

has an average daily flow rate of 16 MGD and is now removing more than 97 percent of the ammonium-nitrogen (NH_4^+) and 65 to 75 percent of the total nitrogen in the effluent.

In June 1990, work began at the **Tallman** Island plant to implement a similar wastewater treatment process. This plant is much larger than the one in Stamford. Designed to treat 80 MGD, it treats an average of 63 MGD. The BNR treatment process will be evaluated in one quarter of the plant (affecting 16 MGD of the flow through the plant) and the effluent quality of both the BNR and old treatment processes will be monitored closely.

The \$105,500 LISS demonstration grant will enable the **Tallman** and Stamford facilities to document the operational limits associated with the BNR process. One important factor that will be tested is the technique's effectiveness in colder temperatures, when bacteria are less active.

The staff at both facilities and their city governments are very dedicated to the project's success. They have increased personnel and provided financial resources to ensure the project's thorough analysis.

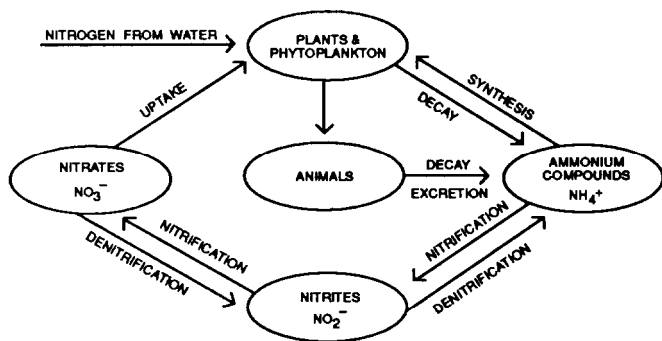


Figure 2. Example of nitrogen cycle in nature. Adapted from Garrels, Mackenzie and Hunt, 1975.

Agricultural Nutrient Management Project

Nonpoint sources of pollution also contribute nutrients to Long Island Sound via land and river runoff. In the Housatonic

River basin, the Litchfield County Soil and Water Conservation District, the Connecticut Council on Soil and Water Conservation, the USDA Soil Conservation Service and Connecticut Cooperative Extension System have received funding from the LISS and the Connecticut Department of Environmental Protection to conduct an agricultural nutrient management demonstration project. The objective of this project is to demonstrate the feasibility of using customized agricultural nutrient management plans to decrease nutrient runoff to Long Island Sound.

Present inorganic fertilizer application practices and poor distribution of animal wastes on croplands may result in overfertilization of some fields. The excess fertilizers may run off the land into the surface waters or be transported in the groundwater to nearby streams. Eventually the streams will transport the nutrients to Long Island Sound.

Soils are tested to measure nutrient levels and to determine whether it is necessary to apply fertilizer and in what amounts. Fertilizer added to soil already containing enough nutrients to support the crop to be grown may wash away with **runoff** or **leach** into the groundwater.

By 1991 twenty-seven farms will have prepared individual nutrient management plans. The plans will be based on the type of farm, nutrient levels in the soil and current fertilizer and manure application practices. The management plans will be evaluated for their effectiveness in maintaining crops and reducing runoff of nutrients from each property.

An integral part of this project is an information and education program designed to encourage farmers to volunteer to participate in the project. By participating, farmers can decrease their operational cost by using less fertilizer on their land.

The results of this \$80,000 demonstration grant will be applicable throughout the Sound's drainage basin and will identify the economic and environmental benefits of using agricultural nutrient management plans.

The Long Island Sound Study

The Long Island Sound Study (LISS) is a six-year research and management project that began in 1985 as part of the National Estuary Program, a recent addition to the federal Clean Water Act created to protect estuaries of national importance. The LISS is a cooperative effort involving research institutions, regulatory agencies, marine user groups and other concerned organizations and individuals. The purpose of the Study is to produce a management plan for the Sound that will be administered by the three major LISS partners, the Environmental Protection Agency and the states of New York and Connecticut. To get involved with the Study, or for more information, contact: the New York Sea Grant Extension Program, 125 Nassau Hall, SUNY, Stony Brook, NY 11794, Tel. (516)632-8737; or the Connecticut Sea Grant Marine Advisory Program, 43 Marne Street, Hamden, CT 06514, Tel. (203)789-7865.

This fact sheet was produced by the New York Sea Grant Extension Program and the Connecticut Sea Grant Marine Advisory Program. Written by Melissa Beristuin. Artwork by Catherine Sexton.



Funding provided by the Long Island Sound Study. Cooperating Agencies: The U.S. Environmental Protection Agency, Connecticut Department of Environmental Protection, New York Department of Environmental Conservation.