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GREAT LAKES BASIN COMMISSION

COORDINATING AND PLANNING FOR GREAT LAKES WATER AND LAND RESOURCES

1977 ANNUAL REPORT

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GREAT LAKES BASIN COMMISSION

The Great Lakes Basin Commission is dedicated to the best use and conservation of natural resources in the region. To achieve this ambitious goal, it has undertaken the following:

- Development of a resource use and conservation plan for the entire U.S. Great Lakes basin.
- Coordination of planning and research by agencies and private groups through interstate-interagency committees, basin-wide conferences, and review of plans and research.
- Establishment of long-term priorities for needed data collection and analysis.
- Performance of special studies of resources as needed.

The commission's basin-wide perspective encourages comprehensive rather than sectional solutions.

The Basin Commission views the entire Great Lakes drainage basin of 117,000 square miles as an interconnected whole. The lake country and forests of the north, the flat crop lands to the south, and the mountains in the east are characterized by both diversity and interdependence, as are the five Great Lakes themselves. The commission's basin-wide perspective encourages comprehensive rather than sectional solutions and discourages the waste of overlapping efforts.

The Basin Commission was established in 1967 at the request of the Great Lakes states under the Water Resources Planning Act of 1965. Operating funds are supplied by the Great Lakes states and matched by the federal government.

Commissioners represent the states and agencies listed on the back cover. Canadian federal and provincial government observers and citizens attend the quarterly commission meetings, where decisions are made by commissioners on a consensus basis.

The Basin Commission chairman is appointed by the U.S. President; the commissioners annually elect the vice-chairman from their state membership.

The Great Lakes Basin Commission office in Ann Arbor, Michigan, is staffed by employees engaged in planning, coordination, and public involvement and information.

This annual report describes the commission's work, particularly accomplishments in fiscal year 1977 (October 1976–September 1977).

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Photos courtesy of Ontario Ministry of the Environment, p. 1; Michigan Tourist Council, p. 3; U.S. Army Corps of Engineers, p. 5; Michigan Department of Natural Resources, by Blanchard Mills, p. 8; Wisconsin Department of Natural Resources, pp. 9, 11, 12, 14, 15, 19.

FROM THE CHAIRMAN

To Their Excellencies, the Governors of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin, and to the U.S. Water Resources Council for transmittal to the Congress through the President of the United States:

Man's impact on the environment...The environment's impact on man...These two issues were prominent throughout fiscal year 1977.

Most of the country experienced an extraordinarily cold winter in 1976-77 and a widespread drought plagued parts of the Great Lakes basin. Extensive media coverage of fuel shortages, energy legislation, toxic substances, environmental effects of alternative sources of energy, destructive oil spills, and the hardships suffered by wildlife and agriculture during the hard winter and drought, made people more aware than ever before of the depletability and destructability of the natural resources they depend on.

As it strove to meet needs and challenges, the commission expanded its planning and participation...

As it strove to meet the needs and challenges presented, the Great Lakes Basin Commission expanded its participation, planning, and coordination during 1977. Staff members participated in preparations for both the international United Nations Water Conference and the U.S. National Water Conference. Staff and state members also participated extensively in the new administration's national Water Resource Policy Study.

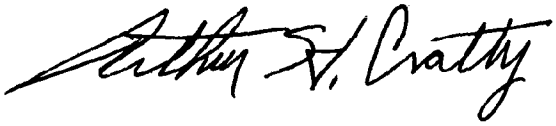
The Basin Commission urged all levels of government to severely limit phosphates in detergents and to give increased attention to the long-term effects of toxic substances. On the energy front, the commission decided to not support a proposed International Joint Commission study of the feasibility of oil and wet gas drilling in the Great Lakes. Concerned about protecting the Great Lakes from spills of oil and other hazardous cargoes, the commission also recommended to both the U.S. and Canada that they speed up the development of regulations for vessel design, maintenance, and operation, as they had agreed to do under Annex 3 of the Great Lakes Water Quality Agreement of 1972.

The Basin Commission chose the pertinent issues of water supply and conservation, water pollution, and control of toxic substances to be the focus of the current phase of its major effort, the Great Lakes Basin Plan. It also expanded the plan's public involvement program.

The commission undertook much successful coordination...

The commission undertook much successful inter-agency coordination during FY 1977. Pollution studies, fisheries management, research, transportation, and coastal management benefitted from this activity.

The commission is encouraged by the willingness of its members to join in seeking to lessen the adverse impacts of man and environment on each other and by increased ability to respond quickly to changing situations. It is looking forward to continuing work on the Great Lakes Basin Plan, strengthening its public involvement program, and further stimulating coordination and the exchange of ideas.



Arthur H. Cratty
Alternate Chairman

GREAT LAKES BASIN PLAN

The Great Lakes Basin Plan is at the heart of the Basin Commission's efforts to achieve the best use and conservation of the region's natural resources. The plan will be unique and valuable because it approaches problems from a basin-wide viewpoint. This perspective will enable all basin planning and research to be coordinated and the relative urgency of solving different basin problems to be determined.

The Great Lakes Basin Plan is at the heart of the commission's work...

The plan will be officially reported to the public and those with the power to authorize and fund its recommended programs: Congress, the federal Office of Management and Budget, federal agencies, and the states. As circumstances change, the plan will be continually revised so that only the most up-to-date information and pertinent recommendations are released through an annual plan report.

Plan Development

The first phase of the plan was the Great Lakes Basin Framework Study, which compiled and analyzed all available data about resources in the Great Lakes basin and their use. As the Framework Study was completed in 1976, the commission began organizing a detailed plan for future work. This plan of study divided the work into four important activities: inventory, analysis, program formulation, and implementation.

As the Framework Study was completed, the commission organized a plan for future work.

An *inventory* of all the needed facts—physical, institutional, demographic, and economic conditions, and past, present, and proposed plans, programs, and research—will be compiled. The inventory will be revised when new information is available.

The inventory will undergo *analysis* to reveal how basin problems are being dealt with and what problems need attention. The analysis will also define the interrelationships among problems and specify possible solutions to the problems. The probable impacts of each alternative solution will then be analyzed. The solutions might include research, plans, programs, or projects.

Then *program formulation* will choose among the alternative solutions to forge a recommended regional program. Finally, in the *implementation* phase, priorities for carrying out the program's various components and the appropriate agency for undertaking each component will be specified. The commission's coordination and research activities will contribute to all phases of plan development.

The commission's research and coordination will contribute to all steps in developing the plan.

This issue-oriented approach will permit swift action on urgent problems.

A key decision in FY 1977 was that the plan should deal comprehensively with a few specific resource issues at a time. This issue-oriented approach will permit swift action on urgent problems. After seeking the guidance of the states, federal agencies, and the public, the commission decided to focus on three issues between FY 1977 and the end of FY 1979:

- water pollution contol plans
- control of toxic substances
- water supply and conservation

Near the end of FY 1977 the staff began work on these three problems by (1) indexing and examining the basin's comprehensive areawide waste treatment management plans (developed by states in accord with Section 208, Federal Water Pollution Control Act Amendments of 1972) to determine their cumulative impact and the extent to which further investments in pollution control are needed, (2) assessing the sources of toxic substances and the laws, regulations, programs, and administrative procedures affecting control of toxic substances, and (3) organizing a work program for water supply and conservation and planning a conference on water conservation.

Also during FY 1977, the commission staff produced the first annual Great Lakes Basin Plan Report. It presents information integrated from the National Water Assessment and the Great Lakes Basin Framework Study and some analysis based on inventories of previous, present, and proposed plans and programs.

Public Involvement

Citizen leaders greatly influenced development of the plan in 1977.

Citizen leaders on the Great Lakes Basin Plan's public involvement work group greatly influenced the development of the plan in 1977. The work group was made up of the commissioners on the planning committee and 35 members of the public representing a broad spectrum of concerns: civic, environmental, riparian, industrial, labor, business, news media, and local government.

Great Lakes Basin Plan Brochure

The work group met three times for day-long sessions throughout the course of the year. Its primary purpose was to devise and recommend to the commission a comprehensive public information and involvement program for the next two years.

An ambitious public participation program evolved. It called for the development of numerous information materials, such as fact sheets, brochures, and a slide show, and for a series of public workshops throughout the region.

The work group was also responsible for securing reimbursement for travel expenses of citizen observers participating at commission and committee meetings. Its analysis and critique of the technical work itself led to numerous changes in the planning process, including the shift to an issue-oriented approach. The work group was instrumental in helping to rewrite the plan of study.

