

Climate Change Sentinel Site Initiatives – Program Overviews and Updates

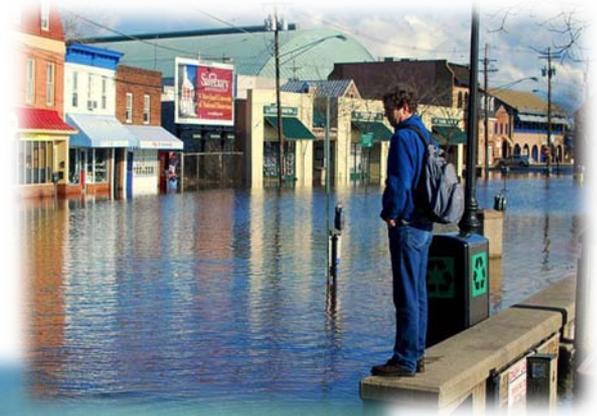


William Reay
VA Coastal Partners Workshop
Richmond, Virginia
December 6, 2012



Outline

- **NERRS Sentinel Site Initiative**
- **NOAA Sentinel Site Program**
- **Chesapeake Bay Sentinel Site Cooperative**



Sentinel Site – *defined*

Early warning and indicator of change

Definition: 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 ecosystems.

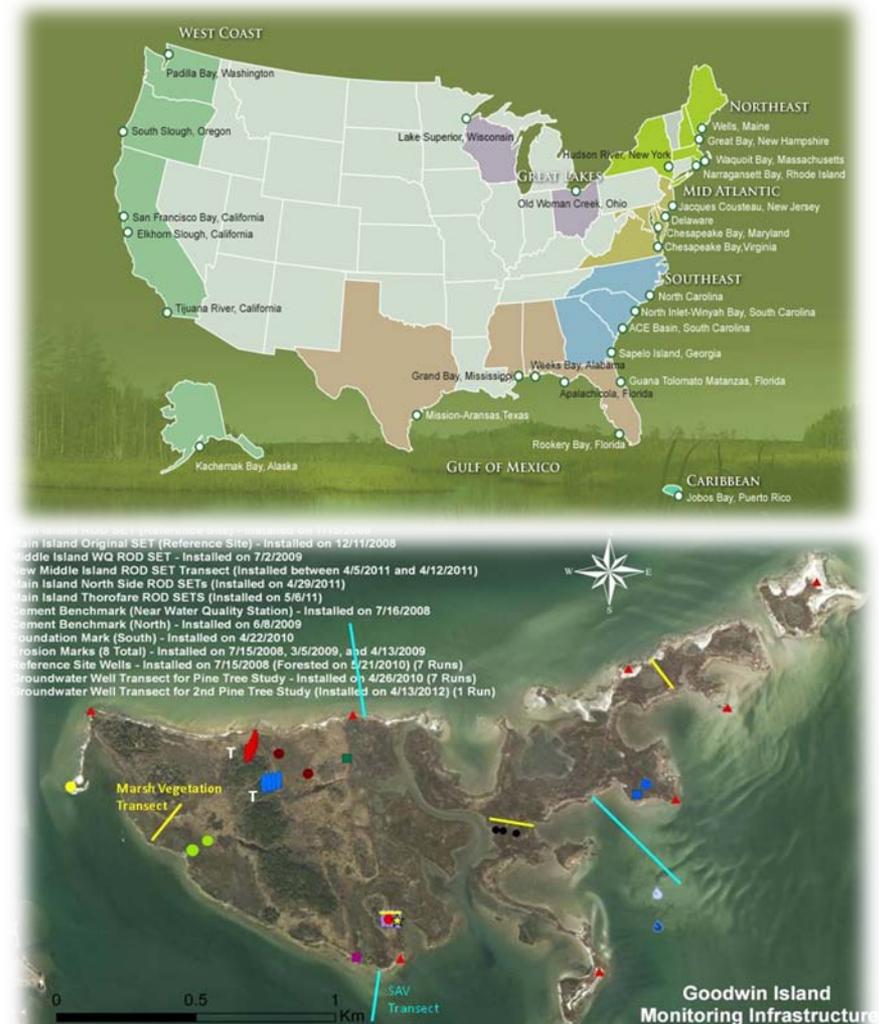
- **Small number of locations** (network) selected for intensive and sustained study (high-frequency and multivariate measures)
- **Location represents a certain, preferably large, class of ecosystems** (be representative of regional ecosystem types)
- **Network or subset of network must encounter the stressor of interest and be responsive to that stressor**
- **Detection of change or trends through monitoring should be possible** (heightened sensitivity to stressors and/or low background variability)
- **Biological, chemical and physical monitoring referenced to accurate geospatial infrastructure**
- **Be of a size that is practical for testing adaptive management approaches and supporting education and outreach efforts**



Components of NERRS Sentinel Site

Initial Focus: Understanding changes in sea level and inundation and the associated responses of critical habitats.

- Identification of audiences and management issues
- Establish programmatic capacity
- Vegetation monitoring (SAV, emergent wetland and marsh-forest ecotone)
- Develop local vertical control network
- Wetland surface elevation change (SETs)
- Water quality and meteorological monitoring
- Data synthesis and translation
- Elective protocols



NOAA Sentinel Site Program -

Integrating physical, ecosystem and socioeconomic factors

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 and within which socioeconomic impacts are measurable.

