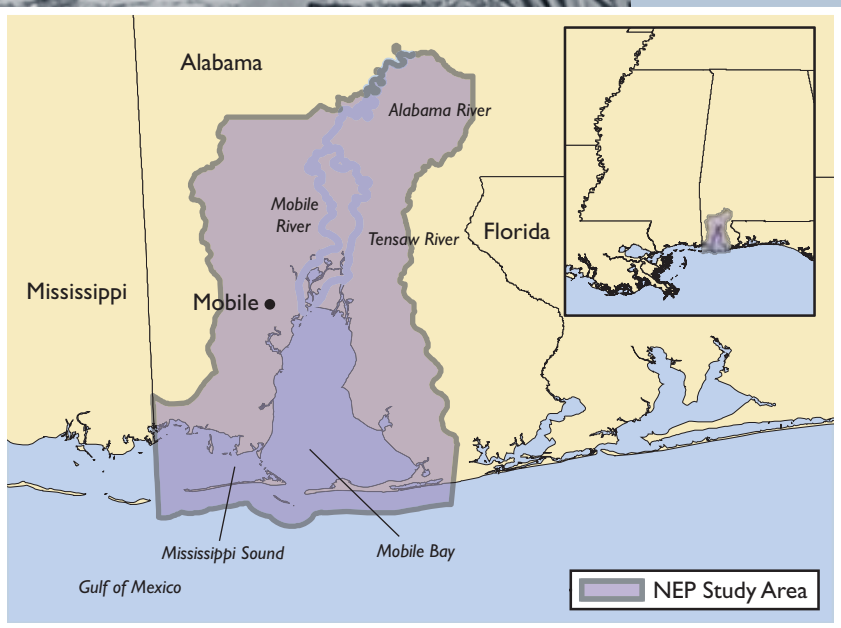
This document contains overall and specific condition of the Mobile Bay National Estuary Program from the National Estuary Program Coastal Condition Report. The entire report can be downloaded from
http://www.epa.gov/owow/oceans/nepccr/index.html

National Estuary Program Coastal Condition Report

Chapter 5: Gulf of Mexico National Estuary Program Coastal Condition, Mobile Bay National Estuary Program

June 2007

Mobile Bay National Estuary Program



www.mobilebaynep.com

Background

Mobile Bay is a submerged river valley that acts as a coastal transition zone between the Mobile Bay watershed and the Gulf of Mexico. The Mobile Bay watershed covers approximately 44,600 mi^2, including two-thirds of Alabama and portions of Mississippi, Georgia, and Tennessee (NOAA, 1985; Mobile Bay NEP, 2002a). It is the nation's fourth-largest watershed in flow volume and the sixth-largest river system in area (Mobile Bay NEP, 2002a).

Although the Mobile Bay watershed covers a vast area, the Mobile Bay NEP study area is limited to the portions of the watershed in Baldwin and Mobile counties in Alabama. The study area also includes Mobile Bay, the Mobile-Tensaw Delta, the surface waters between the Mississippi Sound and Alabama-Mississippi state line, and the Alabama state marine waters in the north-central portion of the Gulf of Mexico, which extend three miles south of Dauphin Island and the Fort Morgan Peninsula. The surface waters of Mobile Bay cover 409 mi^2, and the average depth of the Bay is about 10 feet, which is very shallow for a bay of this size (NOAA, 1985; Mobile Bay NEP, 2002a). Fresh water flows into the Bay through the Mobile-Tensaw, Blakely,

Apalachee, Dog, Deer, Fowl, and Fish rivers. The Bay's primary opening to the Gulf of Mexico is the Main Pass, located between Dauphin Island and the Fort Morgan Penninsula. The Mobile-Tensaw River Delta is the largest intact delta in the United States and covers approximately 289 mi^2 of marsh, swamp, and forested wetlands (Wallace 1994; Auburn University, 2004). The Bay basin is characterized by barrier islands, tidal marshes, cypress swamps, bottomland hardwoods, and oyster reefs. The Mobile Bay NEP study area is home to 49 species of mammals, 126 species of reptiles and amphibians, 337 species of freshwater and saltwater fish, and 355 species of birds (Mobile Bay NEP, 2002a). Portions of Mobile Bay and the Mobile-Tensaw Delta, including the Tennessee-Tombigbee Waterway and the Port of Alabama, are subject to a number of human uses with national implications, such as commercial fisheries, industry, tourism and recreation, and coastal development.

An estimated 4.85 million metric tons of sediment enter this estuary annually, with 33% being deposited in the Mobile-Tensaw Delta, 52% in Mobile Bay, and the remainder flowing through to the Gulf of Mexico (Mobile Bay NEP, 2002a). Mobile Bay's salinity regime is complex. At times, the predominant influence is freshwater inflow from the large Mobile Bay watershed; however, salinity levels are highly variable in Mobile Bay because winds and tidal regimes affect the inflow of salty Gulf of Mexico waters into the Bay from the south. A recent hydrologic study indicated that salinity also varies with depth in the Bay and in the major river channels, shallower embayments, and stream channels of the Mobile-Tensaw Delta (Braun and Neugarten, 2005).