Its mission of formulating a public participation program accomplished by July 1977, the work group disbanded. But the experience of merging the planning committee with citizen representatives had proved so fruitful that the commission was quick to approve the establishment of a new work group to monitor and shape public involvement activities for FY 1978.

Great Lakes Basin Report—1977

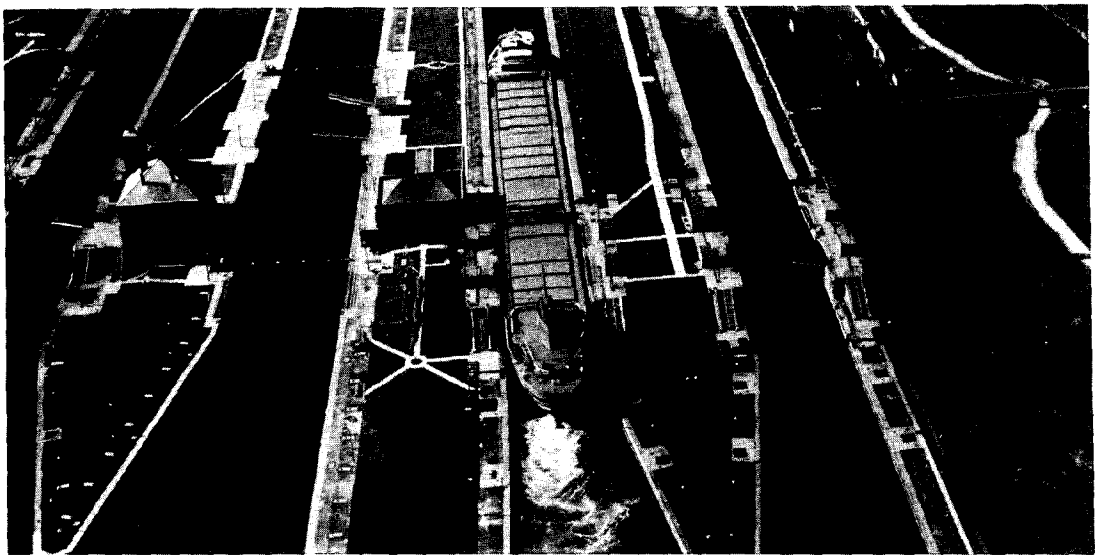
Inventory of Past Planning Studies, 1970-76, First Edition

THE LAKES

STANDING COMMITTEE ON TRANSPORTATION

With the construction of ever larger vessels, it must soon be decided whether to expand Great Lakes locks and channels to accommodate the new giant ships. Proponents of a larger system feel it would draw more ocean-going vessels into the Great Lakes, and they emphasize that larger ships are more efficient to operate. Opponents point to the economic and environmental costs of expanding and maintaining a larger system.

To help decision-makers sort out these conflicting arguments, the Basin Commission's standing committee on transportation began planning a seminar of experts and citizens for late 1977 to outline the complete spectrum of factors that must be considered before an intelligent decision can be made. A report listing all factors and detailing issues discussed at the seminar will be published.



Following an earlier workshop, the transportation committee recognized the need for a more efficient regional transportation system to facilitate a smoother exchange of commodities among water and other modes of transportation. So the committee sponsored a workshop in FY 1977 to explore methods of achieving this integration among modes. The workshop found that regional and modal self-interest and federal regulations inhibit multi-modal interchange. The workshop concluded that alteration of federal regulations and consolidation of federal financing and federal agencies dealing with transportation are essential first steps towards achieving integration.

A workshop explored methods of achieving integration among transportation modes.

The committee published the proceedings of this workshop, and presented a concise report on the findings of both transportation workshops to the Basin Commission to guide its approach to transportation-related problems.

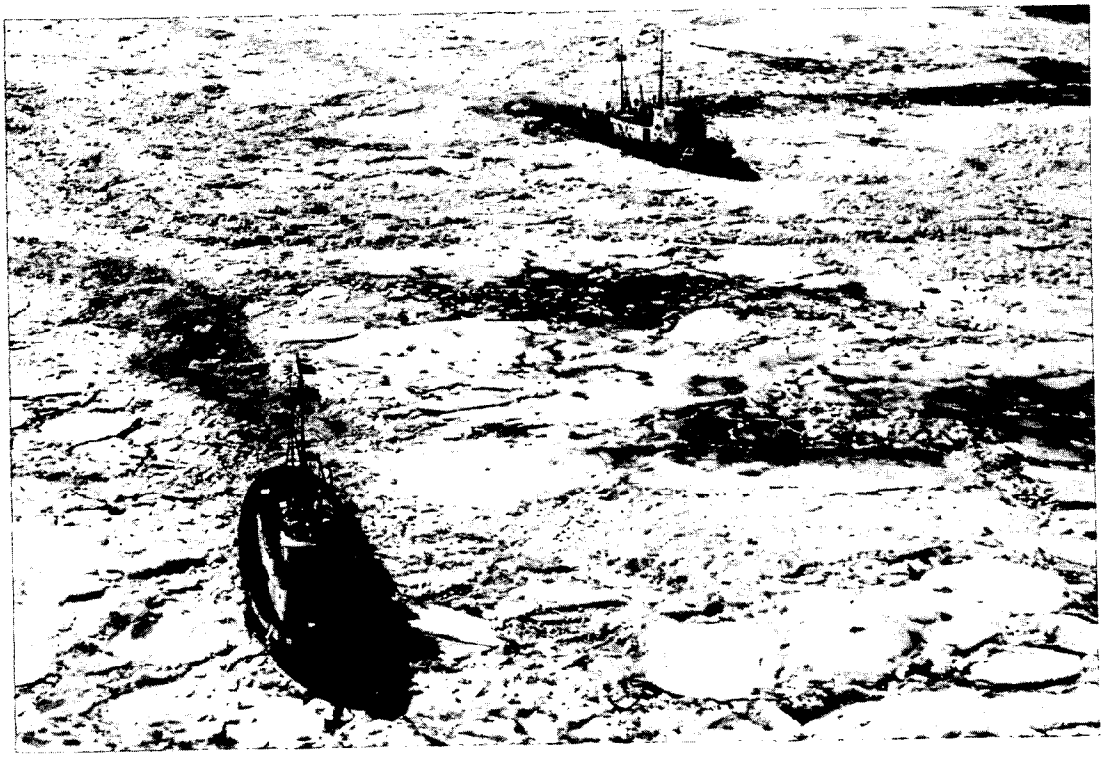
Throughout FY 1977 the transportation committee's monthly memorandum kept individuals involved in all transportation modes abreast of national and regional developments. Also during 1977 the staff secretariat to the transportation committee served on the steering committee of the Great Lakes Cooperative Port Planning Study. This study, funded by the U.S. Maritime Administration and Great Lakes states, will prepare a marketing strategy to increase the flow of cargo through Great Lakes ports.

Toward More Effective and Efficient Multimodal Transportation in the Great Lakes Region

The transportation committee is composed of transportation specialists from the Great Lakes states' governments, various branches of the federal government, and several private associations. Regular meetings of the committee foster discussion and coordination among the diverse governmental and private entities.

WINTER NAVIGATION

Severe weather and ice have historically halted shipping on the Great Lakes-St. Lawrence Seaway between mid-December and early April, requiring some industries to stockpile materials for the winter and causing others to depend partially or year-round on other forms of transportation. Interest in the possible economic benefits of winter navigation eventually resulted in a Congress-authorized program begun in 1970 to determine the practicability of winter navigation and its beneficial and adverse effects.



The Great Lakes Basin Commission continued its participation in this program during FY 1977. The commission's state caucus maintained its membership on the Great Lakes-St. Lawrence Seaway Winter Navigation Board, which oversees the demonstration program, and commission staff served on the board's working committee and its environmental planning task force. The staff also prepared a paper for the board and the state coastal zone management programs that described the opportunities for cooperation among these entities in situations where broken ice cover, spills, harbor modifications, and other concomitants of winter navigation might affect the coast.

In June the board asked the Basin Commission to study the social effects of winter navigation to supplement information being gathered on the engineering, economic, and environmental aspects of winter navigation.

The commission studied the social effects of winter navigation...

The six-month study

- identified known social effects of winter navigation through a literature review
- identified potential and undocumented social effects through public meetings and interviews
- recommended a problem-solving plan of action.

The first stage revealed that winter navigation affects occupational groups, ice-dependent recreation, amount of structural damage from shore erosion and ice and wave action, and cross-channel transportation previously dependent on ice.

