

**Survey of U.S. and Great Lakes States
Toxic Reduction Programs, Laws
and Database Inventory**

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Executive Summary

I. Introduction:

Scientists, state and federal officials, members of the International Joint Commission (IJC), and residents in the Great Lakes region have long been concerned about toxic substances in the Great Lakes. Programs at local, state, regional, federal and international levels exist with stated goals of reducing toxics loading into the Great Lakes. According to state water quality reports issued in 1992, toxic contamination is the most prevalent and persistent water pollution problem in the Great Lakes. The eight Great Lakes states have issued advisories to restrict consumption of fish caught along their shorelines, due to unsafe levels of mercury, PCBs, pesticides and dioxin. Virtually all of the waters along the Great Lakes shoreline fail to fully support overall designated uses.

Despite this concern and the subsequent creation of numerous programs, a comprehensive toxic substances control strategy has not yet emerged, and little is known about the success of toxic reduction efforts. Insufficient or unavailable data about programmatic success hampers the ability to effectively plan for the future.

In 1993, the IJC Science Advisory Board (SAB) attempted to inventory the type of toxics reduction programs and the kind of data being collected in these programs throughout the Great Lakes region. The SAB sent a letter requesting information from all jurisdictions (the eight Great Lakes states, the U.S. Environmental Protection Agency (EPA) and Environment Canada, but few jurisdictions responded to the SAB. This led the SAB to the conclusion that a more determined effort was needed to survey jurisdictions.

This report reflects the systematic effort of the researchers to inventory the number of programs, the kind of data, future toxic reduction strategies and the perceptions of agency officials within the eight Great Lakes states, regional offices of the EPA and EPA Headquarters. This report does not attempt to be a comprehensive cataloging of all of the databases and programs. Rather, it represents a beginning attempt to identify the majority of important programs and data collection efforts that are currently underway.

II. Methodology

In order to gather information about the kind of data collected, the sufficiency of existing data in establishing a toxics reduction strategy, and the ability to access the data within and across jurisdictions, as well as perceptions about programmatic success and interjurisdictional cooperation, phone interviews were conducted with state, regional and national officials involved in various toxics reduction programs. State officials in all eight Great Lakes states were contacted by phone and in writing. One additional on-site interview was conducted in Ohio.

To facilitate the data collection process, a cover letter describing the project, a letter of support from the IJC, and list of interview questions was sent to state program directors and EPA regional staff prior to the telephone contact. The survey instrument appears as Appendix A to this report. Follow-up interviews were used to supplement information provided during the first call, and individuals working in site-specific or program specific areas were also called.

The initial effort was expanded to include officials in different media programs (air, sediments, groundwater) and officials in other organizations, including special task forces and oversight boards. In all, 84 people were contacted in preparing this report. Many of the people who provided information are listed at the end of this report. In addition, Section 305(b) reports and other documents were used to supplement information gathered during the survey. A reference section appears at the end of the report.

The focus of the research was to identify and briefly describe major programs and databases. Thus, the report represents more of a cataloging effort than an in-depth discussion of specific programs. When available, comments about the usefulness of various databases or individual programs were included, but most of the research effort is descriptive, rather than analytical.

While attempts were made to be comprehensive, it is likely that all programs have not been identified. The researchers did not find any single repository of this information. Instead, programs are often housed in different departments, divisions or other organizational entities. Also, it is possible that the individuals contacted within each major department may not have been aware of other programs, even those in the department.

The scope of the project did not allow for a similar investigation of other federal agencies, most notably the United State Geological Survey (USGS), the United States Corps of Engineers, or the United States Fish and Wildlife Service. A cursory review of the USGS databases is contained in the body of this report. However, these agencies do have programs that address water quality directly or indirectly, and should be contacted in future reports. Also, no comprehensive attempt was made to

identify efforts by various local or regional groups, such as municipal or county governments or those associated with the 43 Areas of Concern.

III. Findings:

Major findings from the research are identified in the sections below.

A. Large number of programs

The process of describing programs and activities at the state, regional and federal level revealed an almost dizzying array of activity. More data is being collected, more programs are underway and more people seem to be involved in water quality issues than in previous years. Most officials contacted believed that the programmatic activities were adequate, and saw no need for new initiatives.

An encouraging sign is the increasing inclusion of water quality issues in programs outside traditional water offices. The recently released U.S. Environmental Protection Agency (EPA) report to Congress on the deposition of air pollutants to the great waters of the United States is a formal recognition of the need to integrate efforts across programs in order to more effectively address toxic substances and other pollutants entering the Great Lakes system.

Similarly, state officials are concerned about the state of the Great Lakes and identified a number of programmatic actions at the state level that address water quality. Most officials believe that their states are doing more to address water quality issues now than in previous years, and point to water quality improvements.

Perhaps most encouraging is the recognition of state and federal officials of the need to work more cooperatively to achieve water quality goals and to share data. One notable national effort is the Intergovernmental Task Force on Monitoring Water Quality, an intergovernmental, interagency group established to address problems associated with water quality data collection, storage and reporting. This national group is described in the body of this report.

Other cooperative efforts that were discovered tend to be local or regional in nature. The Lake Michigan LaMP is an example of a diverse group working cooperatively to address toxic substances loading in Lake Michigan.

However, the research reveals that despite the array of programs and data collection activities by federal and state agencies, problems exist. A few of the problems are described below, but the main message delivered by officials in all levels of government is this: the ability to make comprehensive assessments of ambient water quality, and identify the relative contribution made by various sources does not exist. At best, with considerable effort on the part of the analyst, data can suggest relative contributions and the status of water quality.

This presents a challenge for both policy makers and agency officials. Policy makers may be concerned that large investments of fiscal and human resources are made by state and federal agencies in the acquisition of water quality information, yet the contribution of the investment in ascertaining national or even regional trends in water quality is not as great as it could be. This concern may hamper the ability of state and federal agencies to implement programs, because causal connections are not related to "hard" data and "sound" science.

Agency staff, concerned citizens and partners to the Great Lakes Water Quality Agreement, however, may be concerned that progress in restoring the Great Lakes system will occur more slowly because of limits in using data that is collected and because policy makers may be reluctant to move forward with programs absent more information.

B. Little cross-media comparison of data

State program staff acknowledge that little cross-media comparison is done relating to sources of toxic loadings. EPA staff agree that much more could be done to use the data more effectively between programs, both at the state and federal level.

The recognition of the need to utilize data collected under air, water, hazardous waste and other programs is not a new one. The need for data integration is a key concern identified by staff in EPA regional and headquarters offices, in the Lake Michigan LaMP forum, by staff at the Great Lakes Commission, and by several state officials. It is increasingly important as decision-makers attempt to determine the relative importance of toxic substances loadings from multiple sources.

The central issue, as revealed by our interviews, is the difficulty of using data to make a holistic assessment of water quality. At the present time, it is extremely difficult to crosswalk between datasets and come up with conclusions about water quality. As suggested by one EPA official, attempts to integrate information from data sources in order to determine water quality for the Great Lakes would be an "exercise in futility."

For example, conclusions about the overall relative atmospheric loadings for the Great Lakes under the Great Waters program are not possible given the type of data available. Current data are limited to chemical-specific and site-specific investigations. Neither is it possible to identify with certainty the major sources of atmospheric deposition of toxics, because of the large distances of transference involved and incomplete data of point source dischargers. Data relative to airborne toxics is primarily limited to localized case studies, and the same is true for other databases.

Contacts with EPA staff revealed a number of programs that are directed toward improving the data collection, both to increase uniformity among jurisdictions and to increase the kind of data collected. An example of this effort is the 305(b) consistency workgroup established by EPA in 1992 to increase reporting uniformity of states submitting water quality information in complying with the Clean Water Act. Additionally, the Great Lakes National Program Office (GLNPO) has looked at data collected in different programs as part of the Great Lakes Toxic Reduction Effort.

One report, however, identified a decline in efforts to conduct ecosystem research:

"There has been a significant decline in basic ecological research specific to the Great Lakes over the past several years. At the same time, whole lake monitoring is largely absent. Cost-effective, reliable management of the physical, chemical and biological integrity of the Great Lakes requires a common understanding and broad agreement as to the importance of an "ecosystem approach." ...Future research and monitoring programs will need to incorporate greater emphasis on critically important inter-relationships among physical, chemical and biological components." (Rogers and Heidtke, 1993:14)

C. Limited information on non-point source toxic pollution

Despite the recognition in the 1987 protocol of the Great Lakes Water Quality Agreement of the need for more emphasis on toxics contributions from nonpoint sources, sediments and groundwater, comprehensive data is not available.

For example, data sets collected by statutory authority under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Clean Air Act, the Clean Water Act and the Resource Conservation and Recovery Act contain compliance information and may be limited to certain types of substances. Little homogeneity exists between data sets. Moreover, little comparison between programs currently is done at the federal or state level.

Most importantly, data collection efforts have been geared principally toward point source or industrial compliance rather than non-point sources. Data collection functions as an administrative tracking system, rather than a system designed to understand the results of toxic discharges. Databases such as the Permit Compliance System (PCS) do track effluent concentrations, but the effluents tracked are based on permit requirements. Thus, critical pollutants may not be included in the PCS information.

In some cases, state and federal agencies are just beginning to assess the contributions of non-point sources to toxics loadings. For example, determining

ground water quality at the wellhead is a recent state activity that is just beginning. Some states do not have wellhead protection programs in place, despite Congressional mandate, much less have data from which to make determinations about non-point source contributions to the ground water.

D. Variations in programs and data collection among states and federal agencies

States differ in the number of programs, the kind of data collected, and the use of databases. Our research found that states exhibit different levels of interest in and attention to both programmatic requirements and data collection. For example, not all Great Lake states have established a wellhead protection program. When we queried state officials about the reasons for the lack of programmatic activity, some officials identified the lack of adequate resources to implement the program; others did not view the program as a high priority. Still other officials pointed to the lack of administrative support for programmatic efforts. For various reasons, then, states are not equally involved in implementing programs.

Nor do all states collect data with the same diligence or to the same extent. For example, all Great Lake states submit data required under section 305(b) of the Clean Water Act. However, states have different data collection techniques and employ different systems to manage various databases. This is apparent when one reviews the 305(b) reports for the Great Lakes states, which vary greatly in detail and timeliness. New York, for example, is the only state that has submitted a 1994 305(b) report as of September 1, 1994. Moreover, states vary in data collection efforts, in sampling parameters, and in choice of reporting methods and focus.

Field data and monitoring data submitted by industries under permit requirements are collected for different reasons. A number of chemicals in the Great Lakes are not included in the data collection effort, due to a focus on a few pollutants of concern (PCBs, for example).

Variations in state involvement, data gathering and implementation efforts suggest the need for greater coordination and communication among state, federal and other partners in the Great Lakes system.

E. Difficulty in using or accessing data

Several states and EPA officials commented on the difficulty of accessing data. To date, there is no single clearinghouse for accessing all data related to the Great Lakes system. Indeed, simply discovering the various datasets housed in the EPA presents a challenge. The EPA has recognized the need to facilitate access and is working on a menu-driven, front-end PC system called "Gateway" that would allow

individuals to access many of the major EPA datasets. In some instances, data is not available except in a report format.

The Great Lakes Information Network (GLIN) has the potential to increase the accessibility of data about the Great Lakes via the Internet system. Since its inception in 1993, GLIN has been increasingly used by academicians, researchers, EPA and state officials. Several persons interviewed identified GLIN as a potentially powerful source of information and way to connect with other researchers.

However, the success of GLIN is dependent upon the ability of persons to access it. Only a few officials contacted commented that they used GLIN on a regular basis. GLIN's success as a networking tool will also depend upon the quality of information that is available, and the effort of all persons collecting and reporting data to make that material accessible through GLIN. Thus, the posting of information on GLIN by all agencies will contribute to the usefulness of GLIN as a tool.

As troubling as the issue of access, however, is the ability of people other than the database managers to use the databases. STORET, a water quality database, requires training in order to manipulate the reporting fields. Few people inside the EPA work with the raw data; most data retrievals are done by contractors. Similar problems exist with other databases. In short, many of the datasets that exist are idiosyncratic and require either the help of a database manager or the dedication of substantial amounts of time to learn how to retrieve information.

F. Problems in assessing trends

Despite voluminous amounts of data, very little historical information is available on basin-wide ecosystem conditions in the Great Lakes. Although extensive investigations of localized problems and conditions in select parts of the Great Lakes system have occurred, efforts to incorporate such information within an integrative framework are relatively rare. Our research suggests that officials and academics judge data as often fragmented, incomplete and lacking a temporal or spatial perspective within the context of a basin-wide evaluation.

Many of the data collection efforts have changed substantially over the years, both in terms of type of data collected and in the way data is collected. For example, the Section 305(b) reports submitted by states reveals different data collection methodologies over time. The early 305(b) reports (circa 1974) attempted to characterize water quality in just a few waterways. Few monitoring data were available even for these selected waters, and water quality criteria existed for only handful of pollutants.

Attempts to monitor more recent trends, using the last few 305(b) reports also proves difficult, according to persons at the EPA and state agencies. Some officials

attribute the difficulty in trend analysis to an increasing number of waters assessed, changing standards for measuring attainment, and a recent focus on understanding bioaccumulative effects, resuspension of toxics and alternative sources of toxics loadings.

Some national databases, such as the Toxic Chemicals Release Inventory, change every year as new chemicals are added to the reporting list and new facilities are required to report their emissions. While the additional information is useful in understanding the sources of toxic releases to the environment, constantly changing datasets make it difficult to establish a historical baseline.

The major water quality database utility, the STORage and RETreival system (STORET), can be a powerful analytical tool for selected areas where sampling stations and collection techniques have remained constant over time. However, the data in STORET are only as useful as the monitoring plans that were used to collect these data. The reliability of the data is dependent on the level of care employed by the agencies in the process of sampling, laboratory analysis and data entry. Thus, wide variations may exist relative to the comparability, quality and quantity of water data.

One EPA official commented, "how do we ever get to an understanding of **if and how** conditions are improving if the baselines keep changing?"

G. Difficulty in using existing data for mass balance or ecosystem analysis

In addition to problems with the data noted above, many officials commented that data collection activities generally are not amenable for use in mass balance or ecosystem studies (Harris, 1994; Rodgers and Heidtke, 1993). First, data are collected for different purposes: data collected are most often collected by state staff to meet reporting requirements under various environmental laws. Second, data is often collected in areas of concern, or "hot spots", rather than to establish lakewide characteristics. Also noted was the paucity of direct observations of water column data for many of over 300 chemicals known to be in the Great Lakes system.

Also noted was the difficulty in accessing databases in a timely fashion. Data bases are often inaccessible to the general Great Lakes research community for prolonged periods due to proprietary rights and/or difficulties in finding or accessing specific data files.

Finally, several persons commented on what they perceive to be insufficient research attention and data collection efforts on understanding ecological processes related to toxic substance exposures (ie., understanding the ecological significance of various toxics).

H. Lack of a Great Lakes vision

Our research led us to many dedicated people who are working toward the goal of improving water quality. However, what did not seem to be apparent was an institutions sense of the "bigger picture." Many persons viewed themselves as working in the air program, or the water program, but not necessarily working toward the restoration of the Great Lakes system. There was little sense of the way in which their activities "fit" into the larger picture. Since programs, and therefore, personnel, are segmented by media (air, water, hazardous waste), one would expect this perception. It does suggest, however, that the goals of the Great Lakes Water Quality Agreement may not be communicated widely enough across program lines.

The research has prompted a larger question regarding intergovernmental cooperation. Namely, what is the optimal organizational structure for multi-media work? How do we bridge the gap when regulatory structures are designed with single-media requirements? Undoubtedly, state and federal officials are implementing the Clean Water Act, the Clean Air Act and the hazardous waste laws to the best of their abilities. Nonetheless, the single media focus has produced results that are counter to an ecosystem approach to toxic pollutant control. Interviews with federal and state officials suggest that limited resources are less of a problem than the lack of coordination between programs and jurisdictions. Thus, the challenge becomes one of tying the appropriate pieces of diverse yet important programs, unique yet necessary databases, together.

It is interesting to note that most of the integrated work accomplished so far has been through the LaMP program, RAPs, or site-specific projects. It remains to be seen how successful a multi-media effort with the objective of defining toxic reduction for the entire Great Lakes system will be.

I. Lack of quality control in some databases

In addition to the issues described above, data may be unreliable. Databases such as STORET accept data with little internal error-checking. Data quality is dependent upon the dedication of the people collecting and entering data in the database. Error checking in STORET is limited to range checking for extreme values. Even with the best data collection efforts, however, methods vary among states and among federal agencies. Therefore, datasets may not be comparable and the researcher must contact the original investigator that produced the data to determine the extent to which the data are quality controlled.

Recognition of this issue has prompted the remodernization of STORET and of the USGS database, the National Water Information System. EPA officials believe that the new system will provide greater quality assurance, because it will have more documentation about the way data were collected. However, historical data will still have quality control problems.

IV. Recommendations:

Although the research represents only an initial attempt at understanding toxic substances reduction efforts at the federal and state levels, a few recommendations seem apparent from the findings. These recommendations, based on the research, should be considered as preliminary ones. Continued research would refine or perhaps alter this list.

A. Continue and expand efforts to increase interjurisdictional cooperation

One finding from this research is that it is difficult to use the databases that exist to describe trends in water quality, relative toxic substances contribution of point and non-point sources, groundwater quality or the contribution of toxic substances loading from air or sediments. In order to be more effective, interjurisdictional cooperation and collaboration should increase. Ideally, Congress can recognize interjurisdictional needs in statutory language that establishes and funds an interjurisdictional unit. Absent congressional support, interjurisdictional cooperation must come as a result of a shared vision by policy makers, agency staff and interested others.

The research has identified a few groups that are dedicated to the goal of interjurisdictional collaboration in data collection. The most notable national group is the Intergovernmental Task Force on Monitoring Water Quality (ITFM). It appears that the ITFM has established some important foundations for working cooperatively and for increasing the quality and consistency in agency data collection efforts. However, the task force is a temporary body with no statutory authority. Given the difficulty of using existing databases, it is important that the dialog and the structure established by the ITFM continue.

The Great Lakes National Program Office through the Great Lakes Toxics Reduction Effort is another entity that may facilitate interagency or interjurisdictional cooperation. The Toxic Reduction Effort has already crossed media lines, with staff integrating water, air and hazardous waste programs. The suggested formation of a Great Lakes Executive Council to serve as a coordinating body between the EPA and the Great Lake states may promote collaborative efforts at data collection.

Interjurisdictional cooperation should not only limited to national efforts. Interagency cooperation between programs within a state is important. Many state officials that we contacted in media specific programs were only marginally acquainted with monitoring efforts in other media programs.

Even so, the existence of bureaucratic structures will not guarantee improvements in programmatic activity or data management, collection, consistency or methodologies. In fact, additional bureaucratic units may make the goal of

cooperation more difficult by adding additional entities or clearance points. Every effort must be made to streamline the process and facilitate cooperative efforts, even at the potential expense of non-essential, but traditional activities.

This suggests that policy-makers concerned about the Great Lakes should encourage creative use of the data that exist, but also encourage collaborative, multi-jurisdictional programs that leverage scarce resources to accomplish the goal of healthier ecosystems. This encouragement from policy-makers should include incentives to build and maintain cooperative working relationships among and between jurisdictional units.

B. Expand networking and data sharing opportunities

In an ideal world, a single repository would house all datasets and provide information about and access to appropriate databases. However, the ideal situation appears to be a distant hope rather than a present reality. Given that, it is important that the people that are involved in improving water quality be connected in ways that will facility collaboration and communication. The GLIN and other efforts are potentially appealing. However, networking only works when people use the system. People will use the system when they are trained and when the system provides meaningful information. Thus, agency administrators should support efforts by staff to seek training and resources in order to effectively use GLIN and other networks.

Because the EPA is responsible for many important databases and is working on facilitating the use of data, the agency plays a crucial networking role. The EPA should continue and increase its outreach effort to state, local and other officials. Making data systems more user-friendly, improving data collection efforts and increasing collaboration are all tasks that appropriately begin with the EPA.

C. Support efforts at increasing data consistency, quality and usefulness

Improving water quality in an era of fiscal constraints at the federal and state level is a daunting task. Economic considerations are involved in decisions about the extent to which agencies can "study the problem." Fiscal austerity, coupled with increasingly complex water quality issues, make effective data collection efforts even more crucial.

