

# Origins and Goals of the Buzzards Bay NEP and Buzzards Bay Coalition efforts to monitor water quality, living resources, and management action

We Can Save Our Bay!

## THE STATE OF THE BAY CONFERENCE

&  
First Annual Meeting & Banquet  
of  
*The Coalition for Buzzards Bay*  
November 6 & 7, 1987

Friday, November 6th, 8:30 a.m. - 4:00 p.m. at The Inn on Buttermilk Bay --  
**The State of The Bay Today**

Friday, November 6th, 7:00 p.m. at Massachusetts Maritime Academy --  
**Annual Meeting & Banquet of  
The Coalition for Buzzards Bay**

Saturday, November 7th, 8:30 a.m. - 4:00 p.m. at  
Massachusetts Maritime Academy --  
**Toward a Cleaner Bay Tomorrow**

Joseph E Costa, PhD Executive Director  
Buzzards Bay National Estuary Program  
Massachusetts Coastal Zone Management

Mark Rasmussen, President  
Buzzards Bay Coalition

Watershed Counts  
Regional Indicator Discussion

10:00 AM  
September 25, 2012  
URI GSO Coastal Institute

[www.BuzzardsBay.org/](http://www.BuzzardsBay.org/)

# Brought a Biased Perspective to the Job

- mapping eelgrass, measuring production, taking cores (funded by BBP in Part)
- water quality testing and chemistry (funded by BBP in Part)
- analysis of data
- training interns and volunteers in field and lab work



# BBNEP and Coalition Origins

**1985 Buzzards Bay Project begins, Includes a CAC**

**1987: CWA passes, NEPs (§320) authorized  
CAC votes break up into Coalition for Buzzards Bay  
(advocacy) and Buzzards Bay Advisory (Action)  
Committee, both become NGOs**

**1988? Coalition Issues first report card on efforts by  
municipalities to adopt local measures (ends about  
1993)**

**1991-1992 Buzzards Bay CCMP finalized, includes an  
unfunded monitoring plan with recommendations for  
Eutrophication water quality monitoring and  
eelgrass mapping**

**1993 BBNEP reorganizes, overseen by a small  
steering committee composed of EPA, CZM, DEP,  
SRPEDD, Buzzards Bay Coalition and Buzzards Bay  
Action Committee**



September 14, 1985: Buzzards Bay Celebration event (Cong. Studds, EPA Administrator Deland, Senator Kennedy)



**THE BUZZARDS BAY  
PROJECT** VOLUME 1 NO. 4  
**NEWSLETTER**

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**BUZZARDS BAY DAY 1986  
— A FIRST STEP**  
By Kim Allsup,  
Buzzards Bay Day Coordinator

**DOES THE BAY NEED  
AN ADVOCATE?**  
by Thomas E. Fantozzi, CAC Chairman  
Webster defines an "advocate" as one who defends or