The second stage revealed numerous public concerns about winter navigation, including its effects on the environment and on other modes of transportation, reduction of employment, and the validity and equity of basing decisions on cost/benefit ratios.

Five recommendations resulted:

1. Establish a program to monitor the social effects of winter navigation on various types of communities and occupational groups.
2. Investigate the character and economics of ice-based recreation in the basin.
3. Examine existing and needed mechanisms for compensating for damages caused by winter navigation.
4. Develop contingency plans for winter transportation across the St. Clair, Detroit, and St. Lawrence Rivers.
5. Establish a public involvement program.

The Social Aspects of Winter Navigation

RESEARCH COORDINATION

The increasing volume and complexity of water research in the Great Lakes basin has created a need for more coordination among research agencies and institutions. To meet this need the Basin Commission expanded its research coordinating efforts during fiscal year 1977.

Under an interagency agreement with the U.S. Environmental Protection Agency, the Basin Commission met in January 1977 with the agencies and institutions operating research vessels in the Great Lakes to review proposed cruise schedules and discuss ways to coordinate data collection. The commission staff then prepared a report that provided the research, surveillance and planning community with a summary of the capabilities and proposed cruise schedules of the U.S. Great Lakes research vessels. A streamlined international system of inventorying cruise data called ROSCOP was introduced to Great Lakes researchers at the January meeting and subsequently used on a trial basis. Its success will be reviewed at a similar meeting in 1978.

In March 1977 the Great Lakes Basin Commission became a member agency in the National Water Data Exchange. This data exchange was established to report the availability of water-related data and improve access to these data. The new program has more than 60 member organizations across the country, including several in the Great Lakes region.

The commission became a member of the National Water Data Exchange.

Also during 1977 the Basin Commission established a new standing committee on research and development. This was in response to the need for coordination between the scientific community (including non-federal researchers) and the planning community.

Great Lakes Research Vessels, Capabilities, and Preliminary 1977 Schedules

The research and development committee will provide scientific information and advice to the Basin Commission's planning activities. The committee will also bring to the commission's attention issues in the scientific community about which the commission

may wish to advise the governors or federal agencies.

The work of the committee will be reviewed after one year to determine changes in its function needed to improve its effectiveness.

THE COASTAL ZONE

STANDING COMMITTEE ON COASTAL ZONE MANAGEMENT

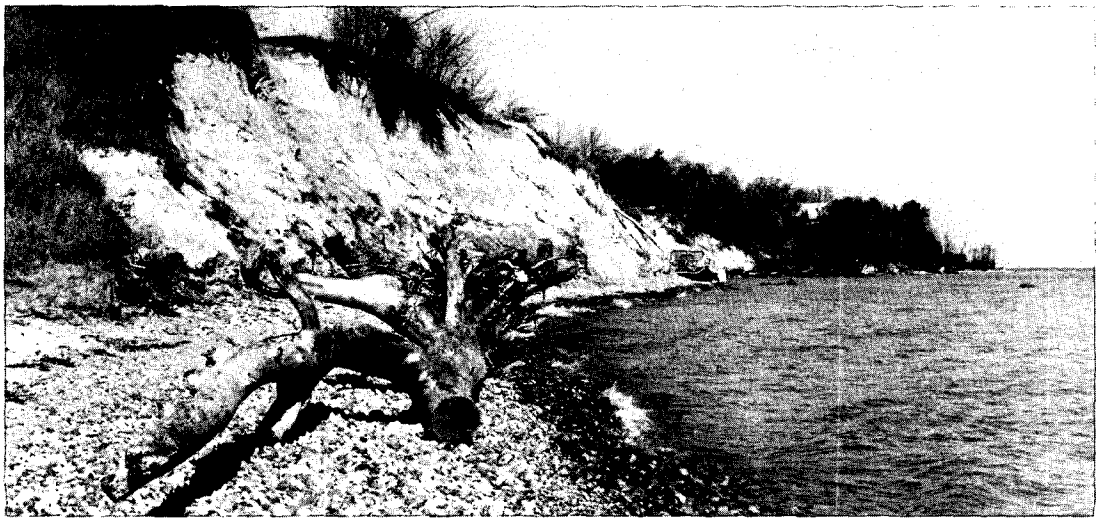
The Great Lakes shore zone is one of the most environmentally and economically sensitive portions of the Great Lakes basin. The shoreline's beauty and its usefulness for recreation, energy production, and commercial navigation have subjected it to extensive residential and commercial development. This development has increased shore erosion damages, caused waterfront blight, and destroyed wetlands. Conflicts over how to use the valuable but finite space of the coastal zone have abounded.

These problems on all U.S. coastlines prompted the passage of the federal Coastal Zone Management Act of 1972 and later, the 1976 Amendments to this act. The act encourages coastal states to develop comprehensive programs for managing their coasts and provides federal funds.

The eight Great Lakes states soon realized the commonality of coastal problems and that any one state's coastal policies could affect the entire region. Therefore, they asked the Great Lakes Basin Commission in 1974 to establish a standing committee on coastal zone management. Representatives of the eight state coastal programs, six federal departments, and Canada meet to coordinate programs and resolve mutual problems.

The commission prepared a shoreline property owner's manual...

The coastal committee started 1977 with a workshop that explored how vegetation, rather than expensive and sometimes environmentally damaging structures, might be used in some situations to stabilize Great Lakes shorelines. Two projects resulted. First, the U.S. Army Corps of Engineers' Coastal Engineering Research Center began testing the feasibility of stabilizing Lake Michigan and Lake Erie dunes with vegetation. Second, the Basin Commission prepared a property owner's manual explaining how to use vegetation to reduce shoreline erosion. Demand for the manual has necessitated a second printing, which will bring the number of copies produced to over 22,000.



An erosion hazard subcommittee worked during FY 1977 to ensure consistent methods of calculating shore recession rates and to coordinate state erosion plans. In the interest of accelerating the development of an insurance program for Great Lakes coastlines, the subcommittee acquired funding from the Federal Insurance Administration, whom it had been advising for several years, to design a program in FY 1978 specifically for the Great Lakes. This program will assist already-threatened property owners and discourage new development in hazardous areas.

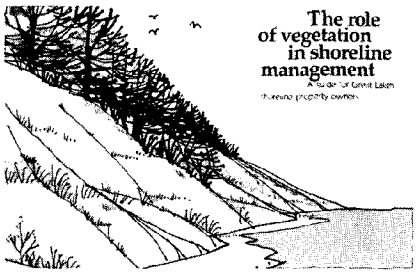
The sizeable portion of Great Lakes shoreline managed by Indian tribal governments in Minnesota, Wisconsin, and Michigan is excluded from the states' coastal zone jurisdiction. To make coastal planning as comprehensive as possible, a subcommittee was formed in FY 1977 to coordinate state activities with tribal governments. The subcommittee was instrumental in encouraging the Office of Coastal Zone Management to develop a national policy that, while maintaining the sovereignty of the tribes, enables the states to finance the tribes' development of programs consistent with their own.

The committee was instrumental in the development of a national policy for Indian tribal participation in coastal planning.

Recognizing the ever-increasing volume of information generated each year by Great Lakes research, the University of Michigan proposed in 1976 creating an information referral center to help scientists and planners, as well as non-technical people, locate the information they need. Working through the coastal committee, the Great Lakes states refined the proposal and recommended that the center be co-directed by the Great Lakes Sea Grant offices and the Basin Commission. The proposal was well-received by the National Oceanic and Atmospheric Administration, which is expected to fund the center by mid-1978.

Great Lakes Vegetation Workshop Proceedings

Growing interest in maintaining healthy populations of Great Lakes fish resulted in the formation of a Great Lakes fisheries management subcommittee in August 1977. The subcommittee is working closely with state, regional, and other fishery interests to develop a fisheries management strategy. It has received funding from the Office of Coastal Zone Management to design the necessary studies.