However, databases currently under a variety of programs are not amenable to being user-friendly decision-making tools. Comprehensive databases in water, hazardous waste and air regulatory programs are often designed for compliance monitoring, not for strategic planning. Because data are collected principally for administrative purposes, they are of limited value for future planning. Thus, the challenge becomes one of making the data more useful and designing data collection to serve more than just a single administrative purpose.

In the short term, it may be that the task is too enormous at the national level, or even for the Great Lakes system taken as a whole. However, it seems possible that multi-purpose data collection can begin at the watershed level. State, federal and local officials can collaborate on collecting information of mutual interest, which may include cost sharing of sampling efforts and analyses, such that each agency receives more detailed information than either could afford operating alone.

Collaboration on a smaller scale also provides opportunities for agency officials to compare sampling methodologies and gain a greater understanding of the databases of the partner agency or state or federal unit. The ITFM pilot project described in the following section, as well as the Green Bay mass balance study, illustrate the benefit of multiple agency partnerships in data collection.

D. Focus and leverage efforts

Given the increasing likelihood of tight state and federal budgets, the need to work cooperatively, by coordinating programmatic efforts across and among programs is important. Two suggestions are offered: First, program directors and executives should look for ways to avoid duplicating efforts and encourage collaborative ones. Second, reporting under the various federal-state cooperative agreements should be streamlined and made more flexible when feasible, to allow officials to focus on water quality concerns. Many state officials perceive their role in addressing toxic substances to be hampered by what they feel are overly-burdensome reporting activities required by the EPA.

E. Continue research of existing databases and programs

The research represents only a beginning. Much more needs to be done in order to better understand the constraints and opportunities associated with implementing the Great Lakes goals. Suggested areas for future research include in-depth research within states by specific programs; continued research on data comparability and limitations; research into the organizational, resource and/or political factors that shape policy implementation in both federal and state agencies.

Major Federal Laws and Programs Related to Toxic Substances Reduction

This section provides a brief description of the laws and programs identified in the research that address toxic substances reduction. An attempt was made to offer the most pertinent information, rather than to describe each law or program in detail. Data collection efforts, including some analysis of the databases within each program are also described. Programs that involve the IJC are either briefly mentioned or excluded from this section.

I. The Federal Water Pollution Control Act of 1972 (Pub. L. No. 92-500) and subsequent amendments, especially the Clean Water Act of 1977 (Pub. L. No. 95-217)

A. Provisions

The cornerstone of the Clean Water Act (CWA) is Section 301, which establishes a broad prohibition against "the discharge of any pollutant by any person" except in compliance with the act's permit requirements, effluent limitations and other enumerated provisions. The National Pollutant Discharge Elimination System (NPDES) is the permitting system for point source dischargers established under Section 402.

In addition to this permitting system for point sources, the CWA also requires EPA to promulgate effluent limitations for new point sources, and to develop water quality criteria for toxic pollutant. States which have approved programs assume authority over the permitting system, and develop water quality standards for water bodies within their borders.

B. Data gathering

As required by Section 305(b) of the CWA, states submit biennial water quality assessment reports to the EPA. In turn, those reports are compiled and are the basis of the National Water Quality Inventory reports submitted to Congress. The most recent report was published in March, 1994, and reports information from the state's 1992 305(b) reports (state data is for the 1990-1991 reporting period).

Section 305(b) requires that the states assess their water quality for attainment of the "fishable and swimmable" goals of the CWA and report the results to the EPA. States measure attainment of the CWA goals by determining how well their waters support their designated beneficial uses. States assign one of five levels of use support categories to each of their waterbodies (fully supporting, threatened, partially supporting, not supporting or not attainable). If possible, states determine the level of

use support by comparing monitoring data with numeric criteria. If monitoring data are not available, states may use qualitative information.

1. Specifics on the 305(b) reporting process

The 305(b) process is an essential aspect of the nation's water pollution control effort, according to the EPA. The agency identifies this process as a principal element in managing water quality programs more effectively.

The EPA produces a biennial guidance document for state preparation of the 305(b) reports. The most recent guidance was published in May, 1993 and will serve for the 1994/1995 reporting period. In addition to providing the reporting template for states to follow, the guidance document establishes goals for each reporting cycle. The goals for the 1994/1995 cycle are to expand the use of biological integrity reporting; improve the consistency of the information states report under the 305(b) program; and, improve data quality and utility.

Interviews with EPA staff suggest that progress is being made in increasing consistency in the 305(b) reporting process. The EPA established a 305(b) consistency workgroup to improve the consistency of water quality reporting. The group, meeting first in 1990, again in 1992, and May, 1994, recommended several changes in the reporting requirements. Among the most notable revisions for the 1994 305(b) report include adding the reporting of new ground water indicators to allow states to track trends in ground water quality, and expanding the guidance for making aquatic life use support decisions with biological data.

The deadline for submitting the 1994 305(b) reports was April 1, 1994. However, according to our research, only one state (New York) had finalized its 1994 report as of July 15, 1994.

2. 1994 305(b) contents

In addition to an executive summary and narrative description of a state's water quality trends, the 305 (b) guidance requires that the following information be reported:

A. Surface water assessment

1. Surface water monitoring program

States must describe their surface water monitoring programs, including the basic information on monitoring design (number of stations, parameters, frequency of measurements, objectives of the monitoring). Any intensive surveys, including basin-specific programs should be reported. Toxics monitoring programs, as well as

biological monitoring programs and fish tissue, sediment and shellfish programs should be included as part of the surface water assessment.

States establish monitoring programs for their own assessments and to comply with the 305(b) reporting requirements. EPA's Basic Water Monitoring Program (1978) distinguishes four types of water quality monitoring: 1) ambient monitoring; 2) intensive surveys; 3) effluent monitoring and 4) biological monitoring.

2. Assessment methodology and summary data

States should provide information on the data-collection methods used, data sources (monitoring or evaluative data), and identification of organizational units that make decisions about designated uses. The decision to assign waterbodies to different use support categories should be explained. States should also explain any biases within the report. For example, many states monitor areas of concern more closely than other areas, which results in a small percentage of total waters assessed.

3. Water quality summary

States must submit summary statistics on designate use support and suspected causes of impairment for each type of waterbody (rivers, lakes, coastal waters and the Great Lakes).

4. Section 303(d) waters

Section 303(d) of the CWA requires states to identify, establish a priority ranking, and develop TMDLs for waters that do not achieve or are not expected to achieve water quality standards after the implementation of required controls. As mentioned earlier, the WBS has been updated to facilitate state reporting of 303(d) information.

5. Rivers and streams water quality assessment

This was created as a new chapter for the 1994 reports, but no additional reports are required.

States report summaries of designated use support in rivers and streams in two tables: a table combining uses into an overall assessment; and, a table listing individual designated uses.

6. Lakes water quality assessment

a. summary statistics

States report summary statistics in tables that are similar to those created for rivers and streams. Additional information is supplied on the relative assessment of non-point and point sources contributions for lakes which do not fully support designated uses.

b. the Clean Lakes Program

Section 314(a)(4) establishes a grant program for states that have significant public lakes. States report biennially to EPA regional Clean Lakes Coordinators to determine eligibility for Clean Lakes funding. States may enter into cooperative agreements to conduct "lake water quality assessments." Lake water quality assessments determine the trophic status of significant publicly owned lakes by trophic class (dystrophic, oligotrophic, mesotrophic, eutrophic, hypertrophic) and by area. States also report various lake rehabilitation techniques, including in-lake treatments and watershed treatments.

If not reported in public health, aquatic life concerns, toxic effects on lakes are reported within this section. Lake specific information may be submitted on a computer disk or as a hard-copy appendix to the 305(b) report.

7. Estuary and Coastal assessment

States should report on Great Lakes case studies, as well as information on eutrophication, habitat modification, and any changes in living resources in the Great Lakes coastline.

Data of particular interest include data collected under the National Coastal Monitoring Act of 1992, which established the basis for a comprehensive national monitoring programs for coastal ecosystems. Any activities under the Great Lake Program are reported in this section.

8. Wetlands assessment

B. Ground water assessment

Comprehensive State Ground Water Protection Programs

States are required to complete two tables for ground water under Section 305(b) reporting requirements. The first identifies major sources of ground water

contamination by using a qualitative ranking; the second identifies major ground water contaminants, as well as a list of contaminants that the state monitors.

Additionally, the state must submit the number of MCL exceedances for ground water-based or partial ground water-supplied public water systems. This includes a reporting of the number of systems that have local Wellhead Protection Programs in place.

This is an emerging area for data collection, and more needs to be done in gathering information about the quality of ground water. For example, most data reports on MCLs of treated, rather than raw water. Thus, MCL data alone do not represent the true quality of the ground water. Also, MCL exceedances are not measured for noncommunity water systems, nor are data usually available for specific wellheads or wellfields.

C. Water pollution control programs

1. Point source polluters
2. Non-point source polluters
3. Cost-benefit assessment
4. Specific state concerns or recommendations

C. Databases available under the CWA

Following is a description of database systems used in implementing the CWA. For a more complete list of federal databases that may be useful in analyzing water quality and environmental effects of pollutants in waterbodies, refer to Appendix B:

1. The Waterbody System:

To improve data consistency and usefulness, simplify preparation of the state reports under the CWA, and provide a management tool for states, EPA developed a computerized data system, the Waterbody System (WBS), to manage the waterbody-specific portion of the 305(b) information.

An updated version of the WBS was provided to states in 1993 for the 1994 reporting period. The new version (WBS version 3.1) modifies the WBS to track 303(d)/total maximum daily loads (TMDL) lists as well as 305(b) assessments.

States transmit their WBS datasets in electronic form to the EPA National and Regional WBS Coordinators. The WBS dataset differs from other databases in that the WBS does not contain raw data. The WBS contains use support assessment information resulting from an analysis of raw monitoring data from the states. Thus, while WBS is a national database system, it reports only assessment data that states provide in order to complete the tables required by the Section 305(b) guidelines.

State staff entering data on the WBS report that the data is inconsistent, and that this inconsistency exists not only among states, but also within state reporting districts. Persons who gather the data have different ways of assessing it, and therefore, may arrive at different conclusions. Although a consistency workgroup was formed in 1990, at least some state officials remain skeptical about the possibility of consistent reporting among Great Lakes states.

Not all Great Lakes states use the WBS. Wisconsin and Ohio report all state information on WBS, but Michigan uses WBS to report only its lakes data. Indiana, Minnesota and New York use their own database system.

2. The STORET System:

The STORET System is a computerized database utility maintained by the EPA for the STORage and RETreival of parametric data pertaining to the quality of the waterways within the United States. It is a national database that predates the CWA. States, as well as federal agencies, enter raw data into the STORET system by agency code. The material can be retrieved by the state or federal agency and used to determine baselines for water quality. The repository for STORET is in the EPA's National Computer Center in Research Triangle Park, North Carolina, although the data is available by remote access.

STORET's two largest component systems are the Water Quality System (WQS) (which manages the Water Quality File) and the BIOS Field Survey System. The WQS parameters are organized into categories such as organic, pesticides or metals and contains geographic data elements about sample sites, as well as data on physical characteristics and chemical constituents of the water and soil. The BIOS serves as EPA's national biological information management system. It contains data on the distribution, abundance and physical condition of aquatic organisms.

STORET is an old data system that contains a vast amount of water quality data. It was built in 1965 to be used on a mainframe computer, and has not undergone major revisions. The system has some limits. One limitation is the number of chemicals that are measured. For any given location, STORET data may not include critical pollutants. For example, only metals and PCB data were available

for the Lake Michigan Basin. There were no ambient stream data for other LaMP pollutants of concern found within the Lake Michigan STORET (Graettinger, 1994).

Additionally, it is not accurate to characterize STORET as a database that yields definitive information about water quality. The data in STORET are collected and stored by agencies for individual purposes. State and other agencies are not required under any regulatory structure to produce particular datasets (number of samples, location of samples, etc.) States determine the location of the sampling stations, and may choose to take more samples at an area of concern and less in other locations.

While useful in monitoring changes in that particular area, the data become less useful in determining changes in the whole waterbody. Many of the data collected and input into the STORET system are project specific. Persons interviewed cautioned against the use of intensive survey data in STORET for purposes other than the original survey. Intensive survey data is often collected with a purpose other than monitoring general water quality. For example, a station may be set up to monitor for bacterial pollution. The purpose, in turn, determines the location of the station (ie., relatively close to the source of the suspected problem). Similarly, stations established to monitor for dissolved oxygen are likely to take measurements more frequently during the critical low-flow summer months and at dawn (USEPA, Manager's Guide). In short, absent data collection requirements for the inputting agencies, STORET does little to guarantee that the data is measuring trends in water quality.

The reliability of STORET data depends upon the diligence of the agency which conducts the sampling, laboratory analysis and data entry. The EPA has little control over this process, with the exception of limited error range checking (highest and lowest acceptable values) for a number of frequently used parameter codes.

Using the STORET data is also complicated because of the organization of the current system. The data is hard to use outside of the original purpose for which it was collected. A data set may not include data quality objectives, error ranges around the data points, or documentation necessary for other individuals to use the data. States are not required to report the reason for the sampling. Thus, the purpose of the sampling is often omitted in the documentation, but may have implications for the database. For example, samples collected with a broad screening objective may be different from samples collected for use in an enforcement effort.

Finally, while accessing the system is relatively easy, requiring an agency code to use the data, manipulating the database is difficult. Several officials interviewed stated that understanding the database enough to use it would require training. Thus, STORET is not "user-friendly" (King, 1994; Stroebel, 1994). Most current STORET retrievals are done by contractors that are skilled in using the STORET system.

STORET is undergoing a five-year modernization project which, in part, is designed to make the system more amenable to use. A prototype of the new STORET should be ready in September, 1994, and the system is expected to be fully accessible by June, 1997 (King, 1994). A pilot of the prototype is underway in conjunction with the Lake Michigan mass balance project, and seems to be working well (Stroebe, 1994).

However, the new system demands more of the person inputting the data. In order to address the documentation problems associated with the current STORET system, more information is required at the time of data entry. This more intensive front-end requirement could reduce the amount of data being entered into the new STORET system. However, the usability of the data will increase.

Currently, no plans exist to integrate the existing data on STORET into the new system, because of the difficulty of reconciling the old data under the new data entry requirements.

Although beyond the scope of this report, the U.S. Geological Survey (USGS) is a source for additional water quality data. The USGS maintains a water quality monitoring network, which includes stations located to assess the water quality of the nation's streams, as well as relatively pristine basins. USGS data is routinely entered into STORET. The USGS flow data file, an independent file in the STORET system, is reported to be "widely used" and "helpful" in reviewing regional monitoring programs (USEPA, Manager's Guide).

3. Permits Compliance System (PCS):

The PCS database is a database for the NPDES. This system tracks administrative and effluent data for industries and municipal facilities permitted under NPDES. Thus, the PCS database system has a primary purpose of tracking the compliance of permitted point sources under the CWA. The PCS database is separate from the WBS assessment data or the STORET raw data, and is separately managed by the Water Division permitting staff.

PCS stores information regarding a facility's location, its industrial category, requirements under the NPDES, the date of issuance of the permit, and a facility's reporting requirements. Because monitoring of effluent is required of the point source, the PCS data can provide a general picture of point source loadings.

PCS data, like STORET data, is stored on the EPA mainframe computer. Each EPA regional office has a database manager, usually one for STORET and one for PCS.

For any facility, three potential reporting methods exist: a facility may report an average concentration value and average flow value; a facility may report an average quantity (a daily/monthly load value for a specific parameter); or, if no average quantity or concentration data exists, then the monthly high daily maximum concentration value is used with the average flow value.

Some limitations of PCS were identified in the research. One limitation related to the purpose of the monitoring. The facility is required to monitor and report only those pollutants identified under the NPDES permit, permits which may not include monitoring requirements for all toxic substances. For example, most facilities in the Great Lakes do not have regular monitoring requirements for the LaMP critical pollutants (Graettinger, 1994).

Periodic, supplemental permit requirements occurring during permit issuance or re-issuance may address this issue. More information may be required of point sources, such as scanning for priority pollutants. However, historic information about the contribution of that point source will not be available.

Additionally, the PCS database does not provide information about combined sewer overflows, and has little data about point source pretreatment of effluent going into sewer systems. The NPDES permit reporting requirements apply only to the publicly owned treatment work (POTW). The POTW monitors the water leaving the facility, and may not be able to determine the source of toxic substances entering the system for treatment.

Finally, the PCS system, as a compliance and enforcement tool, does not track non-point sources of toxic substances and other pollutants into any water body.

The PCS database, because of the self-reporting requirement of effluent by point sources, contains a great deal of information about the contribution of point source effluent into a waterbody. Because of limitations described above, PCS does not capture a complete picture of water quality or toxic loading in the Great Lakes.

Storm water

The 1987 amendments to the CWA, Section 402, require EPA to establish a comprehensive, two-phase approach for controlling storm water discharges. In Phase I, the CWA required EPA to develop NPDES permit application requirements for large (over 250,000 population) and medium (100,000 to 250,000 population) sized municipal storm sewer systems, as well as storm water discharges associated with industrial activity.

D. Implementation responsibility

States with programs approved by the EPA have implementation responsibility. However, the EPA retains authority to veto permits, set water quality criteria, and enforce the act. The EPA also establishes the reporting parameters for compliance under Section 305(b).

Regional offices of the EPA have oversight for the states within their region. Region 5 coordinates the CWA with Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin. Region 2 oversees New York's program; Region 3 oversees the Pennsylvania program.

Additionally, the Great Lakes National Program Office (GLNPO) was created in 1978 to oversee the U.S. obligations under the Great Lakes Water Quality Agreement. GLNPO's unique charge to restore ecological health to the Great Lakes basin was statutorily recognized in the CWA 1987 amendments. GLNPO uses a variety of authorities in fulfilling its duties, including federal environmental protection statutes such as the CWA, CERCLA and RCRA, and the Great Lakes Water Quality Agreement.

GLNPO conducts surveillance activities, including sampling of water, fish tissues, and sediment. GLNPO also monitors air deposition through the Great Lakes Atmospheric Deposition (GLAD) program. GLAD has sampled for airborne toxic pollutants since 1988.

E. Analysis

Analysis of the success of the CWA twenty years after implementation is beyond the scope of this project. However, as congressional debates about reauthorizing the CWA continue, a few observations related to toxic substances control are pertinent.

First, concern about toxic pollutants continues to be expressed. One element of President Clinton's Clean Water Initiative, which was sent to Congress for consideration as part of CWA reauthorization, includes greater authority for the EPA to act in establishing numeric criteria for water quality and effluent limits on point sources, especially for bioaccumulative pollutants.

This concern appears warranted. The National Water Quality Inventory released in 1994 demonstrates that even the interim goals of the 1972 CWA are not being met in a significant portion of U.S. waters, despite significant reductions in releases of toxic and conventional pollutants by point sources. The EPA estimates that almost 200 million pounds of toxic industrial pollutants were released into surface

waters in 1990, with another 450 million pounds released into public sewers (US EPA, 1994d).

Second, relatively little has been done to stem the tide of polluted runoff from urban and rural nonpoint sources or to achieve storm water control in urban areas. Much of the debate focuses on the relative role between state and EPA officials. State officials argue for greater flexibility and more funding, particularly in watershed and nonpoint source management.

Third, state officials are concerned that federal funds may not be available for the Revolving Loan Fund for municipal wastewater treatment projects. The uncertainty of federal appropriations has prompted some states, like Illinois, to not include matching state monies in FY 1995 budgets.

Finally, wide variations exist in reporting, data collection and monitoring activities of state governments. This complicates the ability to assess the status of U.S. waterbodies. The national 305(b) Consistency Workgroup was created to address this point.

II. The Great Lakes Water Quality Agreement

The United States and Canada signed the first Great Lakes Water Quality Agreement in 1972. The agreement identified conventional pollutant problems in the Great Lakes basin and established bilateral commitments for cleaning up the lakes. Amendments in 1978 changed the focus to toxic contaminants by identifying problems and establishing obligations for cleanup. In 1983, a supplement to the agreement targeted the amount of phosphorous entering the Great Lakes and establish reduction plans.

Major changes in the agreement occurred in 1987, with a protocol that required more emphasis on toxics from non-point, airborne, sediment and groundwater sources. Under the agreement, the United States and Canada adopted the principle of "virtual elimination" of persistent toxic substances to the Great Lakes.

