



Office of Inspector General

Audit Report

WATER

New Jersey's Water Quality Monitoring Program

1999-1-00225

July 21, 1999

**Inspector General Division
Conducting the Audit**

Region Covered

Program Office Involved

**Eastern Audit Division
Boston, Massachusetts**

Region 2

**Division of Environmental Planning &
Protection, Water Programs Branch**

MEMORANDUM

SUBJECT: New Jersey Water Quality Monitoring Program
Audit Report No. 1999-1-00225

FROM: Paul D. McKechnie
Divisional Inspector General for Audit
Eastern Audit Division

TO: Jeanne M. Fox
Regional Administrator, Region 2

Attached is our audit report, *New Jersey Water Quality Monitoring Program*. This report contains findings and recommendations that are important to the Division of Environmental Planning and Protection, Water Programs Branch.

This audit report contains findings that describe problems the Office of Inspector General (OIG) has identified and corrective actions the OIG recommends. The audit report represents the opinion of the OIG and the findings contained in this audit report do not necessarily represent the final EPA position. Final determinations on matters in this audit report will be made by EPA managers in accordance with established EPA audit resolution procedures.

ACTION REQUIRED

In accordance with EPA Order 2750, you as the action official are required to provide this office a written response to the audit report within 90 days. Your response should address all recommendations, and include milestone dates for corrective actions planned, but not completed.

We have no objection to the release of this report to the public.

Should you or your staff have any questions about this report, please contact Ira Brass, Principal Team Leader at (212) 637-3057.

Attachment

cc: Kathleen Callahan, DEPP
Walter Andrews, DEPP
Barbara Pastalove, OPM
Robert Tudor, NJDEP

EXECUTIVE SUMMARY

INTRODUCTION

Water is one of our most vital resources and must be protected. One of the Environmental Protection Agency's (EPA's) ten strategic goals is clean and safe water. People use lakes, rivers, and streams for drinking water, boating, fishing, swimming, irrigation, and industry. States adopt water quality standards to protect these uses of the water, and monitor the water to find out how well the water quality supports the water uses. The states and EPA use the water quality information as a basis for their programs to control and clean up water pollution. This audit is one in a series of state water quality audits conducted by the Office of Inspector General (OIG) to develop a national picture of the performance of state water quality programs.

OBJECTIVES

Our overall objective was to review New Jersey's water quality standards and monitoring program. Our specific audit objectives were to answer the following questions:

1. Has New Jersey implemented procedures to develop water quality standards that will protect its water quality?
2. Has New Jersey implemented procedures to test and assess the quality of all appropriate waters in the State?
3. Are State reports on water quality complete, accurate, and useful for program management?
4. Has Region 2 implemented effective procedures to approve New Jersey's water quality standards and evaluate the State's water quality standards setting, testing, assessing, and reporting?

RESULTS IN BRIEF

New Jersey had implemented procedures to develop water quality standards. Overall, New Jersey had established a structure for the running of a

comprehensive water quality program that generally protects its surface water to sustain human health and aquatic life, and provides for recreational and economic activities. It had also adopted numerical criteria that were slightly more stringent than Federal criteria.

However, State and Regional officials have stated that decreased environmental funding and resources forced the State agency to make choices. New Jersey had made a good effort to assess its waters through an ambient surface water monitoring network. Yet, there were reductions in the number of monitoring stations and the frequency of samples taken to assess water quality corresponding with budgetary reductions. All the above issues are discussed in more detail in Chapter 2.

Water quality reporting was also affected by budgetary restraints. Water quality reports were not complete and accurate because they did not include all State waters. In addition, the biennial report on State water quality and the listing of impaired water bodies were consistently late. The biennial reports were issued one to two years after their due dates, while the impaired listing missed its deadline by 5 to 28 months. Furthermore, few pollution limits to correct the impairments were developed. Reporting issues are detailed in Chapter 3.

The priorities that were set sometimes benefitted some aspects of the program at the detriment of others. For example, New Jersey concentrated many of its monitoring and assessment resources on coastal waters. The State has a growing shellfish industry and vast coastal recreation which are important economic factors. While the State's shell fishing and beach monitoring activities improved, other water bodies including lakes and ponds, have suffered. Chapter 4 provides more detail on how the assignment of a lower priority has affected the State's lakes.

Finally, the Region had been improving its oversight of the New Jersey water quality monitoring program. However, we found some areas where improved communications could strengthen the program. Regional oversight is discussed in Chapter 5.

RECOMMENDATIONS

We recommend that the Regional Administrator work with the New Jersey Department of Environmental Protection (NJDEP) to determine a way to maximize the use of available resources to increase the number and frequency of sites tested annually. We also recommend that the Region continue to work with the State to improve its timeliness for issuing water quality reports. In addition, the Region needs to periodically review and monitor the State's 10-year total maximum daily load schedule to assure that planned actions are being met and commitments are being achieved.

We also recommend that the Regional Administrator encourage NJDEP to actively solicit, assemble and evaluate all existing and readily available lake water quality related data and information. NJDEP needs to develop and implement a plan to assess and report the status and trends of all publicly owned lakes.

AGENCY COMMENTS & OIG EVALUATION

The Assistant Regional Administrator for Policy and Management (ARA) responded to our draft report on May 28, 1999. The response also attached NJDEP's comments dated May 4, 1999. Both agencies provided additional information, clarifications, and actions taken to the issues presented in the draft report. Based on those responses, we have revised the report, where appropriate. Their responses have been summarized at the end of each chapter. The complete Regional and State responses have been included as Appendices 2 and 3. An exit conference was held with Regional and State officials on June 15, 1999. A copy of the proposed final audit report was sent to the State on June 25, 1999. Some additional comments were provided on July 6, 1999.

TABLE OF CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY	i
ABBREVIATIONS	vii
CHAPTER 1 - INTRODUCTION	1
Purpose	1
Background	1
Scope and Methodology	3
Prior Audit Coverage	4
CHAPTER 2 - NEW JERSEY'S WELL STRUCTURED STATE WATER QUALITY PROGRAM COULD BE STRENGTHENED	5
Comprehensive Standards Developed But Not Timely Approved	5
Monitoring Program Needs to Assess All Waters	10
CHAPTER 3 - REPORTING PROCESS NEEDS IMPROVEMENT	17
CHAPTER 4 - LAKES NEED MORE ATTENTION	27
CHAPTER 5 - REGION'S OVERSIGHT IMPROVED OVERALL PROGRAM	39
APPENDIX 1 - BACKGROUND	45
APPENDIX 2 - REGIONAL RESPONSE	49

Page

APPENDIX 3 - STATE RESPONSE 62

APPENDIX 4 - DISTRIBUTION 76

ABBREVIATIONS

CFR	Code of Federal Regulations
CWA	Clean Water Act
DDT	p,p'-Dichlorodiphenyltrichlorethane
DEPP	Division of Environmental Planning & Protection
EPA	Environmental Protection Agency
ESA	Endangered Species Act of 1973
FWS	U.S. Fish and Wildlife Service
NEPPS	National Performance Partnership System
NJDEP	New Jersey Department of Environmental Protection
NJDOH	New Jersey Department of Health
NJSWQS	New Jersey Surface Water Quality Standards
OIG	Office of Inspector General
PCB	Polychlorinated Biphenyl
PPA	Performance Partnership Agreement
QA/QC	Quality Assurance/Quality Control
SFY	State Fiscal Year
STORET	STOrage and RETrieval
TMDL	Total Maximum Daily Loads
303(d) List	Impaired Water body List
305(b) Report	Water Quality Assessment Report

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CHAPTER 1

INTRODUCTION

PURPOSE

Water quality standards establish water quality goals for the water body, and serve as the regulatory basis for pollutant discharge limits in the state discharge permitting programs and for non-regulatory nonpoint source controls. Stronger state monitoring programs help to better target the water bodies for cleanup, protect areas that already meet water quality standards, and schedule assessment of waters of unknown quality. Stronger state water quality monitoring programs also will help EPA and states do a better job of evaluating whether management and control programs are achieving environmental results.

