CLIMATE READY ESTUARIES
EPA

Lessons Learned *from the* CLIMATE READY ESTUARIES PROGRAM

NEW ENGLAND CLIMATE READY ESTUARIES

Climate Ready Estuaries in New England

The Climate Ready Estuaries program works with the National Estuary Programs (NEP) and the coastal management community to: (1) assess climate change vulnerabilities, (2) develop and implement adaptation strategies, and (3) engage and educate stakeholders. CRE shares NEP examples to help other coastal managers, and provides technical guidance and assistance about climate change adaptation.

Since 2008 CRE has worked with the NEPs in New England on a wide variety of local projects that will help them individually and collectively become better prepared for climate change. This brochure shares some of the lessons from their CRE projects that were shared at a June 2012 workshop in Boston hosted by the Ocean and Coastal Protection Unit of EPA Region 1. Additional information about the projects is available in CRE's annual progress reports or from the respective NEP.

Integrate climate change into regular activities

Work with partners to utilize existing planning mechanisms as an opportunity to identify priorities in the context of climate change and avoid planning fatigue.

- The Casco Bay Estuary Partnership is working with land trusts to incorporate climate change adaptation measures into their conservation planning. For example, CBEP worked with the Western Foothills Land Trust to identify conservation and stewardship priorities that took climate change into consideration. They shared their experience with other land trusts at an annual conference.

- As part of its response to major flooding in March 2010, the Narragansett Bay Estuary Program is working to identify and prioritize adaptation opportunities along the Lower Pawtuxet River and its tributaries. The project is using a prioritized approach that integrates infrastructure, flow management, and habitat restoration to develop projects that are expected to improve watershed and habitat function while increasing river system resilience as flows change in the future.

- The Piscataqua Region Estuaries Partnership completed an assessment of Oyster River watershed road culverts to determine those that are undersized for extreme precipitation events that are starting to occur more frequently. PREP engaged the local Department of Public Works in the early stages of the project and considered their priorities in the development of a vulnerability assessment for local managers to use when prioritizing infrastructure improvements.

Coordinate with others

Build broad coalitions and peer-to-peer networks to help accomplish project goals and ensure non-duplicative efforts.

- The Long Island Sound Study's Sentinel Monitoring Network is taking a multidisciplinary scientific approach to monitoring ecosystems and species in Long Island Sound to help measure the effects of climate change. LISS is using a top down (global and regional climate modeling) and bottom up (site specific monitoring) process with significant stakeholder participation through a bi-state work group of federal, state, and local scientists and managers.

- LISS recognized that local governments need help getting the right agencies and organizations to the table to do adaptation planning. They worked with the town of Groton, the CT Department of Energy and Environmental Protection, and ICLEI: Local Governments for Sustainability to convene 95 people from federal, state, and local agencies and organizations. They participated in a series of workshops to focus on the latest climate science, impacts,vulnerabilities, and strategies for implementation of climate change adaptation.

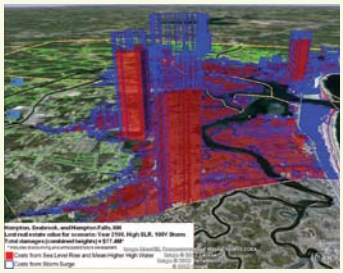
- LISS took the lessons learned and various resources that were utilized for the Groton climate change adaptation planning project and developed a "Connecticut Adaptation Resources Toolkit" to help all Connecticut municipalities with their adaptation planning.

Use new tools to gain insight

Develop innovative solutions by working with partners who can share new methods and new systems.

- The EPA Office of Research and Development worked with the Massachusetts Bays Program to develop a novel method for using expert elicitation to assess climate change vulnerabilities of salt marsh sediment processes and sparrow nesting habitat. Expert elicitation is a structured approach for characterizing the current state of knowledge on key questions of interest, especially when data are limited, uncertainties are great, and more than one conceptual model exists. Local experts helped refine the method and used it to identify sensitive pathways and tipping points within the system on which to focus management.

- In their analysis of sea level rise and coastal flooding, the Piscataqua Region Estuaries Partnership and the Casco Bay Estuary Partnership relied on the technical expertise of the New England Environmental Finance Center, based at the University of Southern Maine, to use a 3-D visualization tool, COAST, to provide visual, numeric, and presentation-based products to support local adaptation planning.



Pay attention to problems that will get worse

People are motivated when they are concerned that current problems will be heightened by climate change.

- The Piscataqua Region Estuaries Partnership and the Casco Bay Estuary Partnership worked with local municipalities and stakeholders to model the impacts of sea level rise and storm surge. They selected specific locations, vulnerable assets, and adaptation actions to model using the COAST visualization tool. CBEP focused on potential damages to infrastructure, while PREP focused on real estate damages.
- The Buzzards Bay National Estuary Program is using LiDAR mapping as a visual aid to educate municipal officials and the public about the impacts of sea level rise, aid local decision making in the construction of public facilities, help set priorities for land acquisition and protection, and help inform local climate change adaptation strategies.
- The PREP's study of the Oyster River watershed determined that increasing development and impervious surface coupled with increasingly intense storm events could overwhelm the existing culvert infrastructure with large volumes of water. PREP used the results of the culvert assessment and modeling to promote other flood mitigation efforts, including green infrastructure and low impact development practices to reduce stormwater runoff, and to encourage restoration of fish passage throughout the watershed.

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PROTECTING AND RESTORING
NATIONAL ESTUARY PROGRAM
25 YEARS

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