The Role of Vegetation in Shoreline Management—A guide for Great Lakes shoreline property owners

ENERGY FACILITY SITING STUDY

One of the greatest demands on the Great Lakes coastal zone is the location of electrical generating plants where cooling water and water-borne transportation are easily accessible. The Great Lakes state coastal zone management programs thus asked the Great Lakes Basin Commission to conduct a study on the subject. Completed in early 1977, the study was designed to

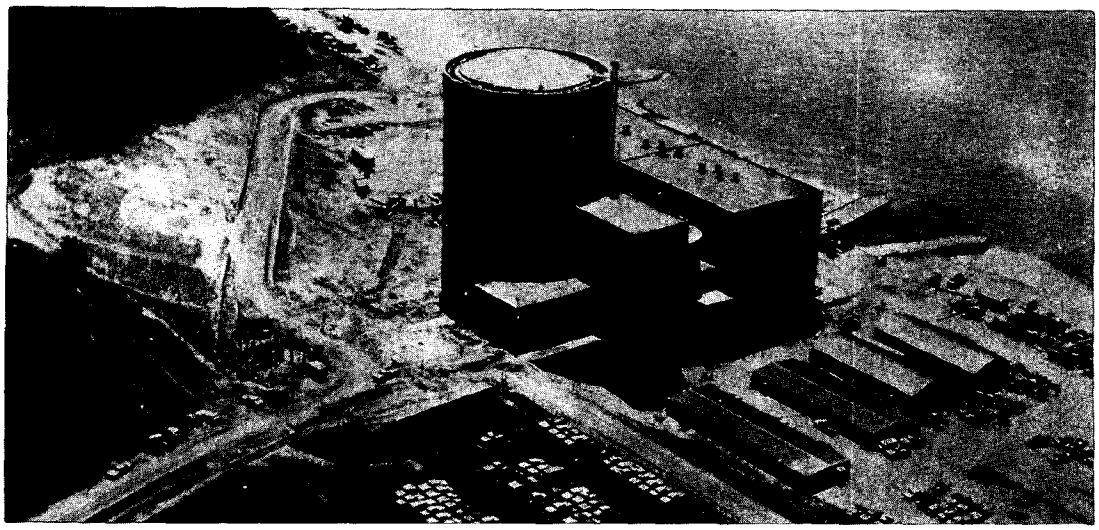
- determine the dependence of different types of energy facilities on coastal locations

Energy Facility Siting in the Great Lakes Coastal Zone: Analysis and Policy Options

- project anticipated energy facility requirements for coastal land and water
- develop optional policies for state coastal zone programs.

The final report of the study's findings also discusses the implications of each policy option. This has provided state programs with the comprehensive view needed to make intelligent decisions.

Michigan is using the study to develop proposed legislation for a state energy facility siting program and the Office of Coastal Zone Management has used the study in developing regulations.



THE BASIN

GREAT LAKES BASIN FRAMEWORK STUDY

The Framework Study was the first step towards developing the Great Lakes Basin Plan.

The Great Lakes Basin Framework Study was the commission's first step towards developing a comprehensive basin-wide plan (the Great Lakes Basin Plan). The Framework Study is an exhaustive survey of basin resources, present and future demands on them, problems associated with their use, and possible solutions. This information provides the foundation needed for basin-wide planning.

Completed during FY 1976, the Great Lakes Basin Framework Study was presented in FY 1977 for review by the Great Lakes governors, the head of each Basin Commission member agency, and the U.S. Section of the International Joint Commission. Comments produced by this review were published in the fall of 1977 in the Great Lakes Basin Framework Study *Executive Summary*. The Framework Study was then sent to the governors and legislatures of the Great Lakes states, the Water Resources Council, the President, and Congress. They will find in the Framework Study *Report* and *Executive Summary* the problem solving actions the Basin Commission has recommended.

Great Lakes Basin Framework Study Executive Summary and Brochure

MAUMEE RIVER BASIN STUDY

The Maumee basin encompasses 4.4 million acres in Indiana, Ohio, and Michigan that drain into Lake Erie at Toledo. The basin is noted for its productive farmland, but sedimentation from agricultural erosion clogs drains and channels and pollutes the rivers and Maumee Bay. Sedimentation from urban construction, as well as municipal and industrial wastes, seriously degrades water quality in the basin's growing urban areas. Flooding along the streams and the Maumee Bay shoreline costs millions of dollars annually in damaged crops and property.

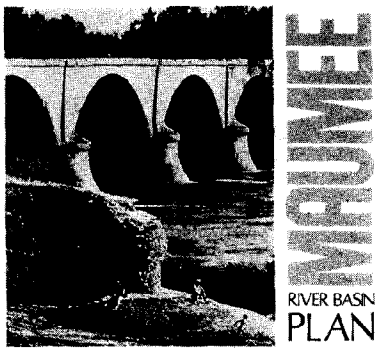
These problems, particularly poor water quality, made the Maumee basin a logical choice for the first Level B study in the Great Lakes basin. (A Level B study is an evaluation of a river basin's resources to pinpoint problems and recommend corrective actions to federal, states, and local entities.)

By FY 1977 the study had identified the major problems and prepared alternative solutions. Basin citizens and study participants then chose among the alternative solutions to form the proposed Maumee Level B plan. Citizens expressed their thoughts about the proposed plan at a series of public hearings in February-March 1977. This public input was utilized in finalizing the plan.

Many of the Maumee plan's problem-solving programs are already being implemented.

The commission's approved Maumee Level B plan will be published in the *Maumee River Basin Study Report–Environmental Impact Statement* in early 1978. This will undergo an official 90–day review by the Great Lakes governors and federal agencies.

The Maumee plan is composed of problem-solving programs that can be initiated immediately by government agencies at all levels. Key features are erosion control programs for agricultural and urban land that include development and implementation of farm conservation plans. The cumulative results of these programs would be a reduction of nearly 50% by 1990 of suspended solids and associated pollutants flowing to Maumee Bay and Lake Erie.



Maumee River Basin Plan Brochure

Other major features include county land resource management plans based on balanced environmental and economic development objectives; a program coordinated among several agencies to preserve, restore, and improve wetlands, ecologically sensitive and natural lands, and historic areas; floodplain management programs to be conducted in conjunction with the national flood insurance program; and programs to increase fish and wildlife habitat and outdoor recreation, particularly on floodplains to encourage appropriate changes in floodplain use.

The extensive public participation in the Maumee study has fostered the development of useful programs, and many components of the Maumee plan are already being implemented. For example, 14 Ohio counties with the Ohio Cooperative Extension Service are using portions of the Maumee plan to guide agricultural erosion control and land use changes, control of pollution from runoff, and preparation of farm conservation plans. In addition, state and local agencies have used technical data developed during the study for developing areawide wastewater treatment plans.

Maumee River Basin Study Report—Environmental Impact Statement

Maumee River Basin Level B Study—Plan Supplement

Public Comments—Written and Oral Statements on the Proposed Maumee Level B Plan

The Proposed Maumee Level B Plan—A Summary for Public Review

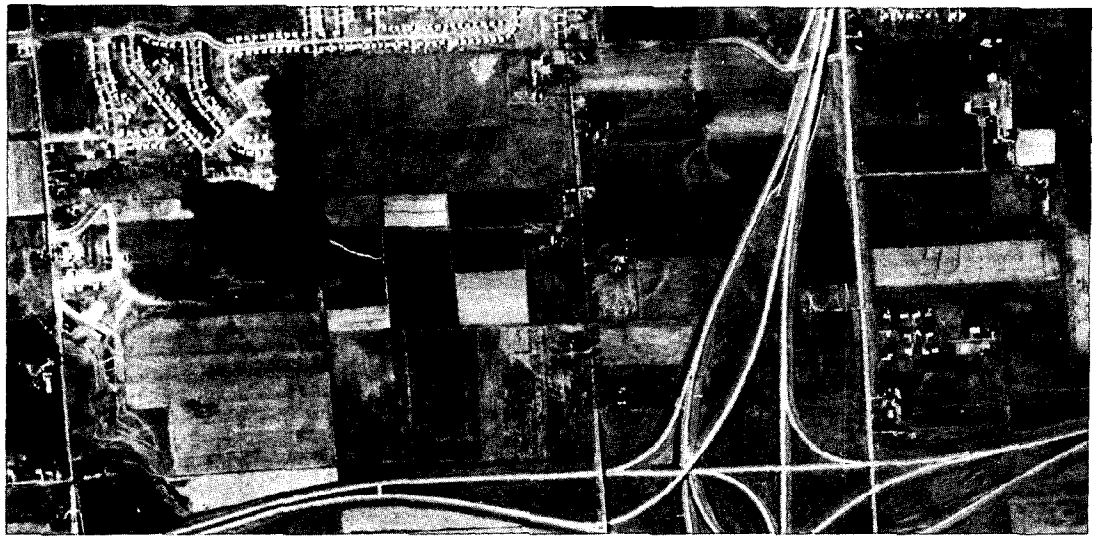
FOX-WOLF RIVER BASIN STUDY

First proposed by the Great Lakes Basin Commission on behalf of Wisconsin in 1972, the Fox-Wolf River Basin Level B Study received federal funding in October 1976, and Wisconsin and the Basin Commission began working together to develop a plan of study. In July 1977, however, the Wisconsin Department of Natural Resources and the Wisconsin Natural Resources Board terminated Wisconsin's participation in the study. Wisconsin found that other studies and programs conducted between 1972 and 1976 had eliminated much of the need for the study. It was questionable whether the study could be adequately completed in the two years finally allotted. Also, additional state and local matching funds required by modified federal rules were not available.

