

Linking Ecosystem-based Management (EBM) and the SSE Amendment



This presentation has two parts.

- 1) I will answer some questions that were raised at the last Council meeting about the status of the:
 - TNC's 2008 Draft EBM Technical Report
 - Great South Bay's EBM Plan
 - And other Great South Bay Demonstration Area products; and

- 2) To highlight how the Great South Bay Demonstration Area work can inform, support and advance the development of the SSE Amendment.

Great South Bay EBM Demonstration Area Watershed



The New York Ocean and Great Lakes Ecosystem Conservation Act called on the Ocean and Great Lakes Ecosystem Conservation Council to promote the protection and enhancement of New York's coastal ecosystems using an EBM approach to accommodate community and economic needs, integrate EBM into existing programs and activities and engage a broad base of stakeholders.

A specific charge of the Oceans and Great Lakes Council is to demonstrate how EBM can be accomplished at the local level. The Great South Bay was one of the two EBM demonstration areas specified in the Act.

The boundary of the Great South Bay EBM Demonstration Area watershed is shown here in yellow and extends south to capture interactions between the ocean and the bay.

Great South Bay EBM Plan

Planning

Goal

- **Develop a plan with local stakeholders to integrate EBM into local activities and day to day decision-making**

Objectives

- **Gain on-the-ground experience in applying ecosystem approaches at the local level**
- **Apply lessons learned to statewide application of EBM principles at the local level**

Strategies employed in the EBM Demonstration Area have both planning and restoration components, which have been supported by the Department of State's partnership with TNC, DEC and the SSER Office.

The planning work has a clear goal to develop a plan that incorporates an EBM approach into local activities and decision-making.

Since 2007, the Department of State has been working in partnership with TNC to develop an EBM Plan for Great South Bay that integrates ecosystem protection and restoration goals with economic sustainability and community well-being.

The plan will make recommendations for better aligning federal, state and local programs and activities to achieve this goal

Designing the Great South Bay EBM Plan

2008 Draft EBM Technical Report

Conservation by Design approach

Ecological surrogates:
salt marsh, seagrass meadows and the
barrier island complex

Species surrogates:
hard clam, horseshoe crabs, alewife,
winter flounder, predatory fishes
(bluefish, striped bass, weakfish, and
summer flounder) and piping plovers



Developing the EBM Plan begins with TNC's 2008 Draft EBM Technical Report which provides a strong science-based foundation for the EBM Plan.

Its Conservation by Design methodology employs nine key ecological indicators or 'surrogates' that act as "bellwethers" to monitor ecosystem health in the Bay and highlight connections to its watershed and the ocean.

Three ecological surrogates and six species surrogates were selected as representative ecological attributes for the demonstration area.

The Conservation by Design approach used to develop the Technical Report has been successful across the nation and abroad. The idea is: "Protect the Surrogates, Protect the Bay."

One of the report's species surrogates is the hard clam. Back in the 1970's hard clams from Great South Bay supplied over half of the clams eaten in the entire country and filtered a significant amount of bay water. Today, managing hard clam populations continues to be a challenge.

The hard clam objective identified in the Draft Technical Report is to re-establish the hard clam population in GSB to an average density of 6 clams/m² by 2020 for the purposes of restoring ecosystem health and providing for a sustainable harvest.

It is worth noting that the Draft EBM Technical Report essentially identified the same three priority areas we have identified for the SSER Amendment - water quality, habitat protection and climate change adaptation

We see the Draft EBM Technical Report as important work that will benefit the development of the Great South Bay EBM Plan and will also support the development of the SSE Amendment.

Great South Bay EBM Plan Progress to Date

Reports and Research products

- **Draft EBM Technical Report**
(draft submitted 2008; contract amended and revisions underway)
- **Draft EBM Plan**
(some chapters submitted 2010; under review)
- **Great South Bay Stakeholder Outreach report** (completed 2008; posted on New York Ocean and Great Lakes Ecosystem Conservation Council's website)
- **Nitrogen Loading to the Great South Bay (Phase 1)**
(completed 2008)
- **Restoring Hard Clams in the Great South Bay** (completed 2010; available on TNC's website and to be posted on SSER's and New York Ocean and Great Lakes Ecosystem Conservation Council's websites)

In addition to the 2008 Draft EBM Technical Report, there are a number of other reports and research products that add to the EBM knowledge of the Great South Bay.

