Report on the Validation of the MEP Pleasant Bay Report

Presented to the Board of Selectmen
Town Of Orleans

By the

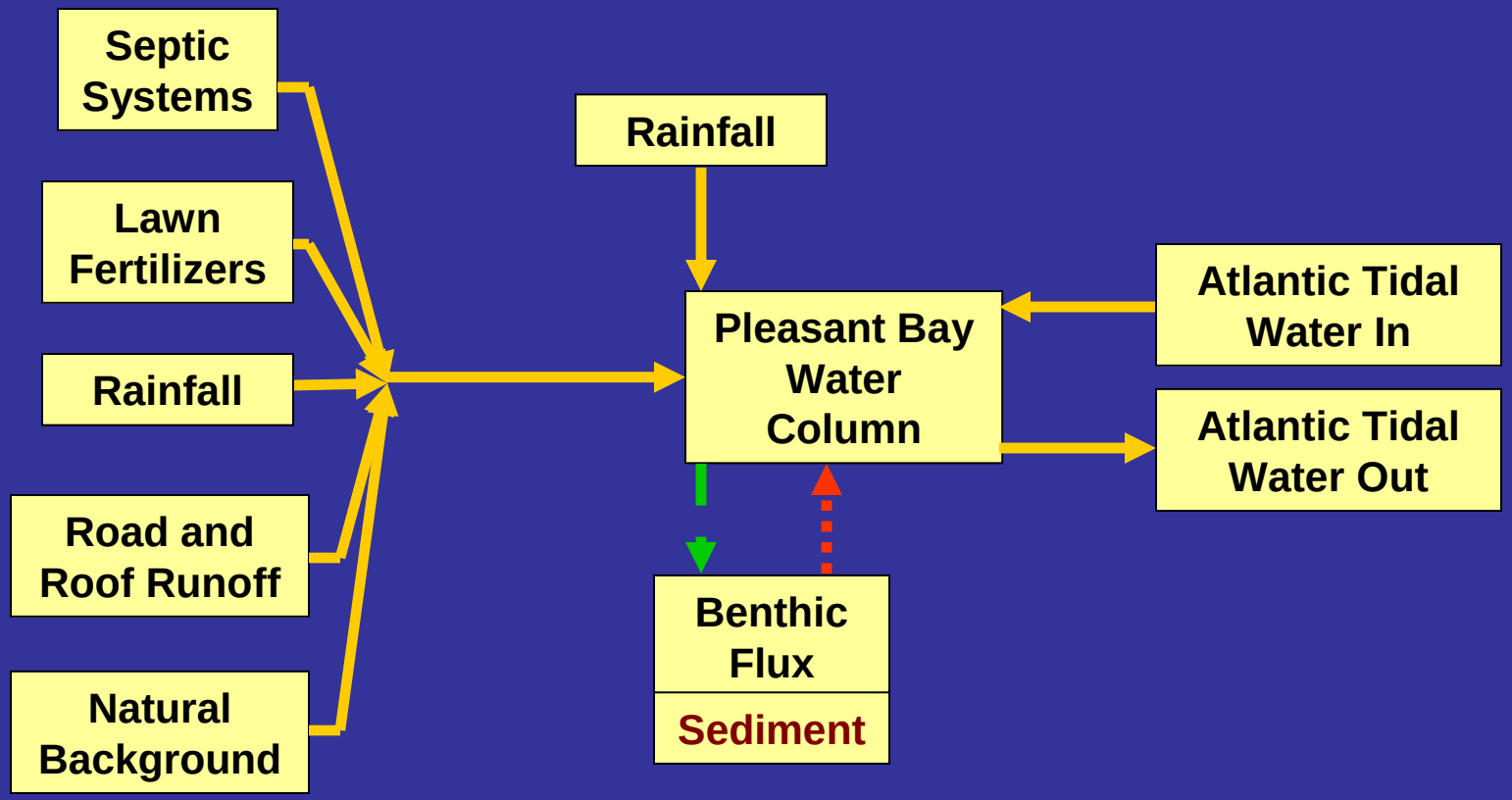
Wastewater Management Validation & Design Committee