Environmental Concerns

Habitat loss is a high-priority environmental concern for the Mobile Bay NEP. Development, natural erosion processes, sedimentation, dredge-and-fill practices, exotic species, and hydrologic modifications are some of the causes of habitat loss in the Mobile Bay NEP study area (Mobile Bay NEP, 2002a). Between the mid-1950s and the late 1970s, 34% of the wetlands in northern Mobile Bay were lost, compared to the national and southeastern wetland loss average of 8% (U.S. EPA, 1998). Loss of habitat can result in a decreased number and/or diversity of faunal species in the Bay, increased flooding, and impaired water quality (Mobile Bay NEP, 2002a). For example, the Mobile Bay Causeway, a major hydrologic modification in the Mobile-Tensaw Delta, was built in the 1920s and acts as an unintentional barrier between the Delta waters to the north and the saline waters to the south. Recent studies indicate that the causeway has significantly impacted the ecological function of the lower Mobile-Tensaw Delta and may also have impacted the region's biodiversity (Mobile Bay NEP, 2002a; Valentine et. al., 2004).

Coastal cleanup along the Mobile Bay Causeway (Mobile Bay NEP).

Population Pressures

The population of the 2 NOAA-designated coastal counties (Baldwin and Mobile) coincident with the Mobile Bay NEP study area increased by 49% during a 40-year period, from 0.36 million people in 1960 to 0.54 million people in 2000 (Figure 5-36) (U.S. Census Bureau, 1991; 2001). This population growth rate for the Mobile Bay NEP study area was less than half the population growth rate of 133.3% for the collective NEP-coincident coastal counties of the Gulf Coast region. The population density of these two counties in 2000 was 191 persons/mi^2, which was about one-third less than the population density of 287 persons/mi^2 for the collective Gulf Coast NEP-coincident coastal counties (U.S. Census Bureau, 2001). Development and population pressures are especially strong in NEP study areas that serve as major shipping centers for commercial and recreational activities.

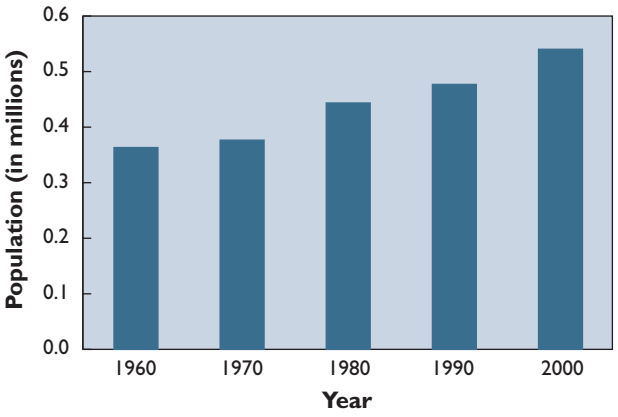


Figure 5-36. Population of NOAA-designated counties of the Mobile Bay NEP study area, 1960–2000 (U.S. Census Bureau, 1991; 2001).

NCA Indices of Estuarine Condition—Mobile Bay

The overall condition of Mobile Bay is rated fair based on the four indices of estaurine condition used by the NCA (Figure 5-37). The water quality and sediment quality indices are rated fair, the benthic index is rated poor, and the fish tissue contaminants index is rated good. Figure 5-38 provides a summary of the percentage of estuarine area rated good, fair, poor, or missing for each parameter considered. This assessment is based on data collected by the Alabama Department of Environmental Management (ADEM), in partnership with the NCA, from 66 sites sampled in the Mobile Bay NEP estuarine area in 2000 and 2001. Please refer to Tables 1-24, 1-25, and 1-26 (Chapter 1) for a summary of the criteria used to develop the rating for each index and component indicator.

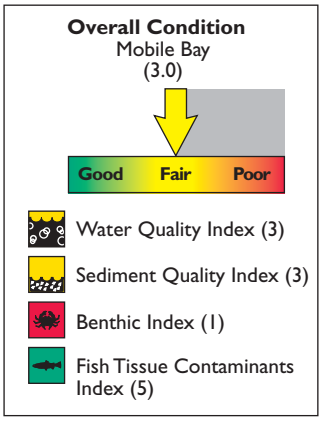


Figure 5-37. The overall condition of the Mobile Bay NEP estuarine area is fair (U.S. EPA/NCA).