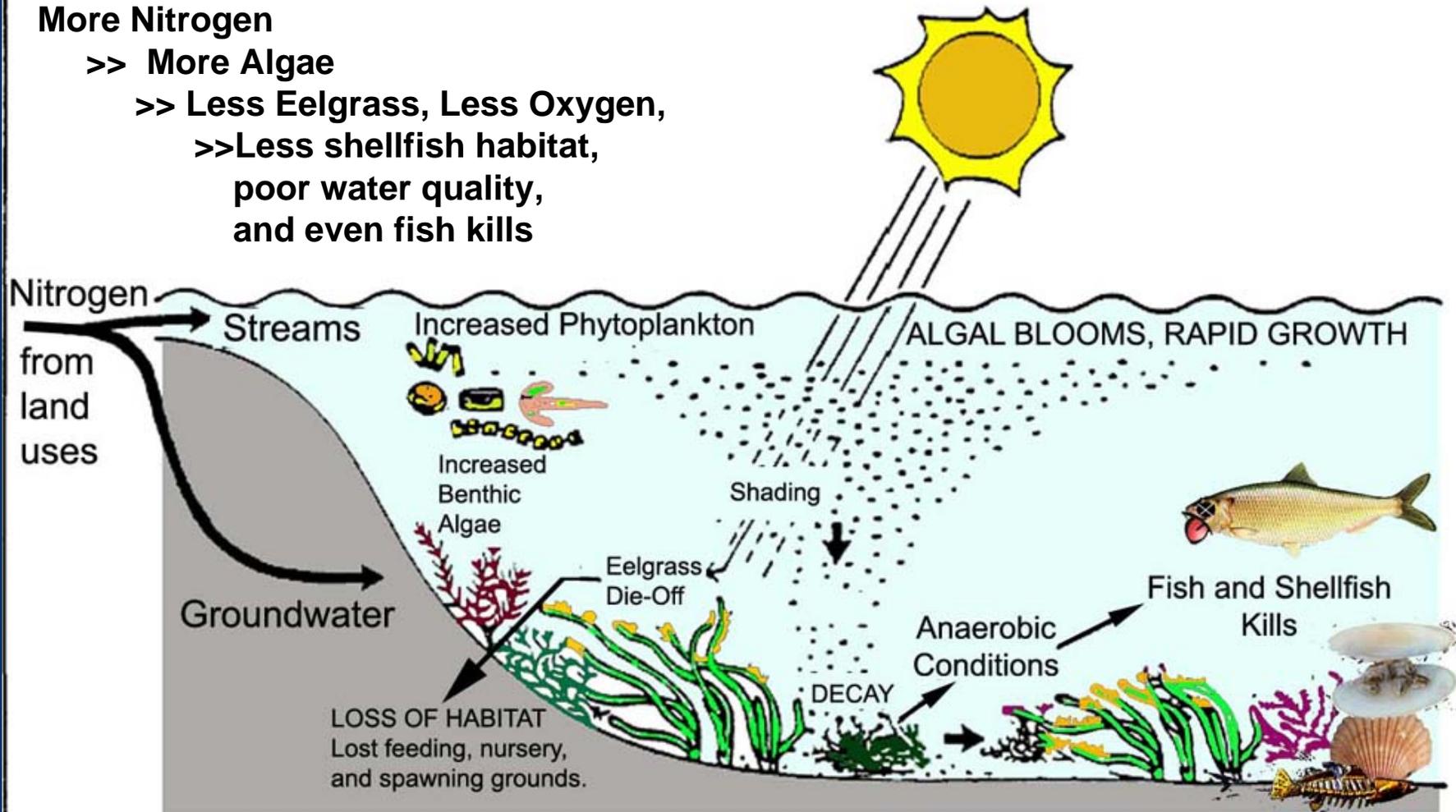
# CCMP: Fertilizing the Ocean with Nitrogen is Bad

## More Nitrogen

>> More Algae

>> Less Eelgrass, Less Oxygen,

>> Less shellfish habitat,  
poor water quality,  
and even fish kills



Generalized response of shallow coastal embayments to excessive nitrogen loading.

Source : Modified from U.S. Fish and Wildlife circular , Restore Chesapeake Bay (2/90).

# Key Buzzards Bay Monitoring Milestone 1

1992: Volunteer Water quality Monitoring Program established, modeled on Falmouth Pond watchers program, Eutrophication Index created (later renamed health index)



**Baywatchers**  
 Newsletter of the Buzzards  
 Bay Citizens' Water Quality  
 Monitoring Program



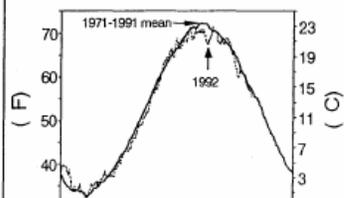
Volume 1:1 December 1992

## Thank you!

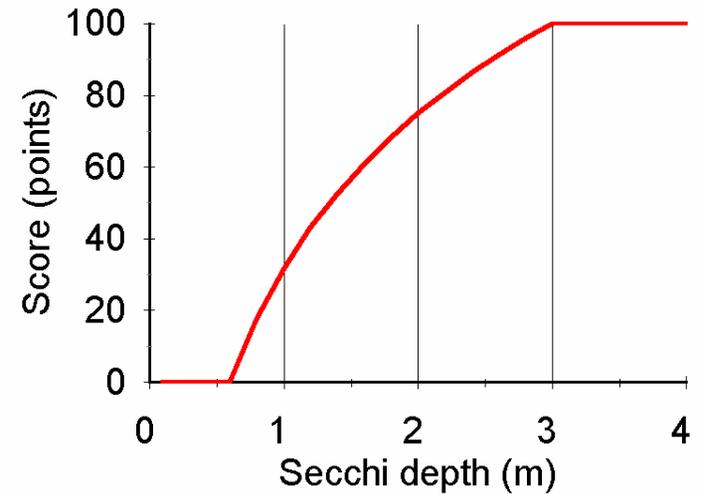
Thank you for participating in the Buzzards Bay Citizens' Water Quality Monitoring Program's first season! We're off to a great start—more than 100 citizens from around the Bay participated in the program in some way.