July 1, 2009

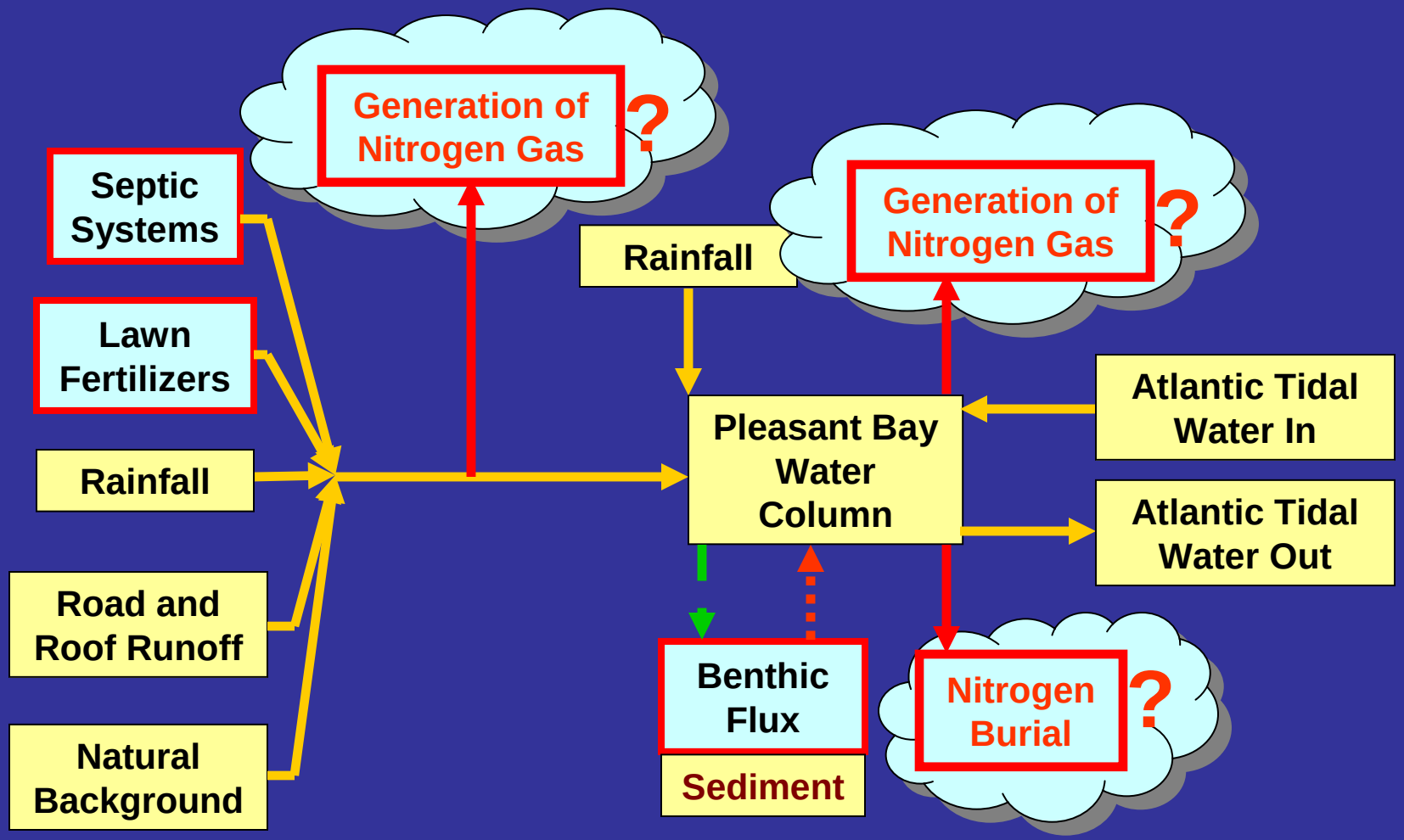
Findings – Environmental Health

- No short-term or long-term degradation of eelgrass or benthic infauna habitats shown
- No empirical evidence to support SMAST threshold nitrogen concentrations

