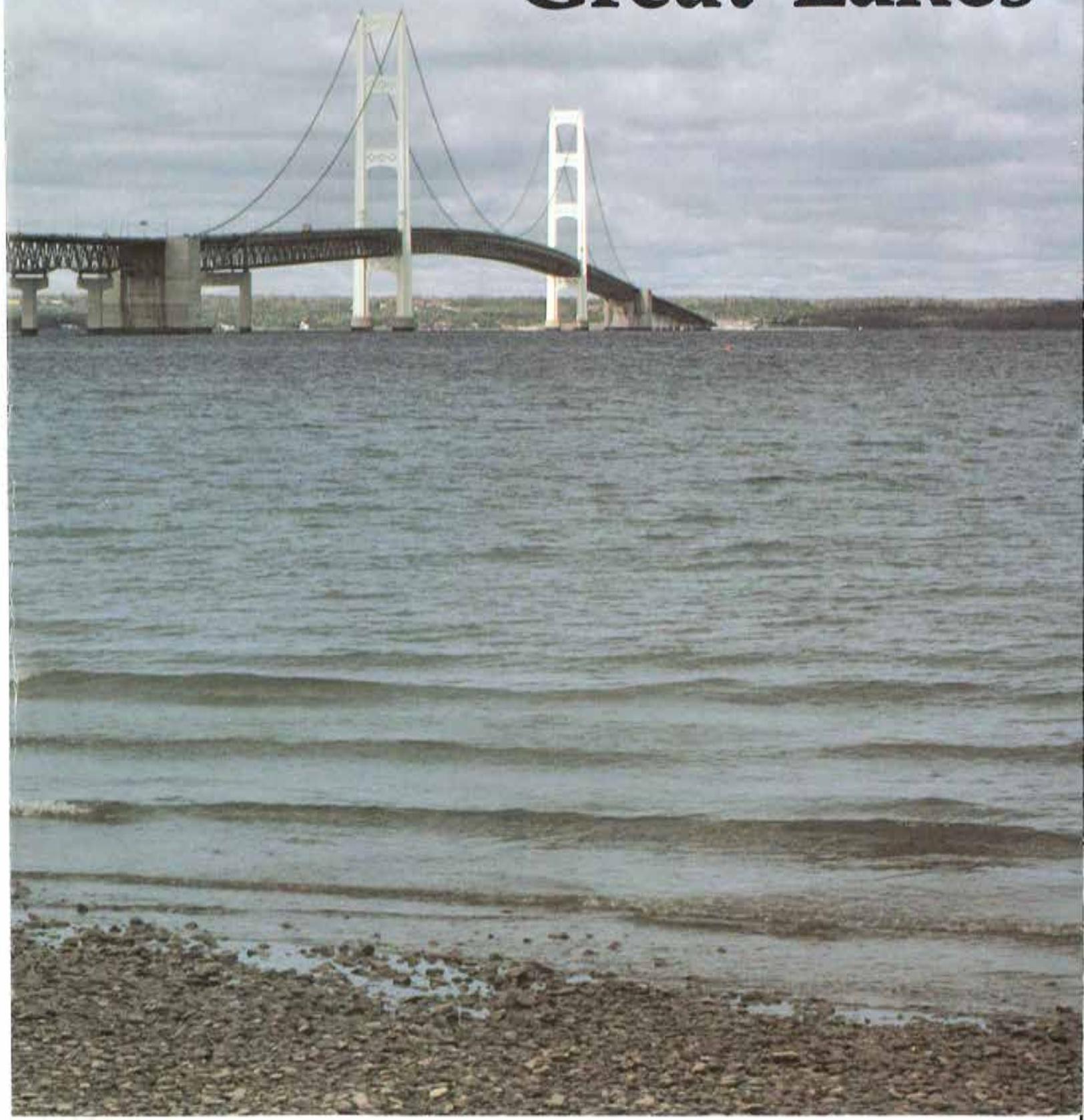


State of the Great Lakes



State of the Great Lakes

Annual Report for 1986



Prepared by
The Office of the Great Lakes
Michigan Department of Natural Resources
pursuant to Public Act 128 of 1985
for Governor James J. Blanchard.

A Message

We in Michigan are fortunate to have within our boundaries a resource unimaginable to many people of the world: an abundance of fresh water. Shared with eight states and two provinces, the Great Lakes contain one-fifth of the world's fresh surface water supply. Millions every year marvel at these inland seas as they walk the shores, fish the waters and boat in secluded bays. The Lakes sustain life itself by providing drinking water for 26 million basin residents. In addition, the system serves as a lifeline for industry by providing a water route to distant ports, cooling water for power generation, and a vital manufacturing ingredient.

We have called on the Great Lakes to provide us with many things, many more than we have given in return. Historically, we have failed to fully protect and maintain these Lakes, one of Michigan's greatest assets. This has been a blot on Michigan's record of progressive management of its natural resources.

When I became Governor I committed my administration to reinvigorate our Great Lakes programs and reestablish Great Lakes concerns as high priority items on Michigan's agenda. The response has been overwhelming! From Marquette to Monroe, we have charged ahead and begun work on some of the most difficult Great Lakes problems ever encountered. This momentum has slowly but surely carried our efforts beyond our own boundaries.

This year has been a year of regional action on Great Lakes problems and concerns. The

from the Governor

Great Lakes are after all a shared resource. Not only between boaters and anglers, divers and shoreline dwellers, but between provinces and states as well. The watery boundaries of the Lakes allow easy passage of people and pollutants between neighbors. This binds basin states and provinces together giving each a vested interest in the activities of the others.

This interest has fostered the signing of six regional agreements in 1986 concerning toxic substances control, oil drilling and joint action on other Great Lakes issues. Michigan took a leading role in negotiation of these agreements and pressed for active participation by all basin states and provinces. Concern with high water levels also spawned basin-wide action. Our challenge now is to integrate these agreements into our existing programs.

Michigan's leadership in the drive to protect, use, and properly develop Great Lakes resources within state government also continued with the Clean Water '86 campaign. This initiative has two overriding goals: to ensure that every Michigan citizen has contaminant-free drinking water and to make all our water safe for fishing and swimming by the year 2000. Clean Water '86 advances many bold initiatives including strengthening protection of Michigan's drinking water supplies, developing clean-up plans for Michigan's 14 Great Lakes pollution hotspots, giving special attention to the Rouge River, appropriating additional funds for nonpoint pollution control, planning the establishment of a Great Lakes

Research Fund, and establishing and awarding Environmental Youth Awards for innovative projects undertaken by school children to learn about or protect water resources in their communities. Persistent efforts have resulted in the accomplishment of many of these goals.

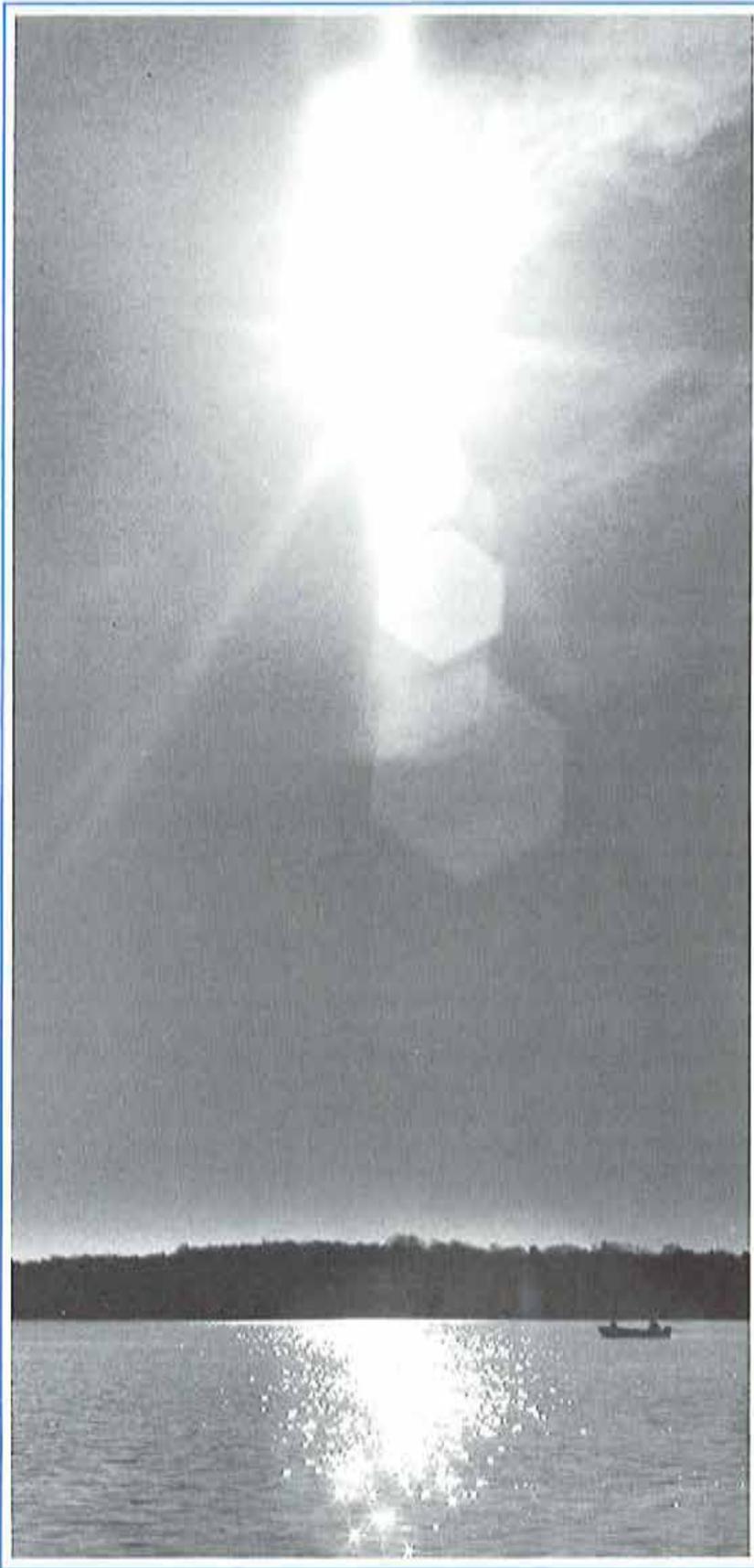
We must continue to look to the future. Therefore, I am proposing a Great Lakes 2000 initiative to ensure that the Lakes are free from unsafe toxic materials and that all Michigan waters are fishable and swimmable by the year 2000. This will include initiatives for a comprehensive monitoring program, cleaning-up hot spots, protecting our coastline, more research and continuing to work for national and international strategies to limit toxic pollution from entering the Lakes.

Our commitment to proper stewardship of the Great Lakes remains strong. Let us hope that history judges our generation as one that managed and protected the Great Lakes using knowledge gained from the past to guide our activities toward a special vision of the future. The Great Lakes are too valuable a resource to our region, our state, and our children to neglect.

James J. Blanchard



Introduction



This year has been an active one in the Great Lakes basin. Michigan has forged ahead in efforts to address some of the most pressing problems facing the Great Lakes and the people of this region. Cooperation dominated these efforts and significant breakthroughs between governments were made in such areas as toxic substances control and early warning systems to protect human health in case of accidental discharges into Great Lakes waters.

The Office of the Great Lakes has been active in coordinating and promoting sound Great Lakes programs and policy. The Office was formed in 1985 to coordinate state government programs concerning the Great Lakes, advocate the interests of the Lakes in state, national and international forums, and to act as a catalyst to bring new ideas into Michigan's Great Lakes programs. Under this broad mandate, the Office has been involved in negotiating all of the regional agreements signed this year to protect the Lakes, conducting public meetings for Michigan's Areas of Concern and investigating St. Clair River pollution problems. In addition, the pollution control industry is being explored as a potential area for industrial expansion in Michigan. New ideas for retaining and more effectively utilizing public and private funds to address Great Lakes protection problems and capitalize on Great Lakes development opportunities are being developed.

During the last year, we have also worked to provide strong protection programs for Great Lakes flooding and erosion

victims while advocating environmentally sound changes to the Great Lakes system.

Much of Michigan's agenda was formed through the efforts of concerned citizens, groups, and state employees.

