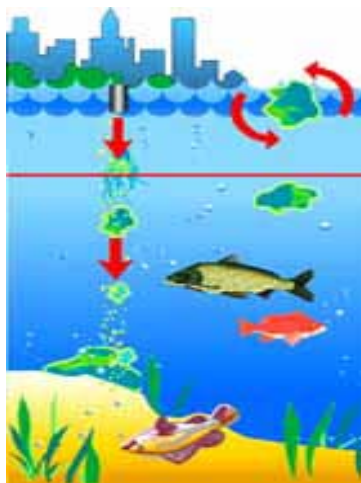


NUTRIENT ENRICHMENT AND IMPLICATIONS FOR NEW JERSEY'S COASTAL WATERWAYS

The UCI has begun a sustainable coastal community series including fact sheets on coastal environmental issues.

The goal of the Federal Clean Water Act is to ensure that the Nation's waters are "fishable and swimmable." In New Jersey, coastal waterways may not always meet these goals; some waterways may be impaired by nutrients, such as nitrogen (N) and phosphorus (P). In coastal waterways, low levels of nitrogen allow for plant growth. However, when high levels of nitrogen are reached, the nutrient, nitrogen (N) becomes a pollutant.

High levels of nitrogen, can result in the excessive and accelerated growth of algae (microscopic plants) in coastal waters. Excessive plant growth is commonly called a "bloom" and is technically known as "eutrophication." These blooms can ultimately die off and sink to coastal bottom waters. In some cases, the decomposition of algae depletes oxygen levels in coastal waters so much (hypoxia) that bottom dwelling coastal species (benthic shellfish and other animals) may also die. The lack of oxygen can cause fish kills or fish may simply swim away, disrupting the normal ecological patterns and disrupting the food chain.



Hypoxia Diagram-Courtesy NYCDEP

One way to help control nutrient inputs to the marine environment is by controlling the use of fertilizers in coastal watersheds. Fertilizers, if used excessively or improperly, can contribute excess nutrients and N that may cause eutrophication. Coastal communities can implement **ordinances** that control the amount, type, and seasonal use of fertilizers to minimize risk to waterways. In addition, a prohibition on the use of fertilizers during and prior to predicted rainfalls reduces the risk of runoff of nutrients. Lastly, taking care that fertilizers are not placed on impervious surfaces (e.g. streets, sidewalks, parking lots, etc.) further minimizes the risk of nutrient excess.

Sample fertilizer ordinances are available at:

<http://www.state.nj.us/dep/watershedmgt/DOCS/TMDL/Fertilizer%20Application%20Model%20Ordinance.pdf> for municipalities to undertake a far as seasonal usage and Save Barnegat Bay <http://www.savebarnegatbay.org/nitrogen/text.pdf> which is a county-wide sale restriction.

The Urban Coast Institute is advocating limitations on fertilizer use in coastal waterways as a sustainability action. For more information, please contact, Jennifer DiLorenzo, Sustainable Coastal

Community Liaison (jdiloren@monmouth.edu) or call (732) 263-5567.

Facts about Nutrient Impairments

1. The National Research Council identified nutrients as the most significant coastal pollutant and called for a national strategy to reduce nutrient loadings that are increasing and causing eutrophication and degrading coastal estuaries (National Research Council 2000. Clean Coastal Waters: Understanding and Reducing the Effects of Nutrient Pollution (national Academies Press).
2. According to the National Oceanic and Atmospheric Administration (NOAA), “the Mid-Atlantic estuaries are the most impacted nationally; the majority of estuaries recorded a moderate high or high overall eutrophic rating, with more than one-third of the estuaries having worsened since the early 1990s (NOAA 2007. Effects of Nutrient Enrichment in the Nation’s Estuaries: A decade of Change <http://ccma.nos.noaa.gov/publications/eutroudate/>).
3. NOAA’s 2007 National Estuarine Eutrophication Assessment (NEEA) has already documented nitrogen-related eutrophic conditions for Barnegat Bay, NJ Inland Bays, Delaware River, and the Hudson River/Raritan Bay estuarine systems.