Pleasant Bay Nitrogen In and Out



Nitrogen Loading Biases



Nitrogen Loading Biases

Units = kg/day

SMAST Present Total Load	399[1]
Septic Nitrogen Reduction	38
Septic Reduction as % Total Load	10%
Present Total Load Bias Adj'd	180 to 300
Adjusted Present Total Load as % of SMAST Total Load	**56 to 75%**

[1] Pleasant Bay Report, May 2006, Exec Summary, Table ES-1b (Rounded Off)

Nitrogen in Pleasant Bay

At Mean Volume	**~39,000 kg**
Daily Inputs/Loads	**23,000 kg/day**
Daily Output	**28,000 kg/day**
Input-Output	**- 5,000 kg/day**
Septic Load	**89 kg/day**
Septic Reduction	**38 kg/day**

Data from MEP Pleasant Bay Report and SMAST/Orleans Water Quality Monitoring

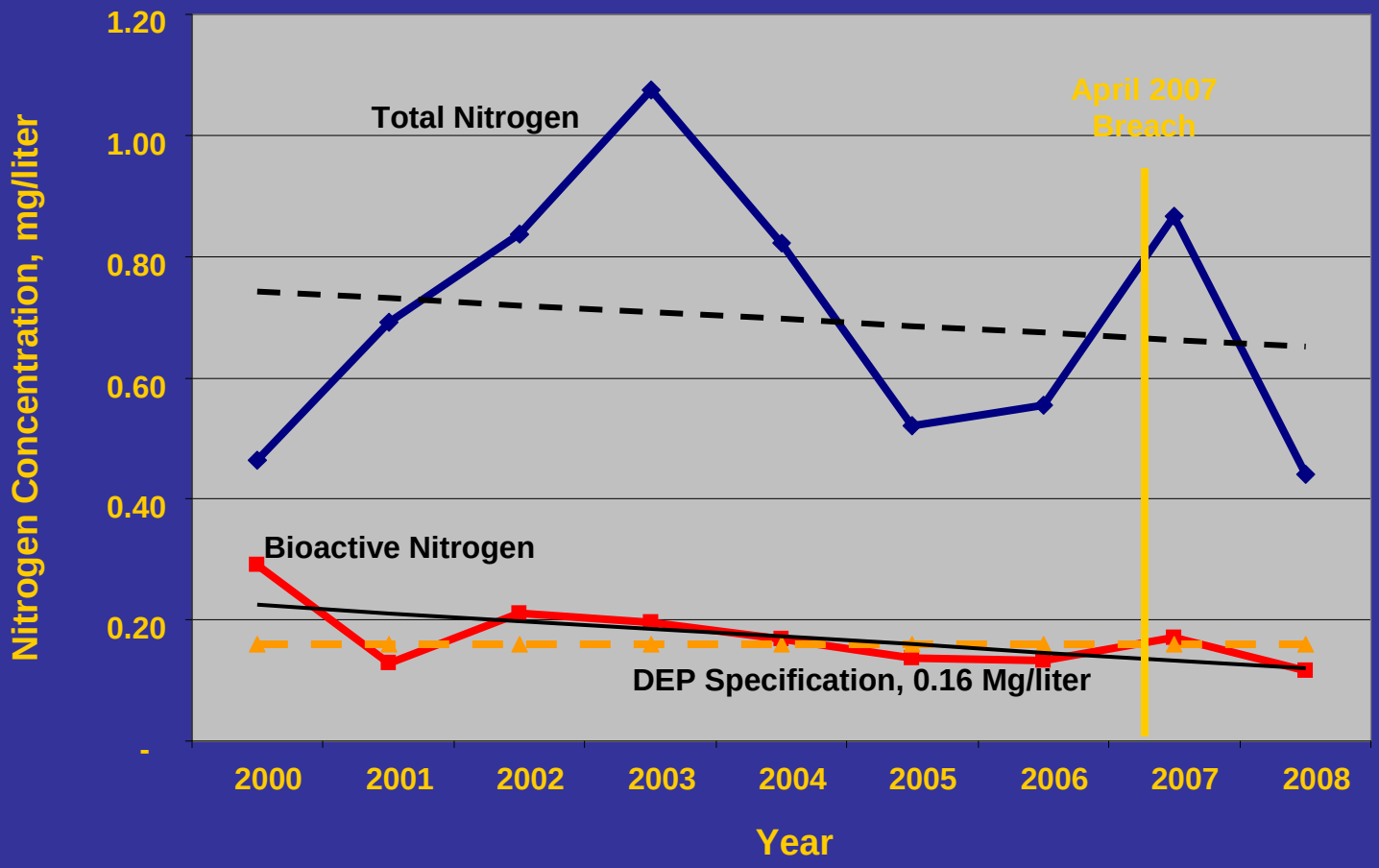
Findings – Nitrogen Model

- SMAST nitrogen simulation may be inadequate
- Lack nitrogen accountability
- Nitrogen inputs overstated

Findings – Environmental Health

- No short-term or long-term degradation of eelgrass or benthic infauna habitats shown
- No empirical evidence to support SMAST threshold nitrogen concentrations