This slide highlights their status.

The last item, funded by DOS and released in April 2010, the hard clam report provides a comprehensive history of the Bay's maritime heritage and hard clam decline while offering a number of strategies for restoring hard clams and the Great South Bay ecosystem.

Once finalized, we see the GSB EBM Technical Report as a possible template for looking at information across the Reserve for the SSE Amendment. Elements of a completed EBM Plan can provide a roadmap for application across the region.

Steps to complete the EBM Plan

Nitrogen Loading Study (Phase 2)
(anticipated completion 2/2011)

Draft EBM Technical Report
(anticipated completion 3/2011)
• revise and edit

Draft EBM Plan
(anticipated completion 6/2011)
• develop recommendations with stakeholders
• identify steps necessary to implement recommendations
• complete Education and Outreach Chapter
• complete Public Summary document
• peer review of plan and technical report
• stakeholder review (SSER Council, public and other partners)

There are other research and report components currently underway to add to completing the GSB EBM Plan and can contribute to the SSE Amendment.

Preliminary work on Phase 2 of a Nitrogen Loading Study, which involves looking at management scenarios and assessing their ecological impacts on the Bay, is underway with anticipated completion by February 2011.

Completion of the Technical Report involves some reorganizing and editing of the current draft.

Completion of the GSB EBM Plan involves developing and refining the recommended actions with local, state, and federal partners. We are also refining other chapters and drafting a Public Summary Document that can help get information out to the public on the GSB EBM Plan.



Great South Bay EBM Implementation Strategy

Restoration

Goal

- **Undertaking restorative and corrective measures to attack known ecosystem problems**

Objectives

- **Increasing hard clam population**
- **Understanding nutrient loading**
- **Improving monitoring capabilities**

The other strategy employed in the EBM Demonstration Area involves restoration focused on known ecosystem problems. In Great South Bay, this work centered on restoring hard clams and submerged aquatic vegetation – and how we can improve monitoring in the Bay.

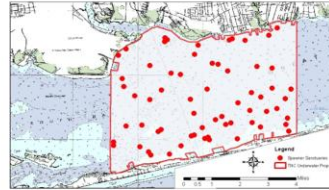
Because the Draft EBM Technical Report and the SSE Amendment have complementary priorities, these implementation activities can directly contribute to the SSE Amendment - especially the restoration of habitats and water quality.

Great South Bay EBM Implementation Activities Underway

Seeding Hard Clams



Establishing Spawner Sanctuaries



Restoring Seagrass



Here are some early implementation activities of the Draft EBM Technical Report that support the SSE Amendment priorities and advance the recommendations of the SSER CMP.

They include hard clam seeding where, DOS, TNC, Suffolk County and others partnered to place 3 million seed clams in the Great South Bay.

The towns of Brookhaven, Islip, and Babylon designated five hard clam spawner sanctuaries on Town-owned bottomlands in the Great South Bay and collaborated on an expanded shellfish nursery and monitoring program.

TNC also established a number of spawner sanctuaries on its 13,400 acres of Bay bottomland.

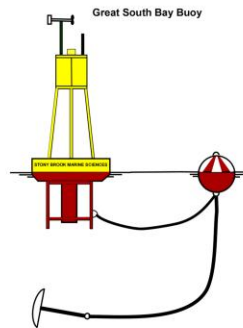
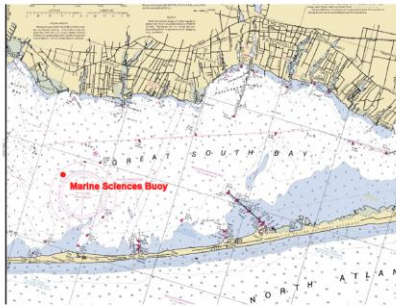
Some experimental seagrass restoration work has been conducted in the Great South Bay. Plantings of 2,500 seed filled burlap pouches were placed in selected locations throughout Great South Bay with limited success. We will continue to experiment and try to determine the best restoration methods.

