

Narragansett Bay Commission Monitoring Initiatives

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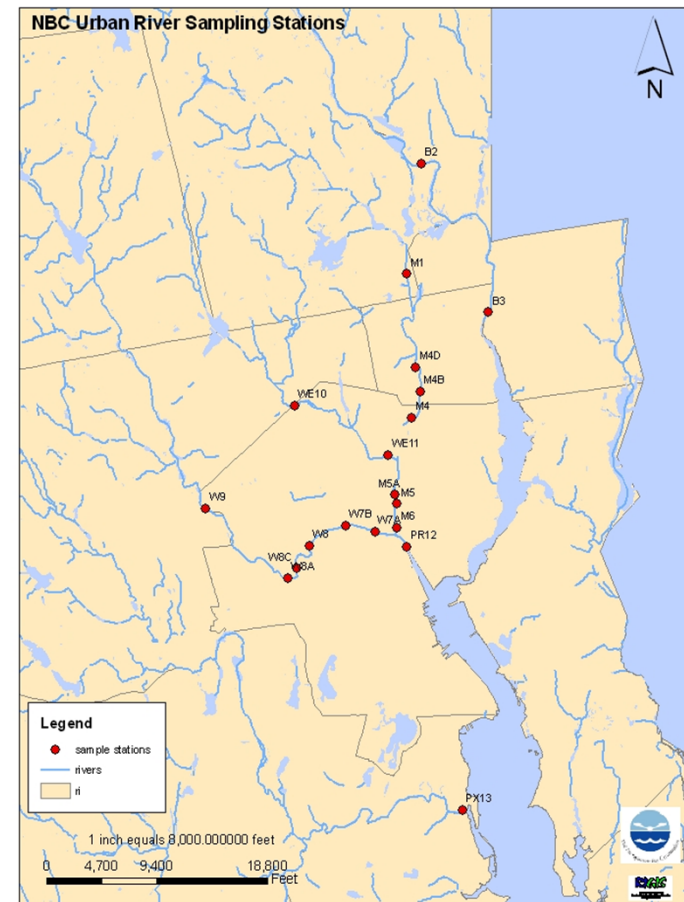
Fixed Site Monitoring Initiative

- * **NBC Maintains automated on-line monitoring at 2 fixed positions:**
 - ✓ *Phillipsdale Landing in Seekonk River, E. Prov*
 - ✓ *Buoy at Bullock's Reach in Providence River*
- * **Real-time data measurements for D.O., Temp, Salinity, pH, Chlorophyll, Nitrate, Turbidity and Tidal Cycles**
- * **Provide continuous public access to data via NBC website**
- * **Use YSI Sondes to monitor surface & bottom at both sites & mid depth at Bullocks Reach**



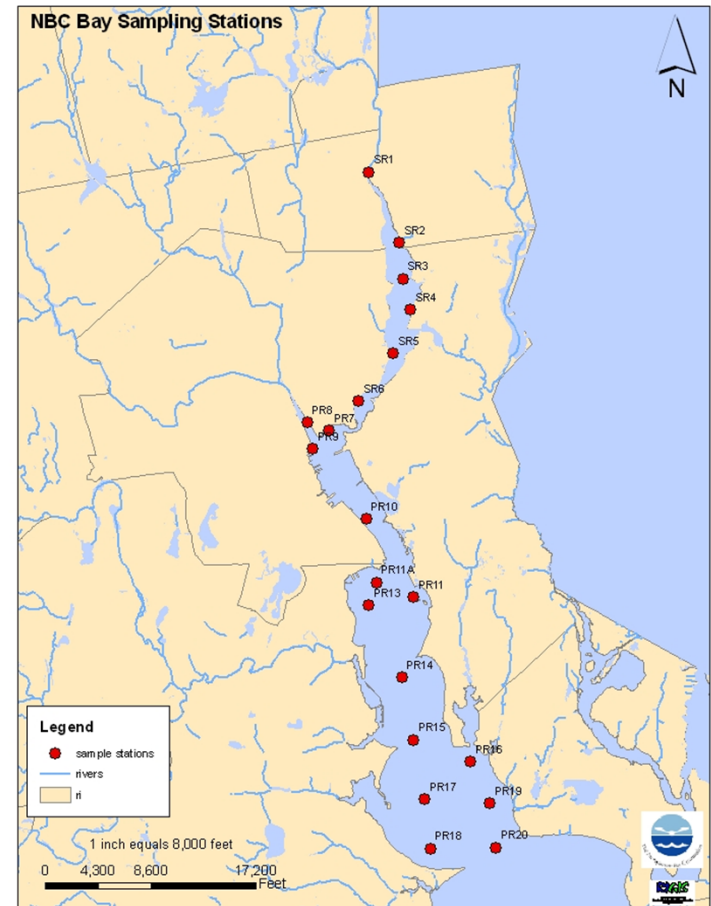
River Bacteria Monitoring Initiative

- * *Element of NBC Nine Minimum CSO Controls Program (RIPDES)*
- * *19 stations sampled twice weekly from CSO affected rivers*
- * *Mouth of Pawtuxet River also sampled*
- * *Samples analyzed for fecal coliform, with some enterococcus analyses*