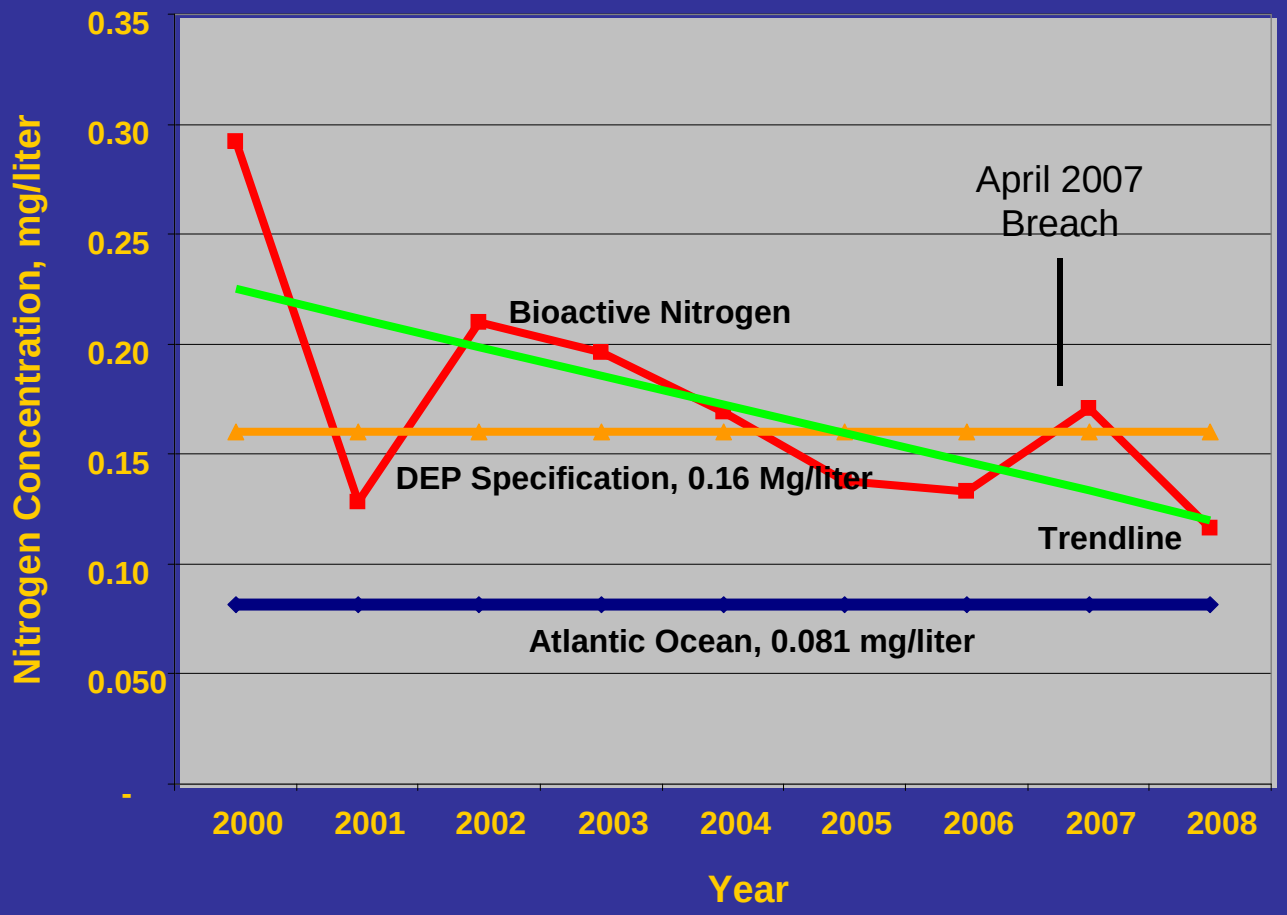
PBA12 Namequoit Pt. Nitrogen Data



Source: Pleasant