Restoring Coastal Ecosystems in Southeast New England

SNEP Watershed Grants Program





Today's Session

- Margherita Pryor, USEPA
- Tom Ardito, RAE
- Heidi Travers, RI Dept. of Environmental Management
- Ed Tanner, Town of Bristol, RI
- Andrew Silvia, City of Pawtucket, RI
- Kate McPherson, Save The Bay
- April Wobst, Association to Preserve Cape Cod
- Erin Perry Cape Cod Commission
- Caitlin Alcott, Inter-Fluve
- Discussion





Southeast New England Program (SNEP) Margherita Pryor, US EPA







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What is SNEP?

A regional scale collaboration to reconnect the coastal watersheds and communities of southeast New England through innovation, ecosystem approaches to restoration, and a **focus on social, economic, and environmental solutions to bring us from**







Southeast New England Program (SNEP) What does SNEP do?

Empowers collective action to improve water quality, restore habitat, and sustain ecosystem services and functions

Foster collaboration among regional partners across southeast New **England's coastal watersheds to** protect and restore water quality, ecological health and diverse habitats by sharing knowledge and resources, promoting innovative approaches, and leveraging economic and environmental investments to meet the needs of current and future generations.



Goal 1	Restore water quality and physical processes that support ecosystem function and watershed resilience.			
Goal 2	Bolster sustainable communities by protecting and enhancing ecosystem services that support local economies in the SNEP region.			
Goal 3	Assess, track, and communicate change in condition and the effectiveness of actions.			
Goal 4	Enable innovative solutions that facilitate new technologies and approaches to improve habitat, aquatic life, and water quality.			
Goal 5	Build on existing geographic programs and foster new programs in the SNEP region to advance solutions to regional environmental issues.			



Southeast New England Program (SNEP) Margherita Pryor, USEPA

WHERE is SNEP?







Southeast New England Program (SNEP)





Achievements:

- \$22 million in funding since 2014
- Strong diverse stakeholder collaboration Regional funding opportunities
- Partnership with Restore America's Estuaries Challenges:
- Lack of formal program authorization Continuing program and funding uncertainty
- Communicating Results
- Alignment of diverse stakeholder priorities



SNEP Watershed Grants

Tom Ardito, RAE

Concept:

- Support Implementation of SNEP Mission & Goals
- Build Local and Regional Capacity to Restore Coastal Watersheds and Ecosystems
- Foster Effective Partnerships
- Support Innovation







SNEP Watershed Grants

Grantmaking Process

- Two-step RFP to broaden participation
- Open to Munis, States, Regional Commissions, NFPs and Tribes
- Independent, interdisciplinary review committee
- Requests up to \$500k
- 2018: Received 60 pre-proposals requesting \$20M
- Awarded 14 grants totaling \$4.3M
- MA, RI and interstate projects
- \$2M planned for 2019
- Continuity is key







Real-Time Water Quality Monitoring in Narragansett Bay

Heidi Travers, Angelo Liberti Rhode Island Department of Environmental Management- Office of Water Resources Heather Stoffel, University of Rhode Island

Partners:

NERACÒ





RICCOastal Ecology Assessment Innovation & Modeling





<u>NBFSMN Program Partners Operating</u> <u>Stations in the Network and Providing</u> <u>Data Access:</u> RIDEM-OWR, URI/GSO, Narragansett Bay Commission, NBNERR, MA DEP, NERACOOS.

The NBFSMN is a collaborative effort to continuously monitor physical water quality parameters at 14 stations within Narragansett Bay, primarily from May – October, annually.

Purpose and Goals: Upgrade three key stations within the Narragansett Bay Fixed Site Monitoring Network with the latest water quality sensors and provide real-time access to the data. These longterm sentinel stations consist of data back to 2001

Buoy Design and Methodology



<u>Methodology</u>: Three seasonal buoys in Upper Narragansett Bay will be equipped with network compatible equipment (YSI Brand). This area is critical for evaluating the recent management decisions to reduced nitrogen loadings to the bay. This project will provide web-based data delivery, custom data acquisition and data visualization systems using network partnered data portals.

Web-Based Data Delivery, Custom Data Acquisition and Data Visualization Systems using Data Portals

Ocean Climate Disp	olay.				
Daily Climatology					
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Provide real-time data visualizations with custom graphing and the ability for region wide station comparisons





Long-Term data warehouse for all data from NBFSMN. Provide weekly seasonal interpretations of real-time data for public users.