The Office's successes of the past and future are directly tied to the often unrecognized hard work and cooperation of Michigan's dedicated public employees. The Surface Water Quality, Executive, Land Resource Programs, and Engineering-Water Management Divisions of the Department of Natural Resources as well as the Emergency Management Division of the Michigan State Police and the Center for Environmental Health and Bureau of Environmental and Occupational Health in the Department of Public Health should be singled out for the strong roles they played in helping to achieve our objectives this year.

This annual report will concentrate on regional activities and agreements undertaken this last year and how they affect citizens as well as major issues currently in the public eye. It is written, in many regards, from a long-term perspective and contains sections devoted to regional agreements, the World Conference on Large Lakes, water levels, water resource planning, state government activities, economic activities, legislation, and initiatives. In addition, it contains a scorecard to measure our progress. In combination with last year's annual report, which described existing government programs to protect the Lakes, it provides a fuller picture of the

many levels of activity involved in efforts to address Great Lakes problems. As with last year's report, the 1986 report culminates with proposals for future action and attention.

As a vehicle of education, information, and future program direction, this report is only a beginning. It is hoped that the ideas described herein will serve to increase interest and involvement in Great Lakes programs. All Michigan citizens have a role to play in protection and management of the Great Lakes. To achieve the aggressive agenda laid out this year, no new idea or assistance can be ignored. Concerned citizens of the Great Lakes region must continue to spur new activity and act as catalysts to revitalize flagging Great Lakes programs. If this report can encourage such a positive and active role in Great Lakes stewardship, its objectives will have been achieved.



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Regional Agreements

With the Great Lakes Charter of 1985 as an inspiration, six other regional agreements were negotiated in 1986 to address the problems of toxic substances control, accidental discharges, transboundary air pollution, Areas of Concern and oil drilling in the Great Lakes. In addition, increased attention is being paid to the Canada-U.S. Great Lakes Water Quality Agreement of 1978.

In a continuing evolution of thought concerning Great Lakes protection, state and provincial governments are coming to recognize not only the value but the necessity of undertaking regional action to address shared regional concerns. Benefits of this collective action are many. Most important, however, basin-wide agreements allow us to protect the Lakes based on the boundaries of nature not mere political boundaries.

Great Lakes Toxic Substances Control Agreement

Immediately after the World Conference on Large Lakes in May, 1986, the Governors of the Great Lakes states joined together to sign the Great Lakes Toxic Substances Control Agreement. Soon after this report is released, the Premiers of Ontario and Quebec should join in committing to the substance of this progressive and imaginative document. The development of this agreement was a high priority of Governor Blanchard's 1985 Great Lakes agenda and represents a significant advance in responding to public concern about toxic substance control. Its purpose, as stated in the agreement is to "establish a



framework for coordinated regional action in controlling toxic pollutants entering the Great Lakes system; to further understanding of toxic contaminants and ways to control them; and to redirect each state's common goals, management practices and control strategies for toxic contamination, to ensure a cleaner Great Lakes ecosystem."

The six principles set forth to accomplish these goals have as their basis a number of initiatives designed to achieve implementation. These initiatives (a synopsis of which is shown on page 8) constitute a scheduled blueprint for the most comprehensive program ever envisioned to address the pervasive problem of toxic substances in the Great Lakes. Citizen groups have responded enthusiastically to an invitation by Governor Blanchard to work on the development of a management plan to implement the Toxics Agreement.

This Agreement and the management plan that will follow are only first steps in combatting toxics. Because of the long life of these materials and their sometimes devastating effects on the health of aquatic ecosystems, we must continue to build on this initial blueprint.

Ontario/Michigan Agreements

The joint Michigan-Ontario boundary extends all the way from western Lake Superior to western Lake Erie. Millions of people in both countries depend on these shared waters for commerce, recreation and drinking water supplies. Because so much of the Great Lakes are shared between us, the govern-

ments of Ontario and Michigan formed a special cooperative relationship in December 1985 with the signing of four environmental agreements by Governor Blanchard and Premier David Peterson. The agreements establish: (1) notification and consultation procedures for unanticipated or accidental discharges of pollution into shared waters; (2) annual environmental summits between Ontario and Michigan to discuss topics of mutual interest; (3) joint responsibility and clear lines of authority for preparing remedial action plans for the St. Marys, St. Clair and Detroit rivers; and (4) areas of cooperation concerning monitoring and mitigation of transboundary air pollution especially in southeast Michigan/southwest Ontario.

The value of these agreements became immediately apparent when a series of spills occurred in the St. Clair River near Sarnia, Ontario. Full disclosure of information between the two governments resulted in the protection of drinking water and the quick design of remedial programs. This system insured that energies were devoted toward problem-solving instead of interjurisdictional finger-pointing.

In the case of the Sarnia contamination, another level of cooperation and information sharing was spawned. Local officials and citizens, anxious to participate in clean-up activities in the area, joined the St. Clair River Pollution Advisory Committee formed by Governor Blanchard and chaired by the Director of Michigan's Office of the Great Lakes. The Committee reviewed state and provincial

Basin-wide agreements allow us to protect the Lakes based on the boundaries of nature not mere political boundaries.

the Great Lakes
dépolluer les Grands Lacs



Improvements made since 1977 to meet
Canada's commitments under the Canada-
United States Water Quality Agreement
Améliorations apportées depuis 1977 pour
respecter l'engagement sous le Canada a pris
dans le cadre de l'Accord Canada-Etats-Unis
sur la Qualité de l'eau.

governmental responses to spills in the River, acted as a conduit for public information and fostered effective, responsible communication during spill emergencies.

The Committee heard testimony from numerous public and private industry officials on the extent of the immediate problems, historic pollution and ongoing degradation. In addition, they reviewed all clean-up efforts. The Committee's formation led to the issuance of a situation report detailing 21 recommendations concerning future clean-up activities in the area. This report was strongly endorsed by Governor Blanchard in July 1986 and he ordered the immediate implementation of its recommendations.

Statement of Principle Against Oil Drilling in the Great Lakes

In February 1986, at Governor Blanchard's request, another regional initiative was brought to fruition. Prompted by unwelcome seismic work in Michigan waters by a Texas firm and the subsequent offer of that data for sale, the eight

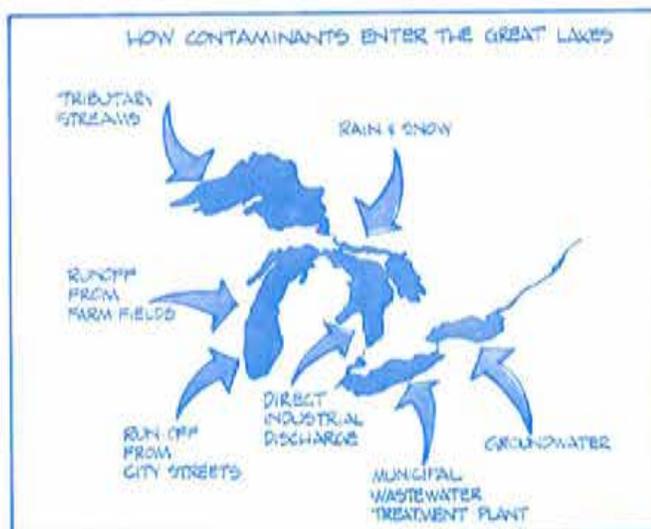
Great Lakes Governors joined together in signing a Statement of Principle Against Oil Drilling in the Great Lakes (Ontario also bans oil drilling in Great Lakes waters). The Statement is a preventative document -- a united action taken to "nip in the bud" what could become a contentious future problem. The Statement sends a clear message to companies who may be interested in drilling in the Lakes that they will be met with firm opposition across the basin.

The Governors recognize that any benefits gained from future oil drilling in the Lakes would be more than offset by even one spill into the nearly closed Great Lakes ecosystem. Through the signing of this Statement, they have made clear their commitment to protecting the integrity of the Great Lakes, the greatest freshwater system in the world.

U.S.-Canada Great Lakes Water Quality Agreement

The Boundary Waters Treaty of 1909 between Canada and the United States and the Great Lakes Water Quality Agreements of 1972 and 1978 that followed are the oldest examples of international efforts to address Great Lakes issues. Through the work of its many advisory boards, the International Joint Commission, formed by the Boundary Waters Treaty, helps guide Great Lakes protection and management throughout the basin. Nowhere has their presence and activity been more evident than in the area of water quality.

The Great Lakes Water Quality Agreement of 1972 and the 1978



revised version outline the Canadian and U.S. Federal governments' management responsibilities for improving the water quality of the Great Lakes.

The 1972 document focused on programs to control conventional pollutant discharges, such as phosphorous and raw sewage into the Great Lakes. Six years later in 1978, the agreement was renegotiated and strengthened. The focus was broadened to include a preliminary attack on the problems of toxic substances, atmospheric deposition and groundwater contamination -- areas that were only beginning to be understood.

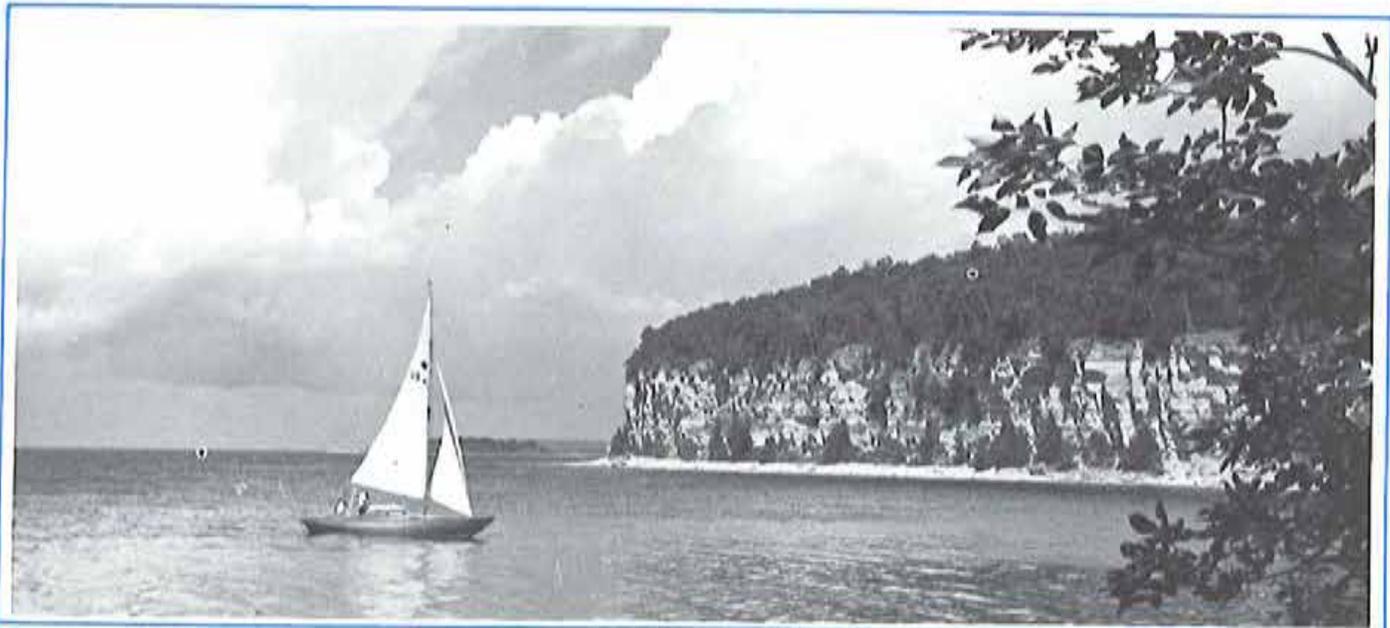
Within the coming year, the Great Lakes Water Quality Agreement will be reexamined and possibly renegotiated once again. If Canada or the United States does not wish the Agreement to be changed, it will remain unchanged until the next renegotiation period. If renegotiation is undertaken, it is essential that the states,

who have assumed much of the primary responsibility for environmental protection of the Great Lakes, be full partners in these proceedings.

However, Michigan believes that the federal government would be better served by living up to the provisions of the current document rather than fine-tuning its prose. Therefore, we oppose renegotiation of the Agreement at this time.

The present document contains a comprehensive mandate to attack the problems of toxic contamination, nutrient pollution, and inadequate research and monitoring. With the Reagan administration's proposed termination of the wastewater treatment construction grants program, their failure to set many toxic standards and their repeated budgetary deletion of Great Lakes research funding (annually restored by Congress), we should resist renegotiation and concentrate on existing programs.