Bay Resource Management Alliance

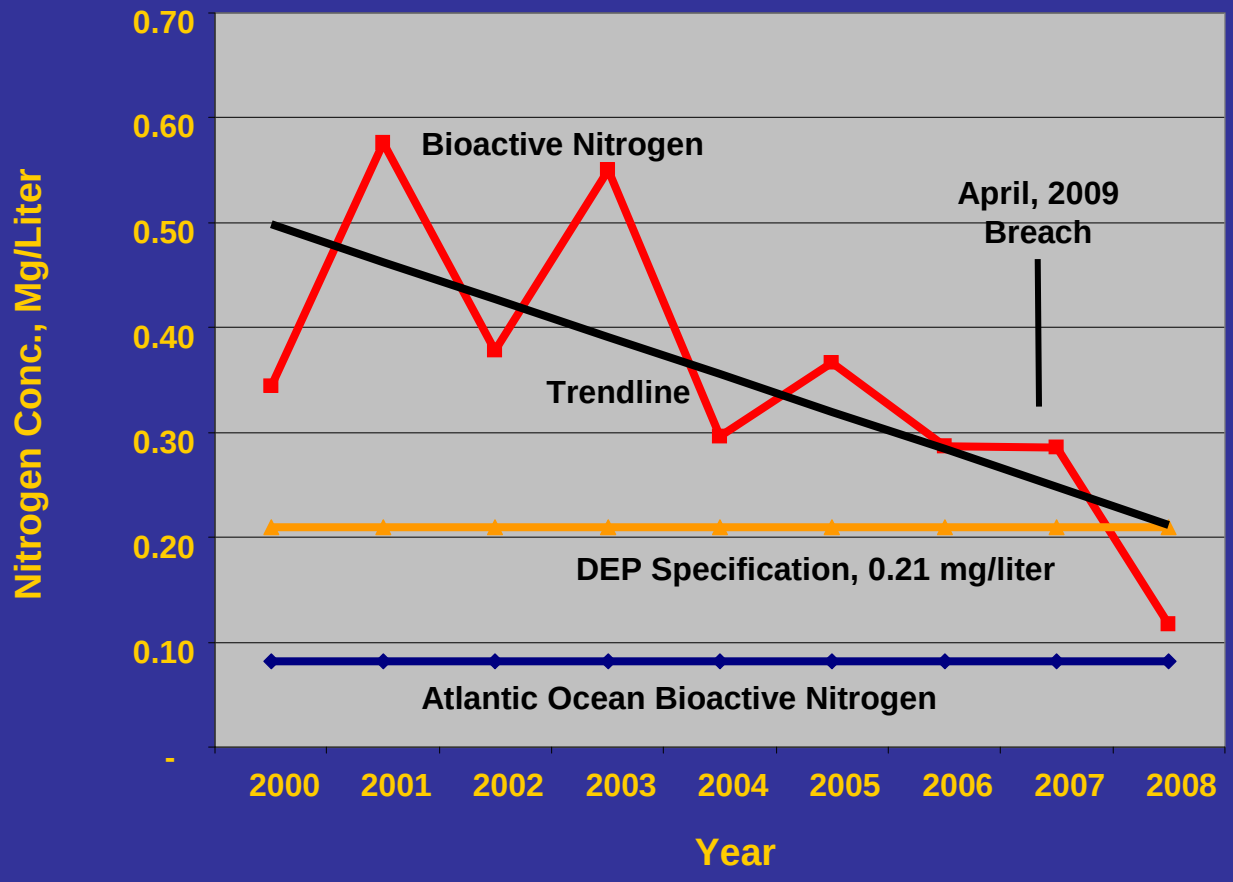
PBA12 Namequoit Pt.