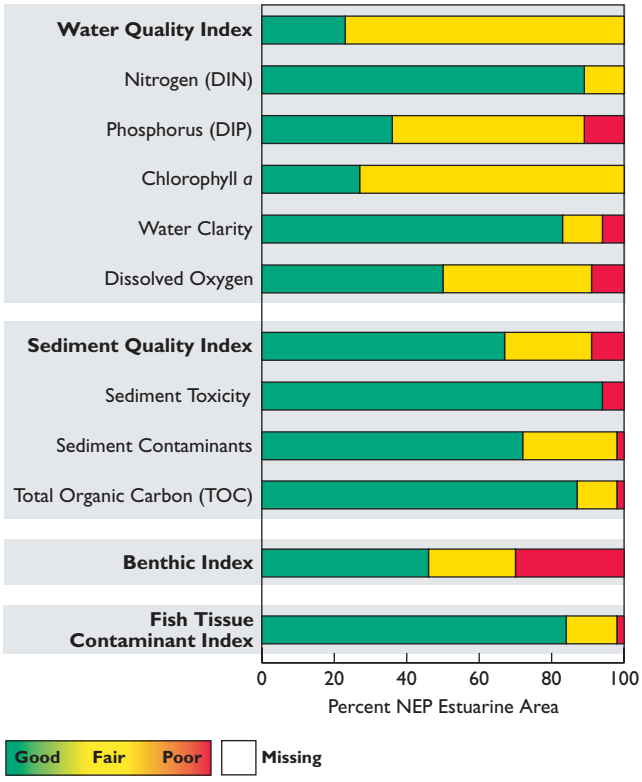


Figure 5-38. Percentage of NEP estuarine area achieving each rating for all indices and component indicators — Mobile Bay (U.S. EPA/NCA).

Water Quality Index

Based on NCA survey results, the water quality index for Mobile Bay is rated fair (Figure 5-39). This index was developed using NCA data on five component indicators: DIN, DIP, chlorophyll *a*, water clarity, and dissolved oxygen. In NOAA's Estuarine Eutrophication Survey, Mobile Bay was listed as having medium levels of chlorophyll *a* and medium-to-low DIN and DIP concentrations (NOAA, 1997).

Dissolved Nitrogen and Phosphorus | DIN concentrations in Mobile Bay are rated good, whereas DIP concentrations are rated fair. Concentrations of DIN were rated good in 89% of the estuarine area and fair in the remaining 11%. Eleven percent of the estuarine area was rated poor for DIP concentrations, 53% of the area was rated fair, and 36% of the area was rated good.

Chlorophyll a | Chlorophyll *a* concentrations in Mobile Bay are rated fair. Although no poor chlorophyll *a* conditions occurred in Mobile Bay, 73% of the estuarine area was rated fair, and the remaining 27% of the area was rated good for this component indicator.

Water Clarity | Water clarity in Mobile Bay is rated good. Expectations for water clarity in Mobile Bay are low due to high river flow and naturally high turbidity. Water clarity was rated poor at a sampling site if light penetration at 1 meter was less than 5% of surface illumination. Water clarity was rated poor in only 6% of the estaurine area, 11% of the area was rated fair, and 83% of the area was rated good.

Dissolved Oxygen | Dissolved oxygen conditions in Mobile Bay are rated fair. NCA estimates show that 9% of the estuarine area was rated poor for this component indicator, 41% of the area was rated fair, and 50% of the area was rated good.

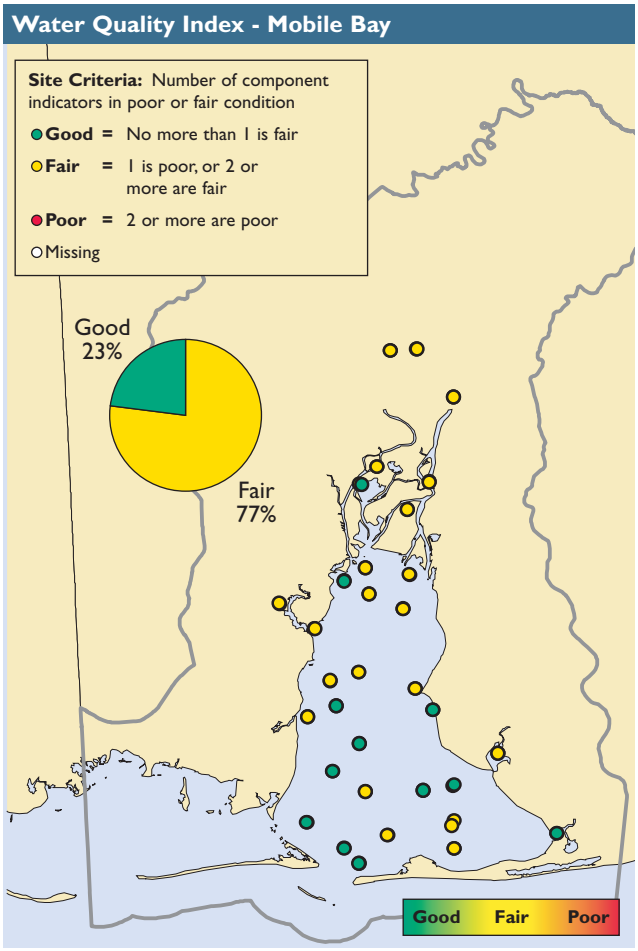


Figure 5-39. Water quality index data for Mobile Bay, 2000–2001 (U.S. EPA/NCA).