Michigan believes that the federal government would be better served by living up to the provisions of the current document rather than fine-tuning its prose.



Highlights of the Great Lakes Toxic Substances Control Agreement

Federal Role

The Great Lakes states should use their influence, through coordinated efforts, to help shape federal policies and legislation related to toxic substances especially in the Great Lakes region.

An Economic and Environmental Resource

The Great Lakes states will resist any attempts to attract new businesses by lowering environmental and health standards or weakening enforcement efforts.

Permitting

Until completely closed systems are feasible, all point discharges of toxic substances should be regulated under a permit system. Also, permitted releases to surface water, groundwater and air should be better integrated; biomonitoring should be an integral part of the permitting process and; coordinated groundwater management programs should be implemented by each state.

Hazardous Waste Management

Incentives to spur the elimination of toxic chemicals at the point of manufacture or use should be developed and possibilities for interstate hazardous waste management planning explored.

Accidental Discharge

Notification of serious accidental discharges will be made to emergency response authorities in all affected jurisdictions.

Atmospheric Deposition

Signatory states agree to cooperate in efforts to quantify atmospheric loadings of toxic substances to the Great Lakes and to consider their effects when granting air emission permits.

Monitoring and Surveillance

Additional work is needed in the expansion of specimen banking programs, development of basin-wide fish and aquatic bird monitoring programs, and development of a new program to provide water column trend analysis.

Fish Consumption Advisories and Human Health Effects Assessment

Common fish consumption advisories should be developed for each Great Lake and standardized sampling procedures established for fish contaminant evaluations. Human health registries should also be developed.

Great Lakes Water Quality Fund

The Governors commit to examining the creation of a regional funding arrangement for long-term monitoring and research.

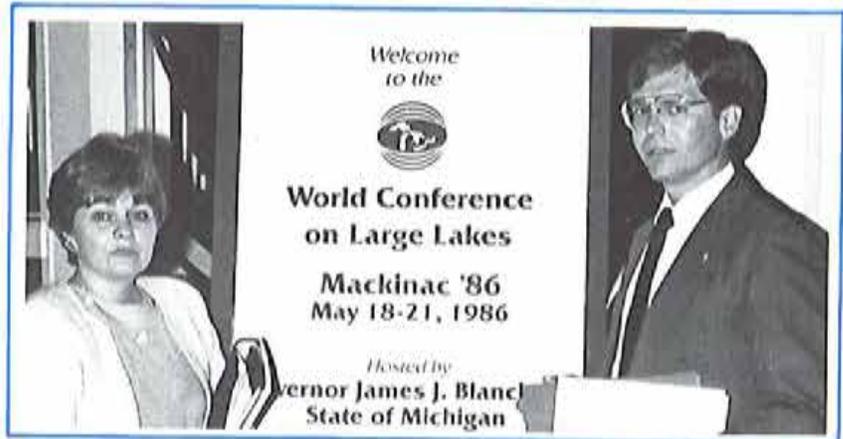
Public Involvement

The Governors pledge to ensure citizen involvement in the implementation of this agreement. Support is also given to an increased emphasis on environmental awareness in the educational curriculum of schools.

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World Conference on Large Lakes

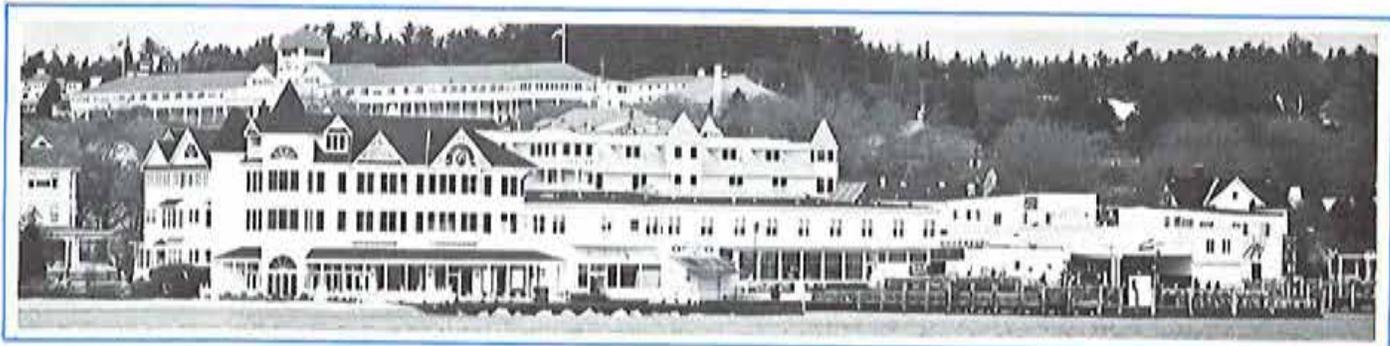
During May 18-21, 1986, over 500 scientists, policymakers, business leaders, and distinguished guests from 21 countries convened on Mackinac Island for the second World Conference on Large Lakes. The focus of the 1986 conference, hosted by Michigan's Governor Blanchard, was toxics. Specifically, the sources, fate, chronic effects, and strategies for toxic contamination. This conference



ized
of
the world's large lakes. Many linger for years in the environment and can bioaccumulate in fish and wildlife to levels which threaten aquatic ecosystems and even human health. Large lakes, because of their long flushing times, are particularly susceptible to toxic contamination. These substances can enter large lakes in several ways, with nonpoint pathways such as sediment resuspension and urban and rural runoff becoming increasingly recognized as prominent sources. Their long life, unknown effects and diverse sources make toxic substance contamination of large lakes a difficult problem to address.



Our understanding of the nature of toxic chemicals and



ECOSYSTEM MANAGEMENT: OVERCOMING JURISDICTIONAL DIVERSITY THROUGH LAW REFORM
 PR. MULDOON CANADIAN ENVIRONMENTAL LAW RESEARCH FOUNDATION TORONTO, ONTARIO

THE GLOBAL ECOSYSTEM
 Pollution knows no boundaries

ECOSYSTEM MANAGEMENT PROBLEMS

- lack of political will
- incomplete knowledge of scientific uncertainty
- development of traditional regulations
- poor enforcement

JURISDICTIONAL DIVERSITY

- piecemeal regulatory schemes
- disparity and inconsistency of standards
- fragmentation of administrative actions
- barriers to public participation in the courts and tribunals

BARRIERS TO PUBLIC PARTICIPATION

Common Law Barriers: legal impediments which bar victims from suing polluters located across political boundaries

Statutory Barriers: provisions which exclude non-residents or consideration of extra-territorial issues in the decision-making process

CASE STUDY: PUBLIC PARTICIPATION IN THE GREAT LAKES BASIN

Jurisdictions in the Great Lakes Basin

Legal Barriers to Great Lakes Litigation

A Recommended Approach: Uniform Law

stances from landfills to lakes via groundwater seepage. The conference also provided an avenue for concerned citizen leaders to learn of effective mechanisms for working with governments and business to control pollution.

Problems that seem unique in Michigan are rarely unique in the world. Clues to the toxic contaminants in Superior from Uni from st

their action and interaction in natural ecosystems has not kept pace with their rapid development and application in commercial enterprises. The agenda of the conference was designed to allow the world's best scientific minds to exchange research results and techniques enabling all of us to more effectively manage our large lakes.

The agenda touched on the sources of toxic pollution, their effects in large lake environments, and the viability of control programs used to date. Policymakers discussed transboundary problems, such as the long-range transport of toxics through the atmosphere and multi-media problems such as the movement of toxic sub-

the wo. expertise also flows the other way enabling Italy to utilize our successful efforts in the rejuvenation of Lake Erie in addressing eutrophication problems of their Lake Orta.

In a dynamic and productive exchange of ideas, participants agreed to a number of major conclusions and recommendations concerning the prevention and control of toxic substance contamination in large lakes. Only highlights are presented here. Inquiries on the full text of proceedings should be addressed to the Department of Natural Resources, Executive Division, Box 30028, Lansing, Michigan 48909.



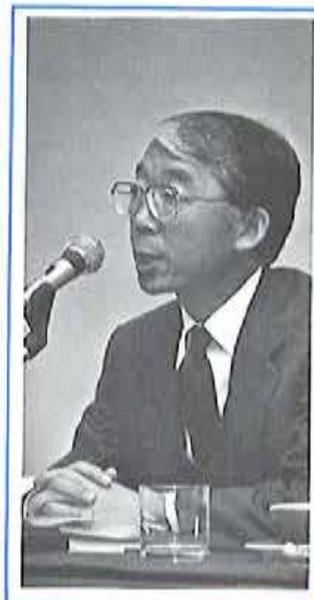
Conference Summary

1. A philosophy of prevention of toxic substances contamination rather than one of reacting to environmental crises should be advocated and adopted.
2. An inventory of sources for persistent toxic chemicals now prevalent with _____ must be accurately obtained _____, national and global basis.

_____ and standardization of information and testing _____ among jurisdictions is needed as well as the _____ of a priority-setting methodology to guide _____ search and management efforts.

International control agreements are required to eliminate the use of hard pesticides such as lindane and toxaphene and to provide for consistent and complete destruction of persistent industrial chemicals.

5. Secondary sources of toxic contamination such as atmospheric transport, on-site contaminated harbor sediments and leaking landfills have created a demonstrable plateau in toxic chemical levels and the build-up of subtle chronic effects within large lake ecosystems.
6. Public policy, scientific inquiry and regulatory programs must be integrated and shaped by a whole lake or ecosystem approach to management. Ecosystem management recognizes that the problems of toxic contamination extend beyond national boundaries or environmental components.
7. Resource economists and social scientists must continue their research to determine the economic worth and non-market value of large lakes. This is desperately needed to convince decision-makers of the importance of long-term, often expensive research.
8. Better measurement is needed of the effectiveness of control programs and the quality and efficiency of existing monitoring programs.
9. More complete and understandable information must be presented to the media and, when possible, more complete transferral of that information to the public must be encouraged.
10. Control programs and research must recognize how different media -- air, water, sediments -- can serve as pathways of contamination.



Water Levels

The extremely high water levels of the Great Lakes continued to attract public concern in 1986 as previous highs, set in 1985, were surpassed. During the years when Michigan's population grew and prospered, increasing numbers of people were able to satisfy their desire to be near the water and built homes on lakefront property. The result was the construction of many homes during low water periods. These homes are now endangered by active erosion and flooding caused by the h

Michigan officials and shoreline communities counted their blessings as 1986 began without a storm. Despite this good luck, property damage and protecting threatened homes, roads and other structures cost the millions this year. Thousands of citizens wrote to government officials and organized into lakeshore coalitions to obtain information on erosion and flood prevention methods and to impress on officials their desire for a plan to prevent future levels this high. Michigan's response has been substantial, but because of the sheer volume of water in the Lakes and their hydrology, along with the State's lack of control over the Great Lakes system, these efforts could not cause a dramatic lowering of the Lakes. State programs are attacking the problem of high lake levels on two fronts: changes to the Great Lakes system and aid to shoreline communities and homeowners.



Changes to the System

The Great Lakes contain only two natural outlets for its water: evaporation and the St. Lawrence River. Inflows are almost entirely from precipitation falling in the basin. Precipitation has been above average in 15 of the last 18 years. Outflow at the same time has not kept pace with this increased inflow thus causing lake levels to rise. The key to reducing high lake levels is a reversal of this inflow vs. outflow balance for an extended period of time. Due to the sheer volume of water in the Great Lakes, substantially altering this balance can most effectively be done by nature in the form of hotter, drier weather. Humans can alter the balance artificially but with less effect and over a longer period of time.

There is only one place where humans can influence inflow -- the Ogoki and Long Lac diversions into Lake Superior. Although their flow amounts are very small, in mid-1985 Governor Blanchard requested that the Ontario government reduce these diversions as a gesture of their concern for all Great Lakes shoreline residents. As a result of this and other requests, the Ogoki diversion was restricted during much of last year. Michigan officials have continued in 1986 to press Ontario for this restriction.

