Ambient Biological Monitoring Network (AMNET)

In 1992, a network of over 800 stream sites was initiated in New Jersey to provide long-term biological data reflecting the quality of surface waters throughout the State. Designed and conducted by the Bureau of Freshwater and Biological Monitoring, the Ambient Biomonitoring Network (AMNET) program routinely samples and analyzes aquatic macroinvertebrate populations at each site, employing USEPA-developed Rapid Bioassessment (RBP) methods to provide an index of stream water and habitat quality.

Biomonitoring programs, including both ambient and intensive surveys, were initiated by the NJDEP because the micro and macro flora and fauna of various trophic levels can integrate the effects of water quality changes over time, thus making them efficient pollution indicators. Macroinvertebrates, largely benthic (bottom-dwelling) organisms, provide a primary, cost-effective biomonitoring tool. These organisms are ubiquitous in distribution, more stationary than fish but less transient than algae and other microscopic communities, and they are easily collected and quantified.

Establishment of the AMNET system in 1992 was facilitated by USEPA's introduction of the RBP protocols; protocols which decreased the per station level of effort so that biological surveys with large number of sites could be completed with less resources. Sites in each Water Region (Upper Delaware, Northeast, Raritan, Atlantic, and Lower Delaware) are sampled on a five-year rotational basis to allow time for recovery from possible transient environmental impacts, and to establish trends in water and habitat quality. As of March 2006, all of the network stations have been sampled at least twice, with 4/5 of the stations having been sampled three times. The data generated by AMNET contribute substantially to NJDEP's preparation of the Integrated Water Quality Monitoring and Assessment Report (305b water quality report and 303d impaired waterbodies list). The information is also key in selecting additional waterbodies appropriate for increased Category 1 (C1) antidegradation protections.

A summary of results from the most recently completed round of AMNET sampling is shown below. Detailed results may be found on the Bureau of Freshwater & Biological Monitoring's webpage: www.state.nj.us/dep/wmm/bfbm/publications.html

AMNET Round 2 Statewide Data Summary

Year	Water region	Non-impaired	Moderately impaired	Severely Impaired	Total # sites
1997-1998	Upper Delaware	80 (58.0%)	57 (41.3%)	1 (0.7%)	138
1998–1999	Northeast	38 (36.9%)	59 (57.3%)	6 (5.8%)	103
1998-1999	Raritan	57 (35.2%)	90 (55.6%)	15 (9.2%)	162
1999-2000	Atlantic Coastal	75 (35.2%)	115 (54.0%)	23 (10.8%)	213
2000- 2001	Lower Delaware	31 (15.7%)	139 (70.6%)	27 (13.7%)	197
Totals:		281 (34.6%)	460 (56.6%)	72 (8.8%)	813

Percent Change in Rating Between Round 1 (1992-1996) and Round 2 (1997-2001) sampling

Positive Change 17.0%

Negative Change 14.4%

No Change 66.8%
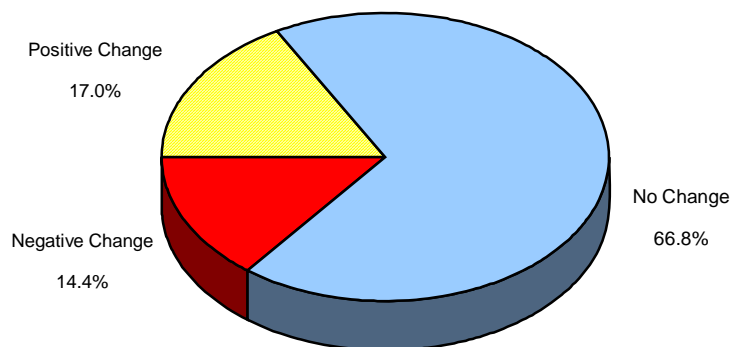
**New Jersey's Ambient Biomonitoring Network 2006**

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

● AMNET Sampling Station

Watershed Management Area

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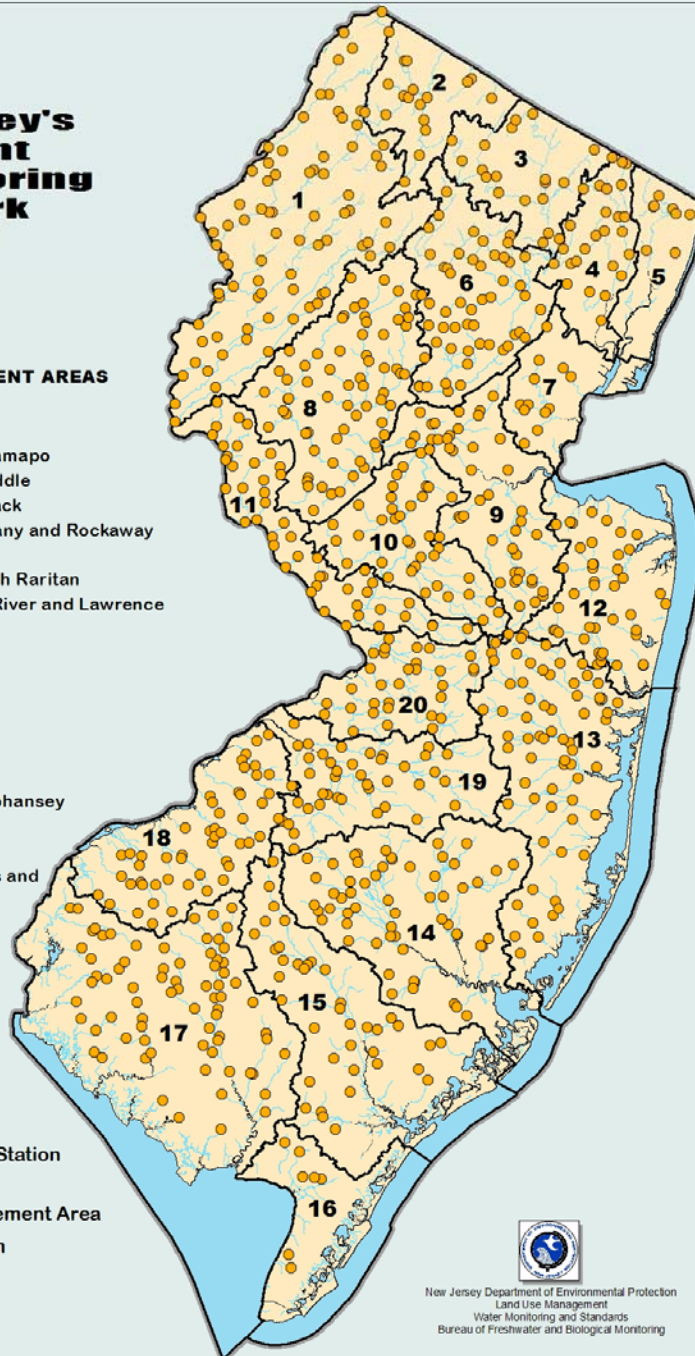
New Jersey Department of Environmental Protection
Land Use Management
Water Monitoring and Standards
Bureau of Freshwater and Biological Monitoring

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