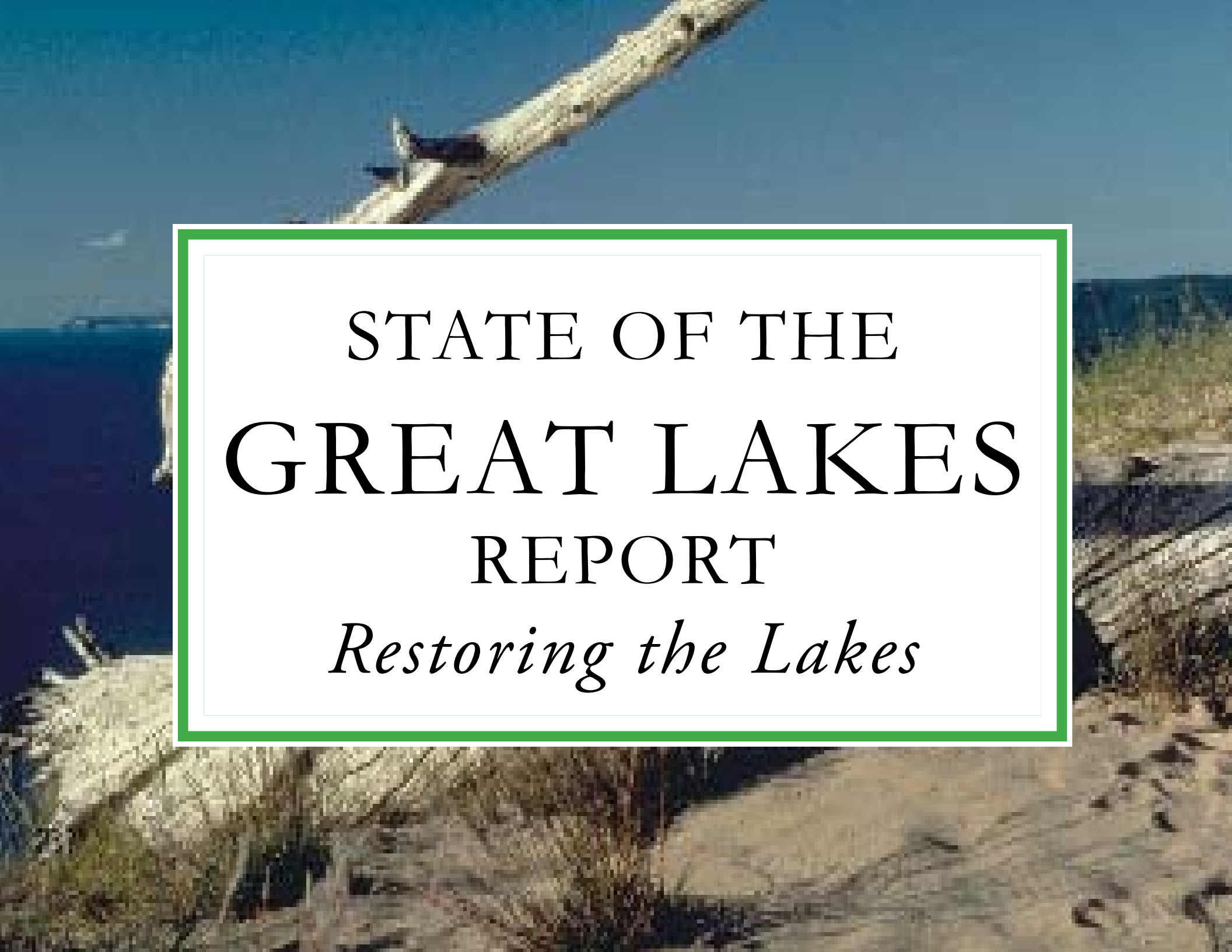

STATE OF THE GREAT LAKES REPORT

Restoring the Lakes

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A Message from the Governor

by Governor Jennifer M. Granholm


D. Tomaszewski

Whether you are rising early to be warmed by a cup of coffee and the first beams of light on Lake Huron, climbing the dunes to be awestruck once again by the sunsets on Lake Michigan, or enjoying a stroll along the river that runs through the heart of your town, we in Michigan are united by the beauty, the wonder, and the power of water. It is in these moments that we most deeply feel our connection to the water, and it is this water that is our state's defining resource that gives Michigan our sense of place. But that resource is threatened.

