
Presentations

Casco Bay Estuary Partnership (CBEP)

10-21-2010

Fostering Stewardship: the Maine Watersheds Project (2010 State of the Bay Presentation)

Sam Merrill

University of Southern Maine, Muskie School of Public Service, New England Environmental Finance Center

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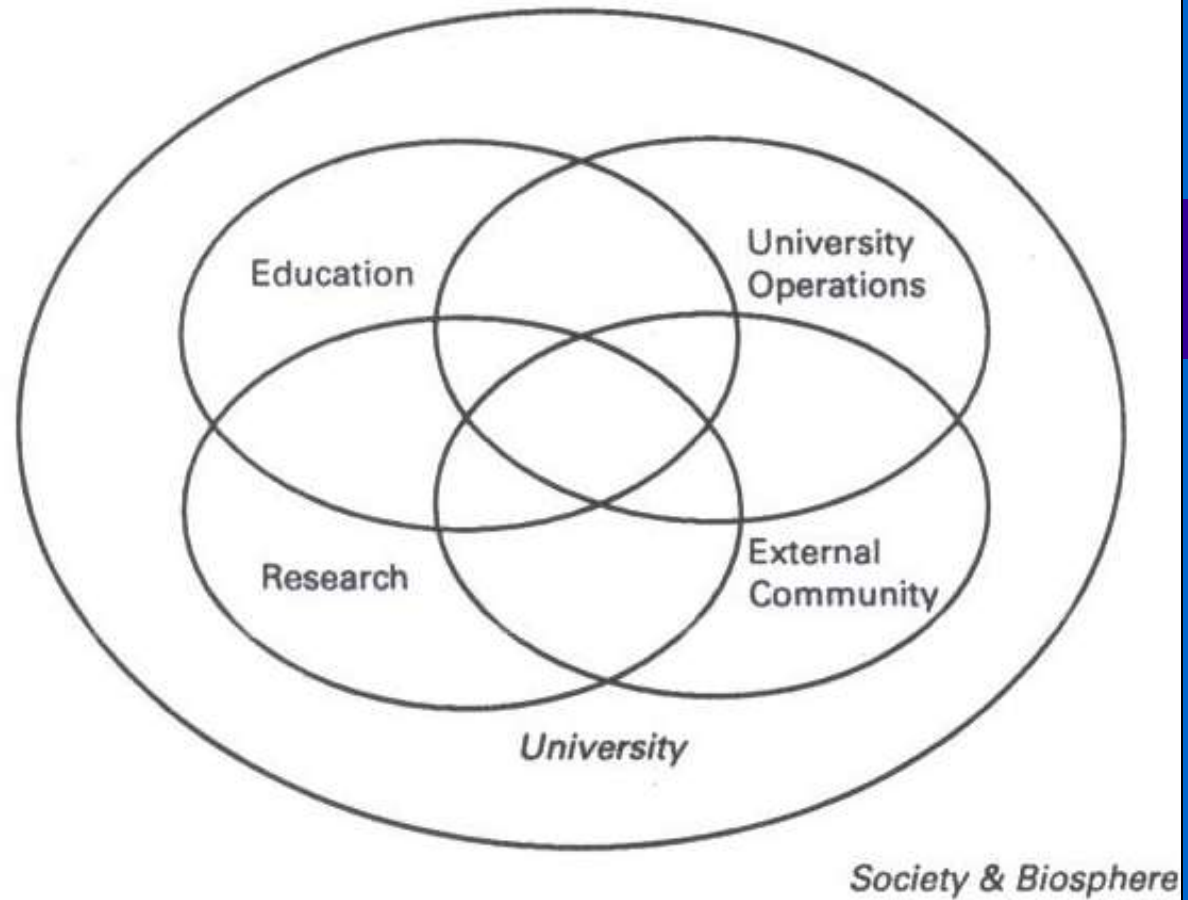
Fostering Stewardship:
the Maine Watersheds Project

Sam Merrill

Assistant Research Professor, Muskie School
Director, New England Environmental Finance Center

October 21, 2010

Figure 2 **Higher Education Modeling Sustainability
As a Fully Integrated System**



The Maine Watersheds Project

- Annual, 2-day teaching workshop at USM on *Teaching for Sustainability*.
- The goal is to help faculty in any discipline incorporate sustainability into their teaching.
- We provide \$500 stipends for participating faculty.
- Support has come from anonymous local donors, the USM Provost's office, and now the Barbaro J. Osher Foundation.

