

Dettmann, E.H. USEPA, Office of Research and Development, NHEERL, Atlantic Ecology Division, Narragansett, RI. <Dettmann.Edward@epa.gov>

IMPORTANCE OF DISSOLVED ORGANIC NITROGEN TO WATER QUALITY IN NARRAGANSETT BAY

This preliminary analysis of the importance of the dissolved organic nitrogen (DON) pool in Narragansett Bay is being conducted as part of a five-year study of Narragansett Bay and its watershed. This larger study includes water quality and ecological modeling components that focus on the dependence of nutrient, phytoplankton, and dissolved oxygen concentrations in the Bay on nutrient loads from the watershed. DON is often ignored in monitoring programs and water quality and ecological models, even though it can be an important component of the nitrogen pool in estuaries. Preliminary analysis of monitoring data for the water column of Narragansett Bay shows that there are substantial seasonal variations in the dissolved organic and dissolved inorganic nitrogen (DIN) pools, with the DON pool sometimes as much as a factor of ten larger than the DIN pool. Ratios of DON to DIN concentrations at individual stations in the Bay may be even higher. This presentation will preview annual and seasonal DON:DIN ratios in the water column, the spatial distribution of DIN and DON in the Bay, DON and DIN loads from municipal wastewater treatment facilities, major tributaries, and internal sources and sinks, with particular focus on identification of data gaps relevant to the modeling component of this study. Data from other estuaries will be included as necessary to provide perspective.