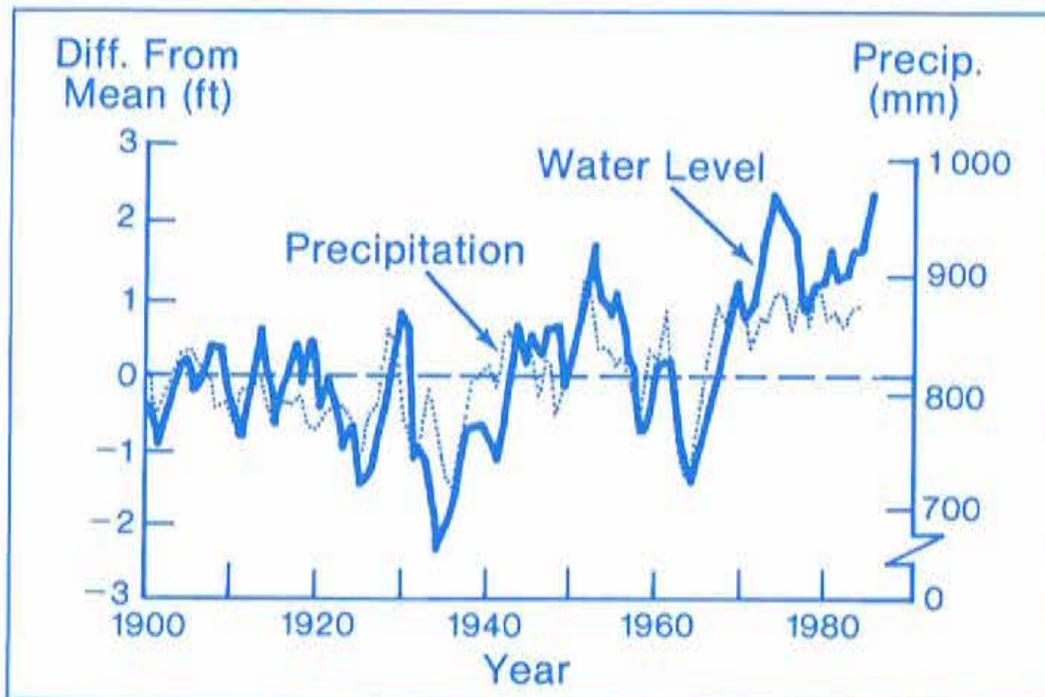
Our ability to affect outflows is limited in the short-term, but a long-term option for influencing outflow is being closely scrutinized. The Niagara River represents the greatest bottleneck in the pathway of water from the upper Lakes (Superior, Michigan,

Huron and Erie) to Lake Ontario. Although there has been a great deal of human alteration in this area the constriction is a natural one. In an effort to affect outflow here, the International Joint Commission has assented to Governor Blanchard's call to do a quick feasibility study, or reexamine previously conducted studies, on flows between Lakes Erie and Ontario.

As envisioned, a new or altered channel could increase flows at times of high water or reduce flows during times of low water. Michigan's Washington Congressional Delegation, led by Congressman John Dingell, has made clear its support for this proposal as have other basin states and Governors. This idea, of course, would not lead to a short-term or inexpensive solution. Such a channel would also not completely control water levels, but it would be an important new tool that could be used to influence levels. Since it would be an in-basin diversion, its control would rest with the basin states and provinces. Basin states would not have control of a new out-of-basin diversion like that at Chicago, the only such diversion currently in existence on the Great Lakes.

It is estimated that if the Chicago diversion were increased from its present flow rate of 3,000 cubic feet per second (cfs) to 10,000 cfs, the result would be a drop in Lake Michigan and Lake Huron levels of approximately 1/10 inch per month. Extensive flooding on the Illinois and possibly Mississippi Rivers, the recipients of this increased flow, could also result. This inevitable consequence has prompted Governor James Thompson of Illinois and others to strongly resist any efforts to increase the flow through this diversion.

The International Joint Commission has assented to Governor Blanchard's call to do a quick feasibility study on building a new channel between Lakes Erie and Ontario.



State programs are attacking the problem of high lake levels on two fronts: aid to communities and homeowners and changes to the system.

Help for Communities and Homeowners

Frustrated by their inability to actually lower water levels through modifications of inflow or outflow, elected officials have channeled their energies into helping the most affected individuals and communities. Under the Army Corps of Engineers' Advanced Measures Program, requested by Governor Blanchard last year, five communities had massive anti-flooding structures built to protect their residents. Local funds were matched by at least \$750,000 in state funds and over \$3 million in federal funds, making this the biggest anti-flooding effort undertaken during this period of high lake levels.

The Army Corps of Engineers also did extensive beach nourishment along Lake Michigan shorelines in 1986. Nourishment is done to replenish beaches and temporarily protect homes and public facilities in danger of destruction due to erosion. A total of nine miles

was nourished this year with various types of material varying from fine sand to rock.

The Emergency Home Moving Program begun in 1985 was expanded this year to allow elevation of homes in flood-prone areas. These programs reduce rates on loans homeowners take out for these relatively permanent protection projects. Over 300 families have been declared eligible to receive this aid. These innovative programs were recognized by the Association of State Floodplain Managers with a national award in June 1986. Assistance in the form of half-price sandbags and polysheeting was also made available to Michigan residents this year. Distributed by the Michigan State Police, the one million sandbags and 270,000 square feet of polysheeting went fast as Michigan residents scrambled to get protection in place before actual flooding occurred.

On the federal level, Michigan officials have also been lobbying



hard for the benefit of individual lakeshore property owners. The Governor, various state government officials and Michigan's Congressional Delegation have been in communication with the Federal Flood Insurance Administration (FIA) concerning denied claims from lakeside homeowners. Federal law directs claims to be paid when loss occurs because of a storm or when water "exceeds anticipated cyclical levels". The FIA has recently acknowledged that this condition does exist on all the Great Lakes except Lake Ontario and that these high levels should be considered when claims are reviewed.

Information and technical assistance continues to be provided by the DNR to individuals on anti-erosion and anti-flooding measures property owners can take to protect their property. A series of workshops conducted by Department personnel across the state offered citizens the opportunity to gather information as well as ask questions about the causes and potential solutions to high Great Lakes levels.

In an unprecedented move, on February 21, 1986, Governor Blanchard declared 17 counties state disaster areas. Formed in response to this disaster declaration, the Shoreline Community Protection Program provided \$1.98 million in grants to affected communities for anti-erosion and anti-flooding projects to protect public facilities. Seventy-nine communities used this money for the purchase of pumps and sandbags, rip rap, seawall repair, road elevation, and the installation of flapgates and other devices to protect sewer sys-



tems and prevent back-up. A second phase of the Shoreline Community Protection Program announced in July 1986 will provide further aid to hard-pressed communities.

As 1987 approaches, the question most often asked by people concerned about Great Lakes water levels is when will the water go down. Many hydrologists who have studied the dynamics of water level variation believe that the Great Lakes region is entering an extended period of higher than average water levels. The waters, even when they do recede, may not drop as far as they have in the past and future levels may set new highs. It is clear we must continue our protection and advocacy efforts.



Water Resource Planning

Michigan is developing its first state water plan.

Michigan -- the Water Wonderland. The Great Lakes state. We have often taken our abundant water resources for granted, but it is becoming increasingly clear that there are real threats to this resource from diversions and our own consumptive uses. Our basin neighbors experienced a similar awakening in 1985 prompting the Great Lakes Governors and Premiers, led by Governor Blanchard, to sign the Great Lakes Charter. To implement the Charter, Michigan is developing its first comprehensive state water management plan.

This plan will serve as a flexible guide for the development, management, conservation, and protection of water resources well into the next century. It will enable the state to adjust

water use decisions to changing social, environmental, economic, and technical conditions. Through a two-year water planning process, specific recommendations for resolving immediate and long-term water problems are also being developed.

The benefits of a comprehensive water plan and an ongoing planning process are considerable. The plan and the process will promote public and local governmental understanding, participation and support for state water management programs and objectives. It will establish priorities for wise use of public monies and eliminate duplication in existing federal, state, and local water protection and management programs. It will provide a mechanism for measuring progress by setting clearly defined objectives and identifying agencies responsible for meeting those objectives. The water resource itself, as well as people who depend on it, will benefit from this effort to protect our state's greatest natural resource.

The Great Lakes and Water Resources Planning Commission, established by Public Act 133 (the "Great Lakes Conservation Act"), is charged with completing this plan by September 30, 1987. The Commission has selected eight priority issues for consideration.

A second tier of priority issues to be included as part of the plan but in less detail has also been identified. Together, attention to these issues will constitute the broadest examination of water resource policy ever undertaken in Michigan.



"Comprehensive water planning must address both the immediate management of the water system and the development of an on-going planning process," said Jo-Ellen Darcy, Executive Director of the Commission.

"This will insure that all the various competing water demands will be noted." In addition, it should guarantee that conflict is reduced even while access to these resources is expanded. It also recognizes the necessary integration of surface water, groundwater, land use, water quality and water quantity issues.

Michigan citizens concerned about the future of their water resources and interested in participating in the planning process should contact the Commission. Public hearings will be held around the state after release of the draft action plan in early 1987.

Priority Issues

- Strengthening the role of local government in water resources management;
- Balancing competing water use demands and water rights;
- Attacking point and nonpoint source pollution;
- Rationalizing groundwater protection and management;
- Identifying water resources data needs;
- Assessing the needed financial resources for a commitment to water resources planning and management;
- Evaluating the present structure of water programs in government;
- Exploring Great Lakes water management and the potential diversion of Great Lakes water.



State Government Programs

Last year's State of the Great Lakes report detailed Michigan's Great Lakes water quality programs. The NPDES permit program and the wastewater treatment grant program continue to play major roles in protecting the Great Lakes. The Pretreatment Program, administered by the Surface Water Quality Division of the DNR, reached a major milestone in 1985-86. Local governments began implementation by setting discharge limits, notifying industrial and commercial concerns of their responsibilities and requirements, and by implementing compliance monitoring activities at industrial locations. The majority of industries and businesses dispose of their wastes just as individuals do: through municipal sewer systems. Municipal treatment facilities are generally not equipped to properly treat certain industrial waste resulting in the pollution of receiving waters or accumulation in sludge. This program will significantly reduce the amount of toxic substances entering the Great Lakes.

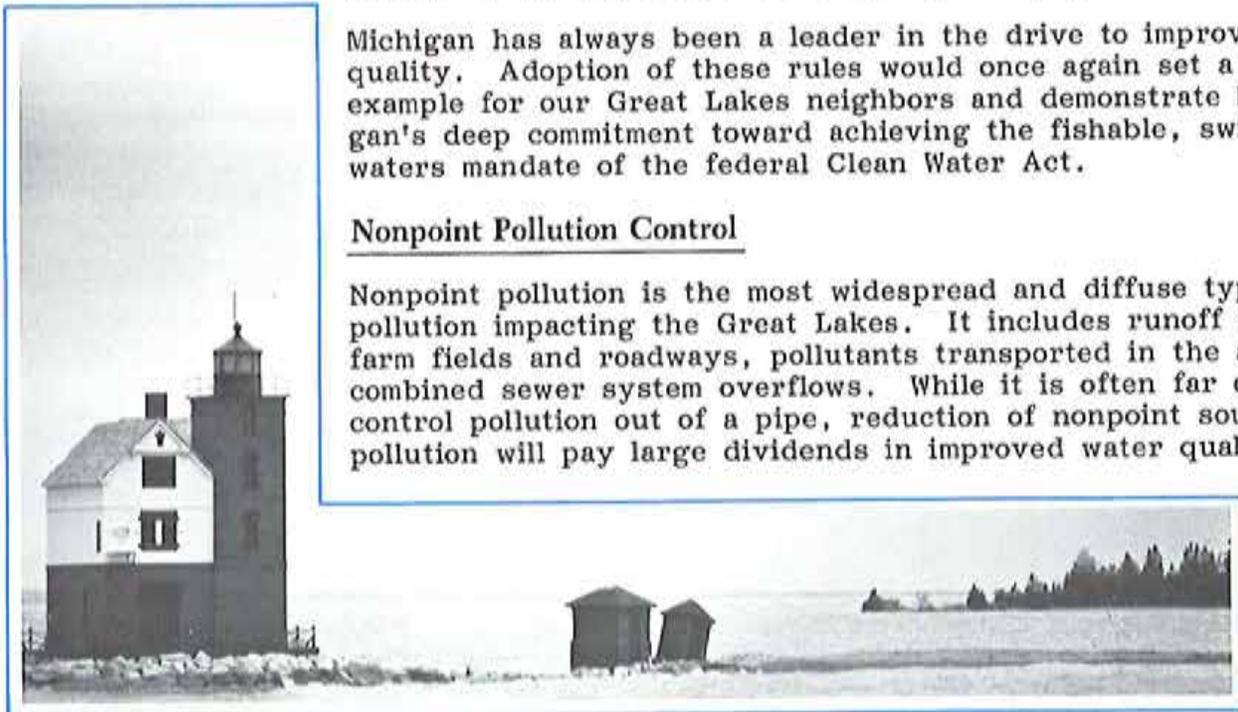
Water Resources Commission

Actions of the Water Resources Commission in 1986 also made clear their strong desire to reduce pollution of the Great Lakes. Tough new rules to control pollution discharges into Michigan waters were adopted June 19, 1986 by the Commission and sent to the Joint Committee on Administrative Rules, a legislative body, for approval. Among other changes, the rules for the first time designate the waters of the Great Lakes as "outstanding state resource waters" and require increased treatment of toxic pollution discharges from plants on the Great Lakes shoreline. They also improve the standards for dissolved oxygen in receiving waters--a key ingredient for a healthy fish population.