The Maine Watersheds Project

- Originally modeled after the Piedmont Project at Emory University.
- Now in its sixth year.
 - Reached over 1 in 4 USM faculty and >12 non-USM faculty.
 - Reached over 8,000 USM students with revised syllabi.
 - Favorably reviewed (e.g., “The best professional development workshop I have ever attended”)
 - >20 programs of this nature now exist nationwide; ours is ranked 2nd after Piedmont.

The Maine Watersheds Project

- Worked with varied disciplines:
 - Music Theory
 - Russian Literature
 - Theater
 - Journalism
 - Business
 - Exercise Physiology
 - Nursing
 - Engineering
 - Many others

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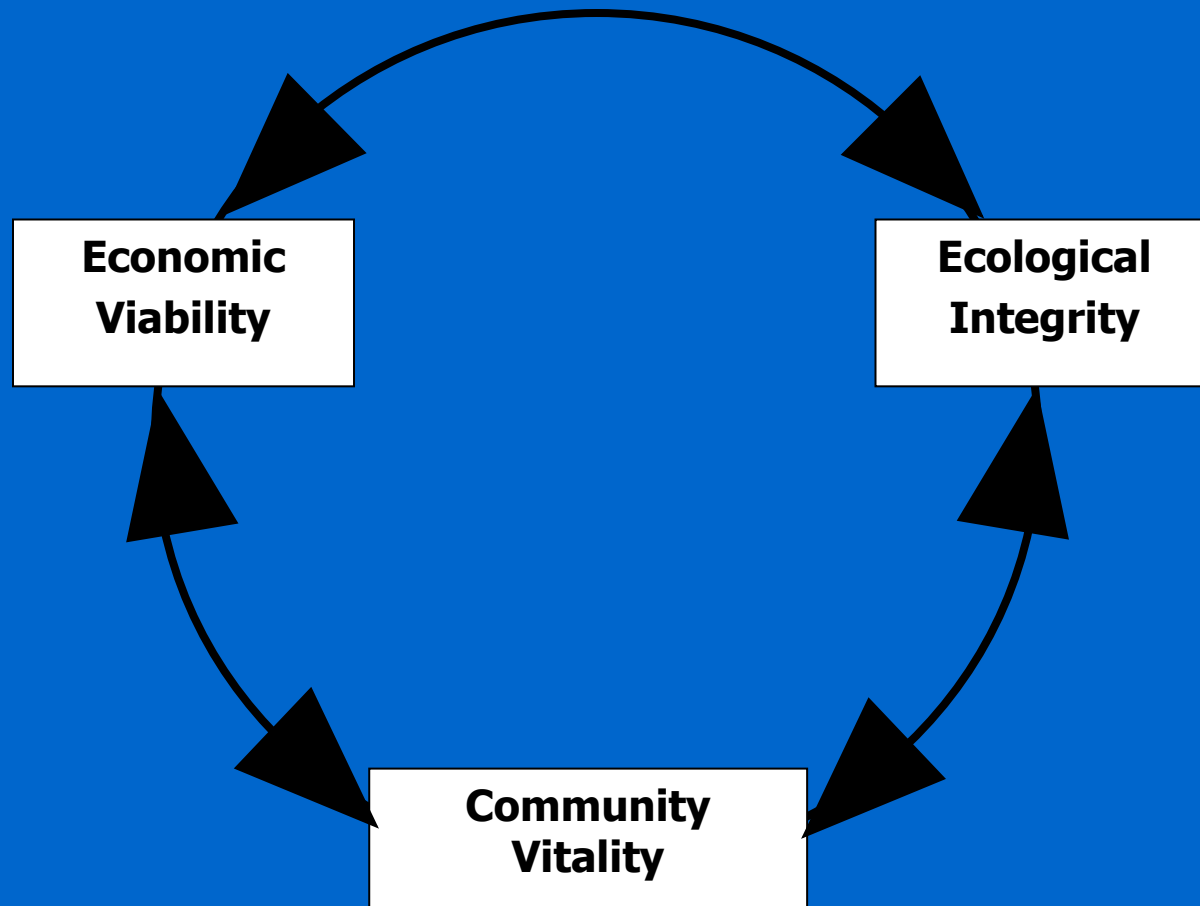
Sustainability

“A continuing process of social and economic development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs.”