This water quality monitoring program is a collaborative effort of the Buzzards Bay Project and the Coalition for Buzzards Bay. Our goal is to create a network of volunteers to gather information to help characterize pollution in the Bay, evaluate the effectiveness of management actions, and document long-term trends in water quality. This data is vital information that environmental managers need, and

## It's been a cool...



Secchi Parameter transformation scale



Score=  
 $(\ln(\text{value}) - \ln(0 \text{ pt. value})) / (\ln(100 \text{ pt. value}) - \ln(0 \text{ pt. value}))$

	0 point		100 point	
Parameter	value		value	
Oxygen saturation (mn of lowest 20%)	40	%	90	%
Transparency	0.6	m	3	m
Chlorophyll	10	ug/l	3	ug/l
DIN	10	uM	1	uM
Total Organic N	0.6	ppm	0.28	ppm

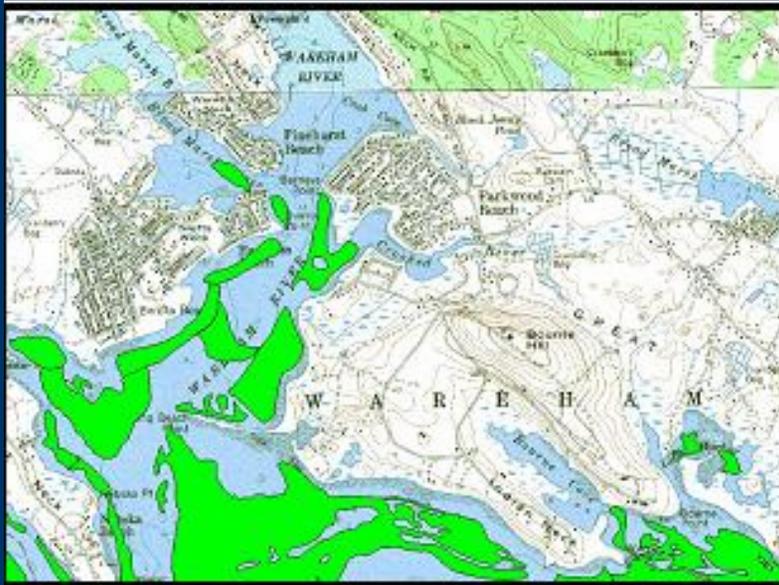
Stat ID	Station Name	mean secchi (m)	mean salinity surf \ bott	mean oxygen (% sat)	oxygen relative comparis.	worst oxygen (% sat)	mean chl a H2O	mean DIN (uM)	mean org. N (uM)	Eutrophic. Index
AB3	Apponaganset	1.22	31 31	83	3	75	5.1	9.8	176.3	53.5
AC1	Aucoot Cove	1.18	31 32	59	4	39	1.4	1.8	75.0	71.6
AC2	Aucoot Cove	1.55	30 32	89	2	70				
AG1	Agawam River	1.09	6 NA	75	4	55				

# Key Buzzards Bay Monitoring Milestone 2

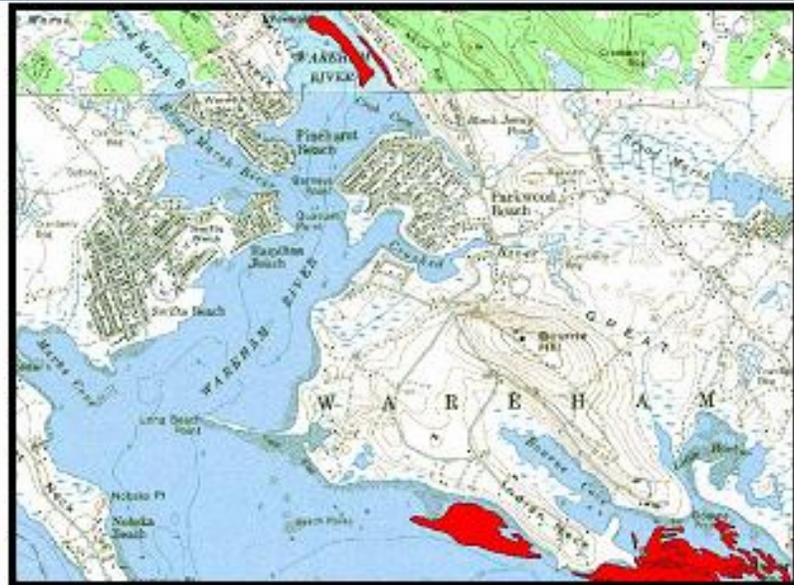
1995: MA DEP begins statewide eelgrass monitoring program