RHODE ISLAND CONSORTIUM FOR Coastal Ecology Assessment Innovation & Modeling

Data portal under development to provide access to Narragansett Bay relevant data. Daily average data from the network.



Restoring the Wood/Pawcatuck Watershed Heidi Travers, RI Dept. of Environmental Management



RESTORE







Wood/Pawcatuck Watershed Restoration

- Bi-state collaboration between CTDEEP and RIDEM
- Project location: Pawcatuck Watershed and Estuary which is shared by both states
- Goal: Restore water quality in support of healthy aquatic communities, eel grass and recreational uses





Wood/Pawcatuck Watershed Restoration

Purpose: Develop a new watershed-focused approach to identifying and manage nutrient inputs into coastal estuaries

Tasks

- Enhancement and development of an HSPF model calibrated for flow, nutrients and sediments
- Collection of water quality data within watershed to support model development

Project Goals

- Develop a technical approach for the study watershed that can be applied to other watersheds and coastal estuaries
- Provide a tool that can be used to develop implementation strategies
- Collaborate and engage with partners within watershed to support project outcomes and future implementation activities





Managing Golf Course Runoff to Restore Bristol Harbor

Edward M. Tanner, Bristol, Rhode Island

RESTORE

MERICA'S

UARIES





0 125 250 500 Feet

Locus Map Bristol Golf Course Town Of Bristol, Rhode Island



Goals

Goals:

- Improve water quality of two tributaries that flow into Narragansett Bay
- Enhance functions of freshwater wetland habitat
- Increase flood storage capacity







Background

- 26 acre, 9 hole, municipal golf course
- Reduced to current size in 1980's
- Wetlands piped, filled, and channeled
- Maintained turf to edge of wetlands.
- Water quality monitoring downstream in Silver Creek and Bristol Harbor
 - Elevated levels of nutrients, bacteria, low DO







SNEP Grant Project

- Site assessment
- Engineering Design
- Permitting
- Construction
- Monitoring
- Public education and outreach







Vision

- Restore functions of wetlands
 - Reconnect and "daylight" streams
 - Native vegetation and buffers
 - Improve habitat and flood storage
- Project Partners
 - Town of Bristol (project administration, oversight and permitting)
 - Save the Bay (education and outreach)
 - Save Bristol Harbor (monitoring)







"Green & Complete Streets" to Restore Clean Water and Urban Environments

Andrew Silvia, City of Pawtucket, RI

RESTORE





WHAT PROBLEMS ARE WE TRYING TO SOLVE?

Economic Headwinds

- Low median household income (\$40K±)
 Recent, high-profile business departures
 <u>Thoroughly Auto-centric Development and Policies</u>
 - •No paid parking of any kind in the City
 - •Little enforcement of parking restrictions
 - •Personal vehicle ownership makes transportation #1 household expense for low-income families
 - •Pawtucket has 6.8% of state's population, but 10.1% of
 - bicycle-automobile crashes

Environmental Hazards

•70% \pm of City land covered by impervious surface, virtually tied for highest in RI

- •Hot, unhealthy environment for residents
- •Combined sewer system has capacity issues, frequent CSOs
- •All three City rivers have been assigned TMDLs
- Industrial history & legacy of contamination







ADDITIONAL IMPETUS FOR OUR "GREEN & COMPLETE STREETS" PROJECT

- New commuter rail and bus transit hub (ETA 2021)
- New 160-acre, Transit-Oriented Development (TOD) District will surround station, designed to:
 - Foster high-density, transit-adjacent development
 - Increase mobility via alternate, low/zerocarbon transportation modes
- Very <u>high visibility</u> location, ideal for demonstration project







OUR "GREEN & COMPLETE STREETS" PROJECT

- First "Green & Complete Street" project in the City
- We will demonstrate:
 - How to implement at least four unique stormwater treatment practices in ROW
 - Use of green stormwater infrastructure to protect bicyclists and pedestrians from vehicles
 - Use of green stormwater infrastructure to activate a neighborhood
 - Low-cost GSI performance evaluation through partnership with Nature Conservancy
- Stormwater Master Plan
 - Use GSI treatment volumes to develop bank of credits to incentivize development
- Maintenance Documentation
 - Four new short YouTube videos
 - DPW staff will demonstrate how to maintain GSI







