

Barnegat Bay Watch: A Volunteer Monitoring Program

Eleanor A. Bochenek, John A. Tiedemann and Liesl Hotaling
New Jersey Sea Grant College Program, U.S.A.

Barnegat Bay, in Ocean County, New Jersey, is a large shallow lagoon-type estuary characteristic of the back bay system of a barrier island coastline. The Bay provides significant recreational, economic, and aesthetic benefits to the coastal users of New Jersey as well as visitors from other states; however, these benefits are directly dependent on the overall vitality of the Bay's ecosystem. Both anthropogenic and natural factors are causing stress to Barnegat Bay. Urbanization of the watershed, including increased residential and commercial development, bulkheading of shorefront property, dock construction, and dredging result in increased nonpoint source pollution, loss of critical habitat, and other pressures on the Bay's ecosystem.

It is generally accepted that only long-term monitoring programs can provide the types of data necessary for effectively managing coastal ecosystems. Properly trained volunteers can be useful in conducting certain ambient monitoring tasks that can characterize water resources and identify water quality problems and trends in coastal waters. Recognizing these factors, the New Jersey Sea Grant Program initiated a citizen-based ambient monitoring program in the Barnegat Bay in 1991.

The Barnegat Bay Watch Monitoring Program provides for ongoing monitoring of ecological conditions in the Bay using trained citizen volunteers. The specific objectives of the program are to provide elected officials, resource managers, and scientists with a cost effective method to detect episodic ecological events such as algal blooms or fish kills, identify trends or changes in habitats and water quality of Barnegat Bay, and heighten public awareness and understanding about the importance of the Barnegat Bay environment, factors which contribute to its degradation, and the need for proper management of the Bay watershed.

Monitoring sites are located throughout the Bay, including locations in most major embayments and tributaries. Volunteers measure dissolved oxygen content, water temperature, water clarity, salinity, pH, precipitation, water depth, weather conditions, water color, odor, algal bloom conditions, and relative abundance of submerged aquatic vegetation and record observations of fish and wildlife.

Sampling is conducted twice a month from April through November utilizing procedures and protocols contained in the Quality Assurance/Quality Control (QA/QC) Project Plan and volunteer monitoring handbook. Prior to initiation of annual sampling efforts, training sessions and educational seminars on the ecology of Barnegat Bay are conducted for the volunteers participating in the program. In addition, QA/QC sessions are held periodically during the year and field checks are performed to assure that volunteers are following all procedural protocols properly.