... Brundtland Commission, 1987.

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Three-legged stool ...



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...tied in to the local landscape.



It used to be called “The Casco Bay Watershed Project”

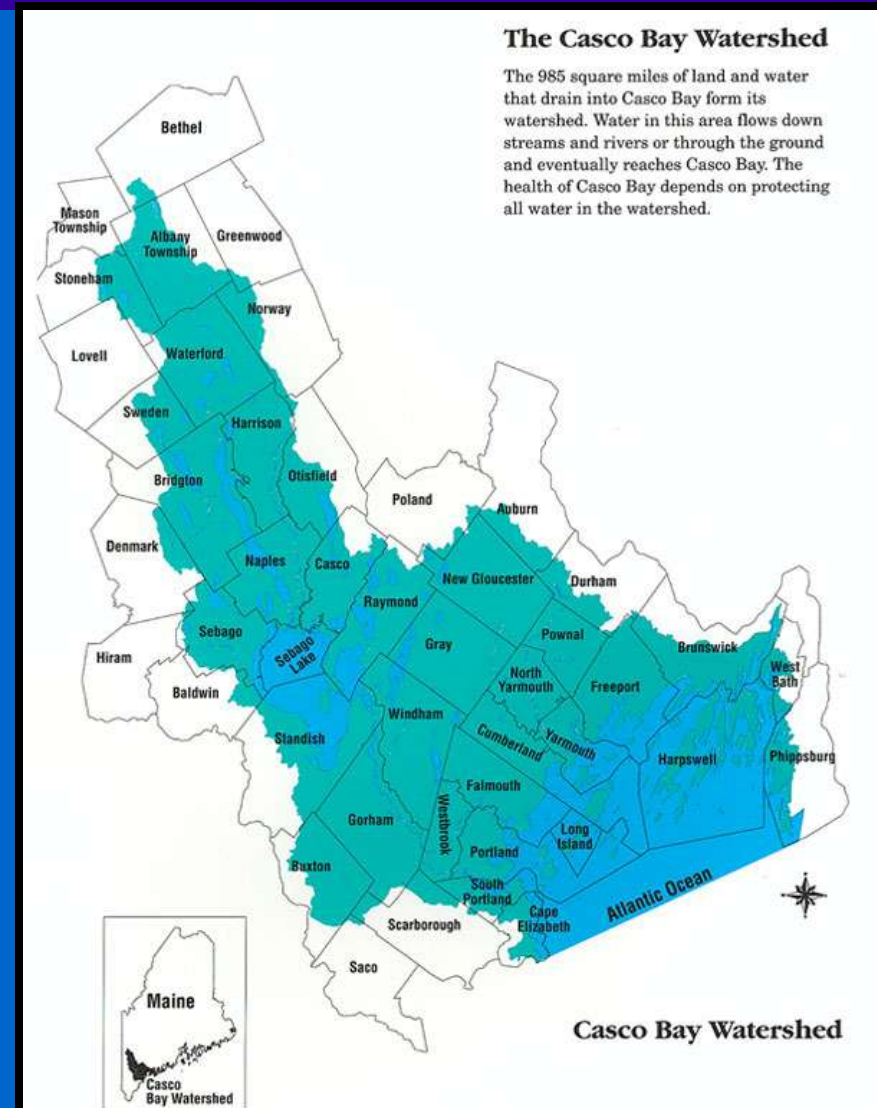
Some Sustainability Topics

- Agriculture
- Atmosphere
- Biodiversity
- Biotechnology
- Capacity-building
- Climate Change
- Consumption patterns
- Demographics
- Desertification and drought
- Disaster Reduction
- Education and awareness
- Energy
- Finance
- Forests
- Freshwater
- Health
- Human settlements
- Indicators
- Industry
- Info for decision-making
- Integrated decision-making
- International law
- International cooperation
- Institutional arrangements
- Land management
- Mountains
- Oceans and seas
- Poverty
- Sanitation
- Science
- Small islands
- Tourism
- Toxic chemicals
- Trade
- Waste (hazardous)
- Waste (radioactive)
- Waste (solid)
- Women's rights

