 1 from June 25)
- 5 verified strandings but animals not collected due to stage of decomposition or unable to recover (increase of 1 from June 25)
- 4 carcasses to be necropsied, if decomposition stage warrants (increase of 1 from June 25)
- Necropsy results are pending for all animals necropsied to date.

Whale Necropsy Status (of the 1 dead stranded):

- 0 assessed and unable to perform necropsies (e.g. advanced decomposition) (no change from June 25)
- 0 partial necropsies performed (e.g. due to scavenging or autolysis) (no change from June 25)
- 0 full necropsies performed (no change from June 25)
- 1 verified stranding but animal not collected due to stage of decomposition or unable to recover (no change from June 25)
- 0 carcasses to be necropsied, if decomposition stage warrants (no change from June 25)

Information on Signs of Mammal Oiling:

- Dolphins: Five of the verified dolphins had evidence of external oil on the tongue and/or body and therefore were classified as oiled. However, we are unable at this time to determine whether the three dead stranded animals were externally oiled pre- or post-mortem. All other necropsy findings are pending.
- Whales: The verified whale had no evidence of external oil.

Historical Dolphin Strandings

- The total number of dolphin strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from June 1 - June 25 is 24.
- This is higher than the number of marine mammal strandings that have been documented in recent years in Louisiana, Mississippi, Alabama, and the Florida Panhandle during this

approximate time frame. In part, this may be a reflection of increased detection and reporting and the lingering effects of an earlier observed spike in strandings for the winter of 2010.

- The breakdown by state for the range of animals historically stranding in the month of June (2003-2007) is as follows:
    - Louisiana: 0-5 stranded dolphins
    - Mississippi: 0-1 stranded dolphins
    - Alabama : 0-1 stranded dolphins
    - Florida panhandle: 0-4 stranded dolphins

Historical Whale Strandings

- The total number of whale strandings that we have documented from the Louisiana/Texas border through the Florida panhandle from June 1 - June 25 is 1.
- There are no records of stranded whales in the Gulf of Mexico for the month of June (2003-2007).

Summary of Action Plan Items:

- Efforts continue within Unified Command to work through all logistics to place observers on various clean up activities, including burns and skimmers, in a manner that ensures observer safety.
- Efforts are underway to establish a second directed capture team for sea turtles, several key logistical issues, including dedicated air support from Unified Command must be secured before this effort can be deployed.
- The Sea Turtle Unit, through the efforts of NFWF, has agreement with a commercial carrier to implement the ground transport plan for the movement of turtle nests from the northeastern Gulf to Atlantic Florida.
- The collection and transport of stored turtle carcasses from LA, MS, AL, and FL to necropsy facilities at the University of Florida was completed on June 25. Additional carcass transport will be scheduled in cooperation with SEC Panama City Lab as needed and per agreement.
- A NOAA team from PR and SERO has arrived in the Florida panhandle and Alabama to work with the local community on dolphin assessments and information regarding impacts on dolphins from this event and to start an on water pilot project for assessment of the health and behavior of dolphins in near shore areas as part of our pro-active response efforts.