Bioactive N Data



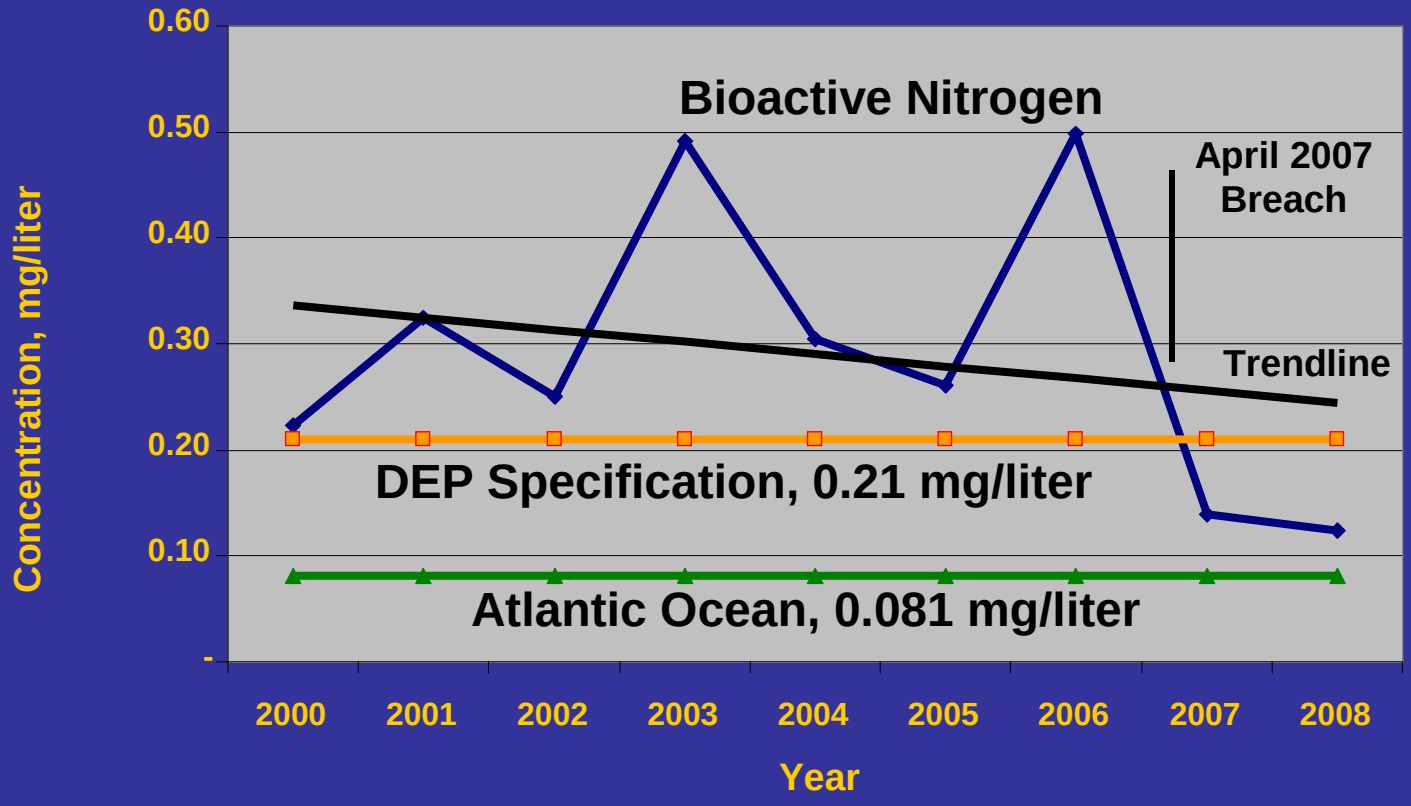
Source: Pleasant Bay Resource Management Alliance