www.un.org

Casco Bay Watershed

- Casco Bay:
 - covers ~200 square miles
 - 578 miles of shoreline
 - 785 islands, islets and rock outcroppings.
- Casco Bay watershed:
 - 985 square miles of land
 - Only 3% of the land mass of the state of Maine
 - Where 25% of Maine's population, lives, works, and recreates.
 - 41 cities and towns



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Local Color

Casco Bay is where the Atlantic coast, tending north all the way from Florida, turns a sudden corner, breaks out in a flourish of islands, and heads for Spain. Here is where the great sand beaches of Maine's southern coast end and the rocky promontories of the midcoast begin. Casco Bay is an anomaly, not only on the coast, but in the world. Here is an archipelago of islands busy yet unspoiled, beaches fine and fair. Yet it is also home to a small metropolis, a busy shipping port, an international airport, and a strategic harbor.

...online travel guide for Casco Bay

Wonders of Casco Bay

- Relatively good water quality and significant areas of habitat



Wonders of Casco Bay

- Supports abundant and diverse marine life, including important commercial and recreational species
- Home to endangered and threatened seabirds



Wonders of Casco Bay

- Unique and dramatic geology
- 365-785 Islands, islets and rock outcroppings in Casco Bay



Wonders of Casco Bay

- Casco Bay is the largest crude oil port on the U.S. East Coast; third largest oil terminal on the East Coast
- Population of the Casco Bay area quadruples in size during the high season for tourism



What is the State of Casco Bay?

- 14 Indicators:
 - Population
 - Impervious Surface
 - Combined Sewer Overflows
 - Open Shellfish beds
 - Open Swimming Beaches
 - Protected Land
 - Undeveloped Land
 - Waterbirds
 - Eelgrass
 - Sediment Toxics
 - Mussel Toxics
 - Water Quality
 - Inland Water Quality
 - Stewardship

State of the Bay
2005



Casco Bay Estuary
PARTNERSHIP

Example: Music and Drought

- Study from Britain: Models how the PDSI (Palmer Drought Severity Index) is likely to change by 2100 with predicted changes in rainfall and heat because of climate change.
- It showed:
 - PDSI for severe drought, currently at 8% of the earth's surface, rising to 40%; and
 - PDSI for extreme drought, currently at 3%, rising to 30%.

Example: Music and Drought

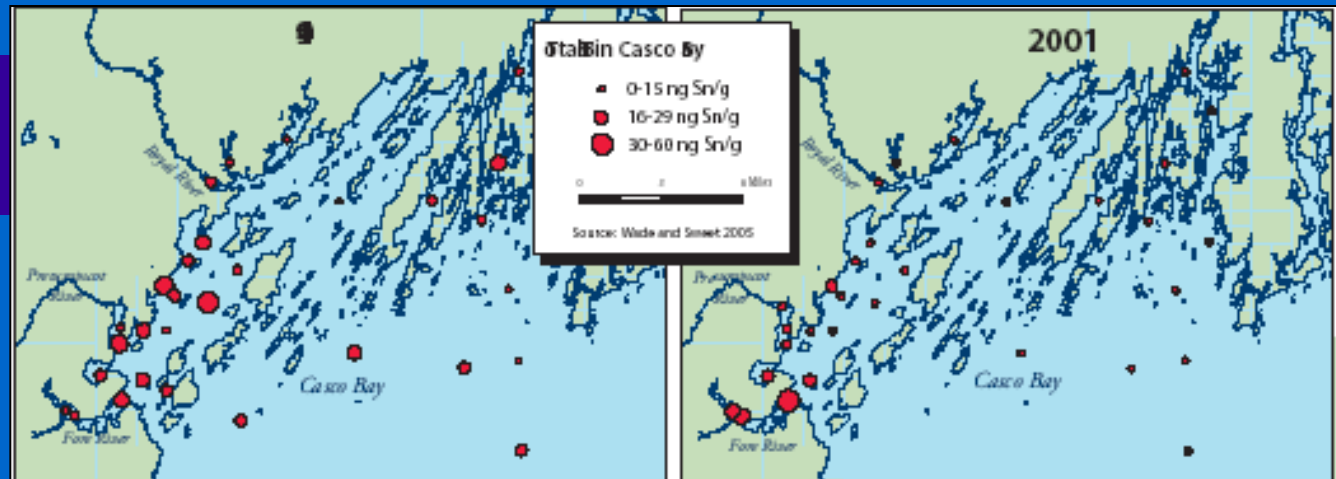
- “Extreme drought ... is a death sentence for many millions of people. It will mean migration off the land at levels we have not seen before, and at levels poor countries cannot cope with.”
- from: “Modeling the Recent Evolution of Global Drought and Predictions for the 21st Century.”
... 10/06, *Journal of Hydrometeorology*.

