Ambient Lakes Monitoring Network

NJDEP's renewed ambient lake monitoring network is designed to provide the water quality data necessary to assess the ecological health of the State's lentic water resource. Reinitiated in 2004, this program involves the testing of randomly selected lakes from the state's approximately 1100 named lakes. The water quality measurements conducted at each lake include parameters such as dissolved oxygen, pH, nutrients, and chlorophyll a. Such testing will assist New Jersey in determining the status and trends in lake water quality, as needed to meet the state's Clean Water Act requirements and the Total Maximum Daily Load (TMDL)-related water quality assessment obligations.

WM&S has developed a monitoring program that will address both the NJ water program deficiencies cited in the 1999 USEPA's Office of Inspector General's Audit Report, and the needs of the watershed management and water quality assessment (305(b)/303(d)) programs. This approach comports with the guidance provided in USEPA's publication, "Elements of a State Water Monitoring and Assessment Program," March 2003, which requires that states develop and implement long-term strategies which include monitoring of all state waterbody types, including lakes. The lake monitoring network design is as follows:

1. **Target Population**: All lakes, man-made or natural, excepting water supply reservoirs, wholly or partially within the State of NJ political boundaries. A lake is defined as a permanent body of water of at least two hectares in surface, and a minimum depth of one meter. Lakes will be selected randomly, using the USEPA - Generalized Random Tessellation Stratified (GRTS) survey design, but in a manner that equalizes selections over all Omernik level III ecoregions (6 within state). The NJ GIS coverage containing approximately 1,100 polygons of named lakes will be used for the selection process.
2. **Network Stations**: The network will consist of 200 lakes, each sampled once every five years, with forty lakes sampled per year. Depending on the lake size and characteristics, up to four sampling locations are monitored in each lake. Lakes not exhibiting temperature stratification will be sampled at one meter below the surface, unless the lake is too shallow, in which case the sample will be taken at a depth of one-foot below the surface. Lakes exhibiting stratification will be sampled above and below the thermocline. Depth to bottom will be measured at each station. Sampling Frequency: All lakes in the network will be sampled once every five years, with each lake being sampled at least three times during the year (Spring, Summer, and Fall). A fourth winter sampling period will be added if weather conditions and resources permit.
3. **Monitoring Parameters**: Total Phosphorus, Total Kjeldahl Nitrogen, Total Nitrite+Nitrate Nitrogen, Ammonia Nitrogen, Dissolved Oxygen, Temperature, Specific Conductance, Alkalinity, Hardness, Secchi depths, and Chlorophyll a will be collected and analyzed at each station. Qualitative evaluations of algal blooms and aquatic vegetation will be performed at each lake.

Lakes monitoring network results will be available via the Bureau's webpage (www.state.nj.us/dep/wmm/bfbm/publications.html) or by calling the Bureau at (609) 292-0427.

New Jersey's Lakes Assessment Monitoring 2006

WATERSHED MANAGEMENT AREAS

1. Upper Delaware
2. Wallkill
3. Pompton, Wanaque, Ramapo
4. Lower Passaic and Saddle
5. Hackensack and Pascack
6. Upper Passaic, Whippany and Rockaway
7. Arthur Kill
8. North and South Branch Raritan
9. Lower Raritan, South River and Lawrence
10. Millstone
11. Central Delaware
12. Monmouth
13. Barnegat Bay
14. Mullica
15. Great Egg Harbor
16. Cape May
17. Maurice, Salem and Cohansey
18. Lower Delaware
19. Rancocas
20. Assiscunk, Crosswicks and Doctors

Lakes Assessment
Monitoring Site

Watershed Management Area

Major River/Stream

New Jersey Department of Environmental Protection
Land Use Management
Water Monitoring and Standards
Bureau of Freshwater and Biological Monitoring