Throwing a cast net for bait fish, shrimp, and mullet is a popular local tradition (Mobile Bay NEP).

Sediment Quality Index

The sediment quality index for Mobile Bay is rated fair because 9% of the estuarine area was rated poor for sediment quality (Figure 5-40). This index was developed using NCA data on three component indicators: sediment toxicity, sediment contaminants, and sediment TOC.

Sediment Toxicity | Mobile Bay is rated poor for sediment toxicity because 6% of the estuarine area was rated poor for this component indicator.

Sediment Contaminants | Only 2% of the estuarine area was rated poor for sediment contaminant concentrations; therefore, this component indicator is rated good for Mobile Bay.

Total Organic Carbon | Mobile Bay is rated good for sediment TOC. Eighty-seven percent of the estuarine area was rated good for this component indicator, 11% of the area was rated fair, and only 2% of the area was rated poor.

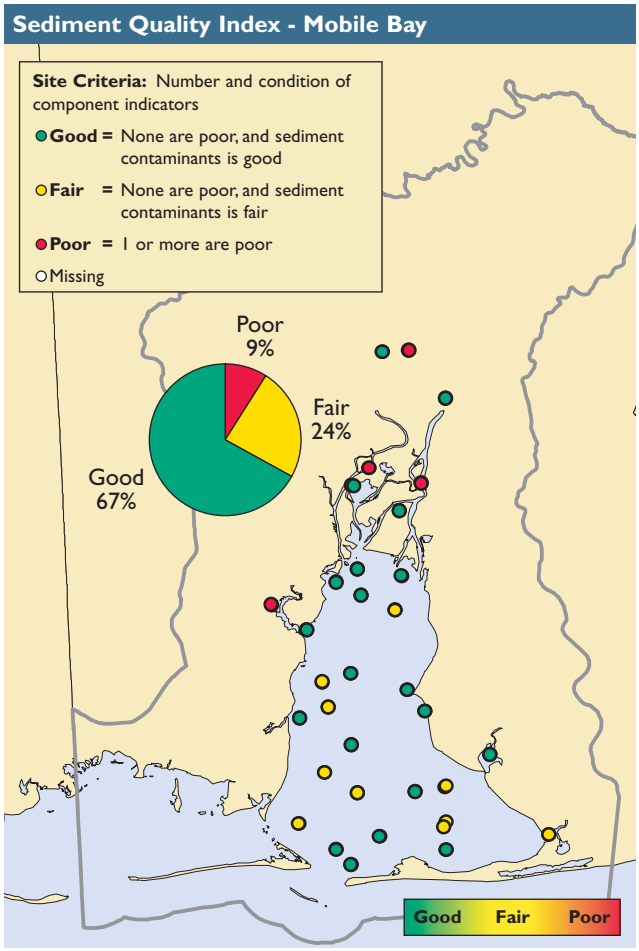


Figure 5-40. Sediment quality index data for Mobile Bay, 2000–2001 (U.S. EPA/NCA).

Navy Cove along Fort Morgan Peninsula, Alabama (Mobile Bay NEP).

Benthic Index

Based on the Gulf Coast Benthic Index and data from the NCA, the condition of benthic invertebrate communities in Mobile Bay is rated poor. Benthic index estimates indicate that 30% of the estuarine area has degraded benthic resources and another 24% of the area is rated fair (Figure 5-41).