The GLWQA also calls for the development of a LaMP for critical pollutants for each of the Great Lakes. The purpose of a LaMP is to reduce both loading and ambient levels of critical pollutants in order to restore beneficial uses of the Lake waters.

III. The Great Lakes Critical Programs Act of 1990 Public Law 101-596

A. Provisions

The Great Lakes Critical Programs Act is, in part, a codification of the Great Lakes Water Quality Initiative (GLI) that began in 1989. In that year, the Council of Great Lakes Governors unanimously agreed to participate in the GLI. The U.S. Congress, in passing the Act, incorporated a schedule for completion of GLI activities and mandated the promulgation of water quality standards.

Congress also mandated specific deadlines for implementation of the Lake Michigan LaMP, which included submitting a proposed plan to the IJC for review by January, 1993. A final LaMP for Lake Michigan was required to be published and implementation started by January 1, 1994. However, according to persons working on the LaMP, EPA approval of the final LaMP has not yet been received, and implementation will not begin until 1995.

In the Act, Congress directed the EPA to propose and publish water quality guidance for the Great Lakes. The proposed guidance establishes minimum water quality criteria and sets forth anti-degradation policies and procedures for waters within the jurisdiction of the Great Lakes states. When finalized, the guidance and the GLI will become part of a comprehensive approach to protecting the Great Lakes.

By developing a regional program with common water quality criteria, the GLI seeks to address two recognized weaknesses of existing U.S. programs (principally under the Clean Water Act). First, existing programs do not adequately take into account the adverse effects of persistent toxic chemicals. Second, the GLI addresses the consistency problem among the Great Lakes states with respect to the implementation of water quality programs, particularly related to the permitting of industrial discharges under the National Pollutant Discharge Elimination System (NPDES).

The last public meeting was held April 26, 1994. Final guidance is due March 13, 1995. States will have 2 years in which to adopt Water Quality Standards consistent with the Guidance.

The GLI, however, has been criticized for its high cost to point source and its failure to address non-point sources. All Great Lakes governors have criticized the GLI, and the EPA has subsequently redesigned the second phase of the program.

The Great Lakes Toxic Reduction Effort (GLTRE) has been created with the goal of achieving additional reductions in the generation and release of toxic pollutants into the Great Lakes system. GLTRE emphasizes non-point sources and pollution prevention, including air deposition, CSO/urban runoff, sediments, spills and waste storage sites.

The product of the GLTRE, as suggested by the project manager, will be a "menu of regulatory and voluntary recommendations and actions to focus current program activities, foster cross-media cooperation, and use and improve existing tools to achieve greater toxic pollutant reductions (McLeod, 1994)."

B. Lake Michigan LaMP

Congress further emphasized the importance of the LaMP process for Lake Michigan by establishing a specific schedule for LaMP development in Section 101 of the Act. The final LaMP was due by January 1, 1994; however, members of the Lake Michigan LaMP forum believe that final EPA approval will not be given until 1995. Implementation would begin sometime after that date.

C. Data gathering and programmatic activity

GLNPO has coordinated the Lake Michigan LaMP, the GLAD, the mass balance study, and the development of the Water Quality Guidance, the sediments inventory, and other programs. See Appendix C for a description of on-going programs.

D. Implementation responsibility

Responsibility for implementation has been delegated to GLNPO. GLNPO, in turn, has called for the creation of the Great Lakes Executive Council, which would replace the U.S. Policy Committee. The Council would serve as the central coordinating body and would oversee the implementation of the 5 year strategy (Grundler, 1994).

E. Analysis

According to conversations with GLNPO staff, their review of data collection systems by various programs led to the rather "dismal" conclusion that the data doesn't exist to tie actions to improvements. While toxic loadings into the Great Lakes system appears to have diminished over time, little data is available to conclude that certain programmatic actions or regulatory requirements have caused the reduction. The additional concern relates to the inability to assess relative contributions of toxic pollutants by various pathways (air, sediments, groundwater, etc.).

IV. Toxics Reduction Agreement of the Great Lakes Governors

A. Provisions

The eight governors of the Great Lakes states signed a 1986 Toxic Substances Control Agreement which initiated more than 30 actions to control toxic substances in the Great Lakes. The agreement was designed to ensure state cooperation toward quantifying the loadings of toxic substances originating from all sources. A further purpose was to develop environmental and economically sound toxic control programs (Great Lakes Commission, 1993).

The agreement emphasizes cooperation and coordination among all Great Lakes states to effectively regulate and control toxic substances. Significant activities include the development and implementation of RAPs, assisting EPA in the development of the lakewide management plans (LaMPs).

B. Data collection

Conversation with a representative from the Council of Great Lakes Governors revealed no systematic data collection effort for toxic pollutants into the Great Lakes. The current effort of the Council relating to data management is to encourage states to connect with each other through Internet. In this way, information could be shared between states.

C. Implementation responsibility

Responsibility for implementing the Agreement rests with individual states.

D. Analysis

The Toxic Reduction Agreement of the Great Lakes Governors is a policy statement that represents the states' mutual interest in improving the water quality of the Great Lakes. As such, any data collection efforts are likely to occur outside of the Agreement.

It's interesting to note, however, that two RAP coordinators and one EPA official believed that the Council was a repository for toxics data.

V. Safe Drinking Water Act

A. Provisions

The Safe Drinking Water Act (SDWA) has two principal purposes. First, to ensure that water from public water supplies is safe to drink. Second, to prevent the contamination of groundwater. The SDWA requires states to develop and implement Wellhead Protection Programs that will prevent the contamination of the surface and subsurface area that surround wells that supply drinking water to public water systems. The 1986 Amendments to the SDWA established the Wellhead Protection Program (WHPP). WHPP required states to designate Wellhead protection areas and identify all potential man-made sources of contaminants within the wellhead area. States with approved programs receive federal grants to assist them. States without approved programs receive no wellhead protection monies from the federal government, but otherwise cannot be compelled to comply.

The SDWA is not the only act that seeks to protect groundwater. Both RCRA and CERCLA were designed to remediate groundwater contamination, and the CWA addresses public water systems as part of the 305(b) reporting requirements.

B. Data collection

No easily accessible source of information quantifies current levels of contaminants in drinking water. No trend data is available, except for records of waterborne disease outbreaks from the Centers for Disease Control.

Public drinking water supplies are required to monitor for chemical contaminants and pathogens, generally in the form of quarterly reports. This information is available on the Federal Reporting Data System. No attempt was made

to look at this database, however, no individual contacted was able to identify any systematic attempt at evaluating the data.

C. Implementation responsibility

Responsibility for implementing the SDWA is delegated to states with approved programs. States, in turn, monitor community and non-community public water systems for compliance with the National Primary Drinking Water Standards (NPDWRs).

D. Analysis

The SDWA is up for reauthorization this year. Local governments have lobbied hard against reauthorization because they perceive the SDWA as an under-funded program that will ultimately cost local governments. Most onerous are the uniform set of standards that are imposed on all public water systems, regardless of the likelihood of the contaminant being in the water supply.

VI. The Clean Air Act Amendments of 1990

A. Provisions

1. The Great Waters Program

The most pertinent part of the Clean Air Act is section 112(m), referred to as the Great Waters Program. Under section 112(m), Congress directed the EPA, in cooperation with the National Oceanic and Atmospheric Administration (NOAA) to evaluate the atmospheric deposition of 189 hazardous air pollutants to the Great Lakes, Lake Champlain, Chesapeake Bay and coastal waters. As part of their evaluation, the EPA is to monitor atmospheric depositions, investigate sources and deposition rates, conduct research to improve monitoring capabilities and to determine relative loadings. Section 112(m) also requires that EPA establish atmospheric deposition monitoring networks in the Great Waters. The EPA was to report to Congress every two years, beginning in 1993.

EPA's first report to Congress was issued in May, 1994. In that report, the EPA focused on mercury and 14 other pollutants of concern (all of which are also included on the list of pollutants for the GLI). EPA argued that while conditions in the Great Lakes have improved compared to a few decades ago, the ecosystem is far from fully recovered. Moreover, significant portions of toxic loadings into the Great Lakes are coming from the atmosphere.

Great Lakes monitoring included five master/regional background states (one per lake), which collected wet and dry toxic deposition samples. Monitoring began in

1992. Complementary stationary stations and ship-based intensive collection efforts are being undertaken for toxic loading and mass-balance work in Lake Michigan, 1993-1996.

It is difficult to draw trend data because little reliable information about toxic chemical concentrations exist prior to 1980. Moreover, understanding of the extent to which atmospheric deposition contributes to overall exposure is limited because data is limited or not available. Data is limited for many chemicals, and most understanding about relative loading comes from case-study, pollutant specific research, such as the Lake Michigan Urban Air Toxics Study of mercury.

The Lake Michigan Urban Air Toxics Study (LMUATS) was released this year, and provides insight on the levels and behavior of atmospheric mercury in the southern Lake Michigan Basin. The study, conducted in 1991, was a month-long study of ambient mercury levels at three locations. The findings indicate that most dry deposition estimates for mercury have probably underestimated the contribution of air deposition to the Great Lakes.

Additionally, the ability to establish the particular contribution of various point sources is extremely limited, for many reasons. First, complete emissions data from major industrial point sources is not available for all toxic pollutants. Second, airborne pollutants can travel great distances (witness the acid rain phenomenon), even across other water bodies before deposition on soil or water. Finally, airborne pollutants may be indirectly deposited, complicating the ability to allocate contributions among point sources.

2. Federal Operating Permit Program

Title V of the CAA mandates EPA to develop guidance and minimum requirements for a federally enforceable operating permit program for air pollution sources that may be administered by state or local air pollution agencies. Major sources, defined generally as a source that emits 100 tons per year of any pollutant or 10 tons per year of hazardous air pollutants, must obtain permits to continue operations. Minor sources may be temporarily or permanently exempted from the program, as long as they stay below the threshold emission.

EPA promulgated regulations for state permit programs in 1992; states were to submit program plans by 1993. Federal guidelines require sources to submit permit applications by November 15, 1995. Some states, including Wisconsin, have set earlier deadlines.

Major sources must report accurate emissions data, including a complete list of facility emissions sources, and certification of compliance. Title V is intended to be

an all inclusive identification of federally enforceable requirements under the CAA. Permits may be issued for up to five years.

Like the PCS, the operating permit program has the potential to establish a comprehensive emissions database.

3. Hazardous Air Pollutants

Title III of the CAA contains provisions for controlling hazardous air pollutants. Congress designated 189 chemicals and chemical categories under the title, and deadlines were set for establishing maximum available control technologies. A major source emits 10 tons per year of a single hazardous air pollutant, or 25 tons per year of a combination of hazardous air pollutants.

Changes in Title III are predicted to be more successful in addressing the emissions of air toxics than previously, primarily because Congress identified 189 chemicals and changed from a health-based to a technology-based standard.

B. Data Collection

1. Great Waters program

The 1994 report demonstrates that much more information is needed to fully understand relative toxic loadings from atmospheric deposition. Current understanding is limited by a lack of data for many chemicals, undetermined flows into and out of waterbodies for many pathways and insufficient monitoring data (USEPA, 1994c). As stated in the report:

"a complete and comprehensive inventory of the locations of particular sources and the amounts of individual toxic pollutants that each source emits to the air is lacking. This basic source characterization information is needed to predict the transport of toxic air pollutants from sources to the Great Waters and also to apportion existing air pollution levels." (USEPA, 1994c:58)

Only a few case studies, such as the Baker et al. (1993) study of PCBs in the Great Lakes contain enough information to draw reasonable conclusions about relative loadings. Moreover, not enough is known about the cycling of toxic substances between air, water, soil and biota.

Identifying sources of air deposition is also problematic, because sources must first be characterized by type of chemical, location and emission rates, and then the relative contribution of different sources to the air pollution levels at a given location

(ie. over a waterbody) must be determined. Source apportionment is made more complex because of ever-changing weather conditions.

Thus, both the lack of scientific knowledge and sufficient data sets hamper the ability to understand the contribution that air toxics make to poor water quality.

2. Permit compliance (state implementation plans)

States are responsible for attaining ambient air levels for seven criteria pollutants. States determine acceptable emission levels for industries in order to achieve the national ambient air quality standards. Thus, point source requirements and monitoring data varies among states.

3. Permit compliance (Title V)

C. Implementation responsibility

Like the CWA, the EPA has responsibility for establishing standards and running the program. States with approved State Implementation Plans may receive delegated authority.

D. Analysis

The CAA amendments of 1990 move the United States toward a more comprehensive control of air pollution. With the Great Waters Program, Congress formally recognized the major effect that air pollutants have on water quality. Title V will produce a new comprehensive national database for major sources.

The New Source Standards for Hazardous Air Pollutants program has been improved to allow the EPA to set emission limitations for 189 hazardous pollutants, based on technology-based rather than health-based criteria. This approach is generally acknowledged to be a vast improvement over the previous program in establishing emissions limits for a wide group of hazardous pollutants.

VII. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Superfund Amendments and Reauthorization Act (SARA)

A. Provisions

CERCLA, commonly referred to as Superfund, governs the clean-up of abandoned hazardous waste sites and the emergency response to hazardous spills. CERCLA requires the EPA to identify and rank sites for clean-up; identify potentially

responsible parties; develop a feasibility study; and approve remediation at the site. Monitoring after remediation may be in place for several decades.

The most hazardous sites (as scored from the Hazardous Ranking System) are placed on the National Priority List. Once listed, the site is eligible for Superfund monies. Remedial actions must be in accordance with the National Contingency Plan. Potentially responsible parties are held joint and severally liable for remediation and investigation costs.

B. Data Collection

Two databases exist that are potentially useful for determining toxic loadings into the Great Lakes. The first is the Toxic Release Inventory (TRI). The TRI was established as part of Title III of the Superfund Amendments and Reauthorization Act (1986), specifically referred to as the Emergency Planning and Community Right-to-Know Act (EPCRA). Section 313 of EPCRA requires companies that employ 10 or more employees, are within the Standard Industrial Classification codes 20-39, and manufacture or process over 25,000 pounds of 300 designated chemicals or use over 10,000 pounds of the listed chemicals to report releases of chemicals into the environment by media every year. They are also required to report off-site transfers of the chemicals and efforts at reducing chemical use. Reporting requirements are comprehensive, and included requirements to report releases to storm water, publicly owned treatment works, landfills and surface impoundments, and accidental spills.

Reports are due by July 1 every year for the previous calendar year.

The EPA then compiles the self-reported release data submitted by manufacturers into the TRI, making the TRI the only cross-media national database on chemical releases. Thus, TRI provides a somewhat comprehensive overview of toxic chemical pollution from manufacturers in the United States, serving as a public "report card" for the industrial community.

The TRI was identified by state and federal officials as a potentially useful database for establishing some baseline conditions. However, Region V EPA voiced concern that the number of substances reported on the TRI be expanded. Most importantly, concern was expressed to lower the threshold reporting requirements for toxics that bioaccumulate. Other concerns include reducing the threshold reporting requirement and including companies from other Standard Industrial Classification codes.

The TRI is available on high-density diskettes or CD-ROM and contains several hundred megabytes of data. Both menu and command-line searches are possible on the CD-ROM version. The TRI is also accessible on-line, through the Right-to-Know Network (RTK-NET).

A second source for determining the contribution of toxic pollutants from hazardous waste sites is the monitoring data required before, during and after remediation of a Superfund site.

Use of these data sets is underway. One example is the effort by the Office of Chemical Emergency Preparedness and Prevention to prepare GIS maps of Superfund and TRI sites in an eight county region as part of the Southeast Michigan Demonstration Project.

A study of loadings from Superfund sites into the Great Lakes is underway, as part of the contaminated sediments activities described below.

C. Implementation responsibility

EPA is charged with implementing CERCLA. States may be given authority for clean-up of sites within their borders, and must be willing to contribute 10 percent of clean-up costs covered by Superfund monies.

The EPCRA required states to develop emergency response plans for hazardous releases, and also established state TRI coordinators. The Great Lakes states vary in the location of the TRI contacts: Ohio houses the TRI in the air pollution control office; Illinois in the Office of Chemical Safety; Indiana and Minnesota in the Emergency Response Commission; Michigan and Wisconsin in the Department of Natural Resources; New York in the Bureau of Spill Prevention; and Pennsylvania in the Bureau of Right to Know. Contacts with these officials revealed different levels of interest in the use of TRI data to determine toxic loadings from point sources.

D. Analysis

CERCLA is up for reauthorization in 1994. Major emphasis for reform rests with the joint, several, retroactive liability scheme that has prompted numerous litigation actions, not only by potentially responsible parties, but also by insurance companies. Passage of a substantially altered CERCLA is expected. The TRI continues to expand as more companies comply with EPCRA reporting requirements. However, no information was available about the inclusion of additional toxic substances on the list.

VIII. Toxic Substances Control Act (TSCA)

A. Provisions

The Toxic Substances Control Act (TSCA), Pub. L. No. 94-469, was enacted in 1976. Title I of TSCA authorizes the EPA to regulate or prohibit the manufacture,

distribution, or use of chemical substances that pose unreasonable risks to human health or the environment. Unlike other federal environmental laws that regulate chemical risks after a substance is used, the major objective of TSCA is to characterize and understand the risks associated with chemical substances before they are introduced into commerce.

The authority of the EPA to require testing of new and existing chemicals or to regulate the production of chemicals is not absolute. EPA is required to balance the economic and social benefits of a chemical against any identified health risks and regulate only those chemicals which pose an "unreasonable" risk of harm to human health or the environment.

Manufacturers wanting to introduce or import a new chemical or propose a significant new use for a listed chemical are required under Section 5 to submit a premanufacture notice (PMN) to the EPA Administrator. The PMN contains information about anticipated categories of use, production amounts, and employee exposure to the chemical. The PMN must also contain any testing data that examines adverse health or environmental effects of the chemical, either conducted by the manufacturer or by other parties. The EPA has 90 days to review the PMN, at which time the chemical substance is listed, the manufacturer is required to submit additional information, or the EPA initiates administrative action to regulate, limit or ban the substance.

While manufacturers must submit testing data in their possession, they are not required to perform long-term toxicity or other tests as part of the PMN review unless the EPA has issued a testing rule for the chemical under Section 4. Testing rules are required when chemicals are designated by the Interagency Testing Committee (a multi-agency committee established under Section 4) for priority consideration.

If the results of testing, PMN review, or screening of the inventory of existing chemicals provides evidence that the chemical presents an unreasonable risk to human health or the environment, the EPA may impose a variety of restraints on the marketing of the chemical under Section 6, including absolute bans, production limits, and restrictions on the use or concentration of the chemical. As of 1992, only six chemical substances including asbestos, chlorofluorocarbons, dioxin, and polychlorinated biphenyls (PCBs) had been regulated under this section. PCB was the only chemical targeted for regulation specifically in TSCA.

Certain chemicals are exempted from TSCA. Most notable are pesticides, which are regulated under the Federal Insecticide, Fungicide and Rodenticide Act, and food additives, drugs and cosmetics, which are subject to the Federal Food, Drug and Cosmetic Act and are thus excluded from TSCA jurisdiction.

B. Data collection

TSCA requires the EPA to compile and maintain the TSCA Inventory, a list of chemical substances manufactured or processed for commercial purposes in the United States. Some 55,000 chemicals were listed on the original inventory; the list is updated to add new chemicals which have successfully undergone the review process described below.

Given the purpose of the project, the TSCA inventory was not reviewed.

C. Implementation responsibility

Implementation responsibility rests with the EPA.

D. Analysis

Despite its name, TSCA has limited applicability for providing authority to reduce toxics in the Great Lakes. This is because of the "balancing" nature of the statute, which requires the consideration of economic costs prior to limiting the manufacture of a chemical substance. The EPA is also required to take the "least burdensome" regulatory action in protecting human health against unreasonable risk. To date, the EPA has issued regulations under TSCA to control only nine chemicals during the last 17 years (U.S. GAO, 1994).

Moreover, the EPA has assessed the risk of only 2 percent of chemicals currently in use in the United States, largely because of limited resources available to conduct risk assessments. Extensive use of TSCA to control toxic substances is not likely, given TSCA's requirement to first deal with chemical risks under other environmental laws.

The exception is TSCA's authority over PCBs. The regulations to phase out the manufacture of PCBs were specifically required under TSCA. PCB spills that occur after the effective date of TSCA regulations (1978) are subject to TSCA disposal rules. The EPA's ban on the manufacture of asbestos was overturned by a federal court in 1991 as violating the "least burdensome" requirement in TSCA.