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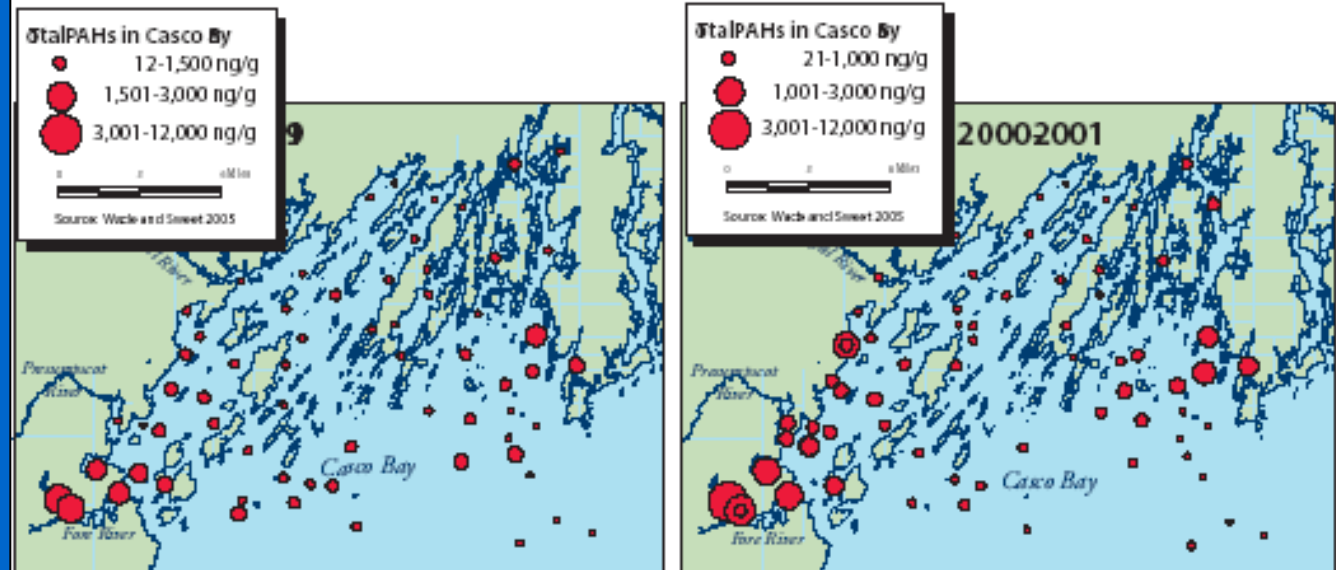
Local Example: Bees and Theater