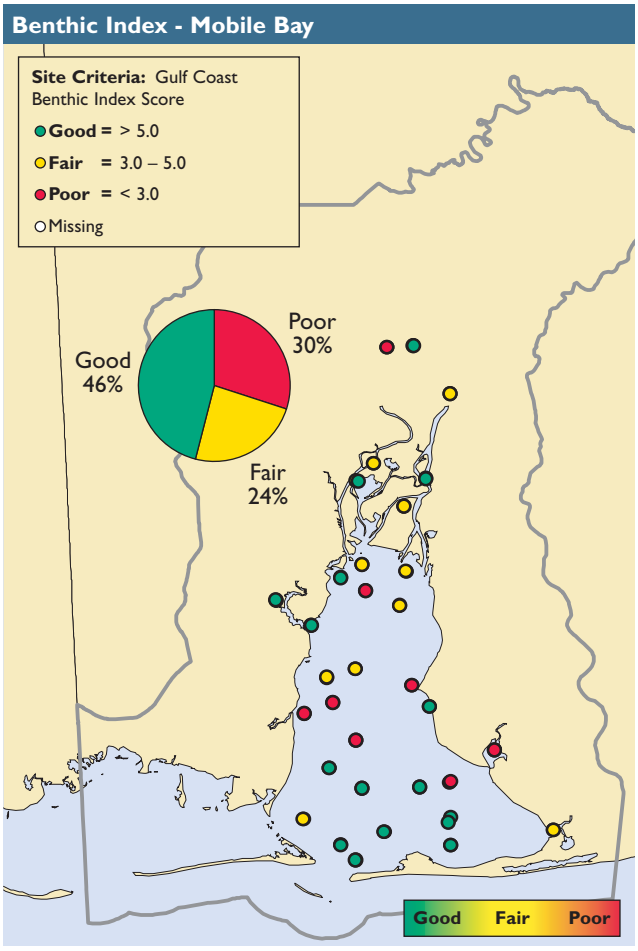


Figure 5-41. Benthic index data for Mobile Bay, 2000–2001 (U.S. EPA/NCA).

Fish Tissue Contaminants Index

The fish tissue contaminants index for Mobile Bay is rated good, based on concentrations of contaminants in fish tissues (whole fish). Figure 5-42 shows that 2% of all stations sampled where fish were caught exceeded the EPA Advisory Guidance values used in this assessment and were rated poor.

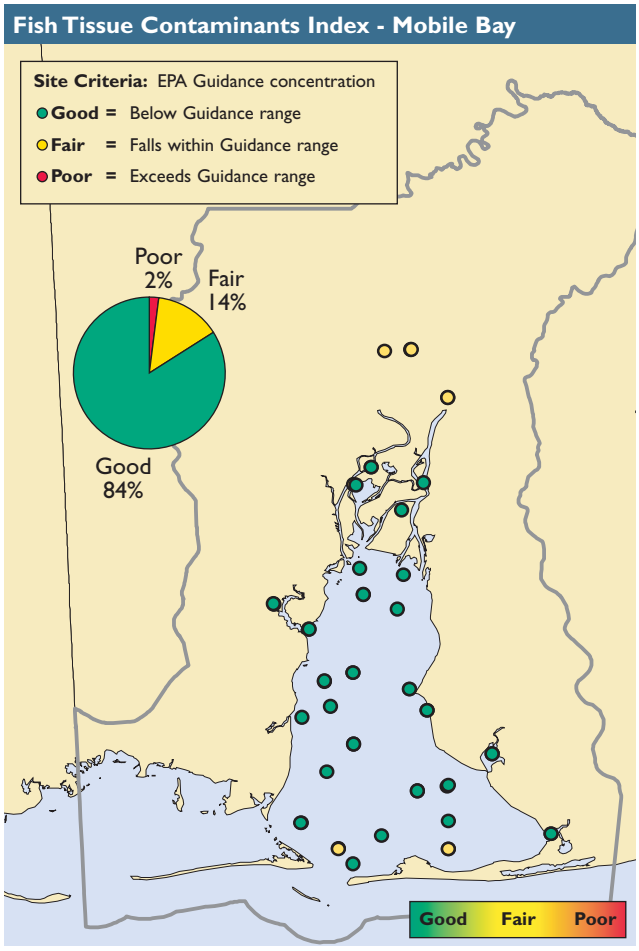


Figure 5-42. Fish tissue contaminants index data for Mobile Bay, 2000–2001 (U.S. EPA/NCA).

Mobile Bay National Estuary Program

HIGHLIGHT

Invasive Species of Coastal Alabama and Mississippi

The invasion of non-indigenous aquatic species is recognized as one of the five most-critical environmental issues facing the ocean's marine life (NRC, 1995). Broad efforts are underway nationwide to combat the entry of new species into our country and to effectively control and manage those that have already made their way here. This is particularly important in Gulf Coast waters because numerous vectors exist for the introduction of non-native aquatic plant and animal species in this region. These invasive species pose ecological, economic, and even human health threats.

Identifying these "alien" species was the goal of the newly formed Alabama-Mississippi Rapid Assessment Team (AMRAT) during the largest coast-wide rapid assessment of living resources ever held in the Gulf of Mexico. This team carried out rapid assessment surveys of non-native plant and animal species in Mobile Bay over several days in September 2003, as well as along the Mississippi coast in August and September 2004. The result was a "snapshot" inventory of coastal species from which potentially invasive or nuisance species could be identified. Such surveys offer an opportunity for the early detection of newly introduced non-native species, can result in early actions to curb the spread of invasive species, and provide insight into the ways these plants and animals arrive in a region. The assessments can also serve as a basis for the development of management plans to deal with potential nuisance species. The data collected provides a baseline against which future status and trends in non-native populations can be assessed (Mobile Bay NEP, 2005).