This is why I and my fellow Great Lakes states' leaders put forth to Congress an agreement on priorities for restoration of the Great Lakes. We, as Great Lakes governors, have identified specific priorities to bring together federal, state, and local governments, along with stakeholders throughout the Great Lakes community, to provide for the long-term protection and restoration of the Great Lakes. It is our vision that the Great Lakes will be the premier freshwater resource in the world and will sustain a healthy environment, strong economy, and high quality of life long into the future. Toward that end, we have adopted nine priorities that embody our goals of protecting and restoring the natural habitat and water quality of the Great Lakes Basin, preserving diverse plant and animal communities, protecting the water supply, and safeguarding human health.

Already, we have invested and will continue to invest significant resources in programs designed to attain these goals. We believe that the federal government should also make a long-term, large-scale financial commitment to the Great Lakes, and we applaud the leadership shown by members of the region's U.S. Congressional delegation in the sponsorship of legislation in support of the priorities we have identified.

Of great importance to the state of Michigan is the priority of stopping the introduction and spread of non-native aquatic invasive species as one of our restoration priorities. To this end, in 2005, I signed into law straightforward regulations that required oceangoing ships to obtain permits for port operations within Michigan. Frustrated by the failure of the federal government to act in a timely manner, the legislation had near unanimous, bipartisan support. While we continue to push for federal enactment of legislation that will be uniformly protective of our waters and stem the ecological and economic harm, I have urged my fellow Great Lakes states' leaders to take action that will protect our magnificent shared water resources from new aquatic invasive species by regulating ballast water discharge from oceangoing ships under state law.

While I am encouraged by the attention the issue is receiving in Congress this year, effective congressional action to address aquatic invasive species and ballast water discharge is not assured. Meanwhile, aquatic invasive species have already caused untold damage to our Great Lakes ecosystem. Scientists have described the Great Lakes as being at a "tipping point" in large part due to the impact of aquatic invasive species.

I urge you to join with me in protecting and restoring our Great Lakes and in seeking federal government support for long-term, large-scale financial commitment to these irreplaceable natural resources.

Sincerely,

Jennifer M. Granholm, Governor

Great Lakes Governors Restoration Priorities

On October 3, 2003, the Council of Great Lakes Governors affirmed their commitment to protecting and restoring the Great Lakes by agreeing to nine priorities to improve water quality, restore critical habitat, protect the water supply, and safeguard human health. Governor Jennifer M. Granholm and her colleagues recognized that despite the many federal, state, and local efforts currently underway, the Great Lakes remain at risk of damage from continuing pollution, environmental degradation, and unsustainable water resource management practices. The Governors believe that in order for the Great Lakes to experience full restoration and protection, balanced with economic prosperity, long-term restoration and protection efforts should: 1) build on significant state and federal investments, 2) value broad public participation and sustainable behavior, 3) address the environmental issues of the present, and 4) anticipate the challenges of tomorrow.

In December 2005, through the Great Lakes Regional Collaboration, we celebrated the development of an unprecedented strategy to protect and restore the Great Lakes. The process brought together our regional leaders, governors, mayors, members of Congress, tribal leaders, and federal agency representatives, as well as non-governmental groups and hundreds of committed citizens. Based on the Governors' priorities, the strategy provides a shared vision of actions that could put us on a path toward healthy Great Lakes that would power our nation's economy and support a robust environment.