- Implements a place-based approach using sentinel sites to downscale science and management.
- Issue-driven with initial emphasis on sea level change & coastal inundation
- Collaborative framework that leverages existing assets, programs and resources; improving communication across federal and state agencies and invested partners
- Integrates monitoring, modeling, and management.



SSP Selection Criteria

Scientific Rationale and Ecological Significance

- High likelihood of detecting change
- Key physical and biological attributes representative of the larger ecosystem
- High ecological value (often characterized by biological hotspots, and presence of key species related to ecosystem function that would be impacted)

Practicality and Leveraging

- Documented local stakeholder need with interested and engaged management community
- Existing monitoring/observing infrastructure, data availability and support for continuity of activities and investments
- Existing capabilities for data analysis, synthesis and translation
- Existing NOAA and non-NOAA scientific research activities / capacities that complement and strengthen the thematic goals, objectives and priorities of the SSP

Relevance to Program Objectives and Responsiveness to Management Actions

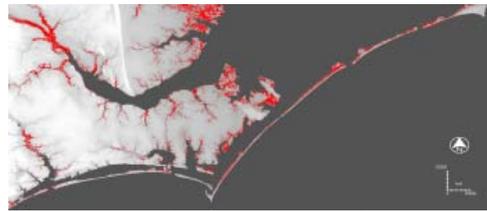
- Ability of ecosystem to adapt to change and maintain or enhance services provided
- Likelihood of SSP information being used to reduce vulnerabilities of ecosystems and communities
- Ability to document changes in local populations and economies
- Utility of lessons learned to other areas with comparable governance and issues

Components of NOAA Sentinel Program

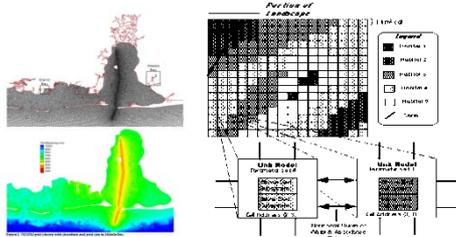
A cross-NOAA/Partner suite of services for understanding and responding to sea level change impacts on coastal ecosystems and surrounding communities.



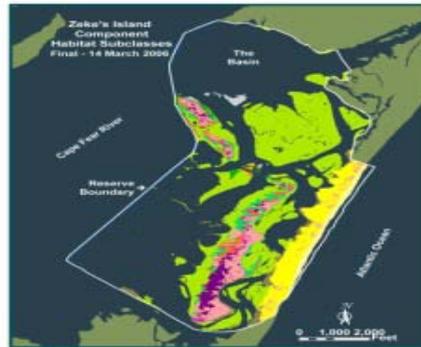
Observe & Monitor



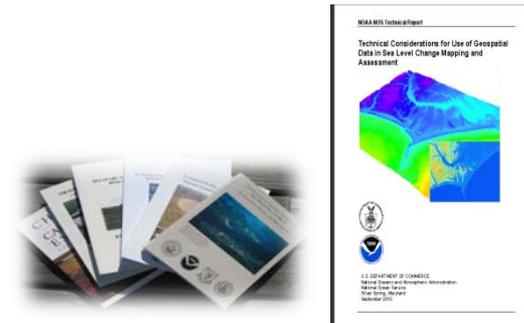
Applied Research



Models & Predictions



Spatial Analysis & Visualization



Information Transfer



Management & Decision Making



Education & Outreach

Science

Service

Stewardship

Chesapeake Bay Sentinel Site Cooperative

Mission: To provide long term data, information, tools, and educational resources, derived from downscaled observations collected at a network of sentinel sites, to inform decision-makers and coastal communities about the impacts of rising sea levels.

Priority Strategies

- Establish integrated network of habitat sentinel sites
- Enhance data availability and interoperability
- Develop information products and tools and support modeling efforts
- Education, transfer and advisory service



CBSSC: Select “draft”

FY13-17 Implementation Plan action items

- **Inventory all recent stakeholder “needs” polls, sea level rise-related datasets, and models**
- **Inventory existing sea level rise-related assets and datasets**
- **Create Outreach & Education and Science & Data working groups**
- **Develop a criteria and prioritization framework for establishing and monitoring sentinel sites**
- **Complete a comprehensive report that compiles and analyzes data collected at sentinel sites to identify potential future landscape scenarios and identifying the degrees of certainty of sea level change impacts**
- **Develop a sea-level change “decision support tree” to foster local planning and management decisions**
- **Produce report that describes the vulnerability of and characterizes the threats to at least 2 protected and 2 urban/suburban sentinel sites from sea level change and coastal inundation**

CBSSC: Progress to Date

September 2011

- NOAA initiates the NOAA Sentinel Site Program (SSP)

March 2012

- NOAA hosts SSP Meeting selected Cooperative representatives

August 2012

- CBSSC hosts two (2) partnership development webinars
- CBSSC develops local web page

September 2012

- CBSSC hosts workshop to further engage partners and develop a draft 5-year Implementation Plan
- CBSSC recruits CBSSP Coordinator through NOAA detail program
- CBSSC submits Draft Implementation Plan to the NOAA SSP Coordinating Committee

November 2012

- CBSSC Steering Committee meeting
- CBSSC submits Gaps Analysis to the NOAA SSP Coordinating Committee
- November 2012: NOAA unveils “Draft” SSP webpage

December 2012

- CBSSC hosts focus workshop to solicit additional input into Implementation Plan (12/19/12)
- CBSSC submits final FY13-17 Implementation Plan to the NOAA SSP Coordinating Committee



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