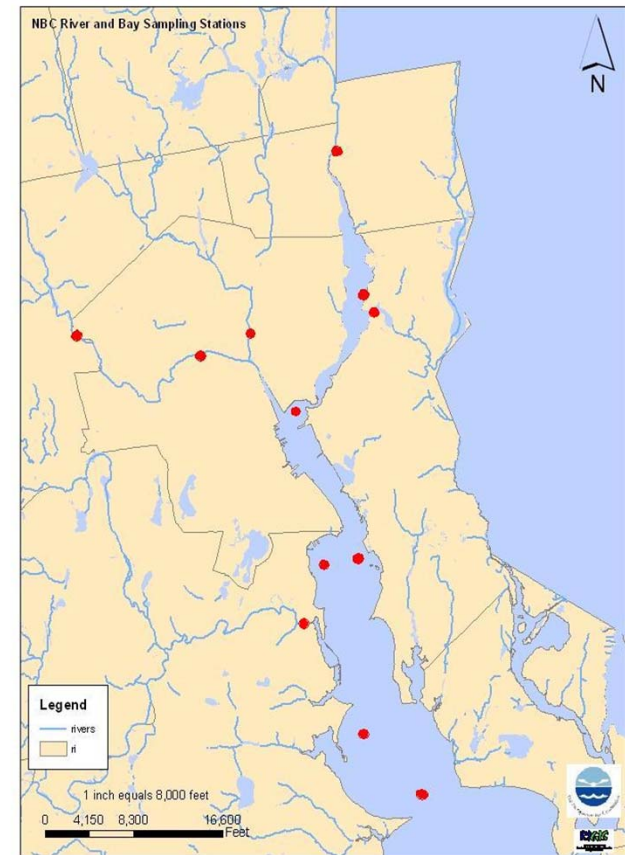
Bay Bacteria Monitoring Initiative

- * 20 sites sampled in Providence and Seekonk Rivers every other week
- * Samples analyzed for fecal coliform
- * 25% of samplings also analyzed for enterococcus
- * Several storm events sampled annually to evaluate bay water quality Improvements (tunnel)
- * Periodically sample shellfishing areas in cooperation with DEM



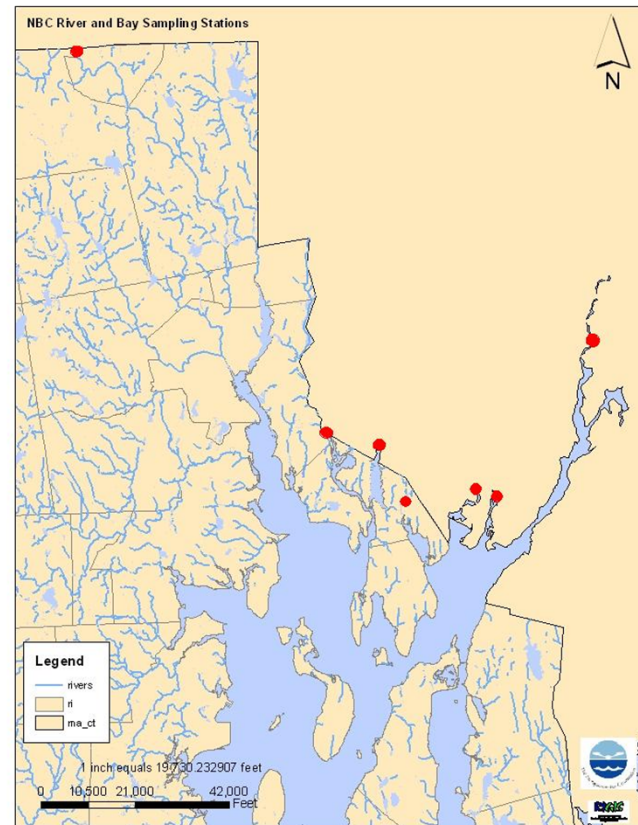
Upper Bay and Tributary River Nutrients Monitoring Initiative

- * *Monitor Nutrients in Providence, Seekonk Rivers and their tributaries*
- * *Frequency varies from once to twice per month to weekly at some sites during summer season*
- * *Evaluate nutrient loadings sources in all weather conditions*
- * *Provides important data for development of NBC funded ROMS model of upper bay*