Repeated in 2001 without Elizabeth Islands

Appreciable reductions in mapped areas in 2006 and 2010



1985



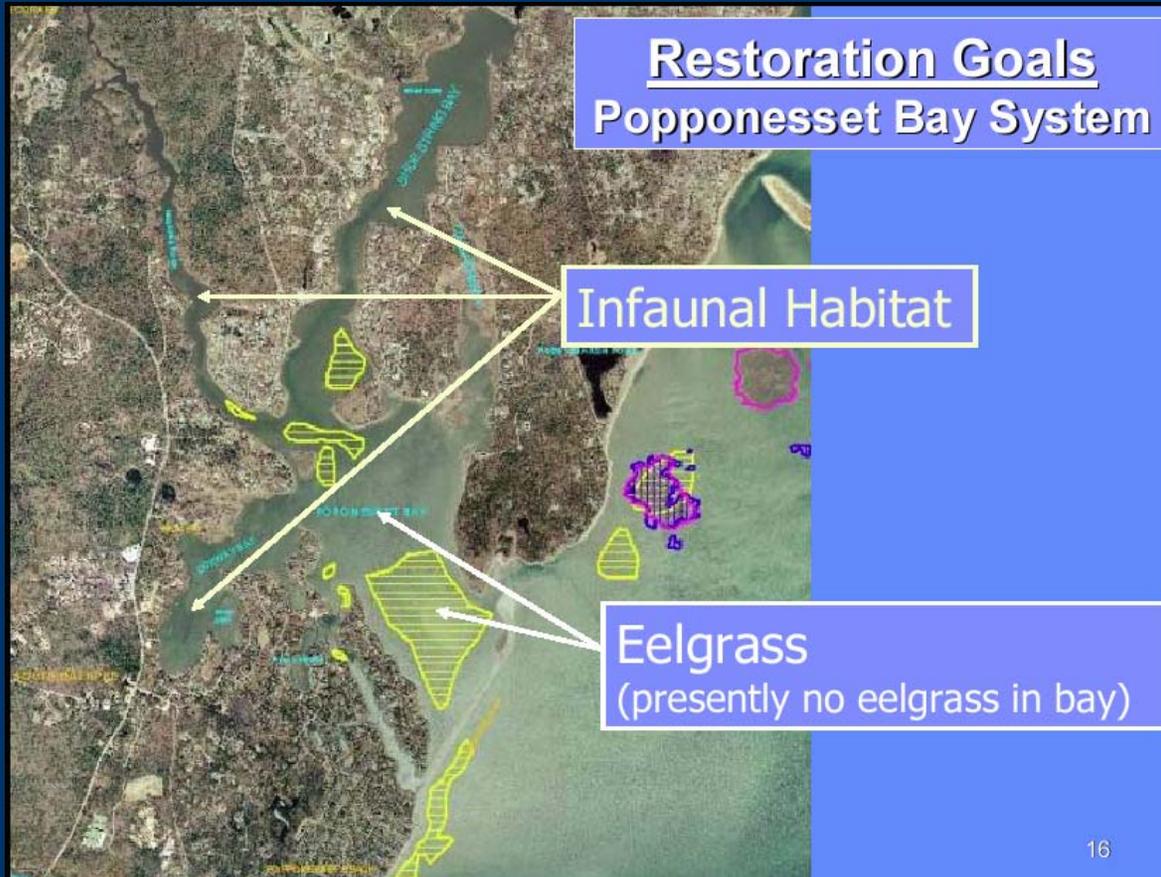
1995

# Key Buzzards Bay Monitoring Milestone 3

2002: DEP/SMASST Massachusetts Estuaries Project initiated (West Falmouth Harbor early report)