During the assessment surveys, researchers used a variety of sampling techniques to collect and identify as many different non-native organisms as possible. These techniques included aerial surveys, diving, electroshocking, plankton and algae sampling, trawling, seine netting, hand netting, hand picking, and scraping fouling organisms from surfaces. Ballast water was also sampled from ships in port and analyzed for pathogens by an FDA laboratory. Collectively, more than 120 researchers, technicians, and support personnel from 22 state, federal, and research institutions and agencies took part in these intensive field and laboratory efforts (Mobile Bay NEP, 2005).

The AMRAT is a continuing effort led by a unique partnership between co-founders Harriet Perry, Director of the Center for Fisheries Research and Development at the University of Mississippi's Gulf Coast Research Laboratory (GCRL), and David Yeager, Director of the Mobile Bay NEP. The team was founded is based on the premise that few individual organizations have all the resident scientific expertise or logistical ability to carry out a survey of this scale. The AMRAT partnership represents an innovative way to provide this capability. The surveys were coordinated with the Gulf and South Atlantic Regional Panel on Aquatic Invasive Species. The Gulf States Marine Fisheries Commission administers this panel and manages the data from the surveys.

More than 730 samples were collected during the AMRAT assessment surveys (Yeager and Perry, 2004). Many native and non-native animals and plants were classified and accessioned into the GCRL museum to serve as type specimens and aid in future study and identification. The surveys validated the presence of previously identified or suspected non-native plants and animals and added some new information. New arrivals include a population of Nile tilapia (*Oreochromis niloticus*) and the wild taro plant (*Colocasia antiquorum*), both noted in Mississippi, and the Asian clam (*Corbicula fluminea*), noted in both Alabama and Mississippi. In addition, two new state records for molluscs in Alabama were established: a marine snail (*Turbonila puncta*) and a bicolor purse-oyster (*Isognomon bicolor*). Changes in the distribution of certain native plants such as smooth cord grass (*Spartina alterniflora*) and their replacement by an invasive, *Phragmites*, were also noted. This was also the first time seaweeds and benthic algae in Alabama coastal waters were cataloged.

A researcher collects samples during AMRAT 2004 (Pam Fuller, USGS).

The AMRAT assessment surveys were unqualified successes and were highly acclaimed by participants, observers, and reviewers. In 2006, the AMRAT program was awarded a first place Gulf Guardian Award by EPA's Gulf of Mexico Program. The survey is identified by the Gulf and South Atlantic Regional Panel on Aquatic Invasive Species in their current strategic plan as a model for Gulf–wide assessment efforts, and other areas of the Gulf Coast are considering implementing similar programs. Current plans for coastal Louisiana surveys, led by the Louisiana Sea Grant Program and the Barataria-Terrebonne NEP (BTNEP), are using the lessons learned from AMRAT. Discussions also are underway to extend the AMRAT surveys into areas of the Florida panhandle as early as 2006. Additional information about AMRAT and a full list of its partners and participants is available from the following Web sites: http://www.mobilebaynep.com, http://nis.gsmfc.org, and http://www.gsmfc.org.

Mobile Bay National Estuary Program Indicators of Estuarine Condition

The Mobile Bay NEP has not yet finalized indicators for tracking the health of Mobile Bay, but will complete this task in 2006. Several successful public participation workshops resulted in a preliminary list of indicators that may be used to easily communicate the ecological condition of the Bay to the public. These indicators are either currently monitored or considered sufficiently important to warrant additional monitoring. Progress has also been made in developing status and trends data in preparation for a future report on the five issue areas identified in the Mobile Bay NEP *Comprehensive Conservation and Management Plan*, *Volume I—A Call to Action* (Mobile Bay NEP, 2002a). This progress includes initiating a new sub-estuary water quality monitoring project; instituting a continuous Bay-wide time series monitoring project; performing rapid assessments to monitor invasive species; analyzing more than 20 years of collected fish population data to evaluate trends; performing the first comprehensive modern survey of SAV and a comparison with historical data; establishing a completely updated NWI wetland survey and upland habitat survey for Mobile and Baldwin counties; utilizing a land-use cover map for Baldwin County; and performing other baseline data collection to provide a solid scientific basis for evaluating status and trends.

Water and Sediment Quality

The Mobile Bay NEP has established explicit goals and objectives for Mobile Bay and its subbasins, including developing allowable water quality-based loadings sufficient to maintain water quality standards (or TMDLs) for pathogens, nutrients, toxic chemicals, and other pollutants. Water quality indicators for Mobile Bay include chlorophyll *a*, total phosphate, ammonia, nitrates+nitrites, dissolved oxygen, salinity, pH, biochemical oxygen demand, turbidity, and water temperature. ADEM also monitors the Bay for several toxic chemicals, including mercury, cadmium, chromium, DDT, and PAHs (Hutchings and Yokel, 2000).