Finally, reporting requirements under TSCA do not result in a valuable database for two reasons. First, much of the data cannot be disseminated because industry claims that confidentiality is necessary to protect trade secrets. A 1992 study found that more than 90 percent of the PMN notices contained some information claimed as confidential. Second, manufacturers are only required to report health data that suggests a chemical present a substantial risk to human health or the environment. Thus, the burden is on the EPA to require more information.

Other Programs and Data Systems

I. Programs related to contaminated sediments

A. The Assessment and Remediation of Contaminated Sediments (ARCS)

The 1987 amendments to the CWA in section 118(c)(3) authorized GLNPO to coordinate and conduct a 5 year study and demonstration project on assessment and treatment methods for toxic pollutants in in-place contaminated bottom sediments. The Great Lakes Critical Program Act extended ARCS by one year. Five areas of concern (AOCs) have been designated as priority demonstration projects: Saginaw Bay, Michigan; Sheboygan Harbor, Wisconsin; Grand Calumet River/ Indiana Harbor, Indiana; Ashtabula River, Ohio; and Buffalo River, New York.

B. National Contaminated Sediment Management Strategy

Ten different federal statutes provide authority for EPA to control or remediate contaminated sediments, although no single law exclusively addresses sediments. The Contaminated Sediment Management Strategy was developed to streamline decisions made about dealing with sediments, and to more effectively leverage environmental authorities. Until recently, legal authorities under CERCLA (described above) for sites on the National Priorities List and navigational dredging activity by the Corps of Engineers (not addressed) have been the most commonly employed approaches for remediating contaminated sediments.

Other statutory authorities include Subtitle C of the Resource Conservation and Recovery Act, which requires owners of hazardous waste treatment, storage and disposal facilities to take corrective action if contaminated sediments are present on- or off-site. Section 309 of the CWA authorizes EPA to take civil action for discharges in violation of permit limits, and EPA has used this authority to seek sediment remediation.

The EPA and state agencies are attempted to move beyond these narrow statutory authorities by establishing a comprehensive national program. These efforts are most prominent in the Great Lakes region, as states and EPA regional offices attempt to respond to toxic substances in sediments affecting the Great Lakes system (Zar, 1994).

A National Contaminant Sediment Management Strategy was finalized in August, 1994. The strategy is a comprehensive, multi-media document dealing with all of the contaminated sediment programs under EPA auspices. Pertinent parts of the strategy include the following: assessment; prevention and source control; remediation and enforcement activity; sediment dredging and dredged material

management; research and demonstration projects; and, outreach to the public, state and federal agencies.

The Water Resources Development Act of 1992 established a National Contaminated Sediments Task Force, and required the EPA to prepare a biennial inventory of national contaminated sediment sites.

1. Assessment:

The assessment portion includes the development of sediment criteria and standard sediment testing methods, including sediment toxicity tests. Five proposed sediment criteria were published in the Federal Register for comment on January 18, 1994. The EPA plans to develop standard chronic toxicity test protocols and toxicity identification methods by FY 1996 (EPA, 1994d). The establishment of sediment criteria should prompt additional data collection and eventually assist in determining the contribution of contaminated sediments into the Great Lakes watersheds. Efforts to inventory contaminated sediment sites and sources are underway; EPA Region 5 has completed a partial inventory available through EPA's Nonpoint Source Bulletin Board.

The Sediment Inventory database stores data for several hundred contaminated sites in EPA Region 5, and a national database inventory is being created. No written information is available about the Sediment Inventory database, but information should be available in Region 5 by the end of 1994 (Zar, 1994). EPA is considering a nationwide sediment monitoring program and "intends to assure that sediment databases developed by the Agency at the regional and national levels are compatible." (Zar, 1994)

2. Sediment remediation in the Great Lakes system

Many of the AOCs identified by the IJC have contaminated sediment problems. For some AOCs, contaminated sediments are a major focus. Sites where contaminated sediments have proved significant include: Waukegan Harbor (Illinois); Indiana Harbor Canal and Grand Calumet River (Indiana); Sheboygan Harbor (Wisconsin); Manistique River and Harbor (Michigan); and the Ashtabula River (Ohio).

Regulatory approaches to address cleanup of contaminated sediments have improved recently, as state and federal officials combine authorities under Superfund, the CAA, the CWA and other laws. Moreover, the EPA has increased its use of supplemental environmental projects (SEPs) as a negotiating tool with companies seeking to reduce environmental fines (Meyer, 1994). Consent decrees may require dredging of contaminated sediments in lieu of civil penalties. Thus, while regulatory and technical constraints are still associated with contaminated sediment cleanup,

multi-enforcement authorities and the use of SEPs provide some additional leverage in prompting cleanup activities.

II. Programs related to wellhead protection

The Wellhead Protection Program was established by Section 1428 of the Safe Drinking Water Amendments (SDWA) of 1986. The purpose of the program is to prevent contaminants from entering the area of land around public water supply well(s). The program is based on the concept that the development and application of land-use controls and other preventative management measures can protect ground water.

Under the Act, states are required to develop and submit Wellhead Protection Programs to EPA. EPA then reviews the program for completeness and consistency. As of July 1, 1994, 34 states and territories have received approval of their programs from EPA. Out of the eight Great Lakes states, 5 have approved programs: Illinois, Michigan, New York, Ohio and Wisconsin. Indiana and Minnesota are submitting final programs to the EPA in FY 1995; Pennsylvania is submitting its program in FY 1994.

The Wellhead Protection Program is preventative in nature, unlike other environmental programs which are regulatory. There are several elements in developing a wellhead protection for a community according to a Wellhead Protection pamphlet published by WDNR (PUBL-WR-303 92) and a Wellhead Protection Program Fact Sheet published by US EPA, Office of Ground Water and Drinking Water. They include:

1. Summary and purpose of the program should be included to provide a discussion of how the WHP goal will be achieved.
2. Designation of responsibilities to develop and implement the program among state agencies, local governments, and public water suppliers.
3. Delineation of Wellhead Protection Areas. WHPAs based on all reasonably available hydrogeologic information on ground water flow, recharge and discharge, and other information that the state feels necessary to properly determine the wellhead protection areas.
4. Identification of Sources of Contaminants within each WHPA, including all man-made sources that may have adverse effects on public health.

5. Development of Management Approaches to protect ground water well from contaminants including zoning restrictions and other ordinances and programs to minimize the chances of future contamination.
6. Contingency Planning for the provision of alternate drinking water supplies in the event of well or wellfield contamination.
7. New Water Supply Source Protection from contamination in the area of new public water supply wells.
8. Provisions for public participation in the development of a state's program.

According to Wisconsin Department of Natural Resources, the Wellhead Protection Area (WHPA) would encompass the entire recharge area for the well. Often times, however, the entire recharge area for a well is too large to be managed effectively, so a smaller area around a well may be chosen. The WHPA is then delineated so that the highest priority contaminant sources nearest to the well can be addressed.

State officials identified wellhead protection as an important, but challenging activity. New York, for example, has over 20,000 delineated wellhead protection areas, but only 1,300 completed potential contaminated source inventories (New York, 1994).

Wellhead protection programs are generally considered as part of a state's Comprehensive Groundwater Protection Program. Between 1985 and 1991, all states enacted groundwater programs, with varied degrees of mandated and voluntary provisions.

III. Programs related to air toxics

Regional Air Pollutant Inventory Development System (RAPIDS)

It is generally accepted that air deposition is a large contributor of toxic substances into the waters of the Great Lakes, but information concerning the behavior and travel ability of toxic substances is scarce. Therefore, data are needed in order to determine appropriate policy and legislative options for achieving water quality standards. One tool in this process is RAPIDS.

RAPIDS is a computer program which is currently being piloted in three test states in the Great Lakes basin: Wisconsin, Indiana and Illinois. The pilot is part of the Southwest Lake Michigan Urban Areas Air Toxics Emission Inventory. RAPIDS is an integrated system which takes data from various databases and tables and produces an accurate emissions figure for a given source area. The system is still in

its development stage, but when it is complete, all eight Great Lakes states and possibly Ontario will participate in RAPIDS. RAPIDS software should be available for all Great Lake States in 1995.

RAPIDS is able to determine, based on data such as emissions factors, the amount and type of emission from various sources, from a single smokestack to the entire Great Lakes states region (Naour, 1994). This information is used in modelling studies to determine how much of the emissions will contaminate the Great Lakes through deposition. Other data can provide the total amount of toxic substances polluting the Great Lakes each year. All of this information looked at as a whole can show the contribution of air deposition to toxicant contamination, the amount of deposition from the Great Lakes states and conversely the amount not coming from them. When RAPIDS is fully implemented, all state RAPIDS will be combined to create the Regional Emissions Inventory. In order to ensure that each state's data were commensurable, there is a protocol document which accompanies the RAPIDS program which provides for standardized data collection procedures.

RAPIDS is being coordinated through the Great Lakes Commission and represents a response to the 1986 Toxic Substances Control Agreement. The development of the Great Lakes Toxic Air Emissions Inventory Protocol includes point, area and mobile sources for 25 (eventually 30) priority pollutants. The project is proceeding with grants from the Great Lakes Protection Fund and the U.S. EPA.

Several persons contacted were enthusiastic about the potential of the RAPIDS system.

IV. Networking and other programs

A. GLIN

The Great Lakes Commission, funded by a grant from Ameritech, has established the Great Lakes Information Network (GLIN). According to the Commission, GLIN is an electronic database that will allow state, regional and other officials to access information about the Great Lakes system. Currently, there are no interactive applications on GLIN and researchers cannot query databases. Most of the information on the GLIN is limited to documents, summary reports, and some educational material.

GLNPO is currently working on loading databases onto a dedicated UNIX server. Estimates are that the ability to download databases for applications in a user-friendly manner is still a few years away.

Once this is accomplished, individuals can retrieve information from various databases using the Internet. It is not clear how much raw data will be available through GLIN, because that is dependent upon the data collection agencies. GLIN began May, 1993.

B. Other Programs

1. The Environmental Monitoring and Assessment Program (EMAP)

In 1988, EPA initiated EMAP to monitor ecological status and trends and to develop methods for anticipating emerging problems before they reach crisis proportions. The EMAP is being designed as a nationwide, interagency environmental monitoring program that will focus on ecosystems around coastal waters, forests, lakes and streams, wetlands and arid regions (deserts, grasslands and rangelands).

EMAP conducts statistically bases annual surveys to measure indicators of the condition of plants and animals, the quality of their surroundings, the presence of pollutants. The program is intended to be a long-term monitoring and assessment activity that will provide information on the condition of ecological resources.

2. Great Lakes International Surveillance Plan (GLISP)

The GLISP was established during the 1970s as a framework for monitoring compliance with the objectives of the GLWQA.

3. USGS National Water Quality Assessment Program (NAWQA) and National Water Information System

NAWQA is intended to be fully implemented by 1996 and designed to describe the status and trends in water quality of large representative parts streams and groundwater. NAWQA integrates water quality information at local, study-unit, regional and national scales. The USGS reports that this database will be well-suited to investigate nonpoint source contamination and define, on a regional basis, the relative contributions of major contamination sources. Measurements include inorganic and organic constituents in water sediment and biota. During 1992-1995, pesticides, nutrients and sediments will be emphasized.

The NWIS is the database for data obtained from the NAWQA and other USGS programs. NWIS data are available from state offices. NWIS, like STORET, is currently undergoing remodernization to incorporate relational database components.

4. The National Oceanic and Atmospheric Administration National Status and Trends Program

NOAA sponsors a number of scientific research programs, including the Sea Grant Environmental Research Program. In addition to research, NOAA is involved in monitoring programs. It established the National Status and Trends Program in 1984 to determine the status of U.S. estuarine and coastal waters, related to toxic contaminants.

5. The U.S. Fish and Wildlife National Contaminant Biomonitoring Program (NCBP) and Biomonitoring of Environmental Status and Trends (BEST)

NCBP determines tissue residue levels in fish and birds nationwide. The fish tissue part of the program consists of 110 stations at selected points along major rivers and in the Great Lakes. Fish tissue is analyzed for organic contaminants (pesticides and industrial chemicals) and seven elements. Sampling has been conducted on a 2-4 year basis since the 1960's. The program is under revision.

The NCBP monitoring data for fish can be obtained through the National Fisheries Contaminant Research Center in Columbus, Missouri.

BEST is a monitoring program currently being developed to determine trends in contaminants and effects on natural resources. BEST monitoring data from pilot efforts starting in 1993 can be obtained from the Division of Environmental Contaminants in Arlington, Virginia.

Interjurisdictional cooperation and data comparability

I. Groups

A. The Intergovernmental Task Force on Monitoring Water Quality (ITFM)

In April, 1991, the EPA and the USGS initiated discussions about how to resolve numerous problems associated with monitoring water quality in the United States (USGS, 1994a). The discussions noted that federal, state, and local agencies use a variety of procedures to collect, store and report data. Because procedures varied, potential users of the information had no standard way to determine the quality of information collected. Moreover, reliable data and a national collaboration among jurisdictions was necessary to achieve water quality goals.

The outcome of these interagency discussions was an agreement to establish a joint task force to study water quality monitoring in the United States (USGS, 1994a). The Intergovernmental Task Force on Monitoring Water Quality (ITFM) was established as part of the Interagency Advisory Committee on Water Data, the advisory committee charged by the Office of Management and Budget to carry out the Water Information Coordination Program. ITFM is chaired by the EPA, vice-chaired by the USGS. Members include 10 federal agencies and 10 state, interstate and tribal agencies. The 1994 report lists representatives from Wisconsin and Ohio as members of the ITFM.

In 1992, the ITFM discussed the need for a nationwide, integrated, voluntary monitoring strategy that would enhance the implementation of "defensible" water quality programs and management decisions (USGS, 1994a:i). The ITFM subsequently established eight interjurisdictional, interagency subgroups, including a data management and information sharing task group, an environmental indicators task group, a groundwater focus group and a data collection methods task group.

Because the goal of developing an integrated nationwide strategy for water quality monitoring is closely aligned with the objective of this report, several members of the ITFM were interviewed. The following is a brief description of pertinent activities and programs of the ITFM:

1. The ITFM is operating under an OMB memorandum 92-01, not through any statutory authority. Under the memorandum, the ITFM was created as a temporary body for three years. Because it identified the long-term nature of the goal of interjurisdictional cooperation in data collection, the ITFM recommended to Congress that a permanent council be established to continue the work of the ITFM. The ITFM further recommended that a Council on Methods and Data Comparability

be established to support the development and maintenance of standards, training and other technical assistance needed in agencies collecting water data.

However, to date, no congressional action has occurred to authorize either a Council on Methods or a permanent task force, nor is it part of the Clean Water Act reauthorization.

2. The ITFM recommends implementing a national strategy to coordinate the monitoring activities of all federal and state water programs, not just those authorized by the CWA. Standards and guidelines would be developed for data collection techniques, site selection, environmental indicators, data management and information sharing. These standards, then, could be voluntarily adopted by state and federal agencies.

B. The Lake Michigan LaMP Forum subgroup

In August, the Lake Michigan LaMP participants held a forum to discuss the goals of the LaMP as well as implementation challenges. One of the identified challenges was the lack of timely, quality controlled, adequate data. A subgroup was formed to determine what problems are associated with various databases and how those problems could be addressed. A subsequent conference call outlined the potential direction that would guide the subgroup. It is anticipated that RAPs within the Lake Michigan area will be contacted to discuss the way that RAPs have used data, and what RAP data needs are.

II. Perceptions of state and federal officials about interjurisdictional cooperation

Nearly all U.S. environmental programs require the efforts of state, local and federal governments. Sometimes, officials perceive a high degree of cooperation; other times, officials see little cooperation between international, federal and state agencies that have responsibility for implementing programs.

As part of our research, we asked questions about interjurisdictional relationships (refer to Appendix A) and after some analysis we have the following observations:

Most state and federal officials perceive that the current U.S. effort at toxics reduction in the Great Lakes is only "somewhat successful." (See Table 1.) All states agreed that improvements could be made to increase the rate of success of federal/state efforts. When asked what could be done to improve intergovernmental cooperation, state officials identified the need for better cooperation and communication between state and federal agencies; the need for less federal control of state program implementation; the need for greater flexibility in determining

programmatic activities. Also important, according to state officials, was the need for better definition of the roles of various organizations and agencies involved in the implementation process. Both federal and state officials identified the need for greater consistency among state programs.

Levels of support for the following organizations were classified as: very supportive, somewhat supportive, or not at all supportive (refer to Table 2). On the whole, EPA Headquarters was viewed as somewhat supportive; EPA Regional Offices were seen as more supportive; the EPA Great Lakes Office was generally credited with the highest levels of support.

Some state and federal officials had little contact with the IJC, and did not offer their perceptions. Those respondents acquainted with the IJC viewed the organization as somewhat supportive, although one respondent felt the IJC was not supportive. The public was typically perceived as somewhat supportive or not supportive; the RAP Coordinators were mainly viewed as very supportive with a few indicating somewhat supportive.

Interestingly, state administrators were viewed as only somewhat supportive of the program. Several state officials felt that the administration was more concerned with the budget than with toxics reduction.

Overall, responses reveal that state and federal officials see moderate support within their own agencies; and less programmatic support from the public or EPA Headquarters. Very few people who responded viewed organizations as not at all supportive, which indicates that communication and cooperation is there, but perhaps needs improvement to achieve the level of support that is desired.

When state officials were asked what changes could be made to improve toxic reduction efforts, several respondents indicated the need for more consistency between states and across media programs (i.e. air, water, sediment). Also identified was an increased focus on air deposition and non-point sources of toxic substances. Many state officials identified the need for increased funding, more public involvement.

Respondents were also asked about the quality of intergovernmental relationships. Opinions about intergovernmental relationships can be categorized from good to fair. Both federal and state respondents perceive some challenges that need to be addressed, including: less federal control and better coordination between states, more communication between federal and state organizations and better role definition.

State officials' responses, in particular, indicate a lack of trust in intergovernmental relationships. State officials feel that federal overseers should trust them more in implementing programs. Some state officials noted that if EPA's role

in the regulatory/implementation process was better coordinated, more would be accomplished in terms of toxic substances reductions in the Great Lakes. State officials also believe that federal agencies should allow them to implement these programs as they see appropriate, with less federal control.

Federal officials, on the other hand, view the problem of intergovernmental relationships as one of a lack of communication between the federal and states. Several replies from federal officials stressed the point of having organizations (states, regional and localities) be aware of what the other is doing to prevent duplication of effort.

Although attempts are currently underway to improve communications, apparently it is not sufficient or hasn't had enough time to be effective. Better coordination of what other states are doing in terms of toxic substances reduction is also needed to achieve the goal of consistency between the states.

TABLE 1
Perceptions about the success of federal-state
efforts at toxic reductions in the Great Lakes

very successful	somewhat successful	not at all successful
2	14	2

n=18

TABLE 2
Perceptions about the level of support provided in
implementing toxic reductions/water quality programs

	very supportive	somewhat supportive	not at all supportive
EPA Headquarters	3	7	3
EPA Regional Office	7	5	1
EPA Great Lakes Office	8	4	0
IJC	1	6	1
State Administrators	4	7	0
The Public	2	7	3
RAP Coordinators	7	3	0

n=13

State Programs

The following section describes the eight Great Lakes states. The information contained herein was taken from telephone interviews, surveys and written documents, such as the 305 (b) reports. The inventory of programs and databases for each state is therefore not a comprehensive listing for each state, but rather those that were described to us during phone conversations or contained in state documents.

I. ILLINOIS

Executive Summary

The State of Illinois' water quality has improved greatly since the 1970's, namely along the shore of Lake Michigan. Currently, phenols, arsenic and priority organic compounds are major pollutants in Lake Michigan. Other major sources include atmospheric deposition and contaminated sediments.

To help rectify these pollution problems, Illinois has implemented several programs aimed at reducing toxic substances in Lake Michigan. They include the Waukegan Harbor RAP, the Intensive Survey of the Waukegan River and a sediment sampling program. A WHPP is also in place to address potential groundwater contamination. Illinois EPA (IEPA) has air standards which involves issuing permits and ensuring compliance through the permitting process.

Data are collected through water sampling, sediment sampling and fish flesh sampling to determine toxic levels in water and for fish consumption advisories.

Data from these programs are entered into the STORET database and will ultimately reach the Great Lakes Information Network. Reports are also generated regarding specific studies and are available to the public.

