THE NARRAGANSETT BAY COMMISSION

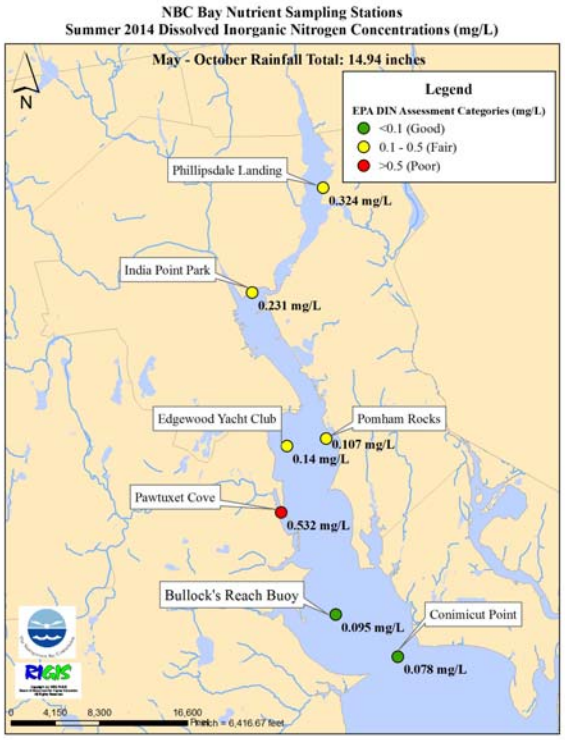
Division of Planning, Policy & Regulation

PROJECT HIGHLIGHT

Last revised: 12/1/14

Dissolved Inorganic Nitrogen (DIN) Concentrations in upper Narragansett Bay

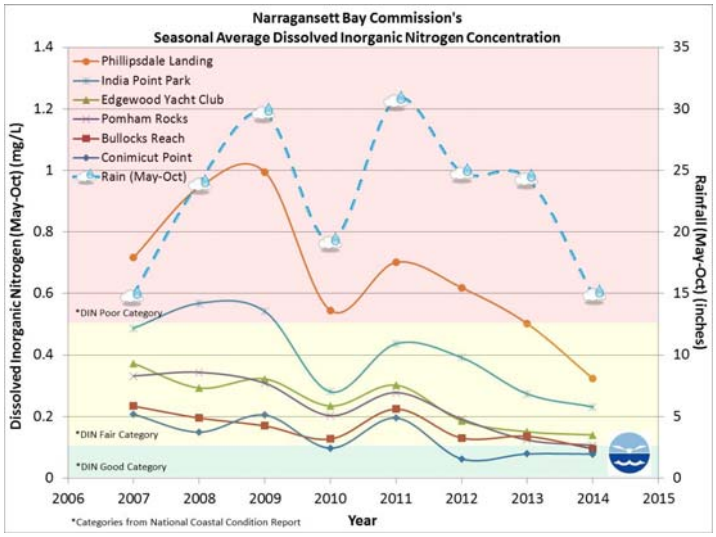
Narragansett Bay Commission (NBC) Nutrient Monitoring



The NBC's nutrient monitoring of the upper Narragansett Bay (Providence and Seekonk Rivers) began its first full year of sampling in 2007. The NBC samples six bay stations twice per month, depending on weather, at the surface (0.5 m below the surface), while the bottom (0.5 m above the sediment) is sampled once per month. Water samples are collected for a plethora of parameters, including forms of nitrogen and phosphorus. These measurements provide insight into the sources of nutrients to the upper Bay, including rivers, surrounding WWTFs, atmospheric deposition, groundwater, stormwater, leaky septic systems, and offshore inputs.

Dissolved Inorganic Nitrogen

Dissolved inorganic nitrogen (DIN) is composed of nitrate, nitrite and ammonia, the forms of nitrogen most available and useable by plants and algae. Excessive amounts of nutrients can lead to large blooms of algae and phytoplankton within the Bay. When the algae die and decompose, oxygen can be consumed faster than it can be replenished from the air. Given the right environmental conditions, low oxygen (hypoxia) conditions can develop and persist, causing potential harm to marine life. The Coastal Condition report, published by NOAA and EPA, established thresholds of DIN levels to characterize estuaries in the Northeast in good, fair, or poor condition. The NBC utilizes these thresholds, indicated as green, yellow, and red on the map and graph, to evaluate the DIN concentrations in upper Narragansett Bay.



Water Quality Improvements

The NBC has invested over $100 million dollars in recent upgrades to reduce nitrogen discharges at its facilities. These upgrades have resulted in an 81% reduction in nitrogen loading in 2014 compared to 2003, the year of the historic Greenwich Bay fish kill. This reduction also coincided with the lowest DIN concentration measured by the NBC at the majority of its stations. Historically, Phillipsdale Landing DIN levels fell into the poor category; however, this year DIN levels were considerably reduced, falling well within the fair category. This is the first year that the Bullock's Reach DIN concentrations have been in the good category, while Conimicut Point has been in the good category since 2012. The NBC will continue to invest in monitoring efforts to track changes and improvements in water quality to maintain its leadership role in the protection and enhancement of water quality in Narragansett Bay.

For further information, please contact the EMDA Section at:
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Visit the NBC's websites – www.narrabay.com & http://snapshot.narrabay.com/app/
for information on all Narragansett Bay Commission news, as well as to download NBC water quality data