Portions of some rivers in the Mobile Bay NEP study area do not fully support their current or proposed water-use classifications because of nutrient enrichment and/or low dissolved oxygen levels; however, dissolved oxygen standards were actually achieved in 95% of the coastal waters across the Bay (Baya et al., 1998). Nutrient levels in the Bay are affected by point and non-point sources of nitrogen and phosphorus, rainfall levels, freshwater flows in the Mobile Bay River Delta, and a variety of cycling processes between the sediment and water column. Data collected between 1993 and 1995 show that more than 55% of Mobile Bay had bottom dissolved oxygen levels below 4 mg/L and that 30% of the Bay had levels below 2 mg/L, indicating poor conditions for dissolved oxygen (Mobile Bay NEP, 2002a). Eight percent of the sites monitored by the Alabama Monitoring and Assessment Program (ALAMAP) indicated dissolved oxygen deficiencies (below the 5-mg/L criteria) (ADEM, 2004).

ADEM's pathogen indicators for Mobile Bay are fecal coliform and *Enterococci*. Existing pathogen data have been deemed insufficient for developing a true status and trends relationship because these data have focused on short time frames and narrow geographic regions. In 1996, 412 of 451 mi^2 (91%) of shellfish waters in the study area did not fully support their intended use classifications due to pathogen indicators (Mobile Bay NEP, 2002a). The 2002 303(d) list of impaired stream segments in the Mobile Bay NEP study area indicates that, of the 23 stream segments listed, 11 were listed in part due to pathogen contamination (ADEM, 2002).

Metals and chemicals that are slow to break down in the environment accumulate in Mobile Bay sediments over time, and the Mobile Bay NEP uses a variety of indicators to assess the Bay's sediment quality. These indicators include analyzing sediments for metals and pesticides, monitoring human activities such as fuel spills and pesticide use, and assessing shellfish contamination levels (Mobile Bay NEP, 2002b). Of the 23 303(d)-listed streams located in the Mobile Bay NEP study area, 8 were impaired, in part due to mercury contamination (ADEM, 2002).

Habitat Quality

The Mobile Bay NEP monitors indicators of habitat quality and habitat loss, including upland habitat extent and conversion. Changes in SAV habitat acreage, wetland areas, beach and dune extent, and shoreline habitats are all indicators that have been monitored to evaluate habitat loss in the Mobile Bay system (Hutchings and Yokel, 2000). Probable impacts of habitat loss include population declines and/or the extinction of native species. More than 50% of Alabama's wetland acreage was lost between 1780 and 1980 (Mobile Bay NEP, 2002a). In 2002, the Mobile Bay NEP used aerial photography and GIS technology to assess the extent of SAV in Mobile Bay. The study showed that Mobile Bay's SAV acreage decreased by more than 55% in Mobile County (1940–2002) and by more than 88% in Baldwin County (1955–2002) (Barry A. Vittor & Associates, Inc., 2005). In light of this trend, the relationship between water quality (including nutrient loading and water clarity) and SAV loss is a subject for further evaluation by the Mobile Bay NEP and its partners.

The brown pelican population has made a remarkable recovery on Gaillard Island (Mobile Bay NEP).

Living Resources

Indicators for monitoring living resources include distribution, diversity, and composition of benthic assemblages; distribution and diversity of native fishes; abundance of exotic species; number of rare listed species by year and habitat acreage; and other measures. The population of many wildlife species in the Mobile Bay NEP study area have been diminished due to overharvesting, pollution, and habitat loss. The Bay and coastal waters of the study area are home to many rare and endangered species of wildlife, including five species of sea turtles; the West Indian manatee; sperm whales; bottlenose dolphins; and the American bald eagle. Thirty-six of the Bay's 337 fish species are listed as at risk (Mobile Bay NEP, 2002a).

More than 350 species of birds can be found in the Mobile Bay NEP study area each year. Some of the birds are year-round residents, whereas others pass though the area during migrations or reside in the area for part of the year. These birds include waterfowl, colonial wading birds, and seabirds. Gaillard Island supports the only nesting colonies of the brown pelican, laughing gull, Caspian tern, and sandwich tern in Alabama. Nests of brown pelicans on the island increased from 4 in 1983 to 4,597 in 1997 (Stout et al., 1998).

Although there are no fish advisories specific to Mobile Bay, the State of Alabama has issued a statewide advisory for mercury in king mackerel from all estuarine/coastal Alabama waters (U.S. EPA, 2005a). The State of Alabama currently employs the FDA standards set for the sale of seafood in issuing fish consumption advisories based on mercury contamination. Discussion is underway to adopt the stricter EPA standards for fish tissue contamination. Using EPA standards would significantly expand the number of streams in Alabama with fish consumption advisories based on mercury contamination (Bouma, 2005).