Our overall objective was to review New Jersey's water quality standards and monitoring program. Our specific objectives were to identify the following:

1. Has New Jersey implemented procedures to develop water quality standards that will protect its water quality?
2. Has New Jersey implemented procedures to test and assess the quality of all appropriate waters in the State?
3. Are State reports on water quality complete, accurate, and useful for program management?
4. Has Region 2 implemented effective procedures to approve New Jersey's water quality standards and evaluate the State's water quality standards setting, testing, assessing, and reporting?

BACKGROUND

The Clean Water Act (CWA) is the primary legislation addressing water quality programs. The Act's objective is to restore and maintain the quality of the nation's surface waters. CWA requires states to adopt

water quality standards. These standards are an important basis for state actions to control and remedy water pollution.

States classify the state waters according to how the water can be used, such as for drinking water supply, fishing, and swimming. Once the water use classification is set, the Act requires the state to develop water quality criteria for that use.

In addition, states are required to review their water quality standards once every three years and obtain EPA approval for the standards. EPA is required to promulgate water quality standards for the state if EPA disapproves a state's water quality standards. The state's water quality standards remain in effect unless EPA promulgates standards for the state.

States are also required to develop a monitoring program to assess whether the state's waters meet the water quality standards. The state water quality monitoring program generates important information necessary to guide management decisions and track environmental progress.

CWA requires each state to submit to EPA a biennial water quality assessment report summarizing its water quality assessments. EPA summarizes the state reports in a national report to Congress. EPA uses the state water quality assessments to measure performance in achieving its goal of clean and safe water.

If a water body does not meet its water quality standards, the state classifies the water body as impaired and determines the cause of impairment, and develops controls to correct the impairment.

Appendix 1 provides a more detailed background of the program.

SCOPE AND METHODOLOGY

We performed our audit in accordance with *Government Auditing Standards* (1994 revision) issued by the Comptroller General of the United States as they apply to program audits. Our review included tests of the program records and other auditing procedures we considered necessary. We conducted our fieldwork from March through December 1998. We performed our fieldwork at Region 2 in New York, New York and at the New Jersey Department of Environmental Protection in Trenton, New Jersey.

We reviewed the Clean Water Act, the Code of Federal Regulations, the Water Quality Standards Handbook, guidance for Section 106 of the Clean Water Act, Monitoring Strategy Guidance, Guidelines for Preparation of 1996 State Water Quality Assessments (305(b) Reports), and New Jersey's laws and regulations applicable to its water quality program.

Also reviewed was correspondence between EPA and New Jersey applicable to water quality standards, triennial reviews, planning documents, and reports required under Sections 305(b) and 303(d) of the CWA.

We reviewed internal controls and procedures specifically related to our objectives. Although information was used from Region 2's Permit Control System, we did not review the controls associated with the input and processing of information into this system. We also reviewed the Region's assurance letters for Fiscal Years 1997 and 1998 that were prepared to comply with the Federal Managers' Financial Integrity Act. None of the issues cited in this audit were disclosed in these letters.

Due to the complexity of some water quality issues, we obtained technical assistance from the OIG Engineering and Science Staff. This technical assistance included: (1) a comparison of New Jersey's

water quality criteria to EPA's criteria; (2) an analysis of data from New Jersey's monitoring stations; and, (3) a review of the pollutants identified in the Permit Control System as contained in New Jersey's pollution discharge permits.

Our audit disclosed areas needing improvement that are discussed in Chapters 2 through 5. However these findings do not necessarily represent the final EPA position, and are not binding upon EPA in any enforcement proceeding brought by EPA or the Department of Justice.

PRIOR AUDIT COVERAGE No recent OIG audits have been conducted of the New Jersey water quality program. OIG's Central Audit Division (CAD) issued an audit report, *Missouri's Water Quality Standards and Monitoring* (Report No. 8100080) on March 31, 1998. Our assignment is considered a follow-on audit to CAD's work.

CHAPTER 2

NEW JERSEY'S WELL STRUCTURED STATE WATER QUALITY PROGRAM COULD BE STRENGTHENED

Overall, New Jersey has established a comprehensive water quality program that generally protects its surface water to sustain human health and aquatic life. However, while NJDEP had developed water quality standards and successfully completed its triennial review requirements, the standards had not been approved for over four years. Also decreased funding has affected the State's ability to accomplish all aspects of that program. by diminishing monitoring activities and water sampling activities. As a result, all of the State's waters are not evaluated. In addition, there is reduced assurance that all water quality issues are being addressed.

**COMPREHENSIVE
STANDARDS DEVELOPED
BUT NOT TIMELY
APPROVED**

New Jersey has implemented procedures to develop comprehensive water quality standards to protect the State's water quality. Numerical criteria have been adopted for priority pollutants and triennial reviews have been conducted. In addition, the State has been proactive in developing water quality criteria for certain pollutants for which EPA has not yet issued national quality criteria recommendations. However, the State's standards have not been approved for more than four years because of an inability by the Region and the U.S. Fish and Wildlife Service (FWS) to resolve endangered species issues. Federal and State officials have since agreed to an approach on the establishment of certain wildlife criteria. As a result, while the State's standards are appropriate, EPA

could face legal ramifications if the standards were approved without the resolution of the endangered species issues.

Priority Pollutants Addressed

The State of New Jersey has adopted numerical criteria for most, but not all, of the CWA 304(a) priority pollutants, and expresses an intent to utilize several bioassay methods in determining discharge limitations. Most, but not all, of the pollutants listed have State criteria slightly more stringent than the Federal criteria.

The State has additionally adopted numerical criteria for multiple toxics not listed in CWA as either priority or nonpriority pollutants. State regulations list both human health and aquatic life criteria, and provide a rationale, based on sampling, use of bioassay data, and research of available scientific literature, by which criteria are developed. The State lists criteria for carcinogenic pollutants on the basis of stated excess lifetime cancer risk.

CWA section 303(c)(2)(B) requires states to adopt specific numerical criteria for toxic pollutants which could reasonably be expected to interfere with designated uses adopted by the state. Whenever numerical criteria are not available, states must adopt criteria based on biological monitoring or assessment methods consistent with CWA section 304(a)(8). EPA attempted to provide the states with maximum flexibility that complied with the express statutory language but also with the overriding Congressional objective: prompt adoption and implementation of numeric toxics criteria. Consequently, if a pollutant is not present in state waters, or if the state expects a pollutant not to interfere with the designated use, then section 303(1)(2)(B) does not require a numeric standard for that pollutant.

EPA lists 126 compounds as priority toxic pollutants pursuant to CFR part 131.36. Of these NJDEP has criteria for monitoring 93 of these pollutants. Of the remaining 33 pollutants, 26 are not included in NJDEP's list and NJDEP reserved the issuance of criteria for 7 pollutants. According to NJDEP, "reserved" indicated that the Department was developing criteria for proposal for those pollutants. The reserved criteria are currently undergoing stakeholder discussions.

In addition, NJDEP's list contained criteria for 29 substances not included as part of the EPA list of 126 priority toxic pollutants. The EPA Standards

Coordinator provided us with a January 1995 non-priority pollutant chart which included 20 of these substances. The State adopted criteria for the other nine including such substances as benz(a)anthracene and bromodichloromethane.

Triennial Reviews Conducted

NJDEP has successfully completed its triennial review requirements. The Department revised its Surface Water Quality Standards in April 1994 and submitted these revisions to EPA on August 4, 1994. These standards were readopted by the State effective January 18, 1996.

In addition to adopting water quality standards into law, the CWA requires each state to: (a) hold public hearings at least every three years to review the standards; and, (b) submit the results to the EPA Administrator. The purpose of these “triennial reviews” is to determine the need for additional standards or for the revision of existing standards. Thus if hearings are not held and standards not reviewed, the public and EPA have less assurance as to the adequacy of State water quality standards.

NJDEP did not wait three years between reviews, but rather, in the interim, reviewed its standards and discussed proposed changes with the Region. For example, EPA’s August 1, 1996 and November 22, 1996 letters recommended that NJDEP incorporate a more comprehensive policy with respect to mixing zones in its next revision of the New Jersey Surface Water Quality Standards (NJSWQS). The November 1996 letter also indicated that EPA and NJDEP agreed in the 1997 Performance Partnership Agreement that the State’s triennial water quality standards review/revision process would be completed in State Fiscal Year 1997 (July 1, 1996 to June 30, 1997).

