

Ambient Water Table Quality Network (AWTN)

- Shallow groundwater quality network established in 1983 and redesigned in 1999
- Consists of 150 statewide water-table wells randomly distributed within agricultural, urban/suburban, and undeveloped land-use categories
- Each well sampled for variety of water quality parameters 1x/5 years

Ambient Lakes Monitoring Program

- Reinitiated in 2004
- Assesses ecological lake water quality
- 200 lake network (randomly-selected) with 40 lakes sampled/year
- Each lake sampled for variety of water quality parameters 1x/5years.

Watershed and TMDL Monitoring

Sediment Toxicity Testing

- Conducted on selected stream sediment samples at AMNET stations.
- Provides independent evaluation of the effects of habitat upon observed biological impairment
- Promotes efficient use of chemical monitoring resources; only stations indicated by toxicity test results as impacted are targeted for additional chemical monitoring.

Algal Biostimulation Testing

- 14 day test conducted to determine what nutrients are limiting to algal growth in waters at a given station.

Data for Total Maximum Daily Load (TMDL) Calculations

- Provides data for modeling needed for TMDL determinations
- Includes collection of toxic metals using "Clean Methods" protocols
- **Surface water flow/velocity studies** for loading calculations and/or water quality model development are both performed by the Bureau and coordinated by the Bureau with USGS.

- **Chemical and Biological Water Quality Surveys** for determining the sources and causes of observed biological impairments,

including specific Stressor Identification studies.

Laboratory Facilities

- Maintains on-site laboratory for sample preparation, equipment preparation and cleaning, limited chemistry, and a variety of aquatic biological analyses.
- Monitoring staff are NJ State certified for the collection of field parameters (e.g., dissolved oxygen, temperature, pH, and conductivity).

Data Management / Entry and GIS

- Monitoring results are entered into USEPA's STORET/WQX ambient water quality database. Monitoring results are available via the Bureau's web page, DEP Data Miner and USEPA STORET/WQX webpage.
- All monitoring station locations are located with Geographical Positioning System (GPS) receivers and are verified against high resolution aerial photography.
- Geographical Information System (GIS) shapefiles of monitoring locations are available for download from DEP's and the State's GIS web pages.

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Water Quality Standards and Assessment

Water Quality Standards

- Responsible for development, adoption and administration of both surface and ground water quality standards.
- Develops water quality criteria to protect aquatic life and human health, assigns stream classifications reflecting existing and designated uses, as well as the antidegradation policies of the State.

Water Quality Characterization & Assessment

- Conducts and coordinates characterization and assessment of NJ's water quality
- Prepares NJ's Integrated Water Quality Monitoring and Assessment Report
- Develops water quality monitoring & assessment methods
- Works with local groups to incorporate their data into the statewide water quality assessment process

Local & Volunteer Monitoring

- Coordinates Department's Voluntary Monitoring and Watershed Watch Network programs

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Water Monitoring and Standards



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Water Monitoring and Standards (WM&S) has primary responsibility for ambient monitoring of the State's fresh, marine and ground waters, development of surface and ground water quality standards, and water quality characterization and assessment. Its mission is to provide monitoring and assessment information via collection, analysis & distribution of quality data & results for use by DEP and other organizations to make informed environmental & public health decisions.

WM&S is comprised of the Administrator's Office and three Bureaus.

Administrator's Office

The Administrator's Office oversees all activities, including coordination of policy development, information dissemination & outreach. This Office sets and monitors progress towards the following goals which assist the program in achieving its mission:

- Collect & analyze ambient water data to assess water quality status and trends, and for existing/emerging problem identification
- Monitor & evaluate effectiveness of strategies for enhancement of NJ's fresh & marine water quality
- Provide data to evaluate water-related ecological & public health risks
- Devise innovative water monitoring & analytical techniques
- Classify 700,000 acres of NJ coastal waters for safe harvesting of molluscan shellfish
- Develop non-point source monitoring strategy for DEP's Watershed Program
- Integrate GIS & state-of-the-art data management into all water monitoring to ensure rapid & accurate data exchange
- Coordinate NJ Water Monitoring Council, along with other external water monitoring programs, to ensure effective, high quality data collection for NJ
- Manage water quality standards development & ambient water quality characterization & assessment

Bureau of Marine Water Monitoring

Established in 1912, the Bureau has continuously provided the State with consistent, long-term monitoring and reporting of coastal water quality. These data are used to classify approximately 700,000 acres of marine and estuarine waters for shellfish harvesting. This monitoring also provides the state with key coastal water quality indicators.



Coastal Water Monitoring

- 15,000 samples/year collected and analyzed for total and fecal coliform bacteria under the National Shellfish Sanitation Program.
- Monitoring of basic water quality such as dissolved oxygen, nutrients and suspended solids at 250 selected stations, including 4 continuous monitoring sites in Ocean & Atlantic Counties.
- Bay and open ocean sampling of the water column, sediments and shellfish.
- Data generated are also used to meet requirements of sections 305(b), 303(d) and 319h of the Clean Water Act, 6217 of Coastal Zone Management Act.
- Administers Cooperative Coastal Monitoring Program, with local environmental health agencies, to respond to public health concerns regarding coastal bathing areas.

Laboratory Facilities

- Certified laboratory for bacteriological and inorganic chemical parameters.
- Specialized capability in analysis of coastal water and tissue samples for public health concerns.
- Specialized capability in low level nutrient and metals analysis required for marine samples.
- Specialized capability in microbial indicator

analyses for pollution source trackdown monitoring.

Estuarine/Coastal Water Quality Studies & Research

- Water quality investigations pertaining to identification and control of point and non-point pollution sources in bay and ocean locations.
- Shellfish-related research studies in conjunction with State, Federal and academic institutions.

Data Management/Analysis Capabilities

- Field results and analytical data are digitally stored and available in commonly used personal computer formats (e.g., Access, Excel and STORET/WQX).
- Statistical summaries and trends analyses readily available.
- Graphical presentation of data available via Geographic Information System mapping.

Historical Coastal Water Quality Data

- Seventeen (17) years of digital water quality data from over 3500 stations
- Records of point and non-point sources of pollution impacting coastal water quality for more than 50 years.

For more information, contact:

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Bureau of Fresh Water and Biological Monitoring



The Bureau's primary function is to supply DEP with the ambient biological, physical and chemical water quality data necessary to implement watershed planning, and to assess the status and trends of both water quality and ecosystem health throughout the State.

Ambient Monitoring

- Ambient Biomonitoring Network (AMNET)**
- Over 800 stream sites statewide monitored for both biological and in-stream habitat condition (based on benthic macro-invertebrate community structure)
- Each station monitored 1x/5 years
- All stations in a given watershed region monitored in same fiscal year

Fish Index of Biotic Integrity (FIBI)

- Environmental indicator of surface water quality based upon assessment of fish populations
- Currently, 100 station network in N. Jersey
- Suite of biometrics used, calibrated for NJ waters, resulting in condition rating for stream station (e.g., excellent, good, etc)
- Evaluation of in-stream habitat type and quality

Ambient Surface Water Monitoring Network (ASWMN)

- Established in 1976 to determine status and trends of ambient surface waters in NJ
- Conducted cooperatively with US Geological Survey
- Currently consists of 213 stations sampled 4x/year for basic water quality parameters
- Results also used to provide supplemental chemical/physical data for TMDL development, integrated assessment, and non-point source pollution evaluations.