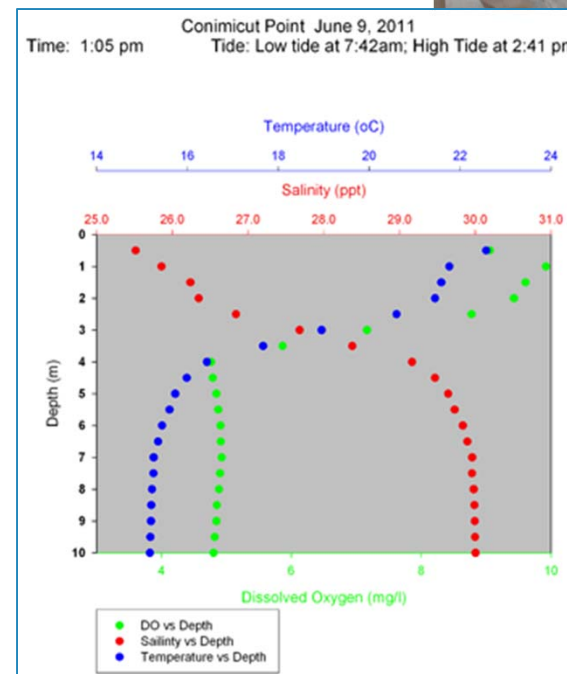
State Border Nutrients Monitoring Initiative

- * *Sample tributaries monthly that originate from outside RI*
- * *Sites include Ten Mile, Runnins, Palmer, Warren Res., Cole, Lee, Taunton and Blackstone Rivers at state line.*
- * *Necessary to evaluate Nitrogen loading sources and success of reductions by NBC and other WWTFs*



Water Quality Profiles

- * *Utilize Seabird Profiler*
- * *Dip at 6 Bay Stations*
- * *Water quality parameters are measured at every depth*
- * *Conducted every week during summer and alternating weeks for the rest of the year*



Real-Time Mapping of Surface Water Quality in Upper Narragansett Bay

- * *Use YSI sonde flow-through system to continuously measure surface water quality while boat is underway*
- * *Computer program integrates GPS coordinates and depth finder data with water quality data sets*
- * *GIS spatial analyst is used to generate mapping rasters*
- * *Create surface water quality maps for dissolved oxygen, chlorophyll, temp...*



Surface Water Mapping

- * *Conduct mapping weekly in summer while vessel is underway performing routine monitoring*
- * *Allow identification & tracking of algae blooms*
- * *Provides a great picture of what is happening in the surface waters*
- * *Plan to coordinate efforts with NERRs to inter-calibrate & cover greater bay area*



Benthos Monitoring

- * Deploy underwater video camera when conducting routine Bay monitoring*
- * Long-term trends will track impact of nutrient reductions upon local benthos*
- * Will begin to generate weekly Upper Bay plankton microbiology reports in summer 2011*



“Snapshot of Upper Narragansett Bay”

- * **New NBC Water Quality Webpage**
- * **Data available promptly for Stakeholders, Regulators, Universities & General Public**
- * **New information and functionality will be added to the site**
- * **Visit www.narrabay.com**

The screenshot shows the 'Snapshot of the Bay' website interface. At the top, there is a navigation bar with links for 'WATER QUALITY MONITORING', 'BUOYS', 'GLOSSARY', and 'PUBLICATIONS'. The main content area is divided into several sections:

- Welcome:** A text block explaining the NBC's mission to protect water quality in Narragansett Bay.
- Providence Conditions:** A weather and tide summary for Providence, including live conditions (Wind: 11 mph NNE, Temperature: 50° Air, 49° Water) and tide predictions for the next few hours.
- Bullock Reach:** A table of water quality data for Bullock Reach, updated on 6/13/11 at 7:16 AM. The table includes columns for Sonda Location, Depth (m), Temperature (C), Salinity (ppt), Diss. Oxygen (mg/L), pH, Chlorophyll (mg/L), and Turbidity (NTU).
- Phillipsdale:** A table of water quality data for Phillipsdale, updated on 6/13/11 at 7:15 AM. The table includes columns for Sonda Location, Depth (m), Temperature (C), Salinity (ppt), Diss. Oxygen (mg/L), pH, Chlorophyll (mg/L), and Turbidity (NTU).
- Map:** A map of the Providence area showing the locations of the monitoring stations.
- Images:** Three small images showing a buoy in the river, a boat with a sonde, and the Phillipsdale Lighthouse.

A white arrow labeled 'sonde' points to the image of the boat with the monitoring device.

Sonda Location	Surface	Middle	Bottom
Depth (m)	0.85	5.26	7.99
Temperature (C)	16.98	16.6	14.17
Salinity (ppt)	23.81	29.23	29.77
Diss. Oxygen (mg/L)	8.07	5.55	5.49
pH	7.75	7.43	7.66
Chlorophyll (mg/L)	13.6	5.6	
Turbidity (NTU)			1.2

Sonda Location	Surface	Middle	Bottom
Depth (m)	0.4		2.83
Temperature (C)	17.06		16.61
Salinity (ppt)	9.31		30.68
Diss. Oxygen (mg/L)	7.06		3.78
pH	7.31		7.3
Chlorophyll (mg/L)	21		
Turbidity (NTU)			

Summary of Water Quality in the Bay
[Fixed Site Network](#) [\(Historical Blog\)](#)
Weeks of May 29th - June 4th, June 5th - 11th
Phillipsdale: Surface temperature ranged between 16.7°C - 16.9°C during these