Michigan has always been a leader in the drive to improve water quality. Adoption of these rules would once again set a positive example for our Great Lakes neighbors and demonstrate Michigan's deep commitment toward achieving the fishable, swimmable waters mandate of the federal Clean Water Act.

Nonpoint Pollution Control

Nonpoint pollution is the most widespread and diffuse type of pollution impacting the Great Lakes. It includes runoff from farm fields and roadways, pollutants transported in the air and combined sewer system overflows. While it is often far easier to control pollution out of a pipe, reduction of nonpoint source pollution will pay large dividends in improved water quality.



To combat this problem, Governor James J. Blanchard directed the Cabinet Council on Environmental Protection to develop a comprehensive statewide program. In 1986, The Legislature approved the Governor's request for \$250,000 to begin the Clean Water Incentives Program. This ambitious program establishes an action plan to attack nonpoint source pollution by concentrating on incentives, public information/education and strong interagency cooperation. It also adopts a watershed approach to enhance the effectiveness of control strategies by allowing them to be implemented on a site-specific and source-specific basis.

The Michigan Department of Agriculture took the first step in implementing recommended nonpoint source control programs when it funded demonstration watershed projects to reduce rural nonpoint pollution. Through soil conservation districts, nine watersheds were selected to demonstrate what could be done to solve nonpoint source pollution problems at the local level. These demonstration projects will show us the most effective tools to reduce this type of pollution.

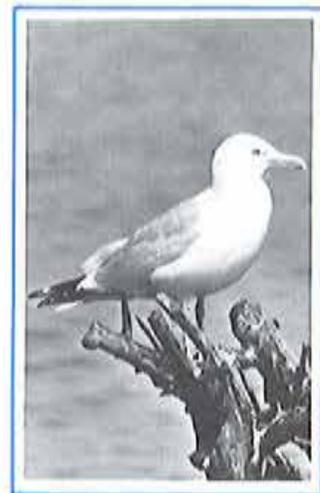
The Michigan Department of Transportation has also taken steps toward implementing the Clean Water Incentives Program. A task force supports lower road salt application rates, more use of sand/salt mixes, and better training of salt truck operators. Implementation of these and other recommendations will ensure that our roadways remain safe in the winter months while reducing nonpoint source pollution.

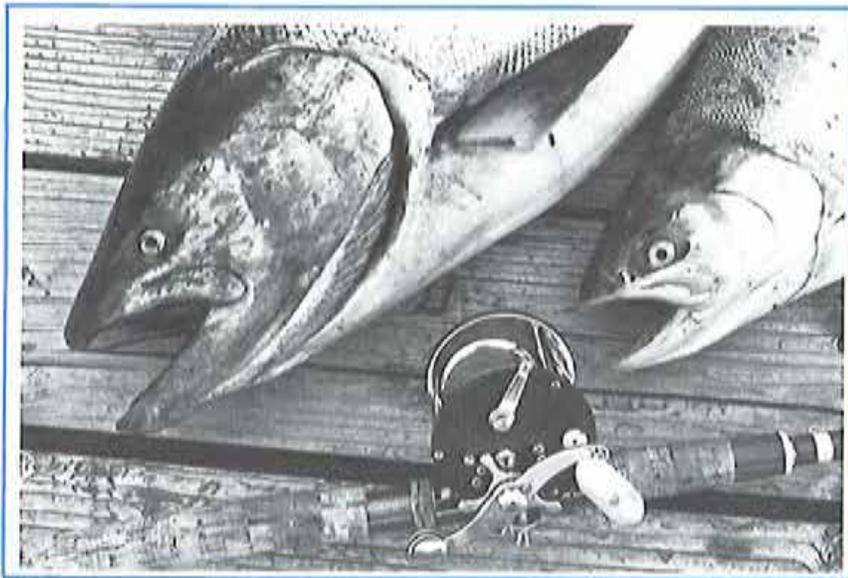
Biomonitoring

Biomonitoring, the tracking of contaminant levels and their effects in plants and animals, is a valuable tool to establish contaminant trend data, detect trace levels of contaminants in water, measure the effectiveness of clean-up and pollution abatement programs, and provide an overall assessment of water quality. Ultimately it can give us important clues about the effects of various concentrations of toxics on animal functions and growth. To achieve these objectives, programs must be continuous over many years.

In 1986, Michigan began a monitoring program for aquatic birds, specifically cormorants and caspian terns. Concerned by the incidence of deformities in these species, DNR Director Gordon Guyer established a \$23,000 program to determine the extent and causes of these genetic deformities. It is hoped that study of these birds will yield clues on possible cause-and-effect relationships in other species, including humans, exposed to similar environmental conditions. "The information generated by continuous biomonitoring programs is essential in carrying out two of the state's most important responsibilities: to properly protect and manage our magnificent natural resources and to protect the health of our citizens," said Director Guyer.

The rules for the first time designate waters of the Great Lakes "outstanding state resource waters" and require increased treatment of toxic pollution discharges.





The increase in fish collection and testing carried out this year is a second example of the strong support for monitoring programs in state government. The Surface Water Quality Division of the DNR supervised the collection of over 700 fish samples from 40 sites around the state. This represents a dramatic increase from previous years. In addition, a new laboratory dedicated to fish testing for these monitoring efforts was constructed this year. The benefits derived from these programs are overwhelming compared to their costs.

One of the most important outgrowths of these programs is



the establishment of human health advisories for consumption of sport fish. Health advisories in Michigan waters are prepared by the Department of Public Health's (DPH) Center for Environmental Health Services. In 1985, discussions between basin states resulted in development of a common monitoring protocol and issuance of a lake-wide health advisory for Lake Michigan. These efforts will continue and are intended to establish comparable data bases between different states and provinces and to provide for preparation of common fish consumption advisories for each of the Great Lakes. To ensure that Michigan provides its anglers with the best information, the DPH is revising its advisory procedures at Governor Blanchard's request.

State Drinking Water Program

Over half of Michigan residents rely on the Great Lakes for their drinking water. Ensuring purity of all public water supplies in Michigan is the responsibility of the Division of Water Supply of the DPH. The Division works with municipalities and private well owners to ensure safe public drinking water supplies.

Work with municipalities has expanded since the early 1970's to include approval of water plant design, training and certification of water plant operators and extensive monitoring to ensure that plants meet drinking water and plant treatment standards. The number of municipalities monitored under this program has also risen from 900 in the early 1970's to 1,500 today. A total of 11,000 commercial private

well owners are monitored in Michigan by state and local health departments.

Private well drillers are required to be licensed by the state, follow construction codes and keep well logs pinpointing the locations and depths of the wells they drill. Contamination of underground aquifers which can effect Great Lakes water quality is a growing problem and only by knowing the extent and exact location of contaminated aquifers can the public be protected.

The Water Supply Division of the DPH feels strongly that their mission is to identify potential problem situations and take corrective action before public health is endangered. The increasingly large sums of money being devoted to remedial action programs must be matched by investments in prevention if we are ever to gain control over the widening

scope of our contamination problems. Michigan and its citizens can't afford not to adopt such a mode of action: our public health and the health of our ecosystem demand it.

Great Lakes "Areas of Concern"

Since 1973, the Water Quality Board of the International Joint Commission has identified areas in the Great Lakes and their connecting tributaries that have serious water pollution problems. A total of 42 of these "Areas of Concern" were identified in the 1985 report, 14 of which touch Michigan. The problems at these sites vary both in terms of the sources and types of contamination. Toxic substance contamination is a primary problem in a majority of these areas.

Much of the contamination in these waters was the result of practices which predated regulatory programs or for which no

Governor Blanchard has directed that increased attention be devoted to Michigan's Areas of Concern.



Rouge River Strategy:

A Model for Effective Action

Restoring the desired water quality in the Rouge River by the year 2000 is an enormous task. The Rouge River strategy recently developed by the DNR represents a systematic and comprehensive approach to addressing the problems in the River's basin. The foundation of this strategy is the Rouge River Basin Committee. The Committee is a unique partnership composed of local officials, water resource agencies, public interest groups, industry and others in the basin. State officials look to the Basin Committee for direction and guidance in the development of the Remedial Action Plan (RAP) for the Rouge. At Governor Blanchard's direction, the state has allocated \$350,000 to supplement local, private and other public dollars for the RAP's completion. Establishing an active public role early in the planning process will foster greater understanding and commitment to the difficult steps that lie ahead in efforts to clean up the Rouge. This model approach is a major advance in devising effective means to develop workable plans for action and to make those actions a reality. A strong "hands-on" citizen effort is developing as thousands participated in Rouge Rescue '86. Water Resources Commission Chair Jim Murray has been a major actor fostering state activities and enlisting support from private citizens and industries in the Rouge basin.

effective control program currently exists. Thus, to address some of the problems in the Areas of Concern, advances in research and new technology will be needed.

The first step to achieve further clean-up of these areas is the development of remedial action plans (RAPs). RAPs will be written for each Area of Concern describing the area's pollution problems, proposed remedial actions, and monitoring plans. The RAPs are working documents to guide state and federal clean-up efforts. The Governor has added \$200,000 to supplement ongoing efforts to prepare these RAPs. The Great Lakes National Program Office of the U.S. EPA has also assisted in preparation of these plans.

Michigan will complete seven RAPs in 1986 with completion of five more projected for 1987. RAPs for other areas are being prepared by neighboring jurisdictions.

The Governor believes that local participation is critical to ensure proper preparation and implementation of the RAPs as they are developed by the DNR. The Office of the Great Lakes is conducting public meetings in ten of Michigan's Areas of Concern throughout 1986. At these meetings, DNR officials give a status report on the progress of the area's RAP, and ask interested citizens and local officials for their concerns and ideas. These meetings establish an ongoing dialog with affected local citizens and government officials. The second charge of the Office is to maintain this state/local

dialog as the RAPs are written. The rapport established this year will help steer the RAP process from initial data gathering through the implementation clean-up process.

