

# NOAA SENTINEL SITE PROGRAM



## What is meant by Sentinel Site Cooperatives?

### Sentinel Stations

Discrete instruments and measurement stations (platforms and sensors) that provide information and data that can be synthesized to provide an understanding of the ecological status and trends in physical and biological variables of interest.

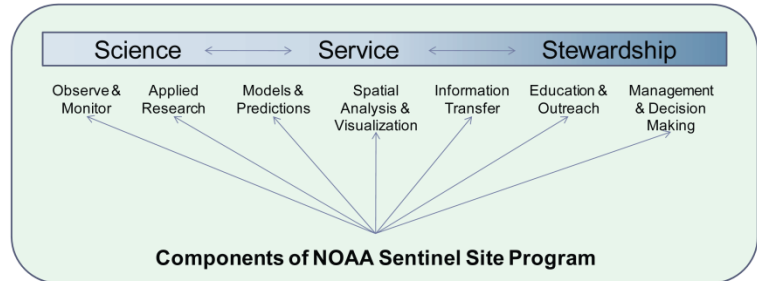
### Sentinel Sites

Areas in coastal and marine environments that have the operational capacity for intensive study and sustained observations to detect and understand physical and biological changes in the ecosystems they represent. In most cases, a Sentinel Site will also collect and analyze socioeconomic data. A Sentinel Site should:

- contain one or more sentinel stations;
- have a historical data record sufficient to address local-scale changes (or actively take steps to collect such a record);
- be a managed area that is representative of regional ecosystem types;
- be of a size that is practical for testing adaptive management approaches and for education and outreach;
- have the capacity to attract and/or leverage partnerships;
- have consistent biological, chemical and physical monitoring referenced to accurate geospatial infrastructure;
- include areas with the management capacity that can support and connect to other regional observing networks;
- facilitate synthesis of information to answer physical and biological questions; and
- have a commitment to uninterrupted, long-term environmental monitoring.

### Sentinel Site Cooperatives

Spatial extent for which the outputs, products, and services from all applicable Sentinel Sites are both scientifically relevant and applicable to local management issues. The cooperative bounds not only the physical and biological data, but also the socioeconomic information necessary to deliver useful products to local communities. The extent of the area will encompass the human communities that are targeted to use the information provided by the program and within which relevant socioeconomic and behavioral changes can be measured.



## Vision

The NOAA Sentinel Site Program brings to life NOAA's science, service, and stewardship continuum by leveraging existing resources and integrating multiple parallel efforts to promote resilient coastal communities and ecosystems in the face of change. This innovative approach is designed to achieve increased management effectiveness through more coordinated and comprehensive science.

## Description

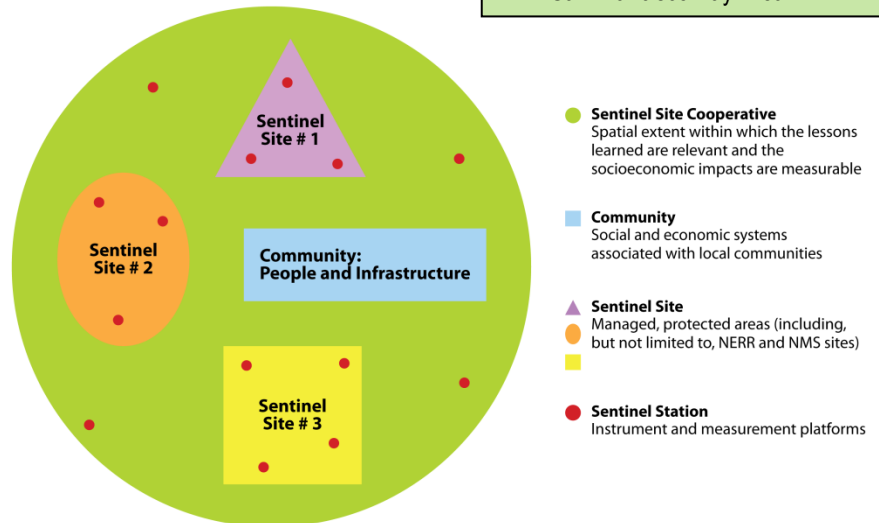
The NOAA Sentinel Site Program leverages existing assets and resources in a place-based, issue-driven, approach to identifying and responding to the impacts of stressors on NOAA trust resources and the communities that rely on them. The program will initially focus on climate change impacts, specifically the impacts of sea level change, and the management strategies undertaken to address them.