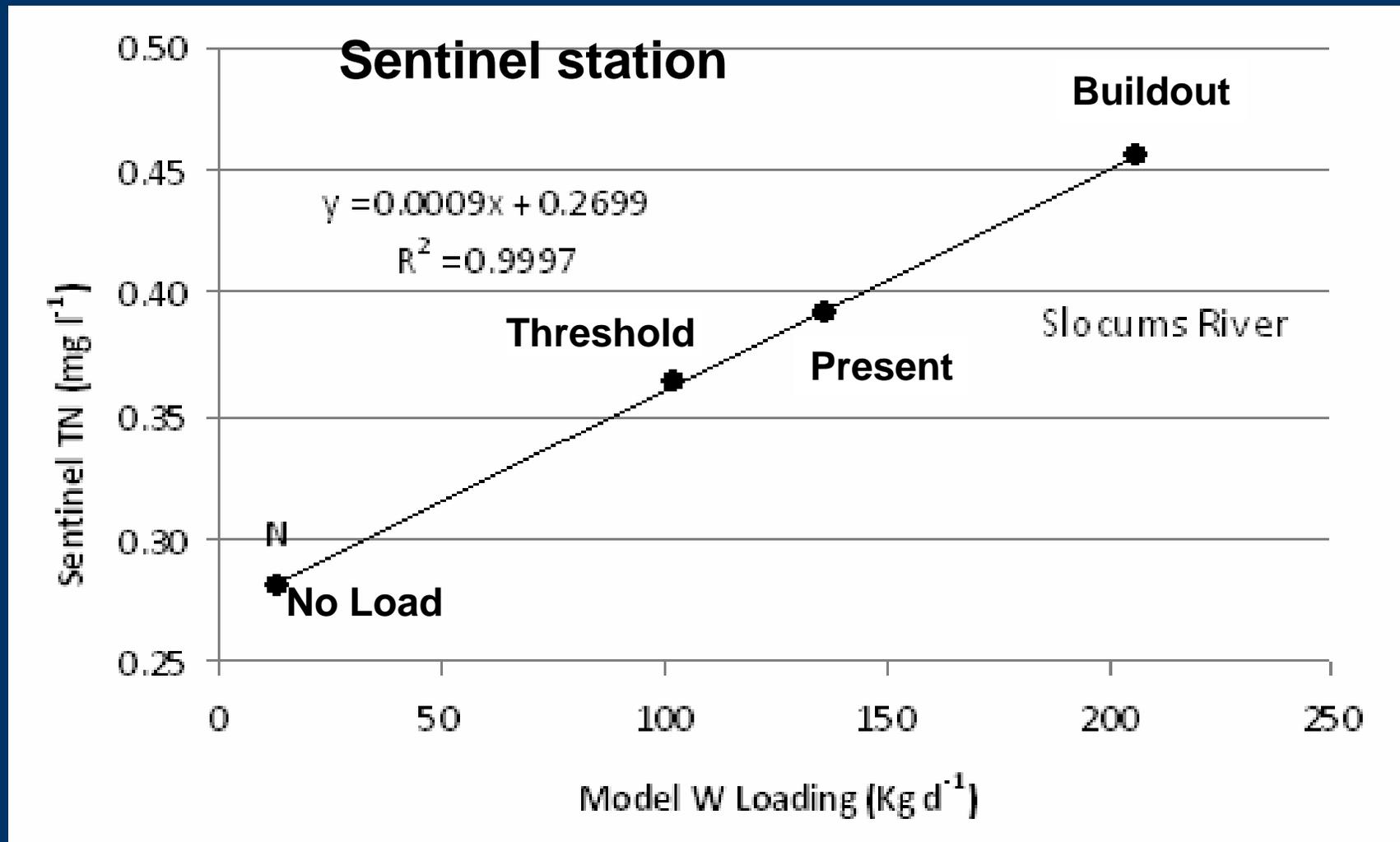
To use citizen water quality monitoring program data and eelgrass Information, as well as collect new data

Program behind schedule, but most systems likely to be evaluated by 2015



## 8 TMDL targets are set to meet a TN concentration expected to achieve certain habitat goals.

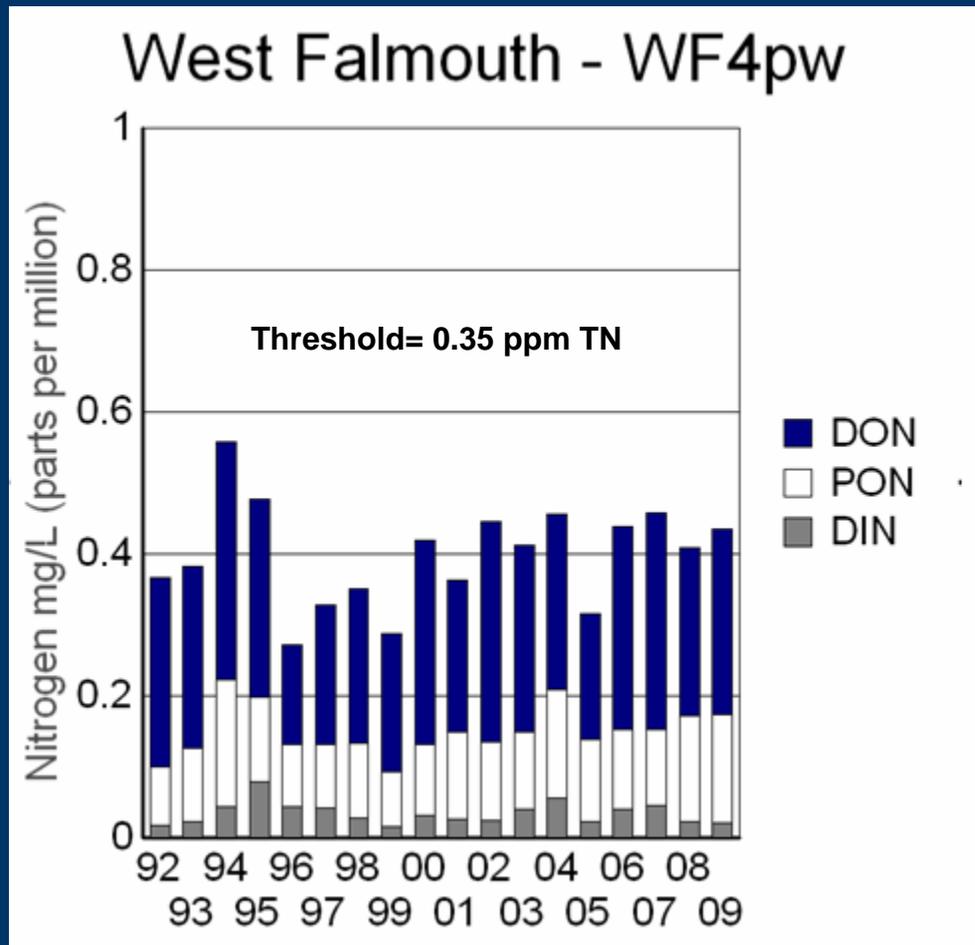
MEP approach links a watershed loading model to a water circulation model to predict the embayment specific relationship between TN concentrations and watershed loading