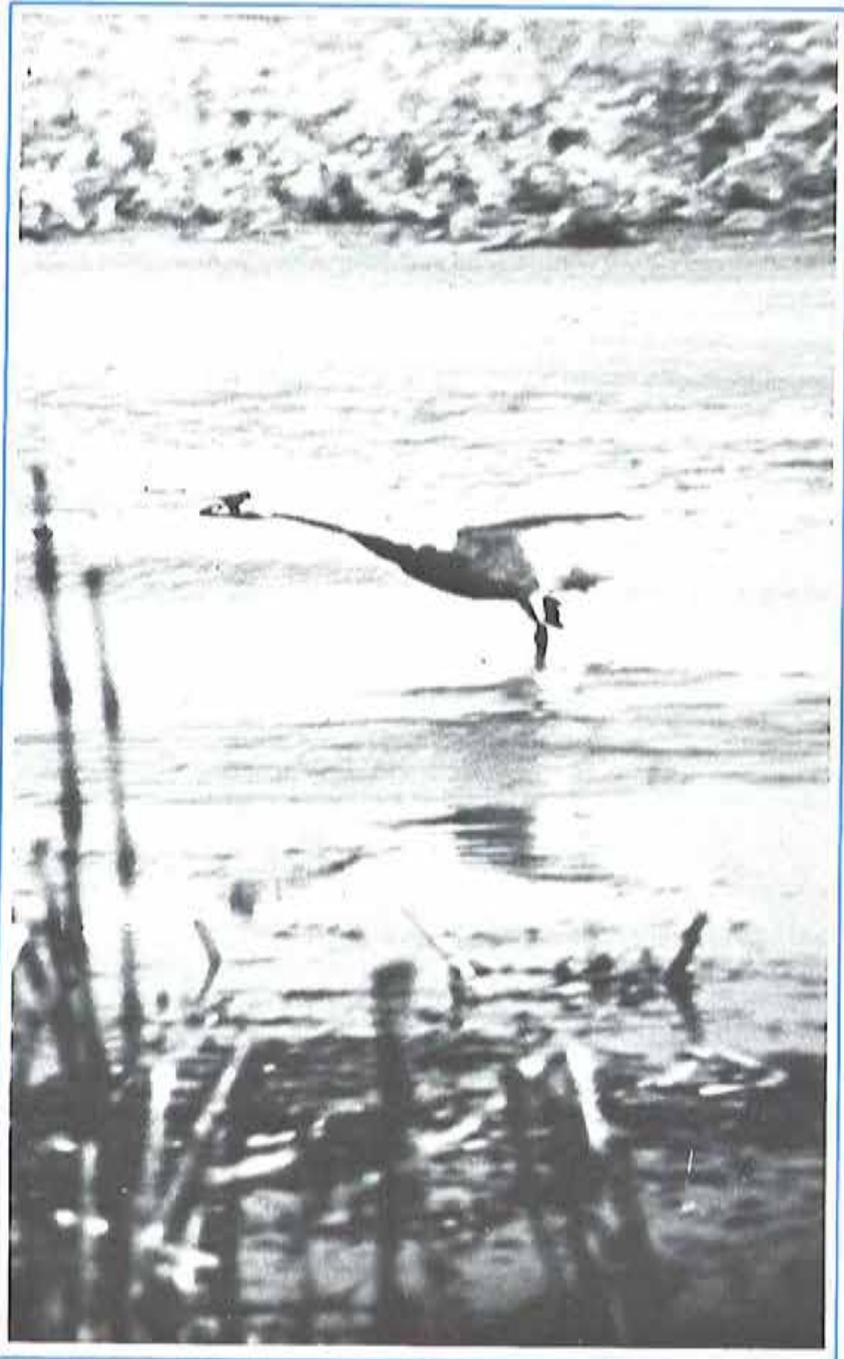
Coastal Zones

Hidden beneath the often placid surfaces of our Great Lakes are aquatic communities constantly undergoing alteration and change. These communities and their adjacent shores are some of the most unique and fragile ecosystems in the world. Nowhere is life more abundant than in the near-shore areas where light can penetrate to the bottom and plants thrive.

Proper management and protection of these areas requires a thorough understanding of the dynamics of the ecosystem itself. Michigan began the long process of trying to gain this understanding in the fall of 1985 with the establishment of a Great Lakes data collection computer system championed by Attorney General Frank J. Kelley and Governor Blanchard. The system will provide lakes-wide general information and near-shore detailed data. Specialists in the Land Resource Programs Division of the DNR completed overall program design this year. Existing information from across the Great Lakes basin was assembled, standardized and encoded onto computer tapes. Advanced equipment was also purchased to enable state officials to tap into the LANDSAT satellite imaging system, one of the most advanced in the world.

The first major test of the design and analysis capability of the system will be conducted

this fall utilizing information on Saginaw Bay. Designers anticipate that the system will allow rapid information retrieval and provide valuable analyses for use in fish and waterfowl management, coastal zone permitting, water level fluctuation studies, and pollution mitigation efforts.



The state has been actively purchasing dunes, especially the most sensitive.

Shorelines

Great Lakes shorelines benefited from the work of Michigan's youth this year when Governor Blanchard announced the formation of the Cleanwater Corps as part of the state's "Clean Water '86" campaign. More than 1,500 workers from the Michigan Civilian Conservation Corps and the Michigan Youth Corps were assigned to install erosion control structures, landscape and beautify public access sites and assist with fisheries and waterfowl management projects. In addition, they spent many days sandbagging in flood areas along Lake St. Clair this spring.

Applications for seawalls and other erosion control structures soared this year and last, nearly tripling since 1984. The Emergency Home Moving and Emergency Home Flood Protection programs added additional responsibilities for the Land Resource Programs Division of the DNR. In undertaking this increased workload with existing personnel, priority was given to Great Lakes coastline permits. Rule amendments were also promulgated to streamline and expedite processing of permits while still ensuring that coastal resources are protected.

In addition, 15 miles of shoreline and approximately 700 parcels were designated high risk erosion areas in 1986. This designation, which now applies to 290 miles of Great Lakes shoreline and 7,000 parcels, establishes a safe setback distance for buildings. This is designed to make individuals and communities aware of the degree of erosion that can be expected so they can plan their land use accordingly.

Prompted by repeated appeals from the DNR and the State Police, individuals in record numbers applied for Federal Flood Insurance to protect their property. The number of policy holders increased 24% between November 1985 and March 1986, the largest increase of new participants since the early 1970's. The Federal Flood Insurance Program not only provides financial protection against flood losses, but requires that future development must be safe from flooding.

All Michigan communities and townships can join the program. The Engineering-Water Management Division of the DNR which administers this program on the state level estimates that 85-90% of all communities in Michigan have the necessary information and in-place laws to qualify. Forty communities joined the program in 1986 bringing the total currently enrolled to 600.



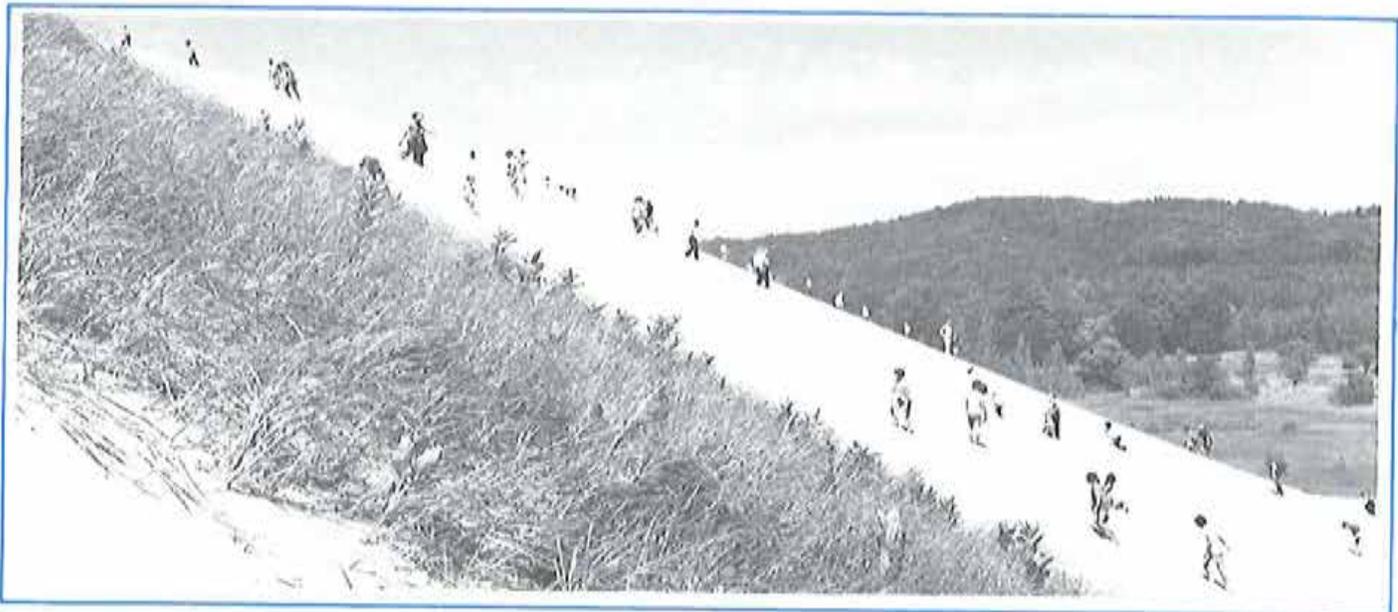
Sand Dunes

The wide sandy beaches and undulating hills of near-shore dunes constitute the most common picture people associate with the term sand dune. Dunes are more complex, however, and include oak-hickory forests and grassy plains, often extending miles inland from the water's edge. The degree of sensitivity of the different types of dunes that exist in Michigan also vary with some being able to accommodate more human use than others.

A classification system to rank dunes based on their sensitivity is being developed and linked to local planning processes through the development of model zoning regulations. Various other regulatory tools available for controlling development in dune areas are also being explored. Local workshops will be held this fall to review findings, present model zoning ordinances, discuss techniques for managing sensitive areas, and explore local dune problems.

At present the state has limited authority to regulate development, especially residential development, on privately owned sand dune areas. This may change since Representative Lynn Jondahl has introduced a tough new protection measure for these dunes (H.R. 5667). But for now, sand dune mining remains the only activity directly regulated by the state in dune areas under private ownership.

The state has been actively purchasing dunes subject to mining, especially the most sensitive, through the Land and Water Conservation Fund and the Natural Resources Trust Fund. Over a thousand acres of sand dune formations were purchased and placed under public ownership in 1986. State ownership of these parcels opens them up to the public and protects them for future generations.



Sand dunes are one of Michigan's irreplaceable treasures.

Education of Michigan's youth also took a dramatic step forward when the DNR and the Michigan United Conservation Clubs (MUCC) undertook a cooperative natural resources education project designed to encourage awareness of and appreciation for Michigan's coastal resources. Teachers in the state received a complimentary copy of MUCC's conservation magazine which featured sand dunes and the Great Lakes coast. Additional copies were provided to over 500 schools requesting them, and the teachers were informed of the availability of a sand dune videotape produced by the Parks Division of the DNR.

Before we leave this discussion of sand dunes, mention must be made of a controversy which gripped the state this year and has long-term implications for one of our special sand dune areas, the Nordhouse Dunes. The Nordhouse Dunes area is the only proposed wilderness area in Michigan's lower peninsula. The land is under the jurisdiction of the U.S. Forest Service, but 80% of these lands have privately owned mineral rights. An oil company has leased many of these privately held mineral rights in anticipation of drilling. Such drilling would jeopardize this area's designation as a wilderness and could result in long-term -- possibly permanent -- damage to the ecology of these dunes.

There is broad-based public support for the protection of this area and its designation as wilderness. Yet state and federal law has long established that the owners of mineral rights must be allowed reasonable access despite the wishes of surface owners. An environmental impact statement is being conducted by an interdisciplinary team and is due for release later this year. The solitude of the Nordhouse Dunes provides a striking contrast to the battles that will be waged over its management.



Economic Activity

The Great Lakes are vitally important to our region's economy. Michigan's abundance of clean fresh water supplies furnishes cooling and process water to utilities as well as water for the manufacture of many products. Great Lakes shipping provides efficient transportation of raw materials and finished goods within the region and to distant ports. The Lakes also serve as the focal point for an expanding tourism and recreation industry based on sport fishing, pleasure boating, underwater diving and shoreline camping. The Great Lakes hold tremendous potential for helping this region continue to diversify its economy.

Commercial Shipping

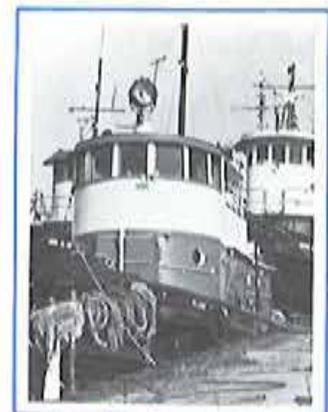
In 1679, the Griffin began a tradition of large commercial vessels plying the Great Lakes. Locks and dredging later opened the Lakes to direct trade with Europe christening our modern age of international shipping. Shipping prospered as steel and automobile industries sprang up along the Lakes and rich deposits of the raw materials used by those industries were extracted along the shores. The decline of these heavy industries in recent years has led to a corresponding decline in commercial shipments of raw material.