For these reasons, the Basin Commission recommended study cancellation to the U.S. Water Resources Council. The study was terminated, and the unexpended federal funds were returned to the council.

POLLUTION FROM LAND USE ACTIVITIES

For many years efforts to reduce water pollution have been aimed at eliminating or treating municipal and industrial sewage, vessel wastes, and other concentrated pollution sources (termed point sources). Recently the significance of soil, chemicals, and other pollutants entering water from diffuse land sources (termed non-point sources) has been recognized.



The Great Lakes are thought to be affected considerably by non-point source pollution, but prevention is limited by lack of knowledge about the origin, amount, and types of pollutants. Thus, the International Joint Commission established in 1973 a U.S.–Canadian Pollution from Land Use Activities Reference Group to assess the extent of non-point source pollution and recommend remedies.

The commission's role concentrated on data collection and analysis.

Work for the Pollution Study has been assigned to various U.S. and Canadian agencies and groups, including the Great Lakes Basin Commission. The commission's role in FY 1977 concentrated on the collection, synthesis and analysis of data on the U.S. portion of the basin. Information developed by the commission staff working alone or with assistance from contractors includes:

1. Quantity of shoreline eroded and the amount of sediment this erosion contributes to the lakes.

2. Frequency and extent of wind-caused resuspension of bottom sediments near the shore and the effect of resuspension on water quality.

3. Updated guide to water quality gauging stations—their location, type of data they record, and institution operating the gauges.

4. Amount of pollution entering the Great Lakes from tributaries.

5. Location and acreage of the different types of land use in the basin.

6. Amount of materials such as fertilizers and pesticides applied to the land in the basin.

7. Areas that are critical sources of pollution and the required remedial measures and their estimated costs.

8. Current legislation, government programs, and interagency relationships that affect land use and water quality.

9. Projections of future land uses and economic and demographic conditions.

The commission also encouraged a coordinated approach to the study...

The Basin Commission staff also worked to encourage a coordinated approach to the study by working closely with and providing assistance to the participating states and federal agencies. Staff (1) provided technical assistance to the U.S. Environmental Protection Agency and their contractors in carrying out several specific tasks supporting the Pollution Study (2) assisted the International Joint Commission and the Great Lakes states with public meetings seeking public views about pollution and possible solutions and (3) analyzed the results of a Pollution Study survey of farmers in the U.S. Great Lakes basin. The survey was designed to determine farmers' opinions about the effects of agricultural practices on the Great Lakes and their attitudes about pollution control methods.

Inventory of Land Use and Land Practices in the Great Lakes Basin

U.S. Great Lakes Shoreline Erosion Loadings

Existing River Mouth Loading Data in U.S. Great Lakes Basin

Delineation of Quantity and Quality of Great Lakes U.S. Shoreline Eroded Material

The staff worked directly with Canadian participants to develop a way to organize the information collected by the Pollution Study so that the following questions can be answered:

- Where are the land areas that contribute excessive amounts of pollutants to the Great Lakes?
- Why are these areas such heavy contributors?
- How can pollution from these areas be controlled at a cost comparable to the cost of controlling point source pollution.

Commission participation in the Pollution Study was funded by the U.S. Environmental Protection Agency and the U.S. Department of Agriculture's Soil Conservation Service.

NATIONAL WATER ASSESSMENT—GREAT LAKES REGION

Water problems like flooding, drought, and pollution plague all portions of the nation. Some basis must be established for determining the relative urgency of these numerous and complex problems and the proper priorities for solving them. The Water Resources Council, the federal agency overseeing comprehensive water planning throughout the country, is doing this through its National Water Assessment.

The Great Lakes region water assessment was conducted by the commission.

To ensure that state and regional views are a part of the assessment, the council has provided for detailed assessments in each region of the nation. The Great Lakes region assessment was conducted by the Great Lakes Basin Commission, with the guidance of a work group representing states and federal agencies and a public review group of more than 500 basin residents.

By 1977, economic and demographic growth in the basin had been projected to the year 2000, trends in water use and accompanying environmental effects had been described, and problems had been identified. During the year the work group and public review group determined the consequences of not solving the problems and recommended appropriate research, studies, federal programs, and legal and policy changes beneficial to water resources planning.

Problem Effects

Summary Report

Regional Chapter

Citizen's Summary

Several publications report FY 1977's findings. *Problem Effects* analyzes the severity of the problems and describes the consequences of leaving them unsolved. The *Summary Report* presents the recommendations and the region's view on national water issues. The *Regional Chapter* is a working document for the Water Resources Council.

The Basin Commission's final contribution to the National Assessment is the *Citizen's Summary*. It presents in a concise, straight-forward manner the region's problems, their effects if left unsolved, and the recommendations. In addition, it lists federal and state sources of information about Great Lakes water resources.

GREAT LAKES ENVIRONMENTAL PLANNING STUDY

The ability to determine the effects on the Great Lakes system of proposed water-related plans and programs is essential to the formulation of the Great Lakes Basin Plan. Planners, and legislators, administrators, and other policy-makers throughout the basin need this ability to guide them in planning for the protection and use of the Great Lakes basin's resources. Thus, the Great Lakes Basin Commission has given top priority to a Great Lakes Environmental Planning Study, which will begin at the start of FY 1978.

The study is intended to assist planners and policy-makers by providing a way to determine systematically the cumulative long-range impacts of the plans and programs proposed by various levels of government. To do this, the study will assess the impacts of potential activities, combining expert judgment and analysis with quantitative tools such as mathematical models.

GREAT LAKES REGIONAL TRAILS WORKSHOP

The Great Lakes region is crisscrossed by many miles of abandoned railroad tracks. The Railroad Revitalization and Regulatory Reform Act of 1976 provides an opportunity to use these abandoned rail beds by converting them into trails. Regional interest sparked by this legislation quickly evolved into the concept of a Great Lakes regional trails system.

To lay groundwork for developing a regional trails system and to establish communication among interest groups and government agencies, the Great Lakes Basin Commission and the Bureau of Outdoor Recreation jointly sponsored a Great Lakes Regional Trails System Workshop in October 1976. The Basin Commission secured the participation of those Great Lakes basin states not in the Bureau of Outdoor Recreation's Lake Central District.

Great Lakes Regional Trails System Workshop

Representatives of user groups and all government levels and others with expertise or interest in developing trails systems attended the workshop. They agreed that the greatest obstacle to establishing a regional trail system was the lack of coordination among different levels of government and the private sector. Consequently, the workshop resolved that a regional trails council should be established to serve as a coordinating organization. The resulting Great Lakes Regional Trails Council first met in May, 1977. It includes representatives of state and federal governments, the National Trails Council, and trail-user groups from each Great Lakes state.

The resulting Great Lakes Regional Trails Council first met in May 1977.

PRIORITIES FOR FEDERAL FUNDING

One of the Basin Commission's mandates under the law is to recommend long-range priorities for undertaking research, planning, and construction projects in the basin. Towards this end the commission developed and published in 1976 a set of standards by which priorities would be set *(Annual Priorities Report Guidelines)*. These guidelines also established systematic procedures to ensure that all member states and agencies can participate in the evaluation.

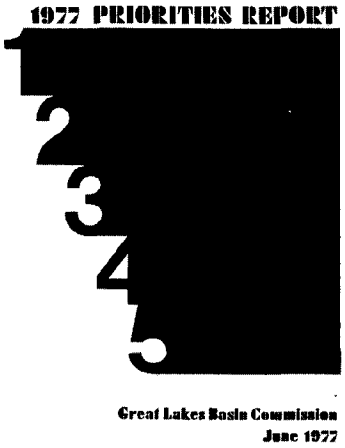
Using these guidelines, the *1977 Priorities Report* was completed in May 1977. It summarizes the programs proposed for initiation during fiscal years 1979-1983, assigns them high, medium, or low priority, and numerically ranks the high priority programs. Major criteria used for ranking were: benefit to economic development and environmental quality, fulfillment of objectives, compatibility with other plans, degree of support, geographic impact, and uniqueness.

Receiving high research priority were three investigations of Great Lakes resources and two examinations of the effects of energy production on water resources. Two studies of regulating Great Lakes water levels and flows also received high priority. In the planning field, federal funding (under the Water Resources Planning Act) for development of comprehensive resource plans by the states received high priority.