Data from report posted at: <http://www.oceanscience.net/estuaries/Slocums-Little.htm>



The appropriateness and effectiveness of TMDLs will more likely be tracked by eelgrass habitat changes than by water quality data



**Nutrient related water quality data is highly variable and particularly sensitive to summertime precipitation.**

**We need more comprehensive longterm stream monitoring to better characterize nutrient loading from different types of land use.**

Data from Buzzards Bay Coalition Baywatchers Program at [savebuzzardsbay.org](http://savebuzzardsbay.org).

# Key Buzzards Bay Monitoring Tracking Efforts

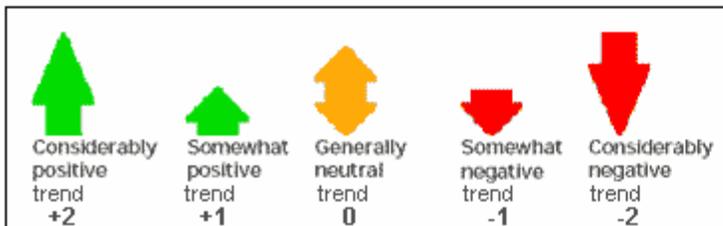
2003: BBNEP starts management indicators page, Coalition issues first state of the bay report

## Status & Trends

Sub-Pages: [Coalition State of the Bay Reports](#) | [Citizens Monitoring Program](#) | [Population Trends](#) |

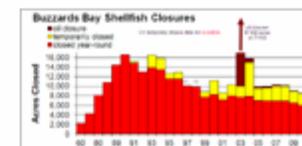
Related Pages: [Tracking Town Actions](#) |

## General Bay-wide Trends (and October 2008 status)



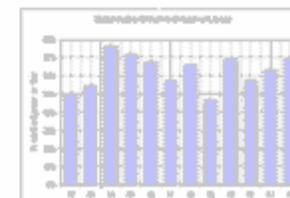
Category	Recent Trend	Historic Status*	Comments
Shellfish Closures		60	Oil closures dwindling, no net increase in permanent closures as of July 2008, but the big story was 1,110 acres opened in September 2008.
Embayment Eutrophication		56	Wet summers and more discharges from new growth pushing down scores. The one bright spot are improvements in the Wareham River as a result of their wastewater treatment plant upgrade in 2006.

### Link for Graph



### Link for Info

[Shellfish Closure Status](#)



[CBB website](#)

# The State of Buzzards Bay

The greatest gains in the health of Buzzards Bay in recent years have been in the slow cleanup of “Old Pollution” like bacteria and toxics. These improvements, along with efforts to maintain the health of the watershed, helped prevent the overall State of the Bay score from falling in 2011 but were not enough to overcome the “New Pollution” problem: **Nitrogen pollution continues to grow, resulting in a slow suffocation of the Bay.**

	2003	2007	2011	
<b>POLLUTION</b>				
Nitrogen	59	56	53	↓
Bacteria	59	57	62	↑
Toxics	45	47	52	↑
<b>WATERSHED HEALTH</b>				
Forests	76	75	79	↔
Streams	68	67	71	↔
Wetlands	60	60	60	↓
<b>LIVING RESOURCES</b>				
Eelgrass	34	25	23	↓
Bay Scallops	12	10	3	↓
River Herring	5	1	1	↓
<b>OVERALL SCORE</b>	<b>48</b>	<b>45</b>	<b>45</b>	



CLICK ON THE IMAGE TO DOWNLOAD THE REPORT

Every four years the Buzzards Bay Coalition leads a comprehensive review of the State of Buzzards Bay using indicators in the categories of [water pollution](#), [watershed health](#), and [living resources](#) to generate the overall score. The 2011 Score of 45 shows a Bay that is functioning at

Technical Support for Buzzards Bay Coalition, State of the Bay report

buzzards  
**BAY**

COALITION

**BBNEP:  
Eelgrass and Shellfish Bed Closures**

# Buzzards Bay CCMP 2012 Update

Identifies water quality,  
Habitat or programmatic  
monitoring in general terms to  
support goals and objectives.