Toxic Chemicals in Sediment

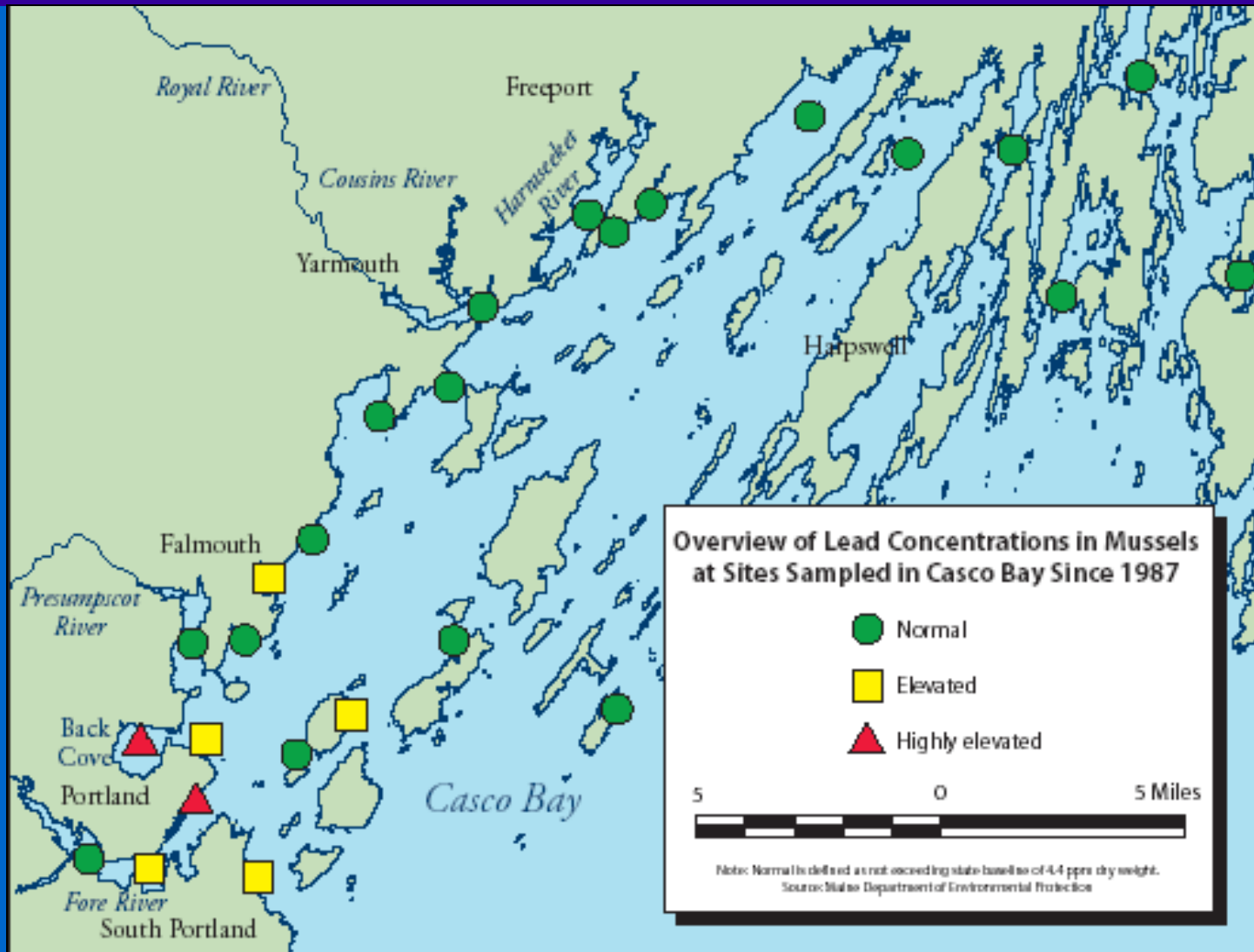


Tributyl tin (TBT) is an ingredient in marine anti-fouling paints. The overall decline of TBT concentrations in the Bay's sediments reflects the effectiveness of the federal and Maine laws which now ban the use of paints with TBT for all uses except for vessels longer than 25 meters or those having aluminum hulls (Maine DEP 1999). The continued use of TBT paints on large commercial vessels may explain the presence of elevated concentrations of TBT in the sediments of inner bay sites.