Most construction projects receiving high priority were those to alleviate damages from flooding, erosion, and sedimentation. Planning for and constructing municipal wastewater treatment plants also received high priority.

The *1977 Priorities Report* was submitted to the governors of the Great Lakes states, the U.S. Water Resources Council, the President, and Congress. As an expression of coordinated regional priorities, the report serves to guide legislative and administrative actions affecting natural resources of the Great Lakes basin.

After completing the *1977 Priorities Report*, the commisssion revised the guidelines slightly to make the *1978 Priorities Report* even more responsive to the basin's needs. Work on the 1978 report began late in FY 1977, with completion scheduled for May 1978.



1977 Priorities Report

An expression of regional priorities, the report guides actions affecting basin resources.

GREAT LAKES PROGRAMS REPORT

The *Programs Report FY 77-81* catalogues and describes water-related research, planning, and programs conducted by government agencies in the Great Lakes Basin during fiscal years 1977-1981. This information helps planners avoid duplication of effort and provides a single reference for anyone interested in current efforts in the region.

Programs Report FY 1977-81

The *Report* categorizes the programs and describes their objectives and contents. Information for each program includes the agency or department under whose auspices the work is done and the duration and cost of the work.

The *Programs Report* revises and updates a prior edition, *Great Lakes Basin Programs FY 76-FY 77*. New features include coverage of more agencies, more program categories, and a format consistent with the *1977 Priorities Report*. All copies have been distributed; a new edition will be published in late FY 78.

INFORMATION AND LIBRARY SERVICES

PUBLIC INFORMATION OFFICE

The public information office plays a vital role in all commission activities. It serves as a contact point for all news media relations and mails regular releases to over 1200 newspapers, magazines, and radio and television stations. The office provides liaison and clerical staff support to the public involvement work group, and is also responsible for the editing, publishing and distribution of all major commission reports and documents.

The information office responded to thousands of requests for information...

The information office writes and publishes the *Communicator*, the commission's monthly newsletter, whose circulation grew from 15,000 to 17,000 in FY 1977. This sizeable mailing list was completely overhauled last year and computer-coded to allow for special mailings to over 50 differeent categories of readers.

During the year the information office responded to literally thousands of requests for information by mail, by telephone, and in person. It also wrote, published and disseminated general information materials, such as fact sheets, brochures, summaries and publications listings. As a public service, the information office, with financial support from the Water Resources Council, reproduced and distributed over 16,000 copies of the draft option papers for the National Water Resource Policy Study in July 1977.

GREAT LAKES BASIN COMMISSION LIBRARY

The library is also vital to commission activities, serving both staff and the public. As a selected federal depository library it automatically receives federal documents dealing with water resources, limnology, transportation, energy, land use, recreation, and agriculture. The library also collects state and Canadian documents concerning Great Lakes environmental resources. Periodicals, legislative and vertical files, and references and directories round out the library's collections.

During the past year the library completed converting its documents and catalog to the Superintendent of Documents classification system. The library also strove to make its collections easily accessible and usable by the staff and public.

STATE ACTIVITIES IN THE BASIN

As high-quality water has become a scarce commodity nationwide and periodic droughts threaten supplies, appreciation has grown for the vast quantity of water in the Great Lakes and the need to ensure its quality.

During FY 1977 all basin states were actively developing areawide waste treatment management plans (required by Section 208 of the Federal Water Pollution Control Act Amendments of 1972). These plans will determine needed sewage treatment facilities and provide for their management. They will also assess the type and amount of polluted runoff entering lakes and streams and determine practical controls.

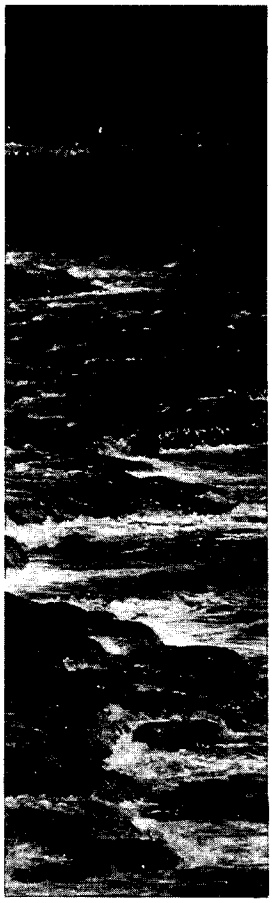
Basin states were actively developing area-wide waste treatment management plans and coastal zone management programs.

All the Great Lakes states are also developing coastal zone management programs pursuant to the Coastal Zone Management Act of 1972 and its 1976 Amendments. This act provides for federal financial and technical aid to help states study their coastal areas and develop and carry out programs to govern how these areas are used. Once a state's coastal program is in effect, all new state and federal projects in the coastal zone must conform to the program's criteria.

The states were involved in numerous other activities in the Great Lakes basin, some of which are described below.

Illinois

Illinois continued water quality and water use studies to determine the best allocation of the 3,200 cubic-feet-per-second flow of water it is allowed to divert from Lake Michigan into the Mississippi River basin. An allocation order went into effect in FY 1977 and the state has actively enforced the order and promoted conservation. Illinois upgraded Illinois Beach State Park, restoring new acquisitions to the natural state and developing trails.



Indiana

In July Indiana's governor established the Water Resources Study Commission to develop a plan for the efficient management and utilization of the state's water resources. The state approved flood plain management ordinances for five Indiana communities in the Great Lakes basin. Three communities were admitted to the national flood insurance program. Indiana continued to acquire land for recreational use along the Little Calumet River.

Michigan

Michigan upgraded water quality standards for its lakes and streams and prohibited the sale of household laundry detergents containing more than 0.5 percent phosphorus by weight. The state also funded the construction of fishing facilities in metropolitan areas and completed a study on extending the spawning runs of salmon and steelhead farther upstream by building fish ladders around dams. This would provide additional fishing opportunities.

Ohio

Ohio has embarked upon an urban water front development program to revitalize the valuable downtown water resources of several cities. This has included a $5 million appropriation to begin development of Cleveland Lakefront Park. Municipal waste treatment plants in the portion of Ohio draining into Lake Erie received $204 million in construction grants from the federal government in FY 1977.

Pennsylvania

One of neighboring Pennsylvania's foremost concerns in its Great Lakes region is the control of beach erosion at Presque Isle State Park. In FY 1977 Pennsylvania began a project to demonstrate the feasibility of using vegetation to stabilize dunes. Pennsylvania added a new hatchery to bolster its successful establishment of Pacific salmon in Lake Erie and its tributaries. Pennsylvania's fish commission began attempts to re-establish lake trout, a once-abundant fish, in Lake Erie.