The State’s current revision process was separated into two phases. Phase 1 consisted of readopting the existing standards with changes for consistency with

New Jersey Permit Discharge Elimination System Rules, reclassifications of selected waters and correction/clarification of rule language. The NJSWQS were adopted on April 17, 1998. Phase 2 with more substantial revisions is scheduled to be completed in December 1999 as part of the current triennial review process.

1994 Standards Not Approved

However, while the process has been in place to develop and adopt water standards, delays have occurred. After more than four years, Region 2 had not approved NJDEP's August 4, 1994 submittal of the revised NJSWQS. During that time frame, Region 2 and FWS were working to reach an agreement as to how best to address the complex issues raised by FWS. As a result, approval was not provided within the required time frame. In addition, the Region could face legal ramifications if it approved the NJSWQS without including the proposed revisions.

CFR part 131.21 states that after the state submits its officially adopted revisions to the water quality standards, the Regional Administrator shall either:

1. Notify the state within 60 days that the revisions are approved.
2. Notify the state within 90 days that the revisions are disapproved.

In April 1994, NJDEP issued its revised Surface Water Quality Standards and submitted them to EPA on August 4, 1994. EPA could not provide the State with an official decision until completion of informal consultation with the FWS and National Marine Fisheries Service pursuant to Section 7 of the Endangered Species Act of 1973 (ESA), and the July 27, 1992 Memorandum of Understanding between EPA and FWS. However, EPA's review found that, with the exception of the State's human health-based polychlorinated biphenyl (PCB) criteria, the State's revisions were approvable pursuant to CWA section

303.

The major issue hindering EPA's ability to reach a final agreement with FWS was the establishment of wildlife criteria for PCBs, p,p'-Dichlorodiphenyltrichlorethane (DDT), and mercury. Discussions were held between the agencies for almost four years. Finally, EPA in a May 28, 1998 letter stated that FWS and EPA agreed to the following amended terms and conditions to be adopted by NJDEP as part of the current triennial review/revision process. This is scheduled to be completed in December 1999.

- Prohibiting mixing zones in areas with documented occurrences of the dwarf wedge mussel.
- Revision of the antidegradation policy to provide protection for federally listed threatened and endangered species.
- Establishment of wildlife criteria for PCBs, DDT and mercury at levels that will minimize adverse effects on the bald eagle and peregrine falcon.

The letter concluded that the final resolution of FWS's concerns and EPA's subsequent approval of the 1994 standards will require NJDEP's formal commitment to make these revisions. Also NJDEP must participate in the joint effort to develop and adopt numeric wildlife criteria for which FWS accepted the lead role.

There were legal ramifications relative to the ESA issue. A 1994 Regional opinion noted that if EPA approved the NJSWQS without implementing all of FWS's proposed measures, the EPA approving official (i.e. Regional Administrator) could be held legally liable if the death of any endangered/threatened species could be attributed to EPA's action on the NJSWQS.

While EPA has not approved the 1994 standards, the

1998 NJSWQS were adopted April 17, 1998 with the amendment published in the New Jersey Register on May 18, 1998.

MONITORING PROGRAM NEEDS TO ASSESS ALL WATERS

New Jersey has made a good effort to monitor its water quality, but could improve its process to test and assess its waters. New Jersey needs to increase the number and frequency of sites tested annually. Federal regulations require states to test and assess all their waters. However, New Jersey did not have a strategy to comprehensively evaluate all its waters. State officials stated that this occurred because of budgetary limitations. As a result, New Jersey did not know the quality of all its waters.

Monitoring Network

In 1976, NJDEP established an Ambient Surface Monitoring Network to determine the status and trends of the State's ambient surface waters. The network's original configuration was 200 stations, but was reduced to 78 by the mid 1990's. In 1997, there was a complete revision of the network which increased the surface water monitoring stations to 115. NJDEP also utilized 771 biological stream monitoring stations and 22 changing ground water locations.

Further, NJDEP's FY 1997 Performance Partnership Agreement notes that only 3,815 of 6,450 State stream miles have been assessed for biological impairment. Of these, 35 percent support the aquatic life designated use, 52 percent partially support the use, and 13 percent do not support the use. NJDEP's 1998 Water Quality Monitoring Network report also noted only 116 of 380 public lakes had been evaluated for trophic status/recreational water quality impairment (The condition of the State's lakes is detailed in Chapter 4).

The revised network was specifically designed to address the needs of the State's 20 watershed management areas (which comprise five water regions), the functional units for the Watershed Initiative. A

major objective of the network redesign was to coordinate water chemistry and biological databases. Completing this task supports priority initiatives, such as the National Environmental Performance Partnership System (NEPPS), in which biological databases are of increasing importance. New Jersey is one of a growing number of states to utilize biological monitoring.

New Jersey has a draft 10 year implementation plan and schedule of watershed management activities on a targeted and cyclical basis. The plan is awaiting public comment before submittal for Regional review. The plan calls for preliminary characterization and assessment of each of the watershed areas during the first two years. By year five, all water regions are expected to have permitting cycles. By year six, total maximum daily loads (TMDLs) will be issued for impaired waterways.

Decreased Water Sampling

New Jersey has decreased the frequency of its water sampling from five to four times a year. Metals, pesticides, volatile organic carbons, and sediments were monitored on the reduced sampling frequency.

NJDEP officials stated that the change in sampling frequency was not made arbitrarily. They had performed a statistical evaluation of the two sampling frequencies based upon historical nationwide ambient data and determined that the reduced sampling frequency could be made without sacrificing data quality or representativeness.

We believe that while NJDEP's approach is not unreasonable considering resource constraints, it still provides less sampling than was previously conducted. NJDEP needs to maximize use of its limited resources to increase the number and frequency of sampling activities.

Limited Resources Affect Program

Budgetary constraints have adversely affected NJDEP's water quality monitoring program. Decreased

funding has reduced assigned staff and the amount of water monitoring NJDEP accomplished. NJDEP officials informed us at the entrance conference that there was not enough money in their budget to evaluate all the State's waters. For example, a State report on marine and coastal water quality for the period 1990-1993 stated that no data was collected in 1992 because of funding constraints. In addition, no toxic studies were conducted for the period because of the monetary situation.

NJDEP's operating budget showed a trend of decreased funding for State Fiscal Years (SFY) 1995 through 1998. For example, NJDEP's budget was reduced from approximately \$193.5 million in FY 1995 to \$175.6 million in FY 1997. In addition, NJDEP in FY 1996 decreased weekly workhours from 40 to 35 for 1,800 employees.

The Region also noted that a lack of staffing was affecting NJDEP's quality assurance program. DECA's SFY 1997 Quality Assurance Management Systems Review found inadequate staffing at NJDEP's Office of Quality Assurance (OQA). The review concluded:

Many of the responsibilities of the OQA are going unfulfilled because there are inadequate staff resources to complete the tasks.

CONCLUSION

New Jersey had established a structured water quality program. Procedures had been implemented to develop comprehensive water quality standards. In addition, the State had made a good faith effort to monitor its water bodies. However, the program was curtailed because of budgetary constraints. NJDEP had not assessed many of its fresh water streams and was not aware of the water quality in most of its lakes, although it was aware that many were polluted.

Opportunities existed to improve the overall program. NJDEP needed to provide more resources to increase

the number and frequency of sites tested. Also, the Region needed to assure the timely approval of proposed State water quality standards. In the future, Region 2 must act more expeditiously and become involved earlier in the process to avoid prolonged delays in approving the NJSWQS.

RECOMMENDATIONS

We recommend to the Regional Administrator that the Region:

Work with NJDEP to maximize the use of available resources to increase the number and frequency of sites tested annually, as well as develop a strategy to comprehensively evaluate all its waters.

REGIONAL COMMENTS

The Region described the complex endangered species issues that had hindered its ability to reach final agreement with FWS and take action on the 1994 NJSWQS. The Region indicated that EPA, FWS, and NJDEP have agreed upon an approach to address all concerns raised by FWS. On April 23, 1999 the first joint agencies meeting was held and additional meetings are planned. The Region also noted that while there were potential legal ramifications, EPA made a policy decision to complete the ESA process prior to issuing a NJSWQS decision. Finally, the Region suggested we delete the first recommendation in the draft report based on the actions taken and scheduled.

With regard to triennial reviews, the Region pointed out its August 1, 1996 letter was in response to proposed water standards provisions published by New Jersey on February 5, 1996. The Region's November 23, 1996 letter occurred after the State withdrew the proposed standards and was intended to provide a framework for the State's subsequent standards revision.

Region 2 agreed that the water quality of all New Jersey waters need to be evaluated. The Region has proposed that NJDEP incorporate into its surface water

monitoring network a type of sampling that allows an assessment with known confidence of the quality of all State waters by sampling only a portion of these waters. This type of sampling design would use statistical methods to locate sampling sites. NJDEP is evaluating this suggestion under a FY 1998 Regional Geographic Initiative grant awarded by the Region.

NJDEP's COMMENTS

The State also presented comments similar to the Region's on the ESA issues. It noted that its commitment to participate in resolving the problem was contained in a February 18, 1999 letter sent to the Region.

NJDEP disagreed that it was not meeting the intent of the CWA for the testing and assessing of all state waters. It contended that the results of its network more than adequately met the State's obligations under Federal regulations. A 115 station network was maintained, which was recently redesigned to incorporate quarterly physical/chemical monitoring at two randomly selected stations in each of the 20 watershed management areas. The intention was to allow the statistical application of the results over the entire watershed management area.

Further, NJDEP's decision to change the sampling frequency from five to four times a year was not made arbitrarily. NJDEP in cooperation with the U.S. Geological Survey performed a statistical evaluation of the two sampling frequencies based upon historical nationwide ambient data. NJDEP stated that the reduced sampling frequency could be made without sacrificing the quality or representativeness of the resulting data. While more network stations would be desirable, NJDEP believes it has a strategy in place to comprehensively evaluate all waters, within currently available revenues.

NJDEP also noted that the five year monitoring strategy applied only to the biological monitoring network and

not the surface water physical/chemical one. It further indicated that while water column metals monitoring did decrease, samples of sediments, pesticides, and volatile organic carbons increased.

Finally, while NJDEP generally agreed with our assessment about how decreased funding had affected the State's monitoring activities, it indicated a recent increase in funding commitment to the ambient network and for watershed monitoring.

OIG COMMENTS

Both the Region and NJDEP provided additional information and clarifications regarding standard approval, priority pollutants, triennial reviews, and water quality monitoring.

In addition, we deleted our original recommendation 2-1 which called for the parties to make a concerted effort to make the revisions outlined in the Region's May 28, 1998 letter. Both the Region and NJDEP have stated that they are working toward that end.

New Jersey needs to have a strategy that evaluates the water quality of all its waters; a concept to which Region 2 agrees. As stated in the narrative above, we believe that NJDEP could improve its monitoring by increasing its sampling. NJDEP states that it has a strategy that uses randomly selected stations to sample, supported by a statistical evaluation of old and new sampling frequencies.

The use of such a random sampling approach is not unreasonable when there are resource constraints. However, we believe that a major purpose of a state-wide sampling network is to evaluate water quality by observing, for a given location, how the water quality changes over time. Evaluation of changes for a location requires consistent measurement over time from the station serving this location. Random selection of sampling locations makes this type of evaluation impossible. While it provides a representative picture

at a particular time, it does not give a progression of water quality at a specific location. Thus it does not allow for a comprehensive proactive approach to correcting diminishing water quality, only a reaction to diminished quality in areas that, by chance, are selected for measurement at a given time.

CHAPTER 3

REPORTING PROCESS NEEDS IMPROVEMENT

New Jersey needed to improve the timeliness of its reporting. Water quality reports were not complete and accurate because they did not include all State waters. In addition, both reports and impaired water lists were issued as much as two years late. Also, few pollution limits to correct the impairments were developed. The primary causes of the untimeliness included a lack of resources, the nonapproval of water standards, and the nonuse of a data system. As a result, decision makers lack accurate data to guide efforts to protect water resources.

305(b) Reports Issued Late

NJDEP's biennial water quality assessment reports (305(b) reports) were issued consistently late. The 1996 report was issued two years after its due date and

the 1998 report was expected to be at least a year late. In addition, the reports were not complete since, as previously mentioned, all waters were not evaluated.

305(b) reports provide extremely important information to EPA and the public about the environmental conditions of specific water bodies, as well as cumulative state, regional and national assessments. The 305(b) report provides a method for EPA and Congressional decision makers to assess monitoring data in a meaningful way and use the information to guide efforts to protect water resources.

The 1996 NJDEP 305(b) report was issued in April 1998, two years after its due date to Congress (April 1, 1996). Regional officials stated that NJDEP was late because:

- They had been historically untimely in issuing this report.
- They lacked sufficient resources assigned to this activity because they had focused on resolving 303(d) list problems.
- They have had problems getting their water quality standards approved.
- They did not use the Water Body System database (now called the Assessment Data Base) to transmit monitoring information to the EPA contractor, thus making it impossible for the contractor to retrieve data necessary for the consolidated report to Congress.

Similarly, the 1998 report, which was due to Congress on April 1, 1998, was not expected to be issued until May or June 1999, a delay of over one year.

Untimely 305(b) report submissions are a nationwide concern. EPA Headquarters issued a January 9, 1998 memorandum to all regions requesting that Section 106

grants or Performance Partnership Grants (PPG) containing 106 funds be conditioned upon the submission of timely 305(b) reports. The Region emphasized this issue to NJDEP in an April 24, 1998 letter in which it stressed that sufficient resources should be allocated to ensure a timely report. Headquarters later reported that as of the end of August 1998, it had received 19 final 1998 reports and 20 draft reports or data files. New Jersey was not among these submitters.

303(d) Lists Also Issued Late

NJDEP’s biennial lists of impaired water bodies (303(d) lists) were also untimely. These lists contain possible impaired waters that will not be accessible within two years. For example, the State’s last three lists all missed the deadline:

<u>List</u>	<u>Due Date</u>	<u>Date Issued</u>	<u>Months Late</u>
1994	4/1/94	7/28/96	28
1996	4/1/96	1/31/97	10
1998	4/1/98	9/15/98	5

NJDEP officials stated that they were undergoing an internal review and retesting impaired waters on the 303(d) list to determine if the initial impairments were still valid. The reviews were also being conducted because of ongoing national litigations relative to the 303(d) list.

To be more comprehensive in its presentation, NJDEP added valuable information to its 1998 list. NJDEP divided its list of waters into three appendices, organized according to data source and degree of confidence in the assessment of impairment. There were also long-term, ten year schedules for TMDL development for the impaired waters on the list.

Few TMDLs Issued

NJDEP had issued only two TMDLs which were

approved more than 10 years ago. The State agency had been focusing on water treatment plants and had de-emphasized the use of TMDLs. In addition, EPA had not been aggressive in seeking TMDL development. As a result, actions to correct water quality deficiencies have been delayed.

CWA Section 303(d) requires the states to list impaired water bodies. The impaired water body list is used to schedule water bodies for developing total maximum daily loads, which are calculations to limit or control pollutant discharges to restore the water quality. CFR part 130.7, *Total maximum daily loads (TMDL) and individual water quality-based effluent limitations*, requires states to identify all impaired water bodies where existing pollution control requirements are not stringent enough to achieve the water quality standards. To develop the list, each state is required to use all existing and readily available water quality related data, including the water quality assessment report.

As of July 1998, NJDEP had approved only two TMDLs: Passaic River (1987) and Upper Millstone (1988). The Assistant Administrator, NJDEP Office of Environmental Planning (now part of the Division of Watershed Management) stated that NJDEP had “dropped the ball” with respect to TMDLs. He indicated that NJDEP focused on treatment plants and de-emphasized TMDLs. He further stated that it was not until EPA became involved with nationwide litigation that any Federal mandate for TMDL development occurred.

The Region 2 TMDL Coordinator stated that Region 2 did not have authority over the number of TMDLs the State issued. She stated that EPA’s only authority was for approval/disapproval. She further stated that she was unsure whether NJDEP’s TMDLs were consistent with EPA’s current water quality criteria since the last one was reviewed in 1988.

The EPA Assistant Administrator for Water issued an August 8, 1997 memorandum, “*New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs)*” which stated in part:

I ask each of you to work closely with each State in your Region to help the State water program director and staff fulfill the requirements of section 303(d) and EPA’s implementation regulations and successfully achieve the goals of the TMDL program ...

States have primary responsibility for developing lists and TMDLs ... and the implementing regulations ... provide States with

latitude to determine their own priorities for developing and implementing TMDLs ...

I ask each of you to discuss with each State water program director the importance of an overall schedule and plan for establishing TMDLs for all listed waters, and to reach agreement by October 1, 1997 on the best process for developing appropriate schedules.

Region 2 worked with NJDEP to establish a 10-year schedule beginning in 1997. For example, during the first year, NJDEP started assessing monitoring data and developing models for NY/NJ Harbor, Delaware Estuary, and Whippany River Watershed Project including water segments. These were chosen because they were ranked as high priority waters on both the 1996 and 1998 303(d) lists. NJDEP also planned to start monitoring in support of TMDL development or parameter delisting for the Maurice River Watershed and segments of the Whippany River Watershed Project.

By 2007, the State anticipated that TMDLs for each pollutant will have been developed to cover 14 water

bodies listed in the 1998 303(d) list. It should be noted that these water bodies can have many segments and many different pollutants and therefore considerably more than 14 TMDLs will have to be developed and approved.

Use of STORET System Could Be Improved

The STORET (STOrage and RETrieval) system was not always used and when it was, there was difficulty in its operation. The system was developed for the states to use after field data was collected. However, the States found the system clumsy and not user friendly. NJDEP officials agreed with that assessment.

In addition, according to a Headquarters Office of Water official, Region 2 and many other regions did not use STORET even though it is the EPA database to record water quality test results. The Region 2 Monitoring Operations Section Chief agreed, but noted that State information input is used to generate the 305(b) report.

A new modernized STORET system was developed and implemented in late 1998. It provided a flexible, PC-based, user-friendly, quality-assured database. This system corrected many difficulties the State users encountered. However, NJDEP officials stated that they did not receive adequate assistance from Region 2. They found a lack of Regional resources and concern for implementing the system. NJDEP had to seek guidance from Headquarters and Region 3 personnel. For example, NJDEP attended a Region 3 training course on the new system, since Region 2 did not offer one. However, because Region 3 States were given higher priority for the limited space, NJDEP was only able to obtain one slot.

This lack of coordination with Region 2 may have occurred because the Region did not have someone designated to handle STORET. The Region had not made STORET a high priority. Previously the Region had two full time employees working on the system, but

budget constraints reduced this to one part time employee. We attempted to discuss the State's concerns with Regional staff, but the Region had no one assigned as a STORET liaison.

CONCLUSION

Water quality reports were not complete, accurate or timely. In addition, few TMDLs were developed to address impaired waters. The Region needs to continue to work with NJDEP so that the State agency can facilitate the issuance of TMDLs, and accelerate water assessment and impairment report issuance.

RECOMMENDATIONS

We recommend to the Regional Administrator that the Region:

3-1. Continue to work with the State to improve its timeliness for issuing reports and the impaired water's list.

3-2. Continue the process of reviewing the 303(d) list by comparing information from prior lists and reports.

3-3. Periodically review and monitor NJDEP's accomplishment of the 10-year TMDL schedule to assure that the State is achieving its commitments.

3-4. Provide adequate assistance to NJDEP by means of formal training and technical assistance for the new STORET system. The Region should designate a staff person/liaison to regularly help NJDEP personnel, especially during the new system's transition phase.

3-5. Reevaluate the priority and resources provided to STORET.

REGIONAL COMMENTS

The Region provided additional information about the status of the 1998 305(b) report. NJDEP submitted the draft report on January 15, 1999. The Region completed its review and issued comments to NJDEP which are being considered for the final report which is expected in June 1999. This date was agreed upon in

the State FY 1999 Performance Partnership Agreement (PPA) and included as a special Performance Partnership Grant (PPG) grant condition.

Based upon recent PPA negotiations, the 2000 305(b) report will be submitted in draft in April 2000 and final in June 2000. This moves NJDEP very close to the statutory deadline (April 1, 2000). In addition, the data necessary for the 2000 National Report to Congress will be transmitted electronically in October 1999.

The Region noted NJDEP is working cooperatively with the EPA contractor in streamlining and improving NJDEP's ability to transmit data using the Assessment Data Base.

Concerning TMDL development, the Region had persistently sought such action via meetings, annual program performance reviews, and correspondence to NJDEP requesting that it develop a comprehensive TMDL program and submit TMDLs. Although a few TMDLs were developed, many water quality-based permits were issued and nonpoint source reduction plans put in place across the State. The Region also indicated that it established TMDLs for the NY-NJ Harbor for copper and mercury and will be establishing a nickel TMDL for the Hackensack River in the summer of 1999. All these actions resulted in improvements in water quality.

The Region then provided in its response a copy of a May 1999 Memorandum of Agreement which has a schedule for the establishment of TMDLs for all 303(d) listed waters. Additionally, EPA recently provided \$200,000 in contractor assistance to NJDEP for the development of pathogen and nutrient TMDLs.

Finally, the Region noted the difficulties with the old

STORET system and the improvements the new system provides. During the summer, the Region will conduct training on this new system and then fully implement it to support programmatic activities, as well as provide technical support to states and local agencies.

NJDEP's COMMENTS

The State generally agreed with the 303(d) and 305(b) timeliness findings in the draft report. The response stated that there were several contributing factors including a major NJDEP reorganization from media-based to a functional organization, significant expansion of the 303(d) list to include all impaired water bodies, and the policy issues surrounding this addition. NJDEP noted there was significant improvement in the timeliness of the 1998 303(d) submittal. NJDEP has also increased the FTEs dedicated to 303(d) and 305(b) activities from 0.75 to 1.5. Two additional FTEs are expected to be available by December 1999.

NJDEP disagreed that 305(b) reports were inaccurate. It stated that available data were assessed to the extent possible and results of these assessments were accurately conveyed in the reports. Although NJDEP does not assess 100 percent of its waters through monitoring or evaluation, all major waters and many smaller streams are assessed through monitoring. NJDEP agreed that the 305(b) reports should more closely convey the spatial extent and level of detail of assessments. These concerns have been addressed in the 1998 Water Quality Inventory Report.

With regard to TMDLs, NJDEP provided a lengthy discussion on its water quality activities over the past decade, its move towards a watershed approach, and the effect on TMDL development. Further, NJDEP indicated that it is EPA's statutory responsibility to develop TMDLs wherever states do not take action themselves and that the Region had not taken much action in this regard.

NJDEP also discussed the TMDL MOA described in the Regional comments above. In addition, NJDEP is working with the Region to develop new 303(d) and delisting procedures that respond to these issues and the needs of New Jersey's waters and watersheds. It is confident with the renewed partnership effort that significant progress will be made.

Finally, NJDEP would welcome whatever additional support and assistance Region 2 could provide in making the utilization of STORET a success both within the Department and with NJDEP's partners.

OIG COMMENTS

Both NJDEP and the Region have taken positive steps to strive to achieve more timely 305(b) report and 303(d) list submissions. It is anticipated that these actions will move NJDEP very close to meeting the 2000 statutory deadline, which is an improvement over the last three submissions.

However, concerning the complete accuracy of the 305(b) reports, we disagree with the State's position. While we agree as NJDEP states that "available data were assessed to the extent possible and results of these assessments were accurately conveyed in the reports," by not assessing all the State's waters a complete and accurate picture of the State's entire water quality is not provided to the public.

The Region and NJDEP disagree somewhat with each other over who should have taken more aggressive action in addressing the ten-year lull in TMDL issuance. The Final Report of the Federal Advisory Committee on the TMDL Program (issued July 28, 1998) noted that states were required to establish TMDLs for waterbodies where water quality standards are met. The Report also stated that if state actions were not adequate, EPA must prepare TMDLs. The August 8, 1997 guidance also stated that states have primary responsibility for developing lists and TMDLs under Section 303(d) and if a state fails to meet its

obligations, the regions need to step in.

Regardless of who should have taken action, the TMDL MOA issued in May 1999 is a positive step to improve the State's water quality. We are encouraged by the confidence both parties have expressed that this renewed partnership effort will bring significant progress.

Finally, we applaud the actions being proposed to provide additional support for the utilization of the new STORET system.

CHAPTER 4

LAKES NEED MORE ATTENTION

New Jersey has inadequate monitoring and assessment of lake conditions in the State. More than two-thirds of the public lakes have not been tested and more than 97 percent of those tested were found to be eutrophic. The limited attention to lakes has occurred for several reasons: (1) the State has concentrated many of its monitoring and assessment resources on coastal waters and rivers; (2) EPA has provided less funds; and (3) EPA guidance has been less intensive for lakes. As a result, New Jersey lakes were found to be in poor condition and there was no assurance that lake water quality issues will be adequately addressed.

Criteria

CWA section 101 requires Federal and state governments to “restore and maintain the chemical, physical and biological integrity of the Nation’s waters.” 40 CFR part 130.4 requires states to establish monitoring methods and procedures (including biological monitoring) necessary to compile and analyze data on the quality of waters.

CFR part 130.7(b)(4) requires states to identify the pollutants causing or expected to cause violations of the applicable water quality standards. Part 130.7(b)(5) requires each state to actively solicit, assemble and evaluate all existing and readily available water quality-related data and information. Potential sources of data and information listed include local, state and Federal agencies, members of the public, and academic institutions.

CFR part 130.8(b)(5) indicates that the state’s 305(b) report must include a water quality assessment of all

publicly owned lakes, including water quality status and trends.

40 CFR 31.40 requires recipients of Federal funds to monitor activities to assure compliance with applicable Federal requirements and that performance goals are being achieved. Grantee monitoring must cover each program, function or activity.

In February 1998, EPA issued the "Clean Water Action Plan," as mandated by Vice President Gore. The Plan requires states to make a "Unified Watershed Assessment" by October 1998. According to Region 2's Lakes Coordinator, lakes are part of watersheds, and should not be overlooked.

Lakes in Poor Condition

More than 97 percent of New Jersey's lakes that were tested (113 of 116) were found to be eutrophic. Eutrophic means that the increase of mineral and organic nutrients has reduced the dissolved oxygen, producing an environment that favors plant over animal life. The last round of Statewide sampling was concluded in 1992. At that time parameters were sampled associated with lake trophic analysis: nutrients, dissolved oxygen, pH and algal identification of chlorophyll *a*. The Executive Summary of New Jersey's 1997-1998 Performance Partnership Agreement (PPA) states that "Surface water quality issues of concern include eutrophic conditions in lakes."

NJDEP's Surface Water Quality Standards, N.J.A.C. 7:9B, antidegradation policies, apply to all the State's surface waters. The Standards state that existing uses shall be maintained and protected, and no irreversible changes may be made to existing water quality that would impair or preclude attainment of the designated uses of a waterway. The Standards also state that except as due to natural conditions, nutrients shall not be allowed in concentrations that cause objectionable algal densities, nuisance aquatic vegetation, or

otherwise render the waters unsuitable for the designated uses.

NJDEP did very little testing of the State's approximately 380 public lakes. According to New Jersey's February 1998 "Water Quality Monitoring Network" report, only 116 of the 380 public lakes (30 percent) have been evaluated. These amounted to 10,462 of 24,000 acres. In addition, most lakes tested were listed as impaired in Appendix B of New Jersey's 303(d) list. Since New Jersey has not tested more than two-thirds of its public lakes, the total number of impaired lakes may far exceed those reported.

The State has not identified the sources of pollution causing or expected to cause lake water quality impairments. It also did not assess and report the status and trends of such water quality. Further, New Jersey has not tested its lakes for many other potential impairments.

For example, one cause of increased lake pollution is land use practices. On June 25, 1997, the New Jersey State Planning Commission published "The New Jersey State Development and Redevelopment Plan: Reexamination Report and Preliminary Plan." This report stated: "The State's lake and coastal communities, once used only seasonally, are being converted to year-round communities and are often exceeding the capacity of natural systems to provide water and process waste as a result. Land use (the way land is developed and managed) is the most potent tool in addressing that situation."

New Jersey has concentrated many of its monitoring and assessment resources on coastal waters. The State has a growing shellfish industry and vast coastal recreation, which are important economic factors. Although the State's shell fishing and beach monitoring

activities improved, other water bodies, including lakes and ponds, have suffered. There is a lack of indicators and databases to adequately assess the lakes' status or perform trend analyses.

New Jersey's move towards a watershed approach may further aggravate this situation. While a watershed approach is desired, Region 2 officials indicated that people generally think of rivers and streams when confronted with the word "watershed." We found this to be the case in New Jersey which had increased the number of river and stream stations, but mostly ignored lakes.

NJDEP officials stated that lakes would not be overlooked under the New Jersey watershed program. However, since the program was still under development, they could not provide a list or map of lakes to be tested under the program. They did state that NJDEP would test and assess lakes "as needed" as part of the overall watershed approach. NJDEP hopes that the watershed program will help determine the pollution source. NJDEP believed that more focused monitoring would be more cost effective than monitoring all public lakes.

The 1997-1998 PPA did not encourage lake assessments. The PPA set goals and milestones relating to lakes, but did not commit to monitor and report progress. For example, lakes were included in two subgoals under Water Quality: "2.1 Maintain and improve the current number and quality of suitable lake, ocean and bay bathing beaches in NJ" and "2.2 Maintain and improve the aesthetic value of lakes and streams in NJ." Under these subgoals the only indicator to be used is "Status of Recreational Use Impairment of Publicly Funded Clean Lakes Projects and Extent of Assessment" for which the State has limited data available. Furthermore, within the 19 pages of the Activity Commitment Table for Surface and Groundwater, there was only one NJDEP lake related

commitment which was to “Continue to manage Clean Lakes grant projects.”

Other Regions have invested time and worked closely with states to assess their public lakes. An example is Region V and the State of Ohio. Ohio developed a Lake Condition Index (LCI) using 13 parameters judged to be necessary and sufficient to provide information about potential chemical, biological, physical and aesthetic lake problems. The LCI was used to determine if public lakes attained designated uses and met the CWA’s fishable and swimmable goals.

Decreased Funding

The reduction and earmarking of Federal funds have hindered EPA’s long-term lakes plan. In 1976, Section 314 of CWA established the Clean Lakes Program. At first, each Region distributed funds to the states who in turn distributed funds to local governments. Initially, the program consisted of two phases:

Phase 1: 70 percent Federal participation for a feasibility study

Phase 2: 50 percent Federal participation for implementation

In 1987, the program added demonstration grants and water monitoring. However in 1995, Congress rescinded budgeted money and funds have been appropriated as designated line items. For example, in fiscal 1998 funds were designated for two New Jersey projects: Hopatcong (\$400,000) and the Weequahic Lake Association, a nonprofit group (\$3 million). Region 2's Lake Coordinator stated that while these are worthwhile projects, the earmarking of funds hinders EPA’s ability to follow through on a long-range plan.

NJDEP also noted that lake testing ceased with the funding cut in 1995. However, NJDEP officials stated they hoped to address some lake restoration activities with a recently passed bond act. According to a July

31, 1998 letter from NJDEP's Director, Division of Science and Research, \$5 million was expected to be appropriated by the New Jersey Legislature. From these funds they were expecting to begin 11 Phase 1 Diagnostic Feasibility projects. She further noted that the State had historically spent over \$14 million on lake restoration activities, including almost \$2 million for Phase 1 Diagnostic Feasibility studies. NJDEP believes that spending scarce resources on Phase 1 projects is more likely to lead to meaningful water quality improvements.

Limited EPA Guidance

EPA guidance for monitoring inland lakes and ponds has historically been less intensive than for rivers and streams. For example, the Office of Water has issued biological criteria for rivers and streams, but not for lakes. The Office of Water finally issued a technical guidance document on lakes in August 1998. This was disseminated to the Regions on November 20, 1998.

NJDEP also stated that the absence of guidance affected its operations. It was unable to conduct a Statewide lake survey until an EPA protocol on lakes and coastal waters was issued. This was also affecting its ability to develop a "train-the-trainer" program.

Although 40 CFR part 130.4 places the ultimate responsibility on the State, timely EPA guidance assists states in assessing and protecting our nation's waters.

Data From Other Sources

NJDEP needs to actively solicit, assemble and evaluate all existing and readily available lake water quality related data. This is in harmony with the efforts of New Jersey's water monitoring task force, which held its first meeting on November 16, 1995, to enhance sharing and accessibility of water quality data throughout the State. Potential data and information sources include Federal, state and local agencies, members of the public and academic institutions.

For example, the New Jersey Department of Health

(NJDOH) requires that coastal, river and lake bathing beaches be tested weekly and assessed by a State approved laboratory for fecal coliform. NJDEP only recently requested that lake sample assessments be sent to them. NJDEP could also determine whether it should request that additional laboratory tests (i.e., dissolved oxygen, e coli, etc.) be performed. In this way, NJDEP may be able to expand its monitoring, assessment, and reporting of lakes and coastal waters with minimal additional financial burden. NJDEP used the coastal beach results only as an indicator of problem areas, and had not received lake beach testing results.

In response to a position paper, NJDEP stated that it had cooperative agreements with local health departments administered through the “County Environmental Health Act.” Through this process, NJDEP had received bacteriological monitoring results for ocean and bay bathing beaches for a number of years. NJDEP had recently modified these agreements to start receiving similar data for freshwater lake bathing beaches. Available data will be summarized in the 1998 305(b) report. Further, they did not believe they would be able to require additional information be collected from these lakes without providing additional financial support.

The State is in the early stages of a volunteer program. NJDEP developed a “train-the-trainer” workshop in cooperation with (Rutgers) Cook College Continuing Professional Education Program. The workshop was designed to provide information and training to help attendees create a sustainable volunteer biological monitoring program in their local communities. However, the current workshops focus on volunteer monitoring of rivers and streams. New Jersey plans to develop similar programs for lakes, when EPA finalizes its guidance for monitoring inland lakes and ponds.

The Region indicated several pieces of lake guidance

that had been published by EPA. These included Monitoring Lake and Reservoir Restoration (1990), which is currently being updated by EPA Headquarters, and the Lake Reservoir Bioassessment and Biocriteria Technical Guidance Manual (1998). A nutrient criteria document for lakes is also in preparation.

NJDEP could make preliminary plans based on available guidance. For example, Chapter 2 of EPA's "Volunteer Lake Monitoring: A Methods Manual" discusses lake conditions that make good candidates for citizen monitoring. Potential areas include: (1) increased algal growth; (2) increased rooted aquatic plant growth; (3) lower dissolved oxygen concentrations in all or parts of the lake; (4) sedimentation on the lake bottom; (5) sediment turbidity; (6) lake acidification; and (7) bacterial pollution of bathing beaches.

However, NJDEP officials were not optimistic that a volunteer program would provide much assistance to the State's data gathering efforts. They noted that the most organized effort to support volunteer monitoring had been done by the New Jersey Coalition of Lake Associations. Recent conversations with this group had indicated minimal participation. NJDEP felt that any effort to increase this initiative would require resource allocations that could be better spent on other aspects of the lake program.

CONCLUSION

New Jersey lakes experience threats from many sources. Land use practices, non-point source pollution, and other factors can have profound environmental and health effects of lakes. NJDEP has not focused sufficient attention on the water quality of the State's lakes. In addition, EPA has not provided the funding or guidance to enable the State to carry out its mandate. Without adequate assessment, monitoring and reporting, progress and effectiveness cannot be properly measured, and accountability is not possible. Further, there is no assurance that lake water quality issues will

be adequately addressed.

RECOMMENDATIONS

We recommend that the Regional Administrator:

4-1. Encourage NJDEP to actively solicit, assemble and evaluate all existing and readily available lake water quality related data and information. For example, NJDEP should coordinate with NJDOH to receive their weekly lake tests.

4-2. Revise the next PPA to assure that NJDEP is required to monitor and report lake bathing beach conditions.

4-3. Encourage NJDEP to develop and implement a plan to assess and report the status and trends of all publicly owned lakes.

4-4. Suggest NJDEP obtain and evaluate ideas from Ohio's LCI for use in analyzing State public lake conditions.

REGIONAL COMMENTS

Region 2 agreed that the condition of New Jersey's lakes had not been completely evaluated. As a result, in the FY 1999-2000 PPA, the Region requested that NJDEP describe plans for assessing aquatic life uses in lakes and reservoirs. Also the Region conducted a field investigation which resulted in a modification to the national lake bioassessment methods for use in New Jersey.

The Region also discussed the decreased funding issue. To compensate for the loss of Section 314 funds, EPA has recommended to states that Section 314 projects be funded with CWA Section 319 nonpoint source monies. This does not require the modification of the state nonpoint source management plan to include in-lake work. New Jersey has chosen not to include these activities because of the limited amount of Section 319 funds available.

Finally, the Region suggested that NJDEP could work with the North American Lakes Management Society to develop a lake monitoring program.

NJDEP's COMMENTS

NJDEP described some of the actions it has taken to address our recommendations. For example, it has requested bacteria data and beach closing information from lake beach managers for 1998 to begin the reporting and assessment process. NJDEP is also visually inspecting each lake for probable sources of bacteria. A preliminary assessment for 1998 and 1999 of the extent of the monitoring performed, the closings, and readily observable sources will be available in the first quarter of 2000.

NJDEP stated that given that all Federal support for lake water quality assessment by the states under Section 314 was discontinued; if EPA wishes NJDEP to reinitiate such assessments, it will have to provide the funding.

Finally, NJDEP has already contacted Ohio EPA concerning its monitoring programs. Those inquiries have been expanded to include the LCI protocol. NJDEP will review the LCI protocol and determine if it is applicable to New Jersey's lake program.

OIG COMMENTS

The need to evaluate and improve the water quality of the State's lakes has been acknowledged at both the Federal and State level. We are encouraged that the Region and NJDEP have taken actions to begin to address this environmental issue.

Based on the responses to the draft report, there appears to be a need for the Region and NJDEP to discuss possible funding sources to support lake water quality assessments. We believe the parties need to work cooperatively to seek ways to fund these activities.

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CHAPTER 5

REGION'S OVERSIGHT IMPROVED OVERALL PROGRAM

Positive Actions Taken

Overall, Region 2 improved its oversight of the New Jersey water quality monitoring program. Regional water personnel regularly communicate with State officials through scheduled monthly and/or quarterly meetings or conference calls. These meetings/conference calls are used to discuss or resolve problems and follow up on previous issues and discussions. Region 2 representatives also attend NJDEP stakeholders meetings to answer questions, or clarify environmental issues that might arise. In addition, the Region 2 conducts annual oversight reviews of the water programs to determine if the State is meeting its core measures' commitments and the year end status of these commitments.

The Region is also doing a better job of reviewing the 305(b) report and 303(d) list to assure the accuracy and completeness of the reported information. For example, the increased reviews resulted in improvements in the 1998 303(d) list, by including the number of impaired waters. The Region has also been working with the State to achieve more timely issuance of 305(b) reports and 303(d) lists. In addition, the Region has been able to obtain from NJDEP a 10-year plan for developing TMDLs.

While Region 2's oversight of New Jersey's water quality program has had many positives, there were some areas where improved communication could strengthen the program's operation. These are discussed in the following subsections.

Ambient Quality Assurance

The Region was unaware that NJDEP had not

Project Plan

submitted its Quality Assurance/Quality Control (QA/QC) workplan. NJDEP was required, as part of the FY 1998 Departmental Quality Management Plan, to develop a QA project plan as a work output. While it had prepared one for July 1997 to June 1998 (the prior period), one had not been prepared for the current period (July 1998 to June 1999). The plan is for the assessment of the ambient stream water quality network within the State.

On September 16, 1997, NJDEP met with the Region's Monitoring and Assessment Branch to discuss the revised ambient network. However, the EPA personnel were unaware that the QA/QC workplan had not been finalized.

In August 1998, NJDEP's Bureau of Freshwater and Biological Monitoring provided us with a draft QA/QC workplan. The responsible NJDEP official stated that the workplan had not been completed because of other priorities. The workplan was finally approved on September 23, 1998.

Written Responses to Comments Not Required

The Region did not always require that New Jersey provide written responses to its comments on water quality standards. State officials preferred to address standards issues at stakeholders meetings and generally viewed Regional comments as guidance. Hence, there was no assurance that New Jersey would address EPA concerns in standards revisions.

For example, in a February 3, 1998 letter commenting on the Region's review of NJDEP's Phase 1 standards revision, the DEPP Director stated that revisions were needed for the definitions for mixing zones, TMDLs, and waters of the State. NJDEP did not respond to these recommendations.

A Division of Watershed Management official stated that NJDEP viewed this letter as simply technical

support/guidance which did not require any formal response. He further stated that the EPA Standards Coordinator was part of the stakeholder process and if the Region considered these proposed revisions important, the Regional representative would bring them up at the stakeholder meetings. However, these issues did not come up at the meetings.

The EPA Standards Coordinator agreed that New Jersey was not required to provide a written response unless the Region specifically requested one. He also stated that the Region would take its recommendations into account during the Phase 2 revisions. According to the State Performance Partnership Agreement, the target date for Phase 2 revisions is December 1999.

We question the advisability of not obtaining a formal State response since there is no record of the State's position on the EPA recommendations and no assurance that the parties will remember to address these issues during Phase 2.

CONCLUSION

The Region had been improving its oversight of NJDEP's water quality monitoring program. Further improvements could be attained through increased communication with the State agency.

RECOMMENDATIONS

We recommend to the Regional Administrator that the Region:

5-1. Periodically review the State Departmental Quality Management Plan workplan during its development to verify that outputs are met and all workplan documents have been received. Upon completion of the workplan approval process, a written justification should be provided for any disapprovals.

5-2. Document all meetings and conversations with NJDEP, especially when they pertain to standards, policies, recommendations, and changes.

5-3. Require NJDEP to provide written responses to Regional comments on proposed water quality standards.

REGIONAL COMMENTS

The Region stated that it was not required to be aware of the status of the QA/QC workplan because that was an output of the Departmental Quality Management Plan and all work outputs were NJDEP responsibilities, not EPA. The Region performed random informal status checks throughout the year and a complete end-of-year review was performed by the EPA Quality Assurance Officer.

The Region emphasized the fact that the recommendations in its February 3, 1998 letter to NJDEP were important whether they were raised for discussion at a stakeholders meeting or not. As further stated in that letter, while NJDEP elected to separate its review/revision of the NJSWQS into two phases, EPA intended to take a single action on all applicable revisions that result from the two phases of the State's process. Therefore, EPA will conduct a final review of the collective Phase 1 and 2 revisions following completion of the entire State review/revision process.

NJDEP's COMMENTS

NJDEP also stated that it worked closely with Region 2 during the development of rule proposals. Pre-proposal drafts were shared with EPA and feedback was provided. However, NJDEP is proceeding to develop proposals for NJSWQS revision through a very open, proactive, public participation process. As part of that process issues raised by EPA are presented and discussed with stakeholders.

Once a rule is adopted, comments from EPA would receive a formal response from NJDEP. Requiring a formal response to informal comments developed by EPA as part of a cooperative effort between NJDEP and EPA to update the NJSWQS would work against the public participation process that EPA encourages.

OIG COMMENTS

The QA/QC workplan was one of the quality assurance work outputs for the State's surface water ambient monitoring program. When we had contacted NJDEP in August 1998 the document was still in draft. It was finally issued in September 1998. While the Region may not have direct responsibility for work outputs, it should be cognizant of them when it conducts its informal status checks to assure that the outputs are being addressed.

We are also of the opinion that the Region should get written responses to its comments/recommendations on the State's proposed water standards. There is no assurance that staff members who are intimately involved in the process will be around at the end of the process. Without a written response there is no historical record of the State's position or assurance that all concerns will be addressed.

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APPENDIX 1

BACKGROUND

The Clean Water Act (CWA) is the primary legislation addressing water quality programs. The Act's objective is to restore and maintain the quality of the nation's surface waters. CWA requires states to adopt water quality standards. These standards are an important basis for state actions to control and remedy water pollution. Water quality standards have three parts: water use classifications, water quality criteria, and an antidegradation policy.

States classify the state waters according to how the water can be used, such as for drinking water supply, fishing, and swimming. The waters can have multiple use classifications. The CWA's goal is that all waters of the United States will be "fishable, swimmable" where attainable. The "fishable" goal provides for the protection and propagation of fish, shellfish, and wildlife. The "swimmable" goal provides for recreation in and on the water. States are required to adopt "fishable, swimmable" use classifications for all their waters, unless they can show that the water could not sustain these uses. States can adopt additional use classifications, such as boating, drinking water supply, and agricultural or industrial use.

Once the water use classification is set, the Act requires the state to develop water quality criteria for that use. Water quality criteria identify conditions that sustain the water use, such as the amount of a specific pollutant that may be present in the water, or the biological or physical condition of the water. For example, the water quality criteria for a "swimmable" use could identify how much fecal coliform can be present in the water and allow safe swimming.

EPA develops and publishes criteria that set numerical limits for pollutants based on the effect the pollutants have on the water use classifications. CWA required EPA to develop criteria for and designate 126 chemicals as "priority" toxic pollutants; i.e., the most persistent, prevalent, and toxic of chemicals. EPA has developed criteria for 99 "priority" toxic pollutants and 30 other pollutants. The states may use EPA's criteria or develop their own scientifically defensible criteria.

Title 40, Code of Federal Regulations (CFR) part 131.12 requires states to have an antidegradation policy to conserve, maintain, and protect existing uses of water bodies and maintain water quality. The antidegradation policy also should protect waters of

exceptionally high quality or value.

States are required to review their water quality standards once every three years and obtain EPA approval for the standards. EPA is required to promulgate water quality standards for the state if EPA disapproves a state's water quality standards. The state's water quality standards remain in effect unless EPA promulgates standards for the state.

CFR part 130.4, *Water quality monitoring*, requires the states to develop a monitoring program to assess whether the state's waters meet the water quality standards. The state water quality monitoring program generates important information necessary to guide management decisions and track environmental progress. The monitoring program identifies the waters to be tested, the frequency of testing, the types of testing, and the entity to conduct the testing. The state monitoring program must meet EPA's general quality assurance requirements.

CWA requires each state to submit to EPA a biennial water quality assessment report (305(b) report) summarizing its water quality assessments. EPA summarizes the state reports in a national report to Congress. EPA uses the state water quality assessments to measure performance in achieving its goal of clean and safe water.

If a water body does not meet its water quality standards, the state classifies the water body as impaired and determines the cause of impairment. Water pollution comes from either point or nonpoint sources. Point source discharges are controlled through the use of permits. Examples of point source dischargers are municipal sewage treatment plants and industrial facilities. These types of facilities discharge through identifiable conveyances, such as pipes or sewers into surface waters. Nonpoint sources of pollution are less readily identifiable, such as from agricultural runoff.

Once the state identifies its impaired water bodies, the state is required to develop total maximum daily loads (TMDLs) if existing controls are not sufficient to correct the impairment. TMDLs specify the amount of pollution allowed to enter a water body from both point and nonpoint sources. CWA requires all states to submit to EPA a biennial list of its impaired water bodies (303(d) list) that will require TMDLs. EPA reviews and approves the impaired water body list and all state TMDLs.

The Region 2, Division of Environmental Planning & Protection (DEPP), Water Programs Branch develops and implements selected CWA water programs. The Branch's Water Quality Team coordinates and implements Region 2's water quality management programs. DEPP's Community & Ecosystem Branch develops and coordinates the implementation of plans to address identified environmental problems. It also assists states develop and implement water criteria and reviews state developed TMDLs. In

addition, the Division of Environmental Science and Assessment, Monitoring Operations Section is responsible for the implementation and oversight of state activities for the basic water quality monitoring program.

The New Jersey Department of Environmental Protection's (NJDEP) Division of Watershed Management is responsible for the State's water quality standards. NJDEP's Division of Science and Technology, Water Monitoring Management, provides monitoring support by collecting, analyzing, assembling and distributing data and information.

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