PBA16 Mtghouse Pond Bioactive N Data

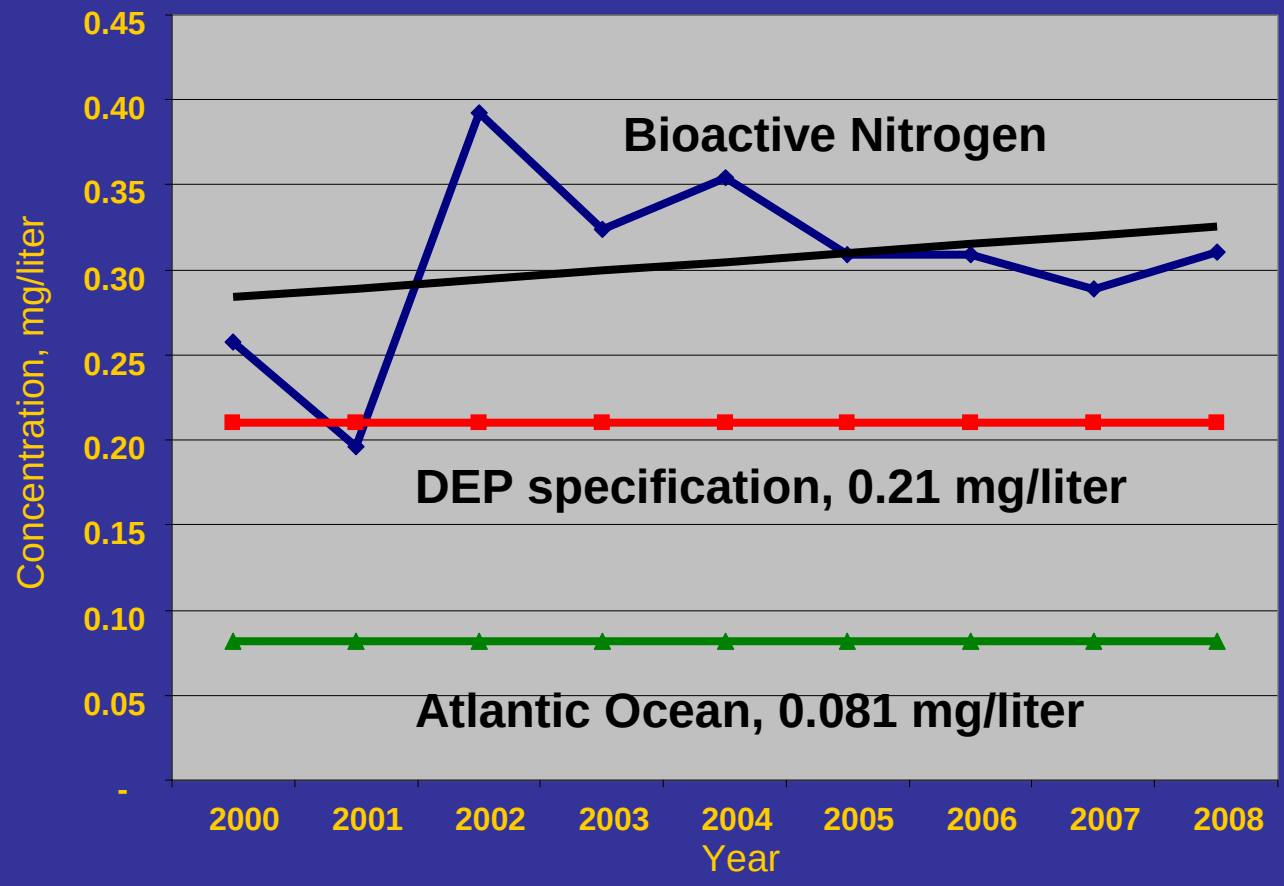


Source: Pleasant Bay Resource Management Alliance

PBA11 Pah Wah Pond Bioactive N Data