New York

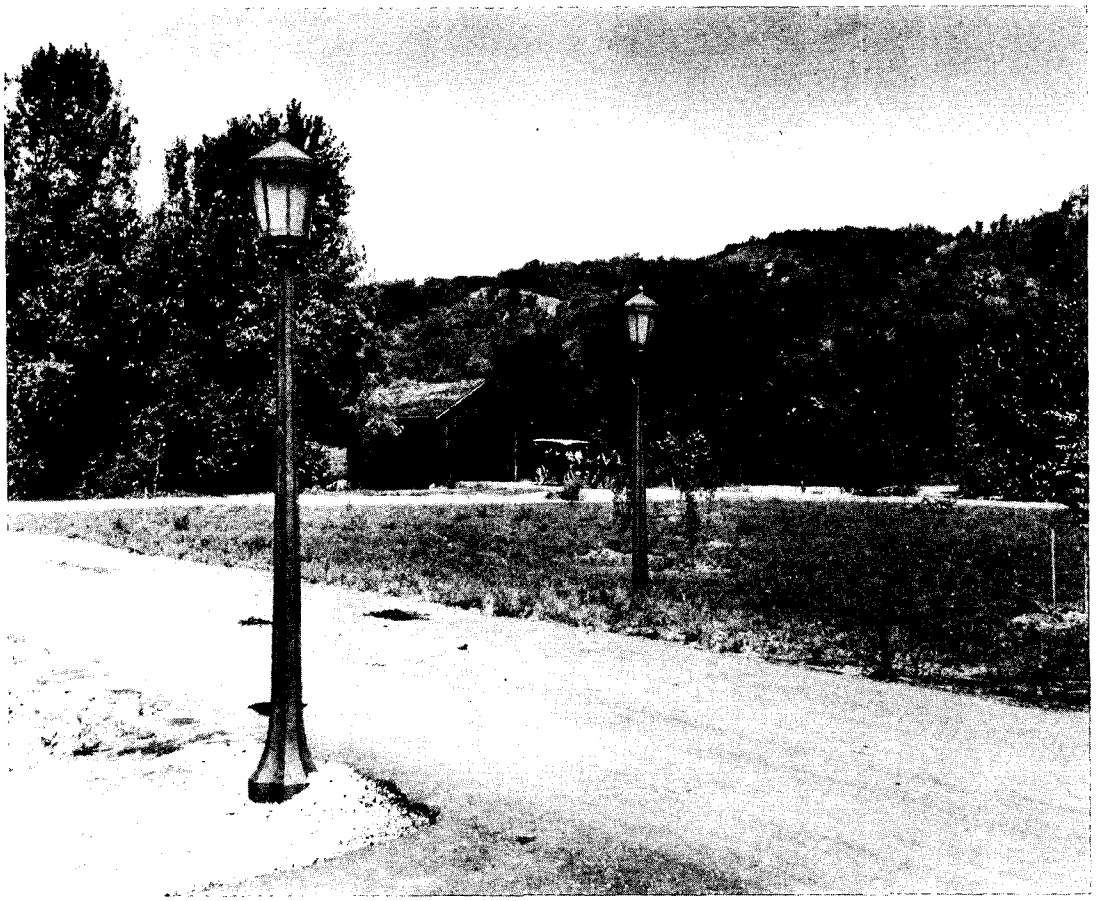
New York's river basin planning programs progressed as it completed the Genesee River Basin Board Plan and began implementing the Black–St. Lawrence and Oswego Board Plans. The state is seeking to protect water quality through a program designed to eliminate or limit the disposal of toxins. To provide more information for this program, New York conducted a state-wide survey of industrial chemical use. The state expanded fisheries research in Lake Ontario and Lake Erie.

Minnesota

The drought of 1976–1977 intensified Minnesota's efforts to allocate water among various uses. The state revised previously established guidelines and started to compile state-wide data on groundwater which will help ensure wise allocation of water. The state also provided funds to local soil and water conservation districts to share the cost of soil and water conservation. Minnesota continued the preparation of a state-wide water and related land resources plan.

Wisconsin

Wisconsin's just-completed outdoor recreation plan is a guide to maintaining high-quality outdoor recreation in the face of ever-increasing recreation demands. Major recommendations of the plan deal with regulating conflicts among various uses of Wisconsin waters, maintaining or rehabilitating water quality, and providing an increasing variety of trails. Lake restoration projects under Wisconsin's four-year-old inland lake protection and rehabilitation program moved into full swing.



FINANCIAL STATEMENT

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OFFICES
ANN ARBOR, MICHIGAN
HOWELL, MICHIGAN
ALLEGAN, MICHIGAN

Great Lakes Basin Commission
3475 Plymouth Road
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We have examined the accompanying balance sheet for the General Fund and the Plant and Equipment Fund of the Great Lakes Basin Commission as of September 30, 1977 and the related statements of revenue and expenditures and changes in fund balance for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

The comparative financial statements for the fifteen month period ended September 30, 1977 have not been audited by us but were taken from the unqualified opinion audit report for that period issued by other certified public accountants.

In our opinion, the financial statements mentioned above present fairly the financial position of the Great Lakes Basin Commission at September 30, 1977 and 1976, and the results of its operations and change in its fund balances for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

Icerman, Johnson & Hoffman

Ann Arbor, Michigan
November 14, 1977

STATEMENTS OF REVENUE AND EXPENDITURES
Year ended September 30, 1977 and Fifteen
Month Period ended September 30, 1976

	Year Ended September 30, 1977	Fifteen Months Ended September 30, 1976
Revenue		
Federal Government agencies:		
Operations	$ 479,000	$ 254,725
Other	476,715	540,976
Return of funds (Note 5)	(232,947)	-0-
State Governments:		
Operations	240,000	300,000
Other	17,500	46,900
Other	20,488	31,252
Total revenue	1,000,756	1,173,853
Expenditures		
Salaries and fringe benefits:		
Salaries and wages	545,019	642,550
Payroll taxes	34,644	39,334
Retirement	24,624	24,887
Health and life insurance	29,898	28,778
	634,185	735,549
Other Expenditures:		
Travel	41,128	47,849
Rent	55,752	66,895
Communications	12,924	14,781
Postage	5,204	4,542
Meetings and conferences	6,607	4,715
Insurance	2,611	2,887
Repairs and maintenance	2,030	4,632
Printing and reproduction	98,568	176,653
Professional services	9,322	5,310
Subcontracted services	36,251	175,894
Other services	35,539	38,334
Supplies	15,897	22,415
Books, maps, and periodicals	3,038	3,911
Furniture and equipment	5,482	16,317
Miscellaneous	1,156	702
	331,509	585,837
Total expenditures	965,694	1,321,386
Excess of revenues (expenditures)	$ 35,062	$ (147,533)

See notes to financial statements

BALANCE SHEETS—GENERAL FUND
September 30, 1977 and 1976

	1977	1976
Assets		
CURRENT ASSETS		
Cash on deposit in United States Treasury:		
Restricted:		
Maumee River Basin Study	$ 614	$ 28,283
National Water Assessment	49,342	78,734
Unrestricted	29,206	(16,393)
	79,162	90,624
Petty cash	100	100
Accounts receivable:		
Grants receivable—U.S. Government	47,300	24,000
Grants receivable—States	73,900	45,900
Grants receivable—States past due (Note 2)	31,125	44,300
Federal government agencies (including unbilled $39,760, 1977; $79,904, 1976)	74,364	105,972
Other	18,544	1,398
Allowance for uncollectible accounts	(5,000)	(5,000)
	240,233	216,570
Advances and deposits	15,476	10,415
	$334,971	$317,709
Liabilities, Deferred Revenue and Fund Balance		
CURRENT LIABILITIES		
Accounts payable	$ 37,928	$ 63,122
Unearned revenue (Note 5)	32,947	4,393
Retirement plan payments withheld and accrued	2,658	2,056
Accrued annual leave	54,785	49,524
Accrued sick leave	3,427	3,416
Reserve for unemployment costs	9,668	13,327
	141,413	135,838
DEFERRED REVENUE—GRANTS RECEIVED IN ADVANCE	18,925	42,300
FUND BALANCE		
Major restricted funds:		
Maumee River Basin Study	614	28,283
National Water Assessment	49,342	78,734
Balance for operations:		
Reserve for Publishing of Framework Study	-0-	41,285
Reserve for future operations (deficit)	124,677	(8,731)
	174,633	139,571
See notes to financial statements.	$334,971	$317,709

BALANCE SHEETS—PLANT AND EQUIPMENT FUND
September 30, 1977 and 1976

	1977	1976
Assets		
Furniture, equipment and library books (Note 1):		
Furniture and equipment	$75,917	$70,435
Library books	15,305	15,305
	$91,222	$85,740
Fund Balance	$91,222	$85,740
Statements of Changes in Fund Balance		
Year ended September 30, 1977 and fifteen month period ended September 30, 1976		
Balance, beginning	$85,740	$69,423
Appropriations from unrestricted General Fund revenues	5,482	16,317
Balance, ending	$91,222	$85,740

See notes to financial statements.

STATEMENTS OF CHANGE IN FUND BALANCE
Year ended September 30, 1977 and Fifteen Month Period ended September 30, 1976

	GENERAL FUNDS		RESTRICTED FUNDS				
	Future Operations	Publishing of Framework Study	Publishing of Framework Study	Maumee River Basin Study	National Water Assessment	Fox-Wolf River Basin Study	Total
Fifteen month period ended September 30, 1976:							
Balance beginning of period	$ 8,295	$ 58,249	$ -0-	$ 45,705	$ 64,298	$ -0-	$ 176,547
Revenue	185,236	-0-	5,702	-0-	28,000		218,938
Expenditures	(202,262)	-0-	(22,666)	(17,422)	(13,564)		(255,914)
Fund transfers	-0-	(16,964)	16,964	-0-	-0-		-0-
Balance (deficit) end of period	$ (8,731)	$ 41,285	$ -0-	$ 28,283	$ 78,734	$ -0-	$ 139,571
Year ended September 30, 1977:							
Balance (deficit) beginning of period	$ (8,731)	$ 41,285	$ -0-	$ 28,283	$ 78,734	$ -0-	$ 139,571
Revenue	892,678	12,525		-0-	28,500	67,053	1,000,756
Expenditures	(759,270)	(53,810)		(27,669)	(57,892)	(67,053)	(965,694)
Fund transfers	-0-			-0-			-0-
Balance end of period	$ 124,677	$ -0-	$ -0-	$ 614	$ 49,342	$ -0-	$ 174,633

NOTES TO FINANCIAL STATEMENTS

September 30, 1977

1 **Significant Accounting Policies**

Effective September 30, 1976 the Commission changed from a fiscal year ending June 30 to a fiscal year ending September 30. This change was made to conform to a similar change made by the Federal Government.