Future programs relating to toxic reduction include Remote Sensory Imagery to locate point and non-point sources of toxic substances such as air emission sources and unknown landfills. Also, leaking sewer drains in the City of Waukegan will be investigated, findings of Intensive Survey of the Waukegan River will be evaluated, and fish flesh sampling for PCB's in Waukegan Harbor will be collected to determine the success of the clean-up efforts of the RAP.

The Water Pollution Control Program Plan for FY 1995 lists several planned activities related to toxics reduction in Lake Michigan, including finalization of the Waukegan Harbor Remedial Action Plan Phase II report; continued investigation of stormwater sources in Lake County; continued work with GLNPO. Long-term strategies to facilitate further toxic substances reductions are also under way. They

include implementing the Great Lakes Initiative, the Great Lakes Toxics Reduction Effort, a mass balance study, and supporting stricter standards for Great Lakes Hazardous Air Pollutants (HAPs).

Seven other agencies and six other interagency committees have regulatory or advisory roles in toxic substances control. The IEPA hopes to increase efforts to coordinate various programs within the state.

A. Programs

1. Water

Program: Sediment Sampling Program

Focus: contaminated sediments

Program Description: Ongoing investigation of suspected areas of contamination.

Year Initiated: unavailable

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: IEPA

Program: Remedial Action Plan (RAP)

Focus: Waukegan Harbor

Program Description: refer to RAP section

Year Initiated: initiation date unavailable; clean-up commenced in 1992.

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: IEPA

Program: Intensive Survey of Waukegan River

Focus: Waukegan River

Program Description: field sampling crew collected samples of water, sediments, and biological conditions to determine the health of the river.

Year Initiated: June, 1994.

Program Duration: unavailable

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: IEPA

Program: Wellhead Protection Program

Focus: protect and ensure safe drinking water supply

Program Description: IEPA is responsible for implementing the WHPP for community water supply wells, while the Illinois Department of Public Health (IDPH) is responsible for the non-community supply wells. There will also be a cooperative source inventory management program between the state and water supplier to complete the program.

Year Initiated: approved by U.S. EPA in 1991

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: IEPA

2. Air:

Program: Air Program

Focus: toxic air pollution

Program Description: Permits are issued for air emissions and compliance is monitored. A study is also being conducted to characterize toxic air emissions - especially those entering the Great Lakes. The results are currently being tabulated.

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: IEPA - Bureau of Air

B. Future programs:

Programs include Remote Sensory Imagery to locate non-point sources, evaluate findings of intensive survey of Waukegan River, pursue leaking sewer drains in City of Waukegan, fish sampling for PCBs in Waukegan River to determine the success of the RAP clean-up, and the Department of Conservation plans to do beach/habitat restoration in the Illinois Beach State Park.

C. Data collection:

Data are collected through fish flesh sampling, sediment sampling, and water sampling. All data are entered into the STORET database system. Ultimately all data are to be entered into GLIN.

Fish flesh data are used for fish consumption advisories. Sediment data are used for reporting in the 305 (b) report and for rating the quality of water bodies.

Does the state attempt to gather all of the data together to get a snapshot of toxic reduction efforts across programs?

No, but they are currently working towards this objective.

Data collection provides specific information about the following:

- *plants
- *air
- *water
- *humans
- *fish
- *mass balance

Are the data easily available?

According to state respondent, the data are available easily through STORET.

II. INDIANA

Executive Summary

Major areas that contribute to toxic loading in Lake Michigan include industrial and municipal point sources, combined sewer overflows, and agricultural non-point sources.

Current programs in Indiana include: the RAP, LaMP, NPDES, Toxic Pollution Prevention Program, Watershed Management Plans, an expanding air program, and the Steel Industry Initiative which is a voluntary workgroup involving the state and steel industry that explores pollution prevention opportunities for the industry, such as dezincing.

Future water programs include the state's Wellhead Protection Program (WHPP) which will be submitted to EPA in FY 1995 for approval. Indiana's Air program will be expanding its monitoring and compliance efforts as well as its staff. Also, an Agency Strategic Plan provides guidance to the Department concerning long-term strategies for toxic substances reduction. One area targets Northwest Indiana and the Great Lakes.

Data are collected for water programs through fish flesh sampling, to determine toxic substance exposure levels, water testing, and sediment sampling. All of the results from these surveys are entered into the STORET database system. Also, reports are generated from these surveys and are available if requested. Air data collection efforts include monitoring stations, grab samples and annual emissions self reporting. Some types of air data are stored on the Aerometric Information Retrieval System (AIRS), other types are stored on a number of state databases.

A. Programs:

1. Water

Program: Remedial Action Plan (RAP)

Focus: Restoration of beneficial uses of Indian Harbor/Grand Calumet River.

Program Description: refer to RAP section

Year Initiated: 1987

Program Duration: ongoing

Number of Personnel: 2 FTE

\$/Year Budgeted: \$150,000. 50/50 state-federal.

Implementing Agency: Indiana Department of Environmental Management (IDEM).

Program: Lakewide Area Management Plan (LaMP)

Focus: reduce loading of Critical Toxic Pollutants into Lake Michigan.

Program Description: refer to LaMP section

Year Initiated: 1987

Program Duration: ongoing

Number of Personnel: 1 FTE

\$/Year Budgeted: \$70,000 - Federal Clean Water Act Funds.

Implementing Agency: U.S. EPA - GLNPO

Program: Toxic Pollution Prevention Program

Focus: toxic emissions reduction

Program Description: A locally based program working with sewer districts, encouraging them to work with industry and communities to reduce their toxic discharges.

Year Initiated: 1992

Program Duration: ongoing

Number of Personnel: 1 FTE

\$/Year Budgeted: \$70,000 - Federal Clean Water Act Funds

Implementing Agency: IDEM

Program: Watershed Management Plans

Focus: overall watershed health

Program Description: Look at overall health of watersheds and identify and eliminate pollutants. Includes all Great Lake watersheds; some are part of RAPs and some are not.

Year Initiated: 1991-1993

Program Duration: ongoing

Number of Personnel: 0.5 FTE

\$/Year Budgeted: 70,000 50/50 state/federal

Implementing Agency: IEPA

2. Air

Program: Title V Permitting Program

Focus: air emissions

Program Description: refer to CAA section

Year Initiated: 1994

Program Duration: ongoing

Number of Personnel: 2.5 (4 by end of 1994)

\$/Year Budgeted: unavailable

Implementing Agency: IDEM

Program: Voluntary HAPs reporting

Focus: HAPs emissions

Program Description: Companies are asked to report their emissions of 189 HAPs on their annual report form along with their required reporting of criteria pollutants.

Year Initiated: 1994

Program Duration: until this reporting is required

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: IDEM

B. Future programs:

Indiana's WHPP will be submitted to EPA in FY 1995 for approval.

The Air Toxics program is in the process of changing its reporting requirements to include the 189 HAPs. Also IDEM is expanding air monitoring capabilities. Although IDEM's sediments position is presently vacant, I spoke with Robert Tolpa at Region V about Indiana's developing sediment program. The ongoing sediment sampling and remediation project for Northwest Indiana is being directed by Region V. The region is estimated to contain between five and ten million cubic yards of contaminated sediments. U.S. EPA plans for five million cubic yards to be removed by the year 2020. The Army Corps of Engineers is assisting in the project with the EPA. The City of Gary, LTV Steel, Inland Steel, and United States Steel have all agreed as part of settlements with U.S. EPA to cooperate in the project as well.

C. Long-term strategies:

Agency Strategic Plan: published document that provides guidance to the Department. One area targets Northwest Indiana and the Great Lakes; all programs must comply and adhere with this plan.

D. Data collection:

Data are collected through fish flesh samples, sediment analysis, and water sampling and is entered into the STORET database system.

Does the state attempt to gather all of the data together to get a snapshot of toxic reduction efforts across programs?

Efforts are made to include all information in the Annual Pollution Prevention Report.

Data collection provides specific information about the following:

- *humans
- *air
- *water
- *benthic
- *fish
- *sediment
- *mass balances (as part of LaMP)

Are data easily available?

State officials answered "no", but they are hiring a data management specialist to better coordinate their data storage.

IV. MICHIGAN

Executive Summary

Overall, water quality in Michigan has improved, but Michigan recognizes several remaining water quality problems including, fish consumption advisories, atmospheric deposition, contaminated sediments, and combined sewer overflows (CSOs), as well as point and non-point source pollution. Although all of the above cause problems, toxic contamination is mainly caused from air deposition, point source discharges and contaminated sediments.

Michigan's goal is for all of their waters to be able to sustain certain designated uses, including agriculture; public and industrial water supplies; navigation; body contact recreation, and aquatic life and wildlife. The waters of Michigan are coming closer to meeting this goal. Michigan Department of Natural Resources (MDNR) recognizes that for the waters not yet meeting this goal further reduction of contaminant loading is necessary for all remaining sources. They specifically identify atmospheric deposition, CSO's and non-point sources as areas where major efforts are needed.

Michigan believes that for their water quality goals to be met several areas must be addressed. Most importantly is public awareness of and support for water quality issues and regulations. Other areas of importance are consistency in water quality standards and treatment requirements between states, expanded pollution prevention efforts, technological improvements, and funding for new programs.

The primary regulatory tool used in controlling surface water discharges is the NPDES permit. Michigan operates on a five year reissuance cycle. Other current programs which address toxic substances reduction include LaMPs, RAPs, the Wellhead Protection Program (WHPP) and the Industrial Pre-treatment Program. Recently there was an Environmental Assistance Division created within MDNR which includes a Pollution Prevention Section. This section is responsible for coordinating pollution prevention efforts within the Department. The Department is also interested in developing ways to reduce their NPDES permit back log, initiating a permit or surveillance fee and increasing their surveillance and monitoring capabilities. Future plans at MDNR include revising the water quality standards to be consistent with the GLI Guidance which is due out in March 1995.

Michigan also has an air program which addresses toxic emissions. Toxics Rule 230-232 Act 348 requires new emissions sources to use Best Available Technology (BAT) to control their emissions. Also MDNR, for the past three years, has set up a state-of-the-art monitoring program funded through the Michigan Great Lakes Protection Fund. The sampling has recently been completed and the analysis is nearly complete; the data has been sent to the University of Michigan where

modelling will be done. Michigan is also very involved with the development of RAPIDS, and has been the lead state for the past eight years. They are not one of the three test states for RAPIDS, but they are presently unofficially participating in it. MDNR also participates in a Mercury Pollution Prevention Task Force and the Lake Michigan Study.

MDNR took the lead a few years ago in developing the Michigan Groundwater Protection Strategy and Implementation Plan. The Plan describes ground water concerns, comprehensive actions for the protection of groundwater, and types of activities that may cause contamination. The Plan takes an interagency approach whereby state, county and local governments work together to manage groundwater resources.

Water Quality data are collected through fish flesh sampling, sediment sampling, water sampling (for conventional parameters and toxic substances), and through biosurveys. This data are entered into the STORET database system. All reports that are generated are sent to the U.S. EPA. Air data is collected through the annual report form, which requires companies to report their emissions of criteria pollutants, stack tests and fixed station monitoring. Data are entered into MDNR databases and into RAPIDS.

A. Programs:

1. Water

Program: RAP

Focus: Restoration of beneficial uses of the following: Clinton River, Deer Lake/Carp River Creek, Detroit River, Kalamazoo River, Manistique River, Menominee River, Muskegon Lake, River Raisin, Rouge River, Saginaw River/Bay, St. Claire River, St. Mary's River, Torch Lake, and White Lake.

Program Description: refer to RAP section

Year Initiated: unavailable

Program Duration: ongoing

Number of Personnel: 13 FTE

\$/Year Budgeted: \$780,000 (5% state funds)

Implementing Agency: MDNR

Program: LaMP

Focus: reduce loadings of Critical Toxic Pollutants into Lakes Michigan, Superior and Erie.

Program Description: refer to LaMP section

Year Initiated: Michigan: 1987, Superior: 1992, Erie: 1994

Program Duration: ongoing

Number of Personnel: 4 FTE

\$/Year Budgeted: \$240,000 (5% state funds)

Implementing Agency: EPA

Program: NPDES

Focus: eliminate pollutant loading into the waters of Michigan.

Program Description: Issue permits to industrial, commercial and municipal, surface water dischargers.

Year Initiated: 1972 (delegated to Michigan in 1973)

Program Duration: ongoing

Number of Personnel: 32 FTE

\$/Year Budgeted: \$1,920,000 (60/40 federal-state funds)

Implementing Agency: MDNR

Program: Great Lakes Toxics Reduction Effort (GLTRE)

Focus: non-point source pollutants

Program Description: see the federal section

Year Initiated: 1992

Program Duration: ongoing

Number of Personnel: 1 FTE

\$/Year Budgeted: \$60,000 60/40 - Federal-State

Implementing Agency: MDNR

Program: Industrial Pre-Treatment Program

Focus: control the release of industrial pollutants into municipal sanitary sewer system

Program Description: the requirement to develop and implement the IPP is established as a condition of the municipality's NPDES permit. Pollutants released in industrial and commercial wastewater can negatively impact treatment plant's performance, its work force as well as receiving water and sludge management programs. For these reasons the municipality is required to develop and implement this program.

Year Initiated: 1988

Program Duration: ongoing

Number of Personnel: 11 FTE

\$/Year Budgeted: \$666,000 60/40 Federal-State

Implementing Agency: MDNR

Program: Fish Contaminant Monitoring Program

Focus: contaminant levels in fish

Program Description: monitoring the levels of contaminants in fish to provide an idea of the contaminant levels in the water.

Year Initiated: 1986

Program Duration: ongoing

Number of Personnel: 1 FTE

\$/Year Budgeted: \$380,000 State Funds

Implementing Agency: MDNR

Program: Nonpoint Source Control Program

Focus: nonpoint source pollution

Program Description: The goal of the program is to evaluate the impacts of nonpoint source pollution on the state's surface waters and to control these sources by implementing an effective strategy. MDNR is responsible for coordinating efforts among local, state and federal agencies. Also MDNR has prepared a nonpoint source assessment report and a nonpoint source management plan which have been approved by U.S. EPA. MDNR also provides technical assistance to local agencies, particularly concerning Best Management Practices (BMPs).

Year Initiated: unavailable

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: MDNR

Program: State Revolving Fund Program

Focus: water pollution

Program Description: Provide financial assistance, in the form of low-interest loans, to municipalities to construct sewage collection and treatment facilities and for nonpoint source pollution control projects. There is cooperation between this Program and the Nonpoint Source Control Program. This program replaces the Municipal Construction Grants Program.

Year Initiated: unavailable

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: MDNR

Program: Wellhead Protection Program

Focus: protect and ensure safe drinking water supply

Program Description: Michigan has a voluntary program for water suppliers: it is voluntary to develop a WHPP. MDNR does offer incentives and technical assistance to those who wish to develop a WHPP.

Year Initiated: approved by EPA in 1994

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: MDNR

2. Air

Program: Toxics Rule 230-232 Act 348

Focus: air emissions

Program Description: new emissions sources must use Best Available Technology (BAT) controls

Year Initiated: 1992

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: MDNR

B. Future programs:

Revising water quality standards to be consistent with GLI Guidance which is to be issued in March of 1995. The LaMP for Lake Erie is to be initiated. MDNR's currently developing their Title V permitting program.

C. Long-term strategies:

Reduce NPDES permit backlog and development of a permit or surveillance fee, and increase surveillance and monitoring capabilities.

D. Data collection:

Data are collected through fish flesh sampling, self-monitoring permits, water sampling for conventional parameters as well as toxic substances and sediment sampling.

U.S. EPA's Permit Compliance System (PCS) is used to store information about issued NPDES permits, such as discharge criteria and schedules as well as summaries of discharge monitoring reports which are submitted by dischargers monthly. A quarterly report is generated to track permittee compliance.

Does the state attempt to gather all of the data together to get a snapshot of toxic reduction efforts across programs?

State officials respond, "no", but the 305(b) report deals with toxic reductions in water programs.

Data collection provides specific information about the following:

- *plants
- *humans
- *water
- *benthic
- *fish
- *sediment

- *mammals
- *birds
- *mass balances
- *air

Are the data easily available?

unavailable

III. PENNSYLVANIA

Executive Summary

Although Pennsylvania has a relatively small border on Lake Erie, they still have programs which address toxic substances reduction. Current water programs to address toxic substances reduction include the RAP, LaMP, 33/50, a Non-point Source Toxics Reduction Program that works primarily with farmers through Best Management Practices (BMPs), and a CSO Program implemented by the City of Erie.

PDER's air programs are in keeping with federal requirements. They have no special programs which address toxic contamination of the Great Lakes and no data is collected concerning toxics outside of the criteria pollutants. Pennsylvania indicated that their staffing was not sufficient for them to participate in many non-mandatory efforts with which they would like to be involved.

To ensure the programs are successful, various data are collected. These include: water monitoring, which is done routinely, sediment sampling in Presque Isle Bay, which was performed in May of 1994, and fish flesh sampling to provide fish consumption advisories to the public if needed.

Data collected from these surveys are entered into the STORET database system. The sediment data will be entered onto a state database, but currently the data is being put into report form by a consulting firm. Pennsylvania Department of Environmental Regulation (PDER), also maintains its own databases where much of the information is stored. Various reports regarding surveys can also be obtained by contacting the appropriate person and department.

Future programs regarding toxic substances reduction include the Great Printers Project, a Wellhead Protection Program (WHPP) to be submitted in FY 1994 for EPA approval and other programs that stress pollution prevention and point source reduction.

A. Programs:

1. Water

Program: Non-point Source Reduction

Focus: non-point source pollution

Program Description: Work with farmers to reduce non-toxic pollutants and soil erosion through soil management practices. For example, contour farming is done to

reduce run-off and soil erosion. The Program is under the Coastal Zone Management Program.

Year Initiated: 1991-92.

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: PDER

Program: Clean Streams Law

Focus: municipal sewage overflow

Program Description: the state works with the City of Erie to eliminate CSOs.

Year Initiated: 1989

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: PDER

Program: RAP

Focus: restoration of beneficial uses in Presque Isle Bay.

Program Description: refer to RAP section

Year Initiated: 1990

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: PDER

Program: Sediment program

Focus: in-place sediment contamination

Program Description: In May of 1994, PDER in cooperation with GLNPO, sampled Presque Isle Bay's sediments with GLNPO's mudpuppy, a specially equipped sediment sampling boat. A consulting firm is currently writing a report based on the results of the sampling

Year Initiated: 1994

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: PDER

Program: LaMP

Focus: reduce loadings of Critical Toxic Pollutants into Lake Erie

Program Description: refer to LaMP section

Year Initiated: 1993

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: U.S. EPA

Program: 33/50 Program

Focus: toxic substances reduction

Program Description: A voluntary program for industries whereby, based on the TRI by U.S. EPA, toxic substances are reduced by 33% by 1992 and 50% by 1995.

Year Initiated: 1990

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: U.S. EPA

B. Future programs:

Programs that will be considered are those that stress pollution prevention and source reduction. Pennsylvania will also be submitting a WHPP to EPA in FY 1994 for approval.

C. Long-term strategies:

More Great Lakes strategies, pollution prevention/source reduction programs and strategies to ensure the health of the Great Lakes.

D. Data collection:

Water monitoring is done routinely; sediment sampling, and fish flesh sampling are also part of RAP. Some of the data are entered into the STORET system and other data are entered into their own data bases within PDER. There are numerous reports generated from the data that are collected.

Industries provide the data needed to determine whether they are in compliance. Some of the programs are on a voluntary basis.

Does the state attempt to gather all of the data together to get a snapshot of toxic substances reduction efforts across programs?

Officials respond that the Department brings all data together to understand what is going on.

Data collection provides specific information about the following:

- *humans
- *air
- *water
- *benthic
- *fish
- *sediment
- *plankton toxicity sampling (part of RAP)

Are the data easily available?

Officials respond that data can generally be obtained in paper format. People can call and obtain copies of the reports they need.

VI. OHIO

Executive Summary

Ohio has, for the past twelve years, had an intensive and integrated surface water monitoring program which, as of 1992, allowed them to begin to evaluate the effectiveness of their water pollution control efforts from the perspective of environmental results. This evaluation will allow Ohio to focus their efforts on the sources which are causing most of the pollution. Ohio is relying more on an integrated ambient monitoring technique for load allocations and surface water assessments rather than the previous reliance on dilution based techniques.