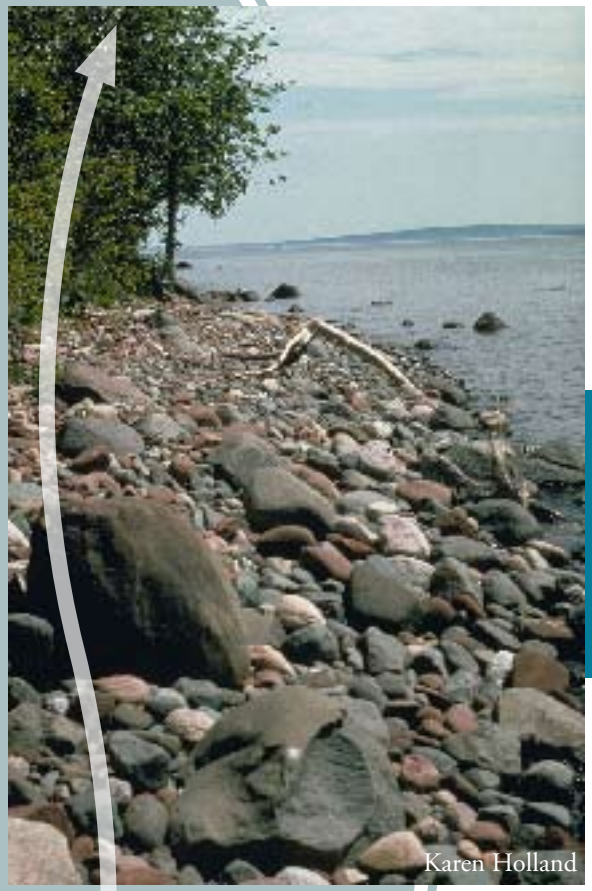
During the past two years, we have made progress toward our shared vision. Yet, the promise of the Great Lakes Regional Collaboration remains largely unfulfilled. Governor Jennifer M. Granholm has, with the other governors through the Council of Great Lakes Governors, urged Congress to act and give us the means to move the governors' priorities and the strategy from a vision to a reality. However, to date, we are disappointed in the lack of follow-through by the federal government. Recently, thanks to the leadership of the Michigan Congressional delegation, the Great Lakes Collaboration Implementation Act of 2007 (H.R. 1350), has been introduced in Congress. The bill has the bi-partisan support of the entire Michigan Congressional delegation; however, we need to move from support to implementation.

While we take a moment to report on and celebrate some of the successes in Michigan, this report also identifies some of the many challenges that lie ahead. Although there have been disappointments, we have been successful in a number of areas including passage of bipartisan legislation to protect Michigan waters from non-native aquatic invasive species (AIS) introductions from the ballast water of oceangoing vessels, development of a delisting guidance document for its 14 Great Lakes Areas of Concern, funding for remediation of contaminated sediment in the Black Lagoon in the Trenton Channel in the Detroit River Area of Concern; Ruddiman Creek in the Muskegon Lake Area of Concern; and the St. Marys River Area of Concern. Since 2005, the Michigan Department of Natural Resources has committed almost $4 million to remove seven dams in the state, and following the passage of historic water withdrawal legislation in 2006, the Michigan legislature is now considering adopting the Great Lakes-St. Lawrence River Basin Water Resources Compact.

Ken DeBeaussaert

- Ensure the sustainable use of our water resources while confirming that the states retain authority over water use and diversions of Great Lakes waters.
- Promote programs to protect human health against adverse effects of pollution in the Great Lakes ecosystem.
- Control pollution from diffuse sources into water, land, and air.
- Continue to reduce the introduction of persistent, bioaccumulative toxics into the Great Lakes ecosystem.
- Stop the introduction and spread of non-native aquatic invasive species.
- Enhance fish and wildlife by restoring and protecting coastal wetlands, fish, and wildlife habitats.
- Restore to environmental health the Areas of Concern identified by the International Joint Commission as needing remediation.
- Standardize and enhance the methods by which information is collected, recorded, and shared within the region.
- Adopt sustainable use practices that protect environmental resources and may enhance the recreational and commercial value of our Great Lakes.

Dave Hansen


Karen Holland

CHAPTER 1

Governors' Restoration Priority:

ENSURE THE SUSTAINABLE USE OF OUR WATER RESOURCES WHILE CONFIRMING THAT THE STATES RETAIN AUTHORITY OVER WATER USE AND DIVERSIONS OF GREAT LAKES WATERS.

The state of Michigan continues to work towards ensuring the long-term sustainable use of our water resources through passage of water withdrawal legislation, development of withdrawal assessment tools, and by