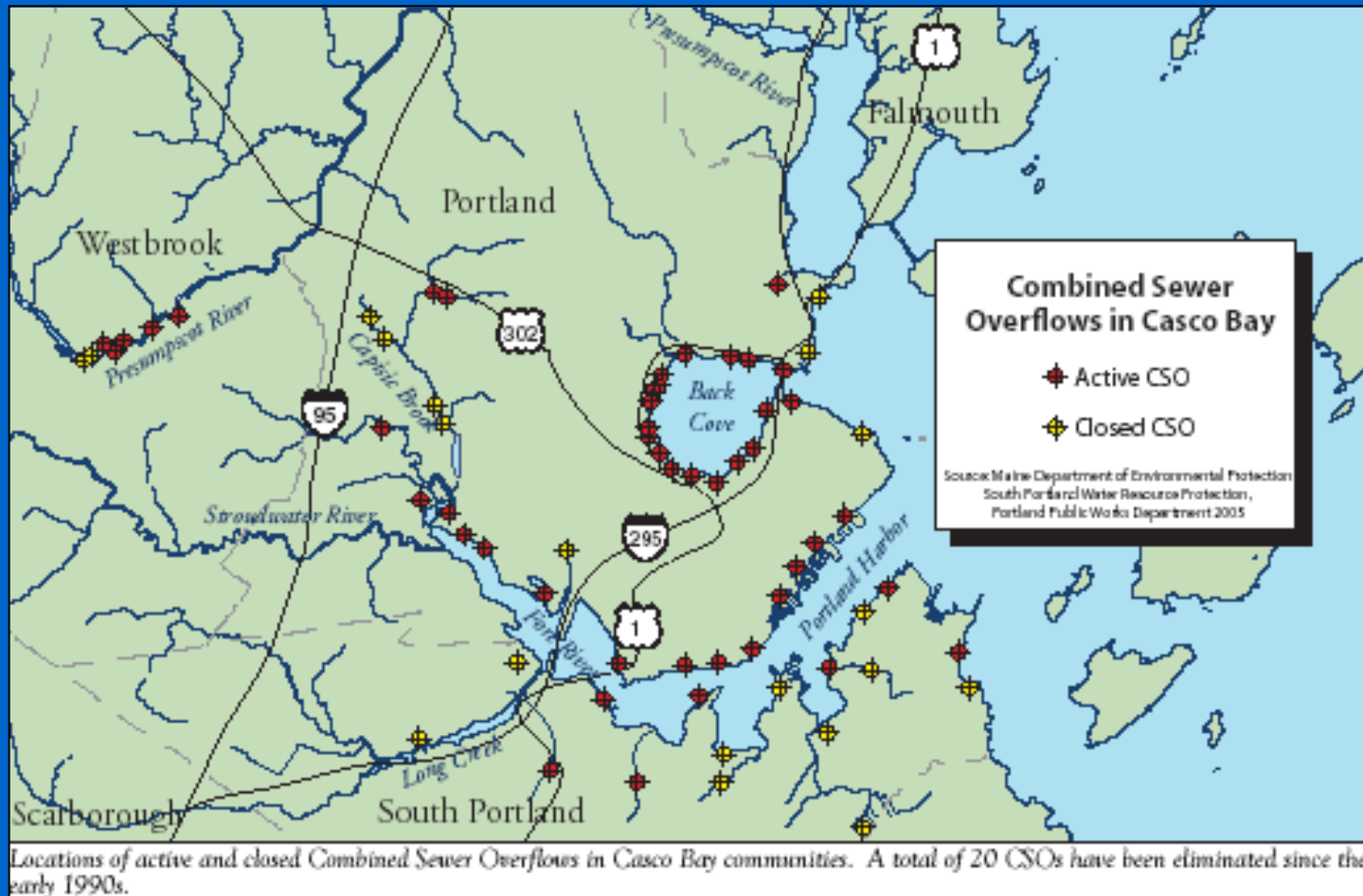


Overall the total concentration of PAHs in the sediments has remained unchanged. This suggests that increased use of fossil fuels is balanced by environmental controls that lower the PAH inputs to the Bay (Wade and Sweet, 2005).

Toxic chemicals in Mussels



Combined Sewer Overflows



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Sustainable Development and Climate Change: the Swedish Approach

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Sustainable Development and Climate Change: the Swedish Approach

Lars Westermark, Director of Climate Policy in Sweden, will discuss Sweden's ambitious climate policies, regarded as among the most successful in the world. Included will be an examination of Sweden's far-reaching climate targets, its measures to reduce greenhouse gas emission, and its commitment to a strong international climate agreement.

Friday, Oct. 22nd at 4:30 p.m. at the Talbot Lecture Hall, inside Luther Bonney, at the Portland Campus of University of Southern Maine.

Free and open to the public.

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