Great South Bay EBM – SUNY SoMAS Launching a State of the Art Observing System

- Instrumentation being deployed this month!

Building a Great South Bay Ecosystem Model

- Design phase underway



SUNY Stony Brook's School of Marine and Atmospheric Sciences (SoMAS) is launching a monitoring program to provide continuous, real-time accessible data about the Bay's health and productivity through deployment of state-of-the-art observation infrastructure.

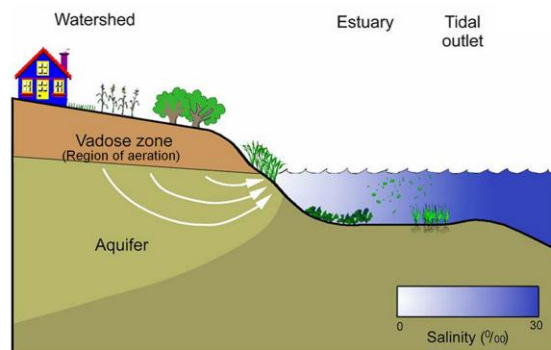
These data will not only contribute to the long term knowledge of the bay's processes, new and better information can also be used to respond and adapt to emerging trends in the estuary.

SUNY SoMAS is also developing ecosystem models for Great South Bay to help assess potential future management scenarios.

Both of these projects will provide support for science-based decisions and help to inform the SSE Amendment over time.

Great South Bay EBM

Understanding Surface and Groundwater Nitrogen Loading into Great South Bay



As the SSE CMP has pointed out, nonpoint source pollution is a primary water quality concern in the Reserve.

Funded by DOS and aided by data supplied by Suffolk County, TNC is working with Dr. Ivan Valiela from Boston University on phase 2 of a project to analyze groundwater nitrogen loading factors that can help managers calculate the costs and benefits of various water management approaches, including sewerage and other wastewater infrastructure upgrades.

The first phase of this work was completed in 2008 and used existing data to develop a model for groundwater contribution to nitrogen transport.

This study will provide scientific knowledge to help identify effective management options to address the Bay's longstanding nitrogen problems.



How the Great South Bay EBM Demonstration Area Work will support the development of the SSE Amendment

- **Nitrogen Study**
- **Great South Bay Hard Clam Report**
- **SUNY Observing System**
- **Great South Bay Technical Report**
- **Great South Bay EBM Plan**

In summary, the Great South Bay EBM Demonstration Area work done to date will contribute new knowledge that can be used in the development of the SSE Amendment. While this work is limited geographically to GSB, much of it can be useful for the SSE Amendment. Moving forward, there are many opportunities for building on the GSB demonstration area work as we develop the SSE amendment.

For example, the nitrogen loading study, will add valuable information for the water quality component of the SSE Amendment.

Many of the recommendations in the hard clam report can be expanded Reserve-wide, if appropriate.

The ecosystem-based restoration and monitoring activities can serve as benchmarks for the habitat portion of the Amendment.

The Technical Report can provide a template for information gathering and conservation approaches that could be used for the SSE Amendment work. For example, we can consider replicating the Conservation by Design approach throughout the reserve, we can assess whether the surrogate approach would be valuable for the region.

The GSB EBM Plan will contain recommendations to integrate EBM into activities at the local, State, and federal levels. Those recommendations will provide a roadmap for changes needed across the Reserve moving forward. If some recommendations cannot be directly adopted, details on steps necessary to implement the recommendation and achieve EBM in the Reserve can be considered as the SSE Amendment is developed. Some recommended actions that can be achieved right away in GSB, may be readily expandable to the Reserve.