Monitoring is key to the success of these evaluation efforts, especially for newer areas of interests including non-point source pollution, urban runoff, unregulated hazardous waste-sites, as well as others. Ohio's monitoring efforts are based on cost-effective biosurveys that integrate chemical, toxicological and physical analysis with ecoregional biological criteria and habitat assessments. Ohio believes that a high number of sampling sites is necessary for accurate detection of impairments to surface water. This approach will ensure the most cost-effective allocation of pollution abatement money.

Ohio EPA is committed to an integrated ecosystem approach to water management. This is demonstrated by their focus on water resources management, rather than just water quality and by their Five year Basin Approach to the NPDES program. They believe this approach assures that there will be monitoring data available to support water quality standards revisions and pollutant limits for the reissuance of NPDES permits. They would also like to phase the remediation of unregulated hazardous waste sites into the five year approach with the hope of fostering a watershed approach by all programs within the Agency that effect surface water management.

Water data are collected through intensive biological and chemical surveys, including sediment sampling, and then entered into the STORET database system. Various reports are also generated from these studies such as the 305 (b) report. The reports can be obtained by contacting the appropriate division.

Ohio's air toxics program consists of Section 112 of the CAA and the TRI program, but nothing above what is required by U.S. EPA. Data are collected for criteria pollutants through annual report forms. Also Ohio collects MACT emissions data through self-reporting by companies effected by MACT standards. These data are entered into a Fox-Pro data base. Copies of this are available. Data are also entered onto the TRI.

Future programs and long-term strategies mentioned include the Virtual Elimination Program and toxics reduction efforts that look at non-point sources.

A. Programs:

1. Water

Program: NPDES

Focus: eliminate pollutant loading into the waters of Ohio

Program Description: Permits are issued to industrial, commercial, and municipal surface water dischargers.

Year Initiated: 1972 under the Clean Water Act

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: OEPA

Program: Toxics Release Inventory (TRI)

Focus: discharges of toxic substances

Program Description: Program requires people who discharge toxic substances to report how much they discharge to the state. In turn, the state then sends the information to U.S. EPA.

Year Initiated: late 1980's.

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: OEPA

Program: RAP

Focus: restore beneficial uses of the following: Maumee River, Black River, Cuyahoga River, and Ashtabula River.

Year Initiated: 1985

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: OEPA

Program: LaMP

Focus: reduce loading of Critical Toxic Pollutants into Lake Erie. (The program is in its early stages now).

Program Description: refer to LaMP section

Year Initiated: 1993

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: U.S. EPA

Program: Ohio Toxics Reduction Strategy

Focus: limiting toxic substances discharged

Program Description: Guidance on how to incorporate limits on toxic substances in NPDES permits. Associated with it is the Ohio Water Quality Standard Program.

Year Initiated: 1988

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: OEPA

Program: Ohio Water Quality Standard Program

Focus: water pollution

Program Description: Establish standards and criteria for what is acceptable in their water bodies.

Year Initiated: 1978

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: OEPA

Program: Pollution Prevention Program

Focus: toxic substances reduction

Program Description: A voluntary program that encourages industries in violation of their NPDES permit to investigate other alternatives to reduce their toxic substances discharges. For example, substitution of less harmful chemicals for those causing the violation. The OEPA staff visits these industries and does an assessment of their operation. They also serve as a clearing house - they give names of other contacts that can help them reduce their toxic substances discharges.

Year Initiated: late 1980's

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implemented Agency: OEPA

Program: Virtual Elimination Program

Focus: reduce toxic substances loading into Lake Erie

Program Description: Reduce mercury and PCB loadings into Lake Erie by working with the companies that are discharging these toxic substances. Mainly concerned with PCBs.

Year Initiated: unavailable

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implemented Agency: OEPA

Program: Wellhead Protection Program

Focus: protect and ensure safe drinking water supply

Program Description: Ohio has a voluntary program that is implemented at the local level: each public water supplier can voluntarily develop a local WHPP. Ohio EPA provides incentives and technical assistance to the water suppliers who wish to develop WHPPs. Water suppliers must submit a plan to Ohio EPA for approval if they choose to develop a WHPP.

Year Initiated: approved by EPA in 1992

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implemented Agency: Ohio EPA

B. Future programs:

The LaMP for Lake Erie should be operational by September, 1994.

C. Long-term strategies for toxic reductions:

Great Lakes Initiative, Virtual Elimination Program, and Great Lakes Toxics Reduction Effort. With regards to the GLTRE, more data are needed about non-point source contamination. Examples mentioned include sediment contamination, atmospheric deposition, spills on Great Lakes, and loadings from leaking hazardous waste sites.

D. Data collection:

Fish flesh sampling and sediment sampling are being currently implemented. Data collected through intensive surveys are entered into the STORET database system. Data are also in the 305(b) report and other reports. These reports also can be obtained by request.

Does the state attempt to gather all of the data together to get a snapshot of toxic reduction efforts across programs?

Yes, they are moving towards the idea of multi-media permits. When they review the information, they look at everything: biology, sediment, and hazardous wastes, for example. Officials feel the state has not been very successful in incorporating air emissions data into the "snapshot."

U.S. EPA receives all permit compliance under NPDES, and many of the programs they implement are under the Clean Water Act and therefore are sent to them. Data are available through STORET.

Data collection provides specific information about the following:

- *humans
- *air
- *water
- *benthic
- *fish
- *sediment
- *mass balances (to some degree)

Are data easily available?

Yes, data are entered into the STORET database system and most of the data is in report form; copies can be obtained if requested. Various reports are generated that contain data particular to a specific area or river basin.

VI. NEW YORK

Executive Summary

New York has made significant improvements in their water quality through point source control methods. The main sources and causes of water quality impairment are non-point sources of toxic and conventional pollutants - they account for 96% of Great Lakes impairments. Some of pathways include acid precipitation, agriculture run-off, urban run-off, and nutrients from municipal point sources.

New York is the only state to have completed its 1994 305(b) report. The report is very extensive, and identifies a number of state priorities. New York has 6 RAPs, all but one are being implemented. Other programs under way to help solve the water quality problems include: the Lake Ontario Toxics Management Plan (LOTMP), LaMP, RAP, the Wellhead Protection Program (WHPP), Niagara River Toxics Management Plan (NRTMP), and Erie County Amnesty Collection of Agriculture Pesticides (Clean Sweep).

New York has an Integrated Compliance Strategy System to monitor and enforce compliance for all permitted point sources under the Clean Water Act, and violations which occur in any Department of Water program. Compliance statistics for the most recent quarter are 91 percent for major municipal dischargers and 97 percent for major non-municipal dischargers.

New York has identified a number of special state concerns for 1995. Perhaps the most significant is the decreased funding for water programs. Due to lack of funding, New York is able to review less than 20 percent of NPDES permits, and estimates that it is satisfactorily fulfilling mandates for less than half of its 37 legally mandated water program elements (New York, 1994).

Data collected regarding these programs is done in a variety of ways but unfortunately no further information was provided with regard to how the data is collected. Most of the environmental quality data are entered into the STORET database system.

Within the next year the Lake Erie LaMP will be implemented and all of the above programs include long-term strategies.

A. Water-based programs:

Program: LOTMP

Focus: toxic substances reduction in Lake Ontario

Program Description: Provide drinking water and fish that are safe for unlimited human consumption, and that allows natural reproduction, within the ecosystem, of the most sensitive native species, such as the bald eagle, osprey, and river otter.

Year Initiated: 1987

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: four: USEPA, Environment Canada (EC), New York State Department of Environment Conservation (NYSDEC), and Ministry of Environment and Energy (MOEE).

Program: LaMP

Focus: reduce loading of Critical Toxic Pollutants into Lake Ontario

Program Description: refer to LaMP section

Year Initiated: 1991

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: U.S. EPA

Program: RAP

Focus: 6 RAPs focus on restoration of beneficial uses of St. Lawrence River, Oswego River, Rochester Embayment, Niagara River, Buffalo River, and Eighteen Mile Creek.

Program Description: refer to RAP section

Year Initiated: St. Lawrence River at Massena - 1988; Oswego River - 1987; Rochester Embayment - 1988; Niagara River - 1989; Buffalo River - 1987; Eighteen Mile Creek - 1994.

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: U.S. EPA

Program: NRTMP

Focus: reduce toxic substances loading into the Niagara River

Program Description: Through appropriate joint activities and separate agency activities, toxic chemicals loadings into the Niagara River should be reduced.

Year Initiated: 1987

Program duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: U.S. EPA, EC, NYSDEC & MOEE

Program: NPDES

Focus: eliminate pollutant loading into the waters of New York

Program Description: Issue permits to industrial, commercial and municipal, surface water dischargers

Year Initiated: 1972

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: NYSDEC

Program: Clean Sweep

Focus: safe pesticide disposal

Program Description: Erie County provides farmers and agribusinesses the opportunity to dispose of, in an environmentally sound manner, a variety of agricultural production pesticides which no longer can be used legally or effectively in current operations.

Year Initiated: 1993

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: Erie County Department of Environment and Planning

Program: Citizens Statewide Lake Assessment Program

Focus: preservation and restoration of all lakes, ponds and rivers throughout New York State

Program Description: citizen volunteers are trained to collect water quality information about the following chemical parameters: total phosphorus, nitrate-nitrogen, true color, pH, specific conductance, and chlorophyll a. Field perception surveys are also completed and cross-referenced against instantaneous water quality

data collected to provide a linkage between public opinion and measured eutrophication parameters. These linkages are being used to develop phosphorus guidance values.

Year Initiated: 1986

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: a cooperative effort between NYSDEC & the Federation of Lake Associations

Program: The Clean Lakes Program

Focus: restoration of beneficial uses of area lakes

Program Description: The program is broken down into two stages, Phase I and Phase II. Phase I projects are diagnostic/feasibility studies to determine a lake's quality, determine possible remedies to existing pollution problems and recommend a feasible program to restore or preserve the quality of the lake. Applications to the U.S. EPA for a Clean Lakes project must be made by the NYSDEC. The proposal to conduct a Phase I or Phase II project can be submitted to the NYSDEC by any government entity or public water body. The following is a summary of the completed and ongoing Clean Lakes projects:

Demonstration Projects: Washington Park Lake and Buckingham Lake, City of Albany (\$46,500 Federal, \$46,500 Local); Hampton Manor Lake, Town of East Greenbush (\$50,000 Federal, \$50,000 Local); Steinmetz Lake, City of Schenectady (\$36,680 Federal, \$36,680 Local); Tivoli Lake, City of Albany (\$202,645 Federal, \$202,645 Local); Central Park Pond, City of New York (\$498,000 Federal, \$498,000 Local); Scudeder's Pond, Village of Sea Cliff and Glen Cove, (\$50,000 Federal, \$50,000 Local); Ann Lee Pond, Albany County (\$98,246 Federal, \$98,246 Local). Completed Phase II Projects: Hyde Park Lake, Niagara County (\$894,667 Federal, \$894,667 Local), Delaware Park Lake, City of Buffalo (\$3,741,500 Federal, \$2,000,000 State); Lake Ronkonkoma, Suffolk County (\$335,572 Federal, \$335,572 Local), Iroquois Lake, City of Schenectady (\$290,747 Federal, \$240,000 State, \$50,747 Local); Irondequoit Bay, Monroe County (\$329,743 Federal, \$165,000 State, \$164,743 Local); Belmont Lake, NYSOPR&HP, Suffolk County (\$290,000 Federal, \$290,000 State); Saratoga Lake, NYSDEC, Saratoga County (\$339,241 Federal,

\$180,000 State, \$159,241 Local); Van Cortlandt Park Lake, City of New York (\$88,759 Federal, \$88,759 Local)

Ongoing Phase I Projects: Lake Champlain, NYSDEC (\$234,860 Federal, \$100,654 State); Ostego Lake, SUNY Oneonta (\$100,000 Federal, \$50,000 Local); Chautauqua Lake, Chautauqua County Planning Dept. (\$100,000 Federal, \$50,000 Local).

Ongoing Phase II Projects: Collins Lake, Village of Scotia (\$221,821 Federal, \$110,000 State, \$111,821 Local); Greenwood Lake, Greenwood Lake Watershed Management District, Inc. (\$369,000 Federal, \$240,000 State, \$129,600 Local); Lake George, NYSDEC (\$367,390 Federal, \$367,390 State/Local).

Special Grants: Water Quality Assessment Grant, NYSDEC (\$50,000 Federal, \$21,429 State); Onondaga Lake Management Conference, NYSDEC (FY94-\$1,750,000 Federal, \$750,000 State); Lake Champlain Management Conference, NYSDEC (Annual: approximately \$2,000,000 EPA, \$857,143 State, \$250,000 USGS, \$200,000 NOAA, \$200,000 National Park Service, \$250,000 USFWS, \$500,000 USDA); TMDL-Mini Grant for In-Lake Sedimentation Study (\$15,000 Federal)

Year Initiated: unavailable

Program Duration: unavailable

Number of Personnel: unavailable

\$/Year Budgeted: see above

Implementing Agency: see above

Program: Wellhead Protection Program

Focus: protect and ensure safe drinking water supply

Program Description: New York State classifies all fresh groundwater as potential sources of drinking water thereby giving the basis of the state's wellhead protection and groundwater protection programs. The primary goals of the state's Wellhead Protection Program are to encourage communities to implement a Wellhead Protection Program, either through regulatory or nonregulatory measures. Local initiatives are offered to help communities develop programs.

Year Initiated: 1990

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implemented Agency: NYSDEC

2. Air

Program: Air toxics program

Focus: Ambient air quality

Description: Guidelines for control of toxic ambient air contaminants. Currently this program is guidance, but it is used as if it was a regulation. The program is based on MACT and health-based standards

Implementing Agency: NYSDEC

B. Future programs:

The Lake Erie LaMP will be implemented in the next year. NYSDEC is currently developing a multi-media pollution prevention program to address pollution problems comprehensively.

Onondaga Lake Management Conference is another program that is currently in progress. The goal is to restore Onondaga Lake which is a source of pollution to Lake Ontario.

C. Long-term strategies:

The Department indicated that the programs previously mentioned all had long-term strategies.

D. Data collection:

The Division of Water conducts intensive studies of chemical and biological water quality in each drainage basin on a 6 year cycle.

Water quality data for approximately 150 lakes throughout the state were also collected by the U.S. EPA and USFWS through the EMAP-Surface Water and TIME

programs (1991-1993), but these data have not been released for individual lakes. All of the data were collected and analyzed using USEPA approved quality assurance-quality control protocols.

All data were obtained from the original sources in computer compatible form and were entered into a database using Microsoft EXCEL.

Does the state attempt to gather all of the data together to get a snapshot of toxic reduction efforts across programs?

Individuals within the state synthesize toxicant data to varying degrees as part of some programs. EPA receives all reports associated with the Great Lakes toxics reductions programs.

Data collected provides specific information about the following:

NYSDEC Division of Water programs address information mostly in water as it relates to humans. Information regarding air, plants, benthic, fish, sediment, mammals, birds, amphibians and mass balances are addressed by programs with the Divisions of Air, Hazardous Substances, Fish and Wildlife and their Office of Multi-media Pollution Prevention and the NYS Department of Health.

Are data easily available?

Most of the environmental quality data are readily available through STORET.

VII. MINNESOTA

Executive Summary

Minnesota has some of the most pristine waterbodies in the country. Tourism is heavy in the state because people enjoy the many recreational activities Minnesota had to offer, thus greatly helping the economy.

Water programs that ensure the health of the waters include: the NPDES permit program for storm water discharges, Citizen Lake Monitoring Program (CLMP), which works with citizen volunteers and local governments who want to participate in monitoring and protecting their local waters, Minnesota River Assessment Project - a four year multi-agency comprehensive study of the Minnesota River and its tributaries, Lake Assessment Program (LAP) - characterizes lake's conditions and provides some basic information regarding the lake and its watershed, Lake Superior Partnership - Minnesota Pollution Control Agency (MPCA) formulated this policy, which encourages cooperation among government, businesses, educational institutions, community groups and citizens with the broad goal of eliminating the discharge of pollutants to Lake Superior, and the RAP.

MPCA has begun to assess the St. Louis River and has sampled Duluth/Superior Harbor. Currently all remediation of contaminated sediments is done through RAPs or Superfund sites.

MPCA also has air programs to reduce toxics substances deposition. Along with fulfilling federal requirements, Minnesota performs air toxics reviews on new emissions source permits and has formed a Mercury Task Force. Air data are collected through the annual emissions inventory report form for criteria pollutants and at mercury deposition collection sites. Data are used to assess trends and to decide how to proceed.

Future programs emphasize non-point source pollution and toxic pollution. Also MPCA is in the process of developing a sediments management program to address in-place toxic contamination. State officials recognize that monitoring programs will need to become broader in order to fully assess pollution problems. A multi-media approach will need to be implemented in order to provide the data that are needed to make sound environmental decisions.

Minnesota will submit a final Wellhead Protection Program (WHPP) in FY 1995 for EPA approval.

A. Programs

1. Water:

Program: NPDES permits

Focus: eliminate pollutant loadings into the waters of Minnesota

Program Description: Permits are issued to industrial, commercial, and municipal surface water dischargers.

Year Initiated: unavailable

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: MPCA

Program: RAP

Focus: restore beneficial uses of the St. Louis River

Program Description: refer to RAP section

Year Initiated: unavailable

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: MPCA

Program: Lake Superior Bi-National Program

Focus: zero discharge for persistent toxic pollutants

Program Description: The program has two parts: the zero discharge and zero emission demonstration program and a broader program that includes development of a LaMP.

Year Initiated: 1991

Program Duration: ongoing

Number of Personnel: 1 FTE - coordinator; 1/2 time Great Lakes liaison; 1 FTE monitoring coordinator (currently unfilled); and 1/2 time special study and 1/2 time supervisor.

\$/Year Budgeted: unavailable

Implementing Agency: MPCA

Program: Lake Superior Partnership

Focus: zero discharge into Lake Superior

Program Description: A public-private initiative with the broad goals of eliminating the discharge of toxic pollutants to Lake Superior through pollution prevention and other methods. Emphasis is placed on encouraging cooperation among government, educational institutions, businesses, community groups and citizens.

Year Initiated: unavailable

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: MPCA

2. Air:

Program: Mercury Task Force

Focus: mercury deposition

Program Description: the Task Force recommends that pollution prevention, incentive-based controls and regulatory standards all be used in addressing mercury contamination of water. They released their first report titled "Strategies for Reducing Mercury in Minnesota" in July 1994.

Year Initiated: 1992

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implemented Agency: MPCA

B. Future programs:

Programs to be implemented in the future include, the Great Lakes Initiative, the Binational Program, and the WHPP.

C. Long-term strategies for toxic reductions:

Pollution prevention will be stressed in the future along with specific controls and regulations with regards to toxic reduction efforts. Also MPCA plans to develop a sediment management plan.

D. Data collection:

Nearly 100 fish samples were collected from Lake Superior from 1987-1989. PCBs were detected in most samples and two of the species were found to have exceeded the PCB levels guideline. These two species encompass 80% of the recreational fish catch and consequently all of the Lake Superior shoreline length was classed as "not supporting" fish consumption use.

Routine monitoring is also conducted on tributaries nine months out of the year. Special sampling is also done, such as Lake Superior fish sampling and sediment studies in St. Louis Bay. Minnesota also used GLNPO's mudpuppy to conduct sediment sampling. Sediment data is entered into STORET.

Does the state attempt to gather all of the data together to get a snapshot of toxic reduction efforts across programs?

Yes, for two programs: the Binational Program and the Lake Superior Partnership.

Data collection provides specific information about the following:

- *plants
- *humans
- *air
- *water
- *benthic
- *fish
- *sediment
- *mammals
- *birds
- *amphibians

Are data easily available?

Data entered on STORET are easily available. Some permit data are available on the Permit Compliance System (PCS) database for NPDES discharges.

VIII. WISCONSIN

Executive Summary

Wisconsin's vast number of rivers, streams and lakes makes it a difficult job for their Department of Natural Resources (WDNR) to assess and monitor these important resources. WDNR is developing a strategic plan, Water 2010, to guide the state's water-related activities for the next 20 years.

Other water programs the state has implemented to ensure water quality include: Wisconsin Nonpoint Source Water Pollution Abatement Program, RAPs, LaMPs, CSO program, WPDES permits program, a Wellhead Protection Program (WHPP), a Pollution Prevention Program and a Sediment Management and Remedial Techniques (SMART) program.