A Comprehensive Plan to Restore Water Quality in Hundred Acre Cove Kate McPherson, Save The Bay



NARRAGANSETT BAY est. 1970

The Problem:

- Hundred Acre Cove is an embayment in Narragansett Bay
- The waters of HAC are impaired by bacteria pollution and have been permanently closed to shellfishing since the 1990s.
- Towns, State agencies, and Watershed Associations in RI and MA have tried to pinpoint sources of pollution of the Runnins River, with mixed results
- Recreational users of HAC are likely unaware of its chronic water pollution problems.



The Goal:

Save The Bay and bi-state partners will create a detailed **Water Quality Restoration Plan** for Hundred Acre Cove that includes:

- A detailed review of existing studies and reports
- Creation of updated GIS and watershed characterization maps
- A geospatial analysis of the project area and existing data
- A review of existing water quality data
- Detailed listing of restoration, adaptation, communication, policy, and regulatory actions to improve water quality
- Creation of an implementation plan for follow-on actions

Partnerships make outcomes possible!

Municipal commitments:

- Staff support in team meetings, research support, draft review, and communication with administrations
- Engineering, surveying, and drafting services for plan development

<u>RI DEM commitments</u>:

- Access to known studies, TMDL and Shellfish Program files, and other relevant data
- Technical expertise determining the need for a more comprehensive monitoring program, and technical assistance in developing a monitoring plan
- Technical support including review of draft documents and other deliverables

Narragansett Bay Estuary Program commitments:

- Creation of updated GIS and watershed characterization maps
- A geospatial analysis of the project area and existing data











NARRAGANSETT BAY

est. 1970

Y PROG

Improving Water Quality through Stormwater Management in the Three Bays Watershed

April Wobst, Association to Preserve Cape Cod

RESTORE

MERICA'S





Approach



Assessment and Prioritization



Design and Permitting



Installation





Short Term Results

- Complete design and permitting for 8 BMPs
- Install a minimum of 4 BMPs
- Eliminate 70-85% of bacteria and 55% of nitrogen from runoff at retrofit sites
- Reduce impervious surface
- Restore salt marsh and coastal dunes/beaches
- Remove invasive plants
- Provide improved public access
- Provide education and outreach to public and stormwater managers



Long Term Results

- 50% reduction in beach and shellfish closures
- Reduction of algal blooms and fish kills
- Improve habitat for fish, shellfish and wildlife
- Support commercial and recreational uses
- Develop project model that can be transferred



Cape Cod Water Quality Monitoring

Regional Collection and Analysis of Data to Inform Local Decision-Making

Erin Perry, Cape Cod Commission





Regional Water Quality Monitoring Database

Central location to store data collected by different agencies and organizations

Web-based user interface to make data more accessible





Project Team and Roles

PROJECT TEAM

Cape Cod Commission [project lead] - Lead project activities, coordinate tasks and track project, manage database(s), and coordinate data compilation and analysis

Association to Preserve Cape Cod - Create water resources report cards, develop State of the Waters: Cape Cod report

Center for Coastal Studies - Provide data, serve as an advisor on quality assurance and control and data analysis

UMass Dartmouth School for Marine Science and Technology - Provide data, serve as an advisor on quality assurance and control and data analysis

Waquoit Bay National Estuarine Research

Reserve - Provide data, serve as an advisor on quality assurance and control and data analysis, structure collaborative process and facilitate end user meetings

Woods Hole Oceanographic Institution - Data

analysis, develop process script, and assist with integration of processing script with database and user interface



END USERS

Cape Cod Water Protection Collaborative

Mass. Department of Environmental Protection

U.S. Environmental Protection Agency

Monitoring Organizations

Researchers

Others, as identified



Restoring a Former Cranberry Bog for Water Quality and Fish Habitat

Caitlin Alcott, Inter-Fluve

Photo: Alex Hackman



























Re-meandered channel



Dam removed



Thousands of Herring in the Eel River, 2016, for the first time since 1790.



Microtopography



Native vegetation, habitat wood



Education & research





For more information:

www.snepgrants.org

Thomas Ardito, Director SNEP Watershed Grants <u>tardito@estuaries.org</u>