The accounting records of the Commission are maintained on the accrual basis of accounting. Accordingly, revenue is recognized over the fiscal period of the Commission rather than the fiscal periods of the funding agencies.

Furniture, equipment and library books have been recorded in the Plant and Equipment Fund at cost. No provision for depreciation has been provided.

The Commission is exempt from Federal income tax under Section 501(c)(3) of the Internal Revenue Code and is treated as an organization which is not a private foundation.

The salary, expenses and related fringe benefits of the Commission Chairman are provided by the Water Resources Council and these costs are not included in the financial statement.

2 **Grants Receivable—Past Due Amounts**

State	1977	1976
Illinois	$23,900	28,600
Ohio	7,225	
New York		2,200
Wisconsin		13,500
	$31,125	44,300

3 **Lease Commitments**

The Commission leases its office facilities under an agreement which requires annual rental payments of $55,752 and expires October 9, 1978.

The Commission also leases an automobile under an agreement which requires annual rental payments of $2,160 and expires March 27, 1978.

4 **Pension Plan**

The Commission has a pension plan for most of its employees. After one year of employment the Commission will match the employees contribution to a maximum of seven percent of gross wages. Contribution made by the Commission for the year ended September 30, 1977 amounted to $24, 624.

5 **Return of Grant Funds**

During the year ended September 30, 1977 the Commission received $300,000 in grants for the Fox-Wolf River Basin Study. When it was determined the study would no longer take place, $200,000 was refunded to the Water Resources Council. At September 30, 1977 there is an unrefunded balance of $32,947 included in unearned revenue.

LIST OF COMMISSIONERS

Illinois
Dr. Leo M. Eisel, Commissioner (to 5/77)
Illinois Department of Transportation

Don Vonnahme, Commissioner (5/77)
Illinois Department of Transportation

Peter Wise, Alternate Commissioner
Illinois Department of Transportation

Indiana
William J. Watt, Commissioner
Executive Assistant to the Governor

William J. Andrews, Alternate Commissioner
Indiana Department of Natural Resources

Michigan
William D. Marks, Commissioner (to 2/77)
Michigan Department of Natural Resources

O.J. Scherschlight, Commissioner (2/77)
Michigan Department of Natural Resources

William D. Marks, Alternate Commissioner (2/77)
Michigan Department of Natural Resources

Minnesota
Archie Chelseth, Commissioner (to 5/77)
Minnesota Department of Natural Resources

Andy Kozak, Alternate Commissioner
Staff Assistant to the Governor

Joseph Sizer, Alternate Commissioner
Minnesota State Planning Agency

Don Rye, Alternate Commissioner (11/76)
Minnesota Department of Natural Resources

New York
Peter A.A. Berle, Commissioner
New York State Dept. of Environmental Conservation

John A. Finck, Alternate Commissioner
New York State Dept. of Environmental Conservation

Ohio
Ned E. Williams, Commissioner
State of Ohio Environmental Protection Agency

Dr. Robert W. Teater, Alternate Commissioner
Ohio Department of Natural Resources

Carl A. Wilhelm (11/76)
State of Ohio Environmental Protection Agency

Pennsylvania
C.H. McConnell, Commissioner
Pennsylvania Department of Environmental Resources

Vernon M. Beard, Alternate Commissioner
Pennsylvania Department of Environmental Resources

Wisconsin
Lester P. Voigt, Commissioner (to 8/77)
Wisconsin Department of Natural Resources

Anthony S. Earl, Commissioner (8/77)
Wisconsin Department of Natural Resources

Rahim Oghalai, Alternate Commissioner
Wisconsin Department of Natural Resources

Michael Ley, Alternate Commissioner (8/77)
Wisconsin Department of Natural Resources

U.S. Department of Agriculture
Arthur H. Cratty, Commissioner
Soil Conservation Service

David Mussulman, Alternate Commissioner
Soil Conservation Service

U.S. Department of the Army
Brigadier General Robert L. Moore, Commissioner (to 11/77)
Army Corps of Engineers, North Central Division

Colonel Andrew C. Remson, Jr., Commissioner (11/77)
Army Corps of Engineers, North Central Division

Louis D'Alba, Alternate Commissioner
Army Corps of Engineers, North Central Division

Colonel Harlan W. Johnson, Alternate Commissioner
Army Corps of Engineers, North Central Division

Colonel Melvyn D. Remus, Alternate Commissioner
Army Corps of Engineers, Detroit District

U.S. Department of Commerce
James P. Stirling, Commissioner (to 11/76)
U.S. Department of Commerce

Loren A. Wittner, Commissioner (8/77)
U.S. Department of Commerce

Dr. Eugene J. Aubert, Alternate Commissioner
National Oceanic and Atmospheric Administration

Dr. Gordon G. Lill, Alternate Commissioner
National Ocean Survey

Vernon C. Palmer, Alternate Commissioner (to 11/77)
Maritime Administration

Dr. Arthur P. Pinsak, Alternate Commissioner
Great Lakes Environmental Research Laboratory

U.S. Environmental Protection Agency
George R. Alexander, Jr., Commissioner
EPA Region V

Harlan D. Hirt, Alternate Commissioner
EPA Region V

Henry L. Longest II, Alternate Commissioner
EPA Region V

U.S. Energy Research and Development Administration
Walter G. Belter, Commissioner
Regional Studies Program

Donald Gardiner, Alternate Commissioner
Technical Support Division, Chicago

Federal Power Commission
(renamed Federal Energy Regulatory Commission)

Lenard B. Young, Commissioner (to 11/76)
Federal Power Commission

Bernard D. Murphy, Commissioner (2/77)
Federal Energy Regulatory Commission

Orel E. Haukedahl, Alternate Commissioner (to 5/77)
Federal Power Commission

Clifford L. Emmerling, Alternate Commissioner (5/77)
Federal Energy Regulatory Commission

U.S. Department of Housing and Urban Development
Don Morrow, Commissioner
Region V, HUD

Harry P. Blus, Alternate Commissioner
Region V, HUD

U.S. Department of the Interior
Warren E. Hofstra, Alternate Commissioner (to 2/77)
North Central Region

Madonna F. McGrath, Commissioner (2/77)
North Central Region

U.S. Department of Justice
Peter R. Taft, Commissioner (11/76)
Land and Natural Resources Division

Bruce Rashkow, Alternate Commissioner (11/76)
Land and Natural Resources Division

U.S. Department of State
Dr. Herbert Spielman, Commissioner
Office of Environmental Affairs

Scott Gudgeon, Alternate Commissioner
Office of Legal Advisor

Karl K. Jonietz, Alternate Commissioner
Office of Canadian Affairs

U.S. Department of Transportation
Honorable David W. Oberlin, Commissioner
St. Lawrence Seaway Development Corporation

Commander Charles R. Corbett, Alternate Commissioner
U.S. Coast Guard

David C.N. Robb, Alternate Commissioner
St. Lawrence Seaway Development Corporation

Rear Admiral James S. Gracey, Alternate Commissioner
(to 8/77) U.S. Coast Guard

Rear Admiral Robert H. Scarborough,
Alternate Commissioner (8/77) U.S. Coast Guard

Great Lakes Commission
Robert T. Scott, Commissioner

Colonel Leonard J. Goodsell, Alternate Commissioner (to 8/77)

Canadian Representatives
Ray Robinson (Federal)
Environment Canada

William A. Steggles (Provincial)
Ontario Ministry of the Environment

NOTE: If starting or termination date occurred during FY 1977, date is listed. Starting date stands alone; termination date is preceded by *to*.

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GREAT LAKES BASIN COMMISSION

Lee Botts, Chairman

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State of Indiana
State of Michigan
State of Minnesota
State of New York
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Commonwealth of Pennsylvania
State of Wisconsin
Great Lakes Commission
Federal Energy Regulatory Commission
U.S. Department of Agriculture
U.S. Department of the Army
U.S. Department of Commerce
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U.S. Department of the Interior
U.S. Department of Justice
U.S. Department of State
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U.S. Environmental Protection Agency

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