Volumes of iron ore, coal, grain, limestone, petroleum, chemicals, cement and potash moving on the Great Lakes in 1985 totaled approximately 150 million net tons. The bulk of this was carried by Canadian and U.S. owned and operated vessels. This level of shipment represents a 12% decline from 1984. Compared to 1981, the last pre-recession navigation season, cargos have slumped 20%.

Commercial carriers received more bad news in 1986 when it became clear that port user fees were inevitable in coming years. The Reagan administration has been adamant in its demand that users incur part of the costs for maintaining the commercial shipping infrastructure. Current legislation under consideration in the U.S. Congress would raise 40% of these costs and add approximately \$4 million to the costs of transporting cargo on the Great Lakes. This, unfortunately, comes at a time when carriers' users are struggling to recover from the losses sustained in the last recession. Reluctantly, commercial carriers have agreed to this tax as long as Great Lakes ports are not disproportionately affected.

Shipping trade groups, associations, and the State of Michigan have taken a stronger position against imposition of additional user fees by the U.S. and Canadian Coast Guards for such services as aids to navigation, vessel inspection and ice breaking. Few of these services solely benefit the maritime industry. It is unfair to expect this industry to bear a large proportion of the cost of such services.

The Great Lakes are vitally important to our region's economy.



Construction of a new lock at Sault Ste. Marie should guarantee carrier operations, enhance the national defense and aid the local economy.

Squeezed between decreasing markets and increasing costs, Great Lakes carriers and ports have begun exploring new markets and innovative cooperative relationships to boost shipments and revitalize their industry. Transportation of military cargo represents one area of potentially strong growth for U.S. flag ships. In 1984, more than 20% of Defense Department cargo to and from the U.S. originated in Great Lakes states. But only .02% was transported through Great Lakes ports. Congressmen Dennis Hertel, Sander Levin, and other members of the Michigan Congressional Delegation are working to help us capture our fair share of this cargo.

The Detroit/Wayne County Port Authority has aggressively sought a new cooperative relationship with the Windsor Harbour Commission to fully utilize its facilities and increase its shipments. In April 1986,

they agreed to create a revolutionary new international port corporation, the Detroit/Windsor Port Corporation. The establishment of this corporation marks the first time that U.S. and Canadian ports have combined their resources in an attempt to increase the diversity and volume of their shipments.

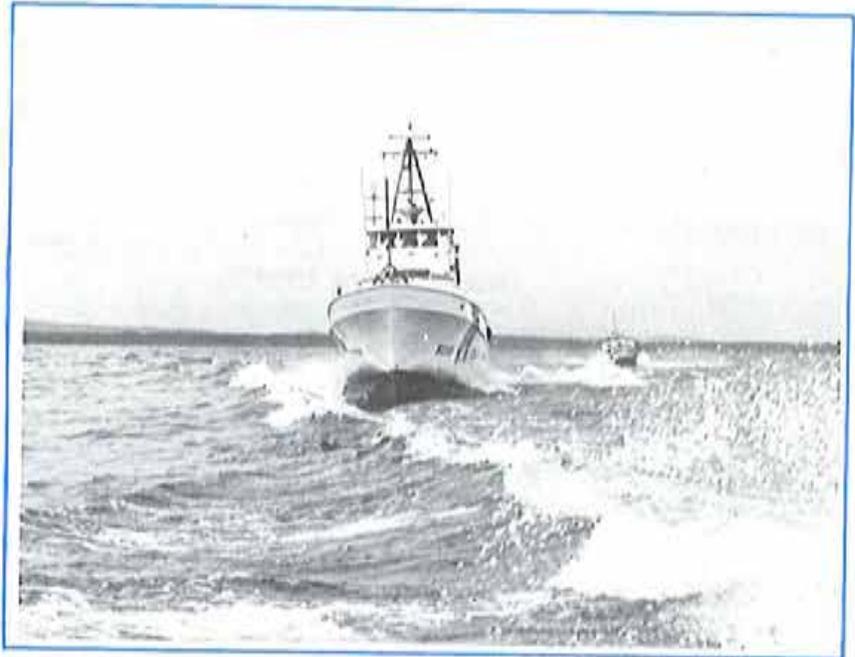
This hybrid will primarily serve as a "broker" among private and public interests to increase both ports' traffic and provide profitable business ventures for the private sector in both Michigan and Ontario. A joint strategic marketing and sales program is also being developed to capitalize on the close proximity and complimentary facilities of the two ports.

The thin international boundary between these two paired ports, of course, presents numerous barriers to cooperative efforts of this type. Creation of an international trade zone by the



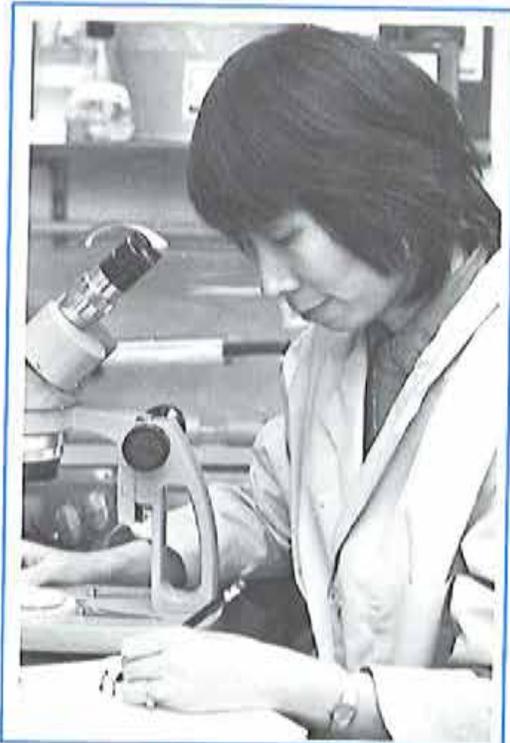
U.S. and Canadian customs services could remove many of these barriers and allow the Windsor and Detroit ports to operate more nearly as one entity.

In March 1986, the Army Corps of Engineers Board for Rivers and Harbors endorsed the construction of a second large lock at Sault Ste. Marie which would accommodate the 1,000 foot carriers that trade exclusively within the Great Lakes system. The construction of a new lock will provide a cushion of safety for carriers, a sounder national defense and badly needed jobs for northern Michigan residents. In addition, we hope the construction debris will be used to improve fish habitat. Federal funds for construction are contained in the House version of the omnibus water projects bill discussed in the legislation and initiatives section.



Water Treatment Technology Industry

A thorough examination is being undertaken this year of the water treatment technology industry and the potential it may hold for expansion in Michigan. This includes industries that design or manufacture wastewater treatment equipment, materials used in wastewater treatment facilities, toxic substance control devices and drinking water treatment technologies. Development of this industry has the potential to create new jobs, diversify Michigan's economy, and contribute to a cleaner environment while allowing existing industries to better meet their environmental responsibilities. A report to be released in 1987 will examine the structure, needs and projected future growth of this industry, as well as possible fiscal or regulatory programs Michigan could undertake to encourage its location and growth in the state.



is better served. An additional impact is that with increased recreational activity, more business is generated in other related tourism services. A third result is that more activity can be generated at a lower cost than would normally be the case. In essence this is because the "customer" is being asked what they want and the "marketing" is being designed accordingly. Application of this concept to resource management in combination with more accurate and comparable economic impact evaluations will provide Michigan with the tools it needs to continually improve management of natural resources and their value to and use by the public.

Building Michigan's Recreation Future

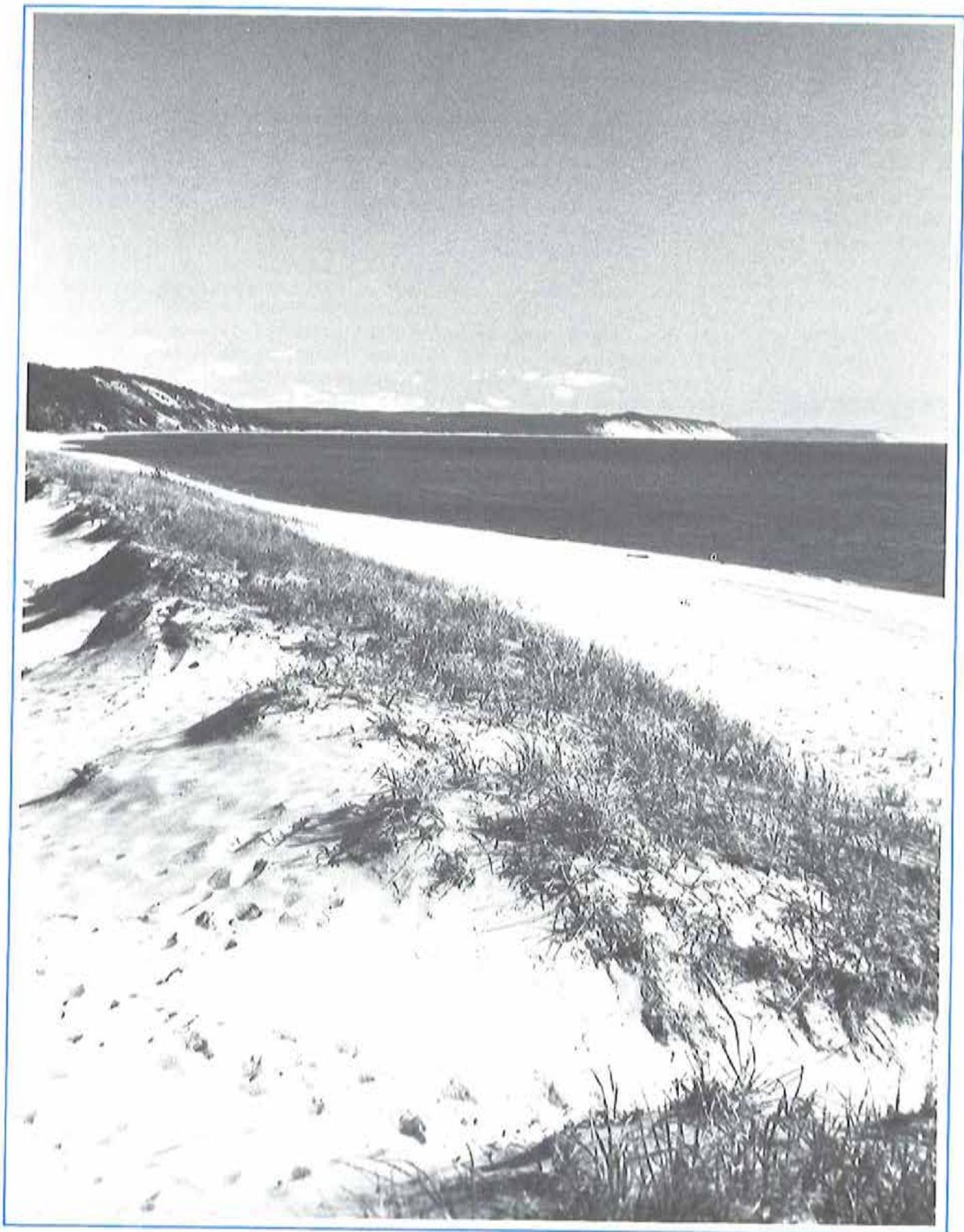
In 1986, Michigan completed a five-year statewide recreation plan. As identified in its summary, the plan explains how the State of Michigan intends to provide recreational opportunities to the people of our state

and visitors. The state has two overall recreation goals: to meet people's recreation needs, and to strengthen the state's economy through tourism development.

The state has identified six issues relating to these goals and has adopted strategies and actions to respond to the issues. They are: (1) marketing, (2) resource protection, (3) facility development, (4) coordination, planning, and research, (5) close-to-home recreation, and (6) recreation financing.

Great Lakes recreational activities figure prominently throughout the plan and are identified as some of the state's most outstanding recreational opportunities. Targeted marketing, sand dune protection, and providing more fishing access sites are only a few of a total of 34 actions called for to enhance recreational opportunities in Michigan. Development of recreational facilities along Great Lakes shorelines, especially in urban and/or economically depressed areas, will continue to receive high priority in the Urban Waterfront Recreation, the Land and Water Conservation Fund, and the Natural Resources Trust Fund programs. These three grant and technical assistance programs, along with the Waterways Fund grant program, form the financial base for public recreational facilities development along Michigan's Great Lakes shoreline. The direction provided by Michigan's recreation plan will ensure that these resources are used to build the best possible recreation future for Michigan's citizens and visitors.