Environmental Stressors

A variety of human activities are used as indicators to help evaluate environmental stressors in Mobile Bay. These indicators include population growth, sanitary waste per capita, changes in land use and land cover, increase in impervious surfaces, the number and type of development permits, the number of boating and fishing licenses, the number of municipal sewage violations, and the air pollution index for Mobile Bay. Indicators of hydrologic modification are also monitored and include the acres of floodways impacted by development, extent of bulkheading, areal extent of dredging activities, areal extent of wetland filling and excavation, linear extent of stream and creek channelization, shoreline loss and erosion, and other parameters (Hutchings and Yokel, 2000).

Current Projects, Accomplishments, and Future Goals

Major goals of the Mobile Bay NEP include attaining and maintaining water and sediment quality that is sufficient to support healthy aquatic communities and designated human uses; providing optimum fish and wildlife habitat; and restoring historic plant and animal populations. The Mobile Bay NEP is also concerned with providing consistent and enforceable land- and water-use management that ensures smart growth for sustainable development. High-priority issues of the Mobile Bay NEP are habitat loss, rapid coastal growth and development and attendant nonpoint source pollution, water quality, growth management, municipal treatment facilities, public education, and industrial impacts on the Bay. Several of the Mobile Bay NEP's current projects and accomplishments are described below:

- The Mobile Bay NEP, in partnership with the Dauphin Island Sea Lab, the University of South Alabama's Center for Estuarine Studies, and the Weeks Bay NERR, has established the first long-term network of real-time, continuous time-series water monitoring stations in Mobile Bay. This project provides basic data from three new sites in Mobile Bay and links an established site at the Weeks Bay NERR. The most recent addition to the network, the site at Middle Bay, is unique in that its vertical water-profiling system provides information throughout the water column. The measured meteorological and hydrographic parameters include wind speed and direction, air temperature, barometric pressure, solar radiation, quantum radiation, precipitation, water temperature, water height, salinity, dissolved oxygen, and turbidity.
- A major GIS study and water monitoring program is now underway to identify the sources of pathogen introduction into one of the local 303(d)-listed streams, with an aim toward taking necessary remediation or corrective actions.
- Two major habitat-restoration grants have been awarded to local organizations by the Mobile Bay NEP. The first grant helped eliminate the world's second-most invasive weed, cogon grass, on a portion of a 2,400-acre site bordering the Tensaw River. The second grant provides for purchase and further restoration of an 8-acre marsh on Mon Luis Island.
- A SAV restoration manual has been completed and printed, and a SAV restoration project involving numerous volunteers is in progress (Turner et al., 2005).
- In concert with the USACE and other partners, several restoration projects are in the planning stages, including the use of dredge material to restore nesting habitat on a barrier island; the creation of additional oyster bottom, emergent marsh, and SAV habitat; and the examination of the feasibility of increased public access.
- In partnership with the Nature Conservancy, the Mobile Bay NEP has completed an assessment of habitat-protection needs and identified priority sites for acquisition and conservation protection, as well as other priority sites for restoration efforts. The first efforts toward implementing these goals are underway. In addition, a database is being created in partnership with the Mississippi-Alabama Sea Grant to catalogue restoration and acquisition efforts on the Mississippi and Alabama coasts and to help better direct and refine efforts in this area.

- The Mobile Bay NEP facilitated discussions and planning between conservation, recreational, and commercial interests through a public process. These activities resulted in the closure of a portion of the upper reaches of Mobile Bay to shrimp trawling, thereby reducing the impacts of bycatch on juvenile finfish and of trawling on SAV habitat.
- The Mobile Bay NEP is partnering with the City of Mobile and the State Lands Division on the creation of a significant public access site and the restoration of its adjoining marsh area.
- A preliminary report has been prepared concerning the probable impacts of the Mobile Bay Causeway on freshwater and saltwater hydrology in the Mobile-Tensaw River Delta, as well as its attendant impact on aquatic living resources (Valentine et al., 2004).
- Since 2001, the Mobile Bay NEP has helped to conduct an Oyster Gardening Program. This program has many purposes, including collecting data on oysters, improving water quality through oyster filtration, protecting young oysters by improving their conditions, creating habitat for other marine species that form the base of the food chain, and educating the community about oysters.

Conclusion

Based on data collected by the NCA, the overall condition of Mobile Bay is rated fair. The Mobile Bay NEP has not yet finalized its indicators for tracking the health of Mobile Bay, but this task will be completed in 2006. The preliminary list of indicators includes a variety of parameters used to assess water, sediment, and habitat quality; habitat loss; living resources; hydrologic modifications; and the effects of human activities on the estuary. Several of these parameters are currently being monitored in the study area, and the Mobile Bay NEP is making progress towards developing status and trends data for these indicators.