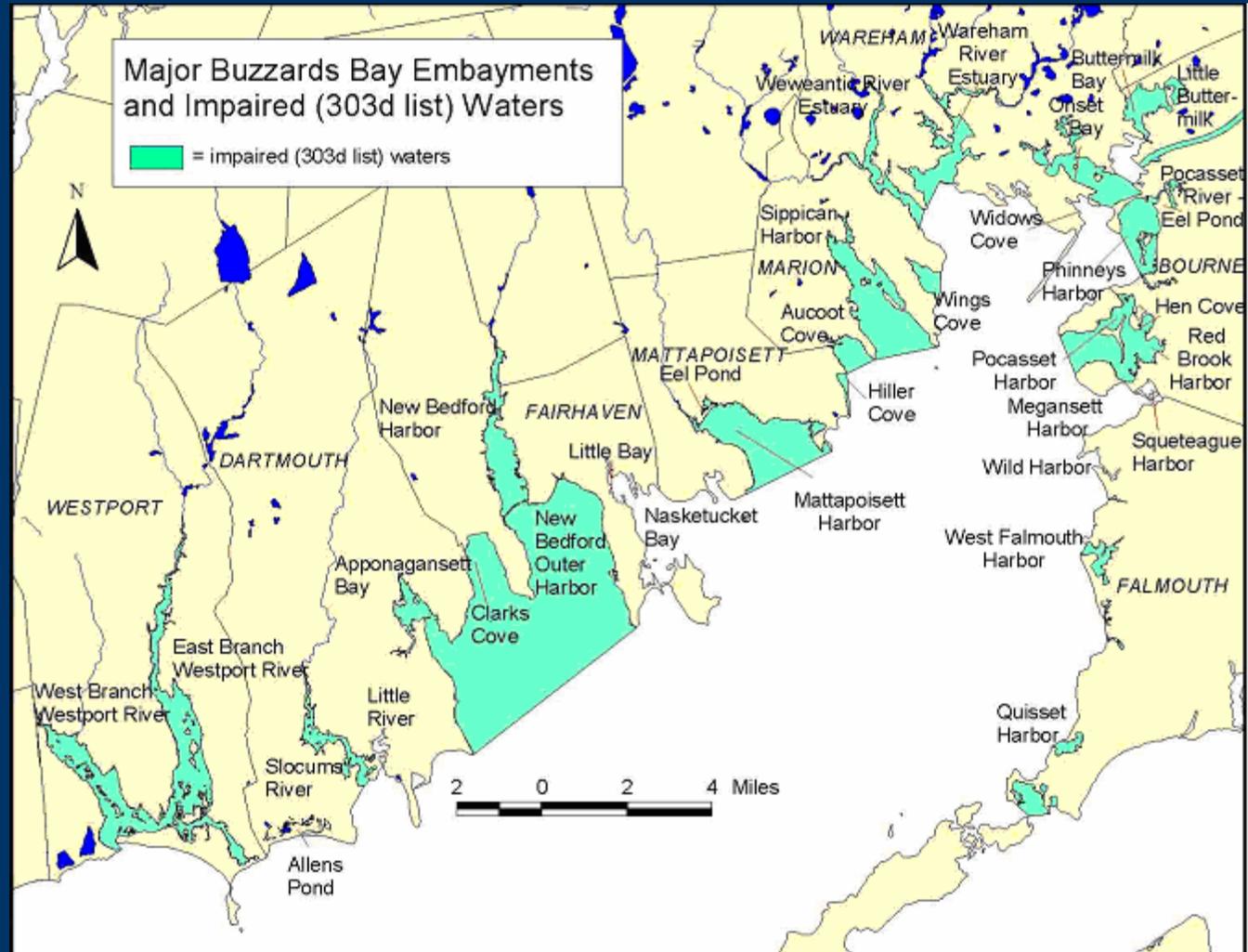
*DRAFT - January 24, 2012*

## Buzzards Bay Comprehensive Conservation and Management Plan 2012 Update



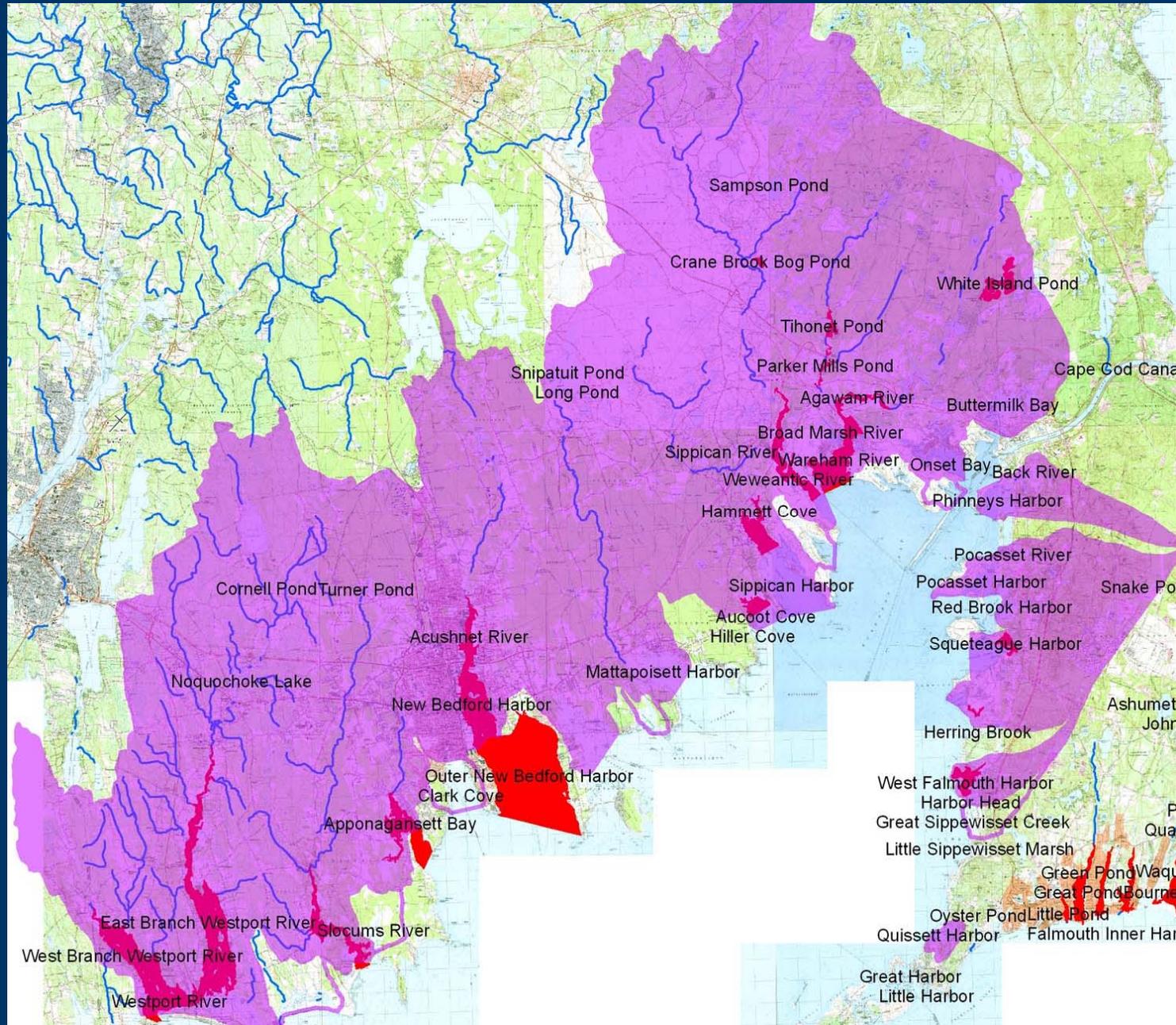
Prepared by the Buzzards Bay National Estuary Program  
Executive Office of Energy and Environmental Affairs  
Massachusetts Office of Coastal Zone Management

**Bacterial TMDL program monitoring is simple but expensive to do comprehensively in terms of staffing: monitoring of dry and wet weather discharges needed for impaired areas**



**Discharges to closed shellfish beds cannot exceed 14 fc per 100 ml; > no flows for the first 1" of rain**

# Watershed TMDLs needed: Now and Eventual



Most of the 89 embayments in the MEP study were not on the Integrated List in 2001

Broader national trend: more of the nations waters are being listed as impaired as coastal water quality monitoring programs are implemented.

**Bacteria and nitrogen Total Maximum Daily Loads will drive much of government funded and government required coastal water quality monitoring (and some research) in Massachusetts in the coming decade**

**More specifically, for Southeastern Massachusetts, Cape Cod, and the Islands:**

**The cost of complying with **bacteria TMDLs** through the municipal stormwater (MS4) NPDES program will likely cost **\$2-\$4 billion over 20 years** (my estimate, c.f. Water Infrastructure Finance Commission. 2012). Costs will be defined when EPA issues the Massachusetts stormwater**

**The cost to comply with watershed **nitrogen TMDLs** (mostly sewerage, sewer expansion, and facility upgrade and construction) is **\$8-15 billion over 20 years** (municipal reports, newspaper articles)**