Wisconsin also has an active air program to address toxic substances. Their Air Pollution Control Regulation covers over 400 pollutants and the standards are health based. Wisconsin also participates in the Lake Superior Pollution Prevention Initiative, a Mercury Workgroup with EPA Region V and a Virtual Elimination Project with GLNPO.

Over 5,000 surface water, sediment and tissue samples are analyzed for WDNR every year by the University of Wisconsin. Contracts are also out to other labs to run samples for substances that the University is not capable of doing. These data are entered into the STORET database system. Air data are collected through continuous emission monitors at power plants and annual emissions inventory reports. Data are stored on their emissions inventory database, which is currently undergoing a redesign and will be on RAPIDS. Air data are used for compliance and policy analysis purposes.

Wisconsin's Air and Water divisions seem to be collaborating on Great Lakes issues. Air and Water officials went to the Great Waters meeting at the beginning of August together, they have created an e-mail distribution list to facilitate communication and they hold joint unit meetings.

A. Programs:

1. Water

Program: Wisconsin Nonpoint Source Water Pollution Abatement Program

Focus: reduce nonpoint source pollution

Program Description: implement BMPs to reduce nonpoint sources of pollution. The entire state must adhere to this program by the year 2000.

Year Initiated: about 1979

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: WDNR

Program: Wisconsin Wellhead Protection Program

Focus: protect and ensure safe drinking water supply

Program Description: WDNR is responsible for conducting the delineation and source inventory for all existing public water supply wells although management of the WHPA is the responsibility of both the state and water supplier.

Year Initiated: EPA approved in 1993

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: WDNR

Program: RAP

Focus: restoration of beneficial uses of the following: the Milwaukee Estuary, Lower Green Bay/Fox River, Sheboygan River, St. Louis River/Duluth Superior Harbor. Wisconsin also shares responsibility with Michigan for the Menominee River. Minnesota has primary planning responsibility for the St. Louis/Duluth Harbor Remedial Action Plan.

Program Description: refer to RAP section

Year Initiated: Lower Green Bay/Fox River: 1985, Milwaukee Estuary: 1991, Sheboygan River: 1990, Menominee River: 1990, and St. Louis/Duluth Harbor: 1992.

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: WDNR

Program: LaMP

Focus: reduce loading of critical toxic pollutants into Lake Michigan and Lake Superior

Year Initiated: unavailable

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implementing Agency: WDNR

Program: NPDES

Focus: eliminate pollutant loadings into the waters of Wisconsin

Program Description: Permits are issued to industrial, commercial, and municipal surface water dischargers.

Year Initiated: 1974

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implemented Agency: WDNR

Program: SMART

Focus: in-place sediment contamination

Program Description: SMART's goal is to identify and remediate all significant sources of toxic contamination of the sediments in the state. The program takes a voluntary approach to clean-up efforts. It ensures contaminated sediments are dealt with in a consistent and uniform manner, establishes sediment criteria values, develops sediment assessment guidance, and developed an inventory of approximately 75 priority sites with contaminated sediments and wetland soils. The SMART program is involved with several demonstration projects and works with federal programs such as Superfund to ensure contaminated sediment issues are incorporated in remedial plans.

Year Initiated: approximately 1988

Program Duration: ongoing

Number of Personnel: unavailable

\$/Year Budgeted: unavailable

Implemented Agency: WDNR

B. Future programs:

A Storm Water Program will be implemented and Lake Butte de More will have a remediation implemented in the next year.

C. Long-term strategies:

Push for Storm Water Program, further implementation of sediment remediation and the need for statewide funding for contaminated sediment sites. The SMART program is also developing a long-term strategy which includes identifying funding sources and cooperation with the business community for sediment remediation.

D. Data collection:

Data are collected through the SMART program and entered into the STORET database. Wastewater permitting is done and is entered on PCS. Ambient loading network for major tributaries to the lakes - data are collected and monitored for flow and selected toxics and tracking problem areas. The data are entered into the STORET database system.

Data are also collected about fish and sediment contamination. A new database is currently being developed to deal with just contaminated fish and sediment. The Waterbodies System is also used to store data.

Air data are stored on the emissions inventory database, which is currently being redesigned as well as on RAPIDS.

Does the state attempt to gather all of the data together to get a snapshot of toxic reduction efforts across programs?

Yes, this is the goal of statewide coverage and Geographic Information System (GIS) layers to put together a big picture of what exactly is out there.

Data collection provides specific information about the following:

- *plants
- *humans
- *air
- *water
- *benthic
- *fish
- *sediment
- *amphibians (available on STORET)

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Research Survey on Toxic Reduction Efforts for the Great Lakes

As mentioned in the attached letter, this questionnaire is designed to help gather information about the various efforts underway (or planned) by states in the Great Lakes region to reduce toxics, as well as to gain a greater understanding about how data is collected. The questions below approximate the questions that we would like to ask you over the phone. We appreciate your review of these questions, and your cooperation in the research effort.

Name _____	Office _____
Agency _____	Title _____
Phone _____	Fax _____

A. Policy Initiatives/ Programs/ Regulations for Toxic Control:

What current programs do you know of that are currently underway for controlling and/or reducing toxics into the Great Lakes?

What programs do you foresee being implemented within the next year?

What long-term strategies are planned to facilitate further toxic reductions?

B. Please describe each program that you have information about, according to the following questions:

What is the focus of each program?

What is the date each program was initiated?

Is the program ongoing, or is there a statutory or regulatory endpoint?

What is the annual budget for each program? What is the state contribution? What is the federal contribution? Are there other funding sources for the program?

How many personnel are involved in each program?

Which governmental unit has primary responsibility for implementing each program?

C. Data Collection

How is data about toxics collected?

Does the state attempt to gather all of the data together to get a snapshot of toxic reduction efforts across programs?

What reporting is sent to the EPA? To other federal agencies? To other regional or international offices?

What degree of specificity is undertaken in each program? For example, does the data collected provide information about toxic exposures/levels in the following categories:

plants

humans

air

water

benthics

fish

sediment

mammals

birds

amphibians

mass balances

other (name)

Is the data easily available? (For example, is it collected in the same form across various programs?) Is it available on disk or paper copy?

D. Can you give me names of other individuals that can help me better understand the toxic reduction effort in the Great Lakes states?

Contact _____ Title _____

Agency _____ Phone _____

E. Can you send me information (reports, etc.) that will help me understand your state's programs?

F. Intergovernmental relationships in Great Lakes clean up efforts:

Nearly all U.S. environmental programs require the efforts of state, local and federal governments. Sometimes, officials perceive a high degree of cooperation; other times, officials see little cooperation between international, federal and state agencies that have responsibility for implementing programs.

As part of a separate study, we are doing research to characterize the perceptions that officials involved in various Great Lakes programs have about agency relationships. The information that you provide in the following questions will not be attributed to you personally, or to your agency. Rather, the data will be aggregated to reflect a general sentiment, to the extent such perceptions are common across programs.

1. In your opinion, how successful has the federal-state effort been at toxic reductions in the Great Lakes?

2. What improvements, if any, could be made?

3. How would you characterize the level of support the following organizations provide to you as you implement toxics reductions/ water quality programs? Would you say that the organizations below are very supportive, somewhat supportive, or not at all supportive?

EPA Headquarters?

EPA Regional Office?

EPA Great Lakes Office?

The International Joint Commission?

State administrators?

The public?

RAP coordinators?

4. If you could change one thing about the way the program is being implemented, what would it be?

5. If you could change one thing about the intergovernmental relationship, what would it be and why?

6. What else should I know about your program, the toxic reduction efforts in the state or Great Lakes region, or the intergovernmental implementation efforts?

Thanks so much for your time. We would be happy to send you a copy of our report when it's completed. If you would like a copy, please indicate your interest and make sure we have your correct address.

APPENDIX D**DATA SOURCES FOR 305(b) ASSESSMENTS**

The main purpose of this appendix is to identify Federal data sources that may be useful for assessing use support in State waterbodies, including sources that may not be commonly used by State water quality agencies.

The sources discussed below are Federal and nongovernmental data sources; States will find additional data available from such State agencies as fish and wildlife agencies, State planning offices, departments of health, etc.

D.1 EPA Databases

Table D-1 lists EPA databases that may prove useful for assessing use support in State waterbodies. States can access each of these systems through EPA's National Computer Center mainframe computer. The national data systems in Table D-1 vary in data completeness and data quality; a State should evaluate such characteristics for their data before a system is used for assessing use support. The most complete and reliable national data systems tend to be those in which the State regularly updates information (e.g., STORET, the WBS, and the Permit Compliance System (PCS) in many States), and for which rigorous quality assurance features have been incorporated (e.g., ODES). Most of the information in Table D-1 is taken from the *Office of Water Environmental and Program Information Compendium* FY92, EPA 800-B92-001.

EPA's Assessment and Watershed Protection Division will distribute Version 3.1 of the WBS shortly after issuing these *Guidelines*. EPA specifically designed the WBS to store use support assessments for individual waterbodies and generate summary information requested in this guidance. The WBS differs from other databases in that the WBS does not contain raw data. Instead, the WBS contains use support assessment information resulting from analysis of the raw monitoring data from the States.

D.2 Other Data Sources

Table D-2 lists sources of information available from Federal agencies and other organizations outside EPA. Many of these sources are readily available but may not be used by State water quality programs. Many State water

quality agencies rely on a combination of EPA data systems and their own systems for acquiring water quality data. Reliable data on rural sources are especially difficult to obtain in many States. The best information often comes from State departments of agriculture, which compile county statistics annually and make them available relatively quickly (e.g., data on crop and livestock production). Data on crop cover, agricultural BMPs, and animal units are typically available only as county summaries, although hard copy files and maps showing exact locations may be available at the Soil and Water Conservation District level.

Data collected and analyzed by agencies of the U.S. Department of the Interior (DOI) may be of special interest to State water quality agencies. Several DOI programs as listed in Table D-2. The Water Resources Division of the U.S. Geological Survey (USGS) coordinates USGS databases through its National Water Data Exchange (NAWDEX) Program Office. For more information, contact the local NAWDEX Assistance Center in the appropriate USGS Water Resources District Office, or call Dr. James S. Burton, Chief of the national NAWDEX Program Office, at (703) 648-5684.

The DOI's Fish and Wildlife Service has many relevant monitoring and assessment programs including the National Wetlands Inventory, the National Contaminant Biomonitoring Program, the Biomonitoring of Environmental Status and Trends (BEST) Program, and the National Irrigation Water Quality Program. Table D-2 gives brief descriptions and contacts.

The National Oceanic and Atmospheric Administration, through its National Status and Trends Program, assesses the levels of 70 organic chemicals and trace elements in bottom-dwelling fish, sediments and mollusks at more than 300 sites throughout the United States. Table D-2 presents some major components of the Program and contacts.

APPENDIX D: DATA SOURCES FOR 305(b) ASSESSMENTS

Table D-1. EPA Data Systems Containing Water Information

Data System	Description	Primary Function	Contact
Waterbody System (WBS) EPA, Office of Wetlands, Oceans, and Watersheds (OWOW)	Database of assessment information drawn from CWA 305(b) activities	Provides waterbody-specific information on pollution causes and sources, use impairments, and status of TMDL development	John Clifford, OWOW (202) 260-3667
Reach File EPA, OWOW	Hydrologic georeferencing and routing system based on USGS digital line graph traces	Can integrate many databases having locational information on water quality conditions or pollutant causes	John Clifford, OWOW (202) 260-3667
STORET Water Quality System EPA, OWOW	Data analysis tool for chemical monitoring data from surface and groundwater sites. Also capabilities to store sediment and fish tissue data	Major source of raw ambient data for water quality assessments	Robert King, OWOW (202) 260-7028
STORET Biological System (BIOS) EPA, OWOW	A special component of STORET for storing information on biological assessments	Simplifies storage and analysis of biological data or metrics, with links to other EPA data files	Robert King, OWOW (202) 260-7028
Ocean Data Evaluation System (ODES) EPA, OWOW	Database and analysis system for marine and near coastal monitoring information	Permit tracking system for NPDES discharges to oceans and estuaries and for ocean dumping programs	Robert King, OWOW (202) 260-7028
Current Fish Consumption Advisories and Bans EPA, Office of Science and Technology (OST)	National database of fish/shellfish consumption advisories and bans from State 305(b) reports and other sources	Identifies waterbodies, species affected by advisories and bans and the problem pollutants	Jeff Bigler, OST (202) 260-1305
Clean Lakes System EPA, OWOW	Data analysis system for significant publicly owned lakes under CWA Section 314 program	Provides data integration using number of EPA data files with mapping capabilities using the Reach File	Susan Ratcliffe, OWOW (202) 260-5404

APPENDIX D: DATA SOURCES FOR 305(b) ASSESSMENTS

Table D-1. EPA Data Systems Containing Water Information

Data System	Description	Primary Function	Contact
Permit Compliance System (PCS) EPA, Office of Wastewater Enforcement and Compliance (OWEC)	Locations and discharge characteristics for about 7,100 major and 56,300 minor NPDES facilities	Compliance status tracking system for major dischargers	Dela Ng, OWEC (202) 260-8313
Industrial Facilities Discharge File (IFD) EPA, Office of Water	Information for about 120,000 NPDES dischargers; also Superfund sites	Locations, flows and receiving waterbodies, for industrial discharges and POTWs	Robert King, OWOW (202) 260-7028
Facility Index Systems (FINDS) EPA, Office of Information Resources Management	Basic information on over 300,000 facilities regulated by EPA	Starting point for finding regulated facilities in a given area where more detailed information available through other data systems like PCS, TRIS, AIRS, or RCRA	Joe Anderson, OIRM (703) 557-3091
Toxic Chemical Release Inventory System (TRIS) EPA, Office of Pesticides and Toxic Substances	Database of estimated and measured releases by industries of about 300 toxic chemicals to all environmental media	Inventory of toxic chemical releases with references to receiving waters and methods of waste treatment	Ruby Boyd, OPTS (202) 260-8387
Drinking Water Supply File (DWS) EPA, OWOW	Information on 7,650 public and community surface water supplies	Data on waterbody, flow, and locations of mainly surface water intakes	Robert King, OWOW (202) 260-7028
Federal Reporting Data System (FRDS) EPA, Office of Ground Water and Drinking Water (OGWDW)	Information about public supplies	Detailed data on compliance with Safe Drinking Water Act requirements including monitoring	Larry Weiner, OGWDW (202) 260-2799
Gage File EPA, OWOW	Information on some 36,000 stream gage locations	Summaries of mean annual and critical low flows and other data collected. Sites indexed to Reach File	Robert King, OWOW (202) 260-7028

Table D-1. EPA Data Systems Containing Water Information

Data System	Description	Primary Function	Contact
City and County Files EPA, OWOW	Location information and census data for 53,000 municipalities and all counties	Background data with lists of streams for each city, census population, county land/water area (coastal counties)	Robert King, OWOW (202) 260-7028
Dam File EPA, OWOW	Information on locations of 68,000 damsites and associated reservoirs	Information on ownership, uses of reservoir, size, and stream reach	Robert King, OWOW (202) 260-7028
USGS Land Use and Data Analysis (LUDA) Database EPA, Office of Information Resources Management (OIRM)	USGS database of land use from the 1970s; available through GRIDS on NCC	Contains locations of approximately 40 land use types for entire United States	Robert Pease, OIRM (703) 557-3018
Geographic Resources Information and Data System (GRIDS) EPA, OIRM	A repository for major GIS data layers along with a selection of GIS applications on the EPA NCC mainframe	Provides access to major GIS products from the USGS, Census Bureau and EPA	Robert Pease, OIRM (703) 551-3018

APPENDIX D: DATA SOURCES FOR 305(b) ASSESSMENTS

Table D-2. Other Useful Data Sources

Data System	Description	Primary Functions	Contacts
Water Data Storage and Retrieval System (WATSTORE) DOI, USGS, Water Resources Division	Database of water quality data collected at 5,000 stations and peak flow and daily flow data collected at 8,000 stations.	Store data collected by USGS, as well as cooperating agencies in DOI and the Corps of Engineers; good source of ground-water data.	Dr. James S. Burton, Chief USGS Water Resources Division, NAWDEX Program Office (703) 648-5684
National Rivers Inventory, DOI, National Park Service	List of over 1,500 river segments (approximately 63,000 miles).	Identifies waters with potential for National Wild and Scenic Rivers status.	Bern Collins (202) 343-3765 OR Tracy Miller National Park Service (202) 343-3663
National Wetlands Inventory, DOI, Fish and Wildlife Service	Computerized mapping scheme for entire United States.	Shows locations of vegetative community types using a FWS classification scheme.	David Dall DOI, Fish and Wildlife Service (202) 358-2201
Emergency Wetlands Resources Act Regional Concept Plans, DOI, Fish and Wildlife Service	Descriptions of priority wetland sites according to value and function prepared by each of the 7 FWS regional offices. Based mainly on State SCORP reports.	To prioritize Federal and State efforts related to the Emergency Wetlands Resources Act of 1986 to promote acquisition or other protection measures for major wetland tracts.	David Dall DOI, Fish and Wildlife Service (202) 358-2201
National Contaminant Biomonitoring Program, DOI, Fish and Wildlife Service	Fish and bird tissue samples collected between 1965 and 1988 for chlorinated pesticides, PCBs, and metals	Fish monitoring done to evaluate the effects of toxicants at 110 freshwater sites in specific watersheds and the Great Lakes.	Branch Chief, Field Research, National Fisheries Research Center (314) 875-5399

APPENDIX D: DATA SOURCES FOR 305(b) ASSESSMENTS

Table D-2. Other Useful Data Sources

Data System	Description	Primary Functions	Contacts
National Irrigation Water Quality Program, DOI, Fish and Wildlife Service	Physical, chemical and biological data collected at about 200 areas consisting of about 600 projects.	To identify and address irrigation-induced contamination on DOI irrigation and drainage facilities, National Wildlife Refuges, and other wildlife management areas .	Chief, Division of Environmental Contaminants (703) 358-2148
Biomonitoring of Environmental Status and Trends (BEST) Program, DOI, Fish and Wildlife Service	Data collection to address effects on migratory birds, endangered species, anadromous fish, certain marine mammals, and habitats. Pilot projects through 1995; full implementation in 1996.	Monitor and assess environmental contamination effects to fish and wildlife and their habitats, on and off National Wildlife Refuges.	Chief, Division of Environmental Contaminants (703) 358-2148
Multi-State Fish and Wildlife Information Systems Project, DOI, Fish and Wildlife Service	Database of life history, habitat needs, and environmental tolerances for inland and marine fish and wildlife.	Central database to facilitate review of permits, regulatory requirements, and ecological preservation or restoration programs.	Rick Bennett (703) 358-1718 DOI, Fish and Wildlife Service OR Andy Loftus (202) 898-0770 Sport Fishing Institute
National Gap Analysis Project, DOI, Fish and Wildlife Service	Application of GIS technology to prioritize habitat protection needs for specific fish or wildlife species and for overall species protection.	Provides way to identify habitat protection needs based on identification of "gaps" when comparing existing protected areas with regional habitat distributions.	Dr. Ted LaRoe (703) 358-2171 DOI, Fish and Wildlife Service

Table D-2. Other Useful Data Sources

Data System	Description	Primary Functions	Contacts
Rivers and Trails Conservation Assistance Program, DOI, National Park Service	Program supports development and updates to Statewide river inventories or evaluation of particular river corridors or greenways.	Supports Federal and State scenic river programs and a variety of greenway and open space protection initiatives.	Samuel Stokes (202) 343-3779 DOI, National Park Service
American Rivers Outstanding Rivers List	Database on 15,000 river segments possessing outstanding scenic, recreational and ecological attributes.	Assembles information from National Park Service river surveys, Northwest Power Planning Council's Protected Areas Program, Nature Conservancy Priority Aquatic Sites and other major sources.	Susie Wilkins (202) 547-6900 Outstanding Rivers List
Recreation Information Management System, USDA, Forest Service	Database of recreational facilities and areas in National Forest System.	Contains data on types of recreation, visitor days, and participation by activity.	USDA, Forest Service (202) 205-1706
Biological and Conservation Data System, The Nature Conservancy	Listing by States of rare species and key habitat areas.	For identifying waters important for rare plant and animal species protection.	The Nature Conservancy (703) 841-8781
National Water Quality Technology Development Staff, USDA, Soil Conservation Service	Four regional centers provide database, modeling, and GIS technology assistance to promote former President Bush's Water Quality Initiative, the Farm Bill, and other programs.	Will provide convenient access to soil survey data and a variety of models (e.g., AGNPS) for use with GIS systems to support USDA HUA projects and similar initiatives.	Jackie Diggs USDA, Soil Conservation Service (202) 720-0136