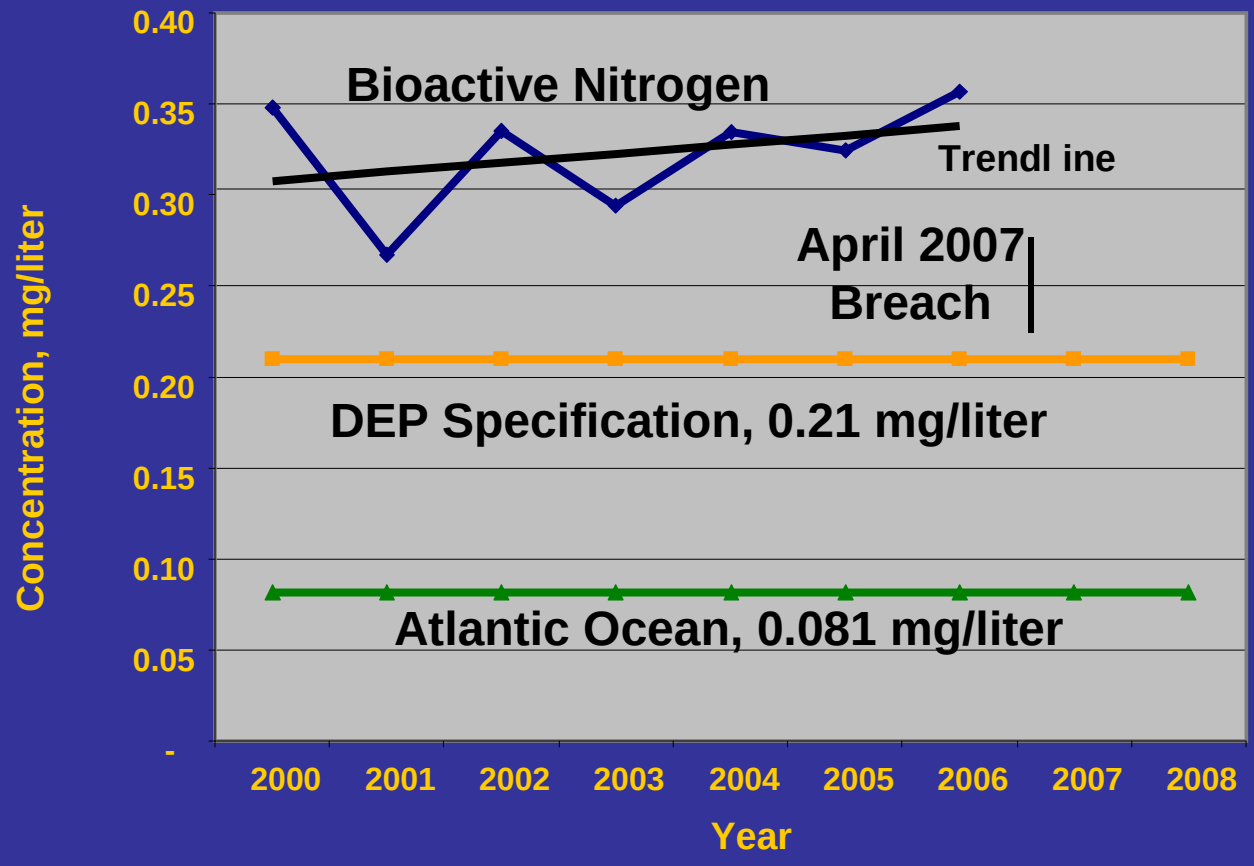


PBA15 Lonnies Pond Bioactive N Data



PBA11 Arey's Pond

Bioactive N Data



Source: Pleasant Bay Resource Management Alliance

The End