The Program will coordinate ongoing and evolving place-based programs (e.g. NOAA's Habitat Blueprint) to maximize impact by prioritizing planning and execution activities in order to meet multiple outcomes with unified effort.

A fully developed Program will allow NOAA to fulfill its responsibilities as directed by its mandates and laws in a more efficient and comprehensive manner. The program does not detract from existing responsibilities, but instead focuses resources in such a way that multiple goals can be achieved through collaborative engagement.

### The NOAA Sentinel Site Cooperatives:

- Chesapeake Bay
- Hawaii
- North Carolina
- Northern Gulf of Mexico
- San Francisco Bay Area



*"Scientists are helping to lay the groundwork for a new national network of sentinel sites for climate change research that will provide the valuable climate data essential to providing the sound science on which sound policy must be built."*

Dr. Jane Lubchenco, Jugg Bay NERR, April 22, 2009



## NOAA SENTINEL SITE PROGRAM: Criteria employed to select Sentinel Site Cooperatives

Scientific Rationale and Ecological Significance	Practicality and Leveraging	Relevance to Program Objectives and Responsiveness to Management Actions
<ul style="list-style-type: none"><li>• High likelihood of detecting change</li><li>• Key physical and biological attributes representative of the larger ecosystem</li><li>• High ecological value (often characterized by biological hotspots, and presence of key species related to ecosystem function that would be impacted)</li></ul>	<ul style="list-style-type: none"><li>• Documented local stakeholder need with interested and engaged management community</li><li>• Existing monitoring/observing infrastructure, data availability and support for continuity of activities and investments</li><li>• Existing capabilities for data analysis, synthesis and translation</li><li>• Existing NOAA and non-NOAA scientific research activities / capacities that complement and strengthen the thematic goals, objectives and priorities of the SSP</li></ul>	<ul style="list-style-type: none"><li>• Ability of ecosystem to adapt to change and maintain or enhance services provided</li><li>• Likelihood of SSP information being used to reduce vulnerabilities of ecosystems and communities</li><li>• Ability to document changes in local populations and economies</li><li>• Utility of lessons learned to other areas with comparable governance and issues</li></ul>

### Current Status

Each group brings both its needs and its resources to bear. Some groups bring infrastructure, others bring small amounts of money that can be used to fill the greatest needs, and still others bring primarily the dedicated brainpower of creative, bright people. The limited resources available to each group can be pooled to provide a much more flexible approach than would be achieved individually.

Representatives from the five Sentinel Site Cooperatives met in Silver Spring, MD in March, 2012 to determine the structure and timing of Cooperative Implementation Plan development. Cooperatives completed draft plans in the Fall of 2012, which include clear goals and objectives, roles and responsibilities for all participants, short and long term work plans, resources available and needs identified. Currently, activities critical to achieving success are underway (e.g., creating models and determining availability of necessary data and decision-support tools).

### Future Opportunities

As Sentinel Site Cooperatives mature, innovation will drive their evolution. Together, the limitation of resources, solidarity of mutual needs and urgency to act in the face of declining budgets creates a hotbed for innovative thinking about how to do more with less. By demonstrating through efficient planning and execution that the NOAA Sentinel Site Program is effective and fiscally responsible, the likelihood of successfully bringing in additional partners and resources increases dramatically. It is intended that, without additional resources, these collaborative efforts will advance coastal community efforts to address key issues. Should additional funds be available, NOAA will judiciously use these funds to strategically further the efforts of Sentinel Site Cooperatives and continue to assist the groups that are leading the way in innovative collaborations.

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