The enthusiasm and innovation of Michigan's youth were also recognized this year.

In 1986, a new Lake Ontario medal will be awarded to recognize significant contributions to inter-basin cooperation and understanding.

The enthusiasm and innovation of Michigan's youth were also recognized this year with the awarding of the first annual Governor's Environmental Youth Awards. Students from across Michigan will compete annually for these awards by developing and undertaking projects designed to teach themselves and others about the conservation of our natural resources. This year's theme was water. The winners, honored by Governor Blanchard in a special ceremony on Mackinac Island, were:

- Eisenhower Community School in the elementary category for creating a scrapbook the students developed emphasizing water usage in the Flint community.
- Columbia Junior High in the intermediate category for developing a "Save Our Bottoms" public information campaign to highlight Michigan lake and river bottoms.
- Thumb Christian Academy in the high school category for making a model of lakefront development on Oak Point Lake.

Research of the Great Lakes reached new depths, so to speak, in 1986 with a return visit of the 11-ton submersible Johnson-Sea-Link II aboard its mother ship the Seward Johnson. After a successful venture into the depths of Lake Superior in 1985, the craft revisited that lake and also made several dives to the bottom of Lake Huron. Most of the areas the crew dove in had not been previously explored. The submersible discovered strange crescent-shaped mounds of material on the floor of Lake Superior and ideal Lake Trout spawning areas in Lake Huron. Data collected during this year's expedition may provide clues to improve our protection and management of the Great Lakes.



1985 Great Lakes Scorecard

Following is a scorecard of how well proposals advanced in last year's State of the Great Lakes report were achieved. The following final scores indicate what percentage of the proposals for each level of government were actually attained or toward which substantial progress was made in 1986.

FEDERAL GRADE Incomplete

- Reauthorization of the Clean Water Act currently under consideration may allocate a full share of the federal wastewater treatment grant program to the Great Lakes region.
- Diligent efforts by Michigan's Congressional Delegation will likely result in full federal funding of Michigan's Great Lakes research institutions.
- Passage of the current version of the omnibus water project bill under consideration should ensure that any federal user fee system would treat our region equitably.
- Funding for a second large lock at Sault Ste. Marie is contained in the House version of the proposed omnibus water projects bill.
- Reauthorization of the Clean Water Act currently under consideration would prevent backsliding on water quality standards and establish new Great Lakes programs.

STATE GRADE 90%

- ✓ An increase of \$250,000 was provided in the Department of Natural Resources 1987 budget for nonpoint source pollution control programs.
- ✓ Michigan expanded its fish monitoring program this summer and began testing comorants and terns for contaminant levels.
- ✓ The Toxic Substances Control Agreement was signed on May 21, 1986 by all the Great Lakes Governors to establish common approaches to controlling toxics in the Great Lakes.
- ✓ In 1986, Remedial Action Plans will be prepared for seven Areas of Concern touching Michigan and public hearings will be held for ten.
- ✓ A source reduction program for toxic substances was developed this year with implementation scheduled for 1987.
- ✓ Criteria revisions were completed this year for Michigan's critical materials register with evaluation and hazard assessment work to continue into 1987.
- ✓ Agreements on monitoring and testing protocols established in 1985 for Lake Michigan were expanded basin-wide in 1986. Work continues

on achieving the issuance of common fish advisories by the states and provinces surrounding Lakes Huron and Erie.

✓
Governor Blanchard's "Anti-Pollution Pledge" was included in the Toxic Substances Control Agreement.

✓
The work of the Great Lakes and Water Resources Planning Commission and the development of the Great Lakes computer system has moved Michigan substantially toward the implementation of a comprehensive, accurate reporting system for water use in Michigan.

✓
Substantial progress was made in implementing the Great Lakes Charter in 1986 and will continue into 1987.

✓
The flood protection, home moving, and shoreline community protection programs provided much needed assistance to communities and homeowners threatened by the high water levels of the Great Lakes.

✓
Development began this year on a classification system to identify sensitive sand dune areas and determine the land uses appropriate in each area. More dune land was purchased by the state.

✓
Support for waterfront developments along the Great Lakes shores -- especially in urban areas -- remained strong in 1986 with the continuance of the Urban Waterfront Recreation Program.

—
Preliminary discussions and work have begun on a port development system to locate production, processing, and shipping in Michigan.

✓
Release of a task force report is scheduled for next year on the potential for expansion and development of the water treatment technology industry in Michigan.

—
Little progress was made this year on increasing the importance of economic development considerations in the development of marinas and other recreation facilities.

✓
The "Indian Fishing Rights" settlement received full funding in 1986.

✓
The Statement of Principle Against Oil Drilling in the Great Lakes was signed by all basin Governors and the Premier of Ontario on February 23, 1986.

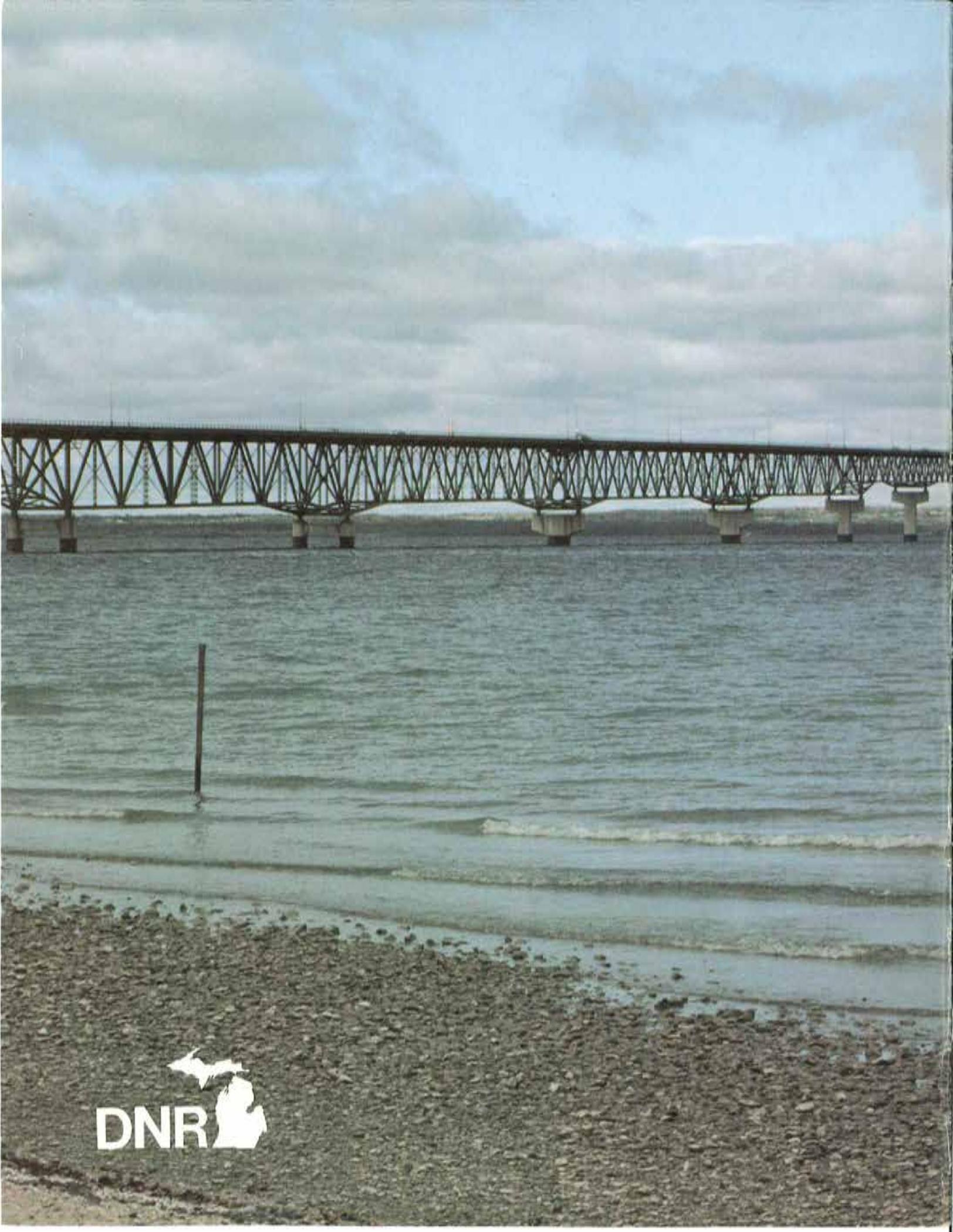
✓
Bylaw changes in March 1986 established a new cooperative arrangement between the Council of Great Lakes Governors and the Great Lakes Commission.

✓
The signing of four environmental agreements by Governor Blanchard and Premier Peterson on December 5, 1986, marked the establishment of special cooperative relationships between Michigan and Ontario.

1986 Proposals

1. We must begin implementing our Great Lakes 2000 strategy. This program will aim at freeing the Great Lakes from unsafe toxic materials and making all the waters fishable and swimmable by the year 2000.
2. The key to continued protection of the Great Lakes is the informed involvement of Michigan citizens. To ensure that we all have an opportunity to get involved in everything from individual clean-up projects to helping shape state policy, a Great Lakes Congress should be formed. This Congress will be open to all Michigan citizens.
3. We must continue to involve shoreline communities in protecting the Great Lakes. Therefore, a Great Lakes Clean-up Incentive Grants Program should be established to encourage local efforts to protect the lakes.
4. With Great Lakes water levels remaining at or above record levels, we must continue to assist threatened communities and homeowners.
5. The state should actively participate in the International Joint Commission study on the causes and effects of high water levels. This forum offers us an opportunity to negotiate new long-term management tools for the Great Lakes with the Canadian government.
6. Because the Ogoki and Long Lac diversions are the only points at which water is artificially put into the Great Lakes basin, we should continue to advocate that their flows be restricted during times of high water.
7. The Great Lakes and Water Resources Planning Commission should prepare their draft action plan for water management in Michigan and release it for public comment in early 1987.
8. In this time of high water levels, we must continue to ensure that shoreline development is properly scrutinized. Therefore, state shoreline statutes and regulations should be reviewed for their effectiveness.
9. Because the federal Construction Grants Program has provided one of the most successful anti-pollution programs on the Great Lakes for the treatment of municipal and industrial wastewater, we must continue to advocate that a full share go to the Great Lakes region.
10. It is unacceptable for raw or inadequately treated sewage to be sent into the Great Lakes. Therefore, the state should develop a strategy for funding of wastewater treatment projects.
11. We should work for passage of the Clean Water Act with strong Great Lakes protection programs included.
12. We must continue progress on the Remedial Action Plans for the Great Lakes pollution hotspots touching Michigan.

13. The Great Lakes Toxic Substances Control Agreement is a common framework through which the region can attack toxic pollution problems. Michigan must act aggressively to implement the agreement and assemble a management plan.
14. To more fully understand the lakes system, we must strengthen our monitoring and surveillance of pollutants in the Great Lakes. This means new emphasis on the monitoring of fish and aquatic birds, and for toxics arriving through the air.
15. Because the cheapest and most effective way to control most pollution is at the source, we must continue to emphasize source reduction programs for hazardous waste.
16. To properly integrate the 1978 Canada-U.S. Great Lakes Water Quality Agreement into state pollution control programs, Michigan should seek a multi-state formal contract with U.S. EPA to fulfill that agreement's mandate.
17. Because the Great Lakes Water Quality Agreement has proved a far-reaching and flexible agreement, our efforts should be aimed at ensuring that programs are developed to meet its terms. Therefore, Michigan should oppose any renegotiation of the current agreement and focus instead on actually solving problems in the Great Lakes.
18. Because of the historic contamination of sport fish in Michigan's waters, we must develop a new public process to draft our fish consumption advisories and set chemical limits.
19. To create more jobs in Michigan, protect our environment, and serve existing industry, the water treatment technology industry task force should propose specific measures to encourage the further development of the industry in Michigan.
20. Because basic research is vital to making proper policy decisions on how best to manage and protect lakes resources, we should continue to advocate for full federal and state funding of Michigan's Great Lakes research institutions.
21. To guarantee that our recreational harbors remain open, we should continue to advocate a federal role in building and maintaining navigational and harbor structures.
22. Because we share so much of our water border with the Province of Ontario, we should establish an agreement with them for mutual port development.



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