APPENDIX D: DATA SOURCES FOR 305(b) ASSESSMENTS

Table D-2. Other Useful Data Sources

Data System	Description	Primary Functions	Contacts
Benthic Surveillance Project, National Status and Trends Program, Department of Commerce, NOAA	Sampling at 79 estuarine sites for PCBs, PAHs, chlorinated pesticides, butyltins, sewage tracers, and trace elements.	Determine concentrations of toxic chemicals in sediments and bottom-dwelling fish.	NS&T Program National Ocean Service, NOAA (301) 713-3028
Mussell Watch Project, National Status and Trends Program, NOAA	Mussels and oysters collected annually at about 240 sites and analyzed for same parameters as the Benthic Surveillance Project.	To determine concentrations of toxic chemicals in mussels and similar bivalve mollusks as "sentinel organisms" in environmental monitoring.	NS&T Program National Ocean Service, NOAA (301) 713-3028
Coastal Contamination Assessments, National Status and Trends Program, NOAA	Quick-reference reports for Long Island Sound, Gulf of Maine, Hudson-Raritan area, Narragansett Bay, and Buzzards Bay reports done or underway.	To identify potential toxicant problems and compare local levels of contamination with national-scale results.	NS&T Program National Ocean Service, NOAA (301) 713-3028
National Estuarine Inventory and Strategic Assessment Program, NOAA	Source of demographic, economic, and natural resource information for 102 Estuarine Drainage Areas.	Provide data to support NOAA initiatives related to the Sea Grant and Coastal Zone Management Programs.	John P. Tolson National Ocean Service, NOAA (301) 713-3000
National Shellfish Register, NOAA	Tracks status of shellfish harvesting areas by State at 5-year intervals (most recent data is from 1990).	Detect trends in shellfish growing waters and the abundance of shellfish resources.	Maureen Warren National Ocean Service, NOAA (301) 713-3000

Table D-2. Other Useful Data Sources

Data System	Description	Primary Functions	Contacts
Decennial Census Department of Commerce, Bureau of the Census	Major source of information with county-level resolution dealing with population, agriculture, mining, etc.	Available in digitized form and, in conjunction with USGS, in a variety of new map forms. Census of agriculture often provides best available data on crop, livestock, and land use patterns.	Charles D. Jones (301) 763-5180



Great Lakes Toxic Reduction Effort

U.S. Environmental Protection Agency, Region 5, Water Division

"PATHWAYS" TRACK UPDATE: Air Deposition, Waste Sites, Spills, Sediments, CSO/Storm Water

AIR DEPOSITION

"Great Waters Report" Issued

The First Report to Congress on "Deposition of Air Pollutants to the Great Waters" (Great Waters Report) was issued on May 20, 1994. The Great Waters include the Great Lakes, Chesapeake Bay, Lake Champlain, and coastal waters. The Report was mandated under Section 112(m) of the Clean Air Act Amendments of 1990. It contains a useful compilation of up-to-date information on deposition of pollutants to the Great Waters, current actions to control the release of these pollutants, recommendations for additional research to increase our knowledge, and recommendations for actions to further reduce air deposition.

A public meeting on the Great Waters Report and what it means to the Great Lakes will be held on Tuesday, August 2, 1994, at the Region 5 offices in Chicago, 77 West Jackson (Metcalf Building), Room 331. You may have already received an invitation signed by Valdas Adamkus, Regional Administrator, EPA Region 5, dated June 3, 1994. The purpose of the meeting is to provide an opportunity to review this important Report with several of its authors, to ask questions, and to provide comments that will help guide implementation of the recommendations and the preparation of future reports. The meeting is designed for the general public, environmental and business community, local units of government, Great Lakes States, Tribes, and other interested parties.

The eight Great Lakes States, Tribes, and EPA Regions 2, 3 and 5 are engaged in a multi-media program dialogue on the Report.

To receive a copy of the Great Waters Report, call the Office of Air Quality Planning and Standards at (919) 541-5648. Copies will be available at the August public meeting. (Barbara McLeod/(312) 886-3718)

Mercury Reduction Workgroup

A priority of the Region 5 Air and Radiation Division is to "reduce air toxics emissions to protect public health and to reduce deposition to the Great Lakes." Consistent with that priority, the Air and Radiation Division has established the Great Lakes States Mercury Workgroup. Based on a list of action items generated in November, 1993, the group works on joint actions to continue to reduce mercury releases.

(Barbara McLeod/(312)886-3718 or Angela Bandemehr/(312)886-6858)

Medical Waste Mercury Reduction Project

One of the action items of the Mercury Workgroup is to increase awareness and voluntary actions to reduce the use of mercury-containing products. The GLTRE is working with the

Terrene Institute, Great Lakes States, and other interested persons, to form partnerships and promote awareness among hospitals, medical trade associations, and medical equipment suppliers of the human health and environmental risks associated with mercury. It is estimated that medical waste incineration nationwide contributes 65 tons of mercury per year to the atmosphere. Informational materials created will appeal to the medical community to use safe alternatives to mercury-containing products; if safe substitutes are unavailable, to recycle; and, finally, to properly dispose of mercury-containing medical wastes. (Christine Urban/(312) 886-7783, or Barbara McLeod/(312)886-3718))

◆ **Combined Sewer Overflow (CSO)/STORM WATER/URBAN RUNOFF**

Permit Quality Action Team (PQAT) Recommendations

representatives of State and Federal National Pollutant Discharge Elimination System (NPDES) Permit Programs. The PQAT is recommending actions to State Water Program Directors and the Region 5 Water Director for reducing toxic chemical loads. The group is looking at pilot activities which emphasize BCCs in implementing the requirements of the Final National CSO Strategy; targeting pollution prevention, pretreatment, and public notice to promote public awareness of BCCs. Treatment technology demonstrations that build on existing projects, such as the Rouge River Wet Weather Demonstration project are also recommended. After review by the State and Regional Water Directors, activities will be incorporated into the CSO/Storm Water/Runoff Issue Paper. (Christine Urban/ (312)886-7783 or Peter Swenson/(312)886-0236)

Cross Program Coordination

In coordination with the "Environmental Technology Initiative" (U.S. EPA Headquarters), we are providing input to a project to improve analytical detection capability for toxic pollutants, and identify barriers to innovative technologies in the NPDES program. The project is part of the President's initiative to break down barriers to innovation in environmental technology development.

Several possibilities for coordination with the Nonpoint Source Program have been identified: summarize research on best management practices (BMPs) most effective for removing toxic chemicals from runoff; identifying gaps in knowledge of toxic chemical removal efficiencies of BMPs; compare to BMPs currently required by the Coastal Zone Act Reauthorization; provide technical transfer to the State Coastal Zone Management Programs to encourage appropriate BMPs for toxic chemical removal; and, pilot technology (including BMPs) demonstration projects in AOCs with known BCC contamination. (Christine Urban/(312) 886-7783)

Saginaw Bay BCC Inventory Workplan Approved

GLTRE has approved a workplan for Michigan DNR to complete an inventory of BCCs from diffuse sources to Saginaw Bay. Products will include recommendations on mathematical models for quantifying BCC loads to the Bay and a prototype monitoring plan exploring a range of monitoring options and associated costs. The first meeting of the advisory committee is planned for mid-July, 1994. The GLTRE will be working closely with the

Region 5 Nonpoint Source Program, and State and Federal agencies on the advisory committee. (Christine Urban/(312)886-7783)

◆ SEDIMENTS

Great Lakes Sediment Task Force

A Great Lakes Sediment Task Force Meeting (Sediment Contacts for the Great Lakes States, Regions, and Tribes) was held on February 2, 1994. Working groups were established on Sediment Quality Criteria (SQC), consistent Cleanup Goals, and Data Management.

Sediment Quality Criteria Working Group

The SQC working group issued consensus comments on the proposed "Sediment Quality Criteria for the Protection of Benthic Organisms" (59 Fed. Reg. No.11, at 2652). Key among the comments are the need for the States and EPA Regions to be involved in drafting the "User's Guide" for the SQC, and that SQC are badly needed for chemicals that are the subject of regulatory and remediation efforts in the Great Lakes: PCBs, mercury, heavy metals, and PAHs. (Howard Zar/(312) 886-1491)

Cleanup Goals Working Group

The Cleanup Goals workgroup adopted the following goal: "To develop an appropriate model approach for developing technically sound sediment cleanup goals for contaminated sediment sites in the Great Lakes Basin." Draft "decision trees," user-friendly tools that project managers/decision-makers could use at Great Lakes sites, are under development for total PCBs, heavy metals, mercury, PAHs, and dioxin. (Bonnie Eleder/(312) 886-4885)

Data Management Working Group

The Data Management working group is concerned with improving the Great Lakes sediment database and making it available in a consistent format useful to environmental managers, and contributing to the National Sediment Inventory. (Ken Klewin/(312) 886-4679)

Sediment Focus Group/National Contaminated Sediment Strategy

At the request of the Region 5 Water Directors, a letter requesting persons to participate in a Basin-wide sediment "focus group" was sent to the Basin Waste/Water Directors in May. The purpose of the focus group is to identify elements of a "model" sediment management program, and barriers to timely and effective cleanups. Focus group members have been nominated by all Great Lakes States and Regions. The *National Contaminated Sediment Strategy* is expected to be released by the end of August, 1994. Release of this document will serve as a point of departure for the focus group. It is our intention to schedule a meeting of the focus group, and, if there is public interest, a public meeting, as soon as copies of this document are available for distribution. (Barbara McLeod/(312) 886-3718; Howard Zar/(312) 886-1491)

Study to Estimate Regional Loads to the Upper Great Lakes

U.S. EPA Region 5 has an Interagency Agreement with the Michigan and Wisconsin District offices of the U.S. Geological Survey (USGS) to develop a method to prioritize Great Lakes tributaries for remediation on the basis of their potential to contribute sediment-derived contaminants to the Lakes. The study will provide an empirical method that should yield a realistic comparison of potential loadings for those tributaries for which data are available.

The USGS has done preliminary work on the study based on predicted suspended sediment loadings during floods. A final report summarizing the methods and results will be published by the end of 1994. (Christine Urban/(312) 886-7783; Ken Klewin/(312) 886-4679)

◆ **SPILLS**

Lakes Spills Symposium Proceedings Available

GLTRE hosted the Great Lakes Spills Symposium March 15-17, 1994, on transportation, handling, and short-term storage related spills. Over 100 people participated in the 3-day conference, which included presentations on spill prevention, improving response and remediation activities, and identifying regulatory gaps *and overlaps*. Small facilitated breakout group discussions were held to give participants an opportunity to explore various issues in greater detail. Proceedings are being mailed to participants and invitees this month. (Laura Flynn/(312) 886-3718)

Cooperative Efforts with the Office of Chemical Emergency Preparedness and Prevention

Spills Symposium participants identified contingency planning as an area that needed considerable overhaul. Some of issues identified include: often burdensome and duplicative notification of spills; mandated contingency plans which don't reflect needs of the companies; and too much emphasis on paperwork, rather than on pollution prevention and primary and secondary containment measures.

Staff from GLTRE and the EPA Office of Chemical Emergency Preparedness and Prevention (OCEPP), have met to discuss opportunities for cooperative ventures between OCEPP and GLTRE to address these concerns. OCEPP is conducting interviews with companies across the nation to determine how contingency planning under the Agency's many environmental mandates can be improved. (Bill Finan, OCEPP (202) 260-0030)

Chemical Spills Protection Initiative Demonstration Project in Southeast Michigan (SEMI)

A project to assess the viability of a Great Lakes Chemical Spills Protection Initiative demonstration project Southeast Michigan is underway. The objective of the project is to encourage a public/private dialog in chemical spill prevention practices and to make those practices known to industry sectors that handle Great Lakes Critical Pollutants. (Barbara McLeod/(312) 886-3718)

Shallow Injection Well Project in SEMI

An effort is also underway to bring in a groundwater component to the Chemical Spill

Protection Initiative demonstration project in SEMI, through the involvement of the Underground Injection Control (UIC) program. Although discussions are in the very early stages, the UIC program is interested in the possibility of conducting a shallow injection well (Class V) outreach and well closure program in SEMI. (Laura Flynn/(312) 886-3718)

Great Lakes Area Computerized Inventory for Emergency Response (GLACIER)

The Great Lakes Commissions' Emergency Preparedness Task Force, in cooperation with the Region 5 Regional Response Team, is preparing a computerized inventory of public and private sector oil and hazardous materials spill response equipment, supplies, services and related resources. Information collected through survey or electronic transfer will be placed into a computerized bulletin board that can be accessed from any personal computer with a communications setup. For more information, contact: Tom Crane, Great Lakes Commission, (313) 665-9135; Ken Schultz, Ohio EPA (614) 644-2081.

UPCOMING SPILLS-RELATED EVENTS AND MEETINGS

July 20-21, 1994: 6th Annual NASTTPO Conference

The National Association of SARA Title III Program Officials (NASTTPO) is hosting their 6th annual conference at the Radisson Hotel in Denver, Colorado. For more information contact: Paula McKinney, NASTTPO, at (512) 834-6600.

Sept. 12, 1994: CANUSLAK '94 Exercise on Lake Erie

The September 12, 1994, Canada-U.S. Lake (CANUSLAK) Exercise '94 is being co-sponsored by the U.S. and Canadian Coast Guards. It will involve the simulated collision of an oil tanker and chemical carrier on Lake Erie. For more information, contact: Lew Meyers, Ohio EMA, at (614) 793-3013.

Sept. 19-21, 1994: 18th Annual Inland Spills Conference

The Ohio Environmental Protection Agency and the Spill Control Association of America (SCAA) are hosting this year's Inland Spills Conference on September 19-21, 1994, at the Radisson North Hotel in Columbus, Ohio. For more information, contact Ken Schultz, Ohio EPA, at (614) 644-2260.

Oct. 31 - Nov. 3, 1994: International Hazardous Material Spills Conference

The 1994 International Hazardous Materials Spills Conference will be held October 31 - November 3, 1994, at the Hyatt Regency Hotel in Buffalo, New York. For more information, contact: Sarah Bauer, at (202) 260-8247.

◆ WASTE STORAGE SITES

Information Collection

Several activities are underway in the Waste Management Division to assemble basic information needed to address this pathway:

The Office of Resource Conservation and Recovery Act (RCRA) is evaluating the impact of

RCRA hazardous waste constituents to the Great Lakes Basin. Data will is being analyzed to identify sites where there may be large contributions of BCCs to the Great Lakes.

A study of loadings from Superfund sites in the Great Lakes Basin is also underway.

OCEPP is preparing GIS maps of Superfund and Toxic Release Inventory (TRI) sites for eight county region in the Southeast Michigan Initiative (SEMI) area. If successful, data on RCRA may be added, and/or project may be expanded to entire U.S. side of Great Lakes Basin.

This information will be used to identify activities to reduce the volume and toxicity of pollutants generated at identified facilities and sites. (Barbara McLeod/(312) 886-3718)

Issue Papers

Issue Papers for each pathway will be completed by October 1, 1994. The Issue Papers will be distributed for public comment to persons nominated for the public participation group who expressed interest in a particular pathway, in advance of the December public meeting.

"VIRTUAL ELIMINATION" TRACK

Project Update

The Virtual Elimination project seeks to identify government actions or signals that provide an impetus for companies and individuals to reduce their use of certain target chemicals.

We are in the process of reviewing the sources and uses of mercury and PCBs in the Great Lakes Basin and documenting the State and Federal regulations that govern each.

This analysis will be used to generate ideas on what "gaps" exist in the current regulatory and non-regulatory structure. The analysis will be completed in time for the next Virtual Elimination meeting which will be held in September in Chicago. (Elizabeth LaPlante, GLNPO/(312) 353-2694)

"LAKE MICHIGAN ENHANCED MONITORING PROGRAM" TRACK

Lake Michigan Mass Balance Sampling Underway

This is a collaborative project involving USEPA, the four Lake Michigan States, and other Federal Agencies. The goal is to determine the relative loadings of several Lake Michigan Critical Pollutants from major tributaries, and to evaluate the relative pollutant loadings from water and air sources. These data will allow agencies to better target load reduction actions on those sources that contribute the largest amounts of Critical Pollutants and pose the greatest risk.

Tributary monitoring began in April, 1994. Atmospheric deposition monitoring, open-water, sediment, and biota sampling and analysis began in March, 1994. (Gary Kohlhepp/(312) 886-4680)

◆ STRUCTURE

A draft document entitled "The Great Lakes Architecture: Integrating the Ecosystem Management Approach Across the Basin" that describes a proposed Basin-wide Federal/State/Tribal/Local/Stakeholder committee and public participation structure is under review by the U. S. parties to the Binational Executive Committee. (Mark Elster/(312) 886-3857)

OTHER MULTIMEDIA ACTIVITIES EMPHASIZING BCCs

Pesticides

Region 5 Regional Administrator Valdas Adamkus has requested USEPA Assistant Administrator for Pollution Prevention and Toxic Substances Dr. Lynn Goldman to conduct a scientific review of the pesticides lindane and methoxychlor, the only two pesticides on the BCC list that are in current use in the United States. (Barbara McLeod/(312) 886-3718; Frank Anscombe/(312) 353-0201)

***Federal Register* Proposal for Disposal of Mercury-Containing Fluorescent Lamps**

The Office of Management and Budget is expected to approve, in early July, "co-proposal" language for publication in the *Federal Register*. The "co-proposals," or alternatives on which the Agency will take comment, are: 1) exempting fluorescent lamps from the requirements of the Resource Conservation and Recovery Act for hazardous waste management; or, 2) including fluorescent lamps in the Universal Waste Rule, designed in part to facilitate recycling by streamlining regulations. Publication in the *Federal Register* will offer the opportunity for interested parties to communicate opinions on the alternative proposals to the Agency. (Christine Urban/(312) 886-7783)

Expansion of the Toxic Release Inventory (TRI)

The public comment period has closed on the Agency's proposal to expand the TRI. Region 5 is interested in including the full list of chemicals known as GLCPs and BCCs in the Great Lakes on the TRI; lowering the reporting thresholds for those that bioaccumulate and are of concern in small amounts; and capturing the full range of sources of BCCs, in order to achieve full and accurate reporting of these toxics. Many comments were received on these issues. The majority were in support of additional reporting of BCCs. The Agency is preparing responses to comments. The final rule is expected in Fall of 1994. (Barbara McLeod/(312) 886-3718)

User-Friendly Fact Sheets on BCCs Complete Internal Review

EPA staff have recently completed a review of information to be included in the "*User-Friendly Factsheets*" on the BCCs. The difficult task of "translating" this wealth of technical information into "Plain English" will be completed as soon as resources are available. (Laura Flynn/(312) 886-0180)

Monitoring and Modeling Workshop for Great Lakes States

A workshop is being planned for November 1994 to provide training to States in modeling and monitoring techniques for toxic chemicals. The workshop will support the goal of building the capacity of States to assess and reduce toxic loadings within their jurisdictions. We are consulting with State Nonpoint Source Programs to determine the areas where States may need the most training. (Christine Urban/(312)886-7783)

Voluntary PCB Phasedown Project

Region 5 EPA has a project underway to reduce risks from PCBs by asking all PCB users in Region 5 (utility, industrial, and commercial) to voluntarily remove and properly dispose of their PCB-containing equipment in five years. Removal includes physically removing the units, retrofilling, and detoxification. As a first step, the Region has met with the 13 largest utilities in the Region 5 portion of the Great Lakes Basin. The Region requested of the utilities--and has received some initial response regarding--information on phasedown programs currently underway and details regarding future participation in this initiative. (Phyllis Reed/(312) 886-6018)

Lake Erie Lakewide Management Plan (LaMP) Update

A draft concept paper describing a commonly understood, consensus-based approach for the Lake Erie LaMP is currently under development. USEPA and Environment Canada have been serving as co-leads for the initial planning phases. In the U.S., Ohio is the lead State, with participation from Michigan, Pennsylvania, and New York State. In Canada, the Province of Ontario and the Department of Fisheries and Oceans are participating. The concept paper should be available for public review in August, 1994. (Francine Norling/(312) 886-0271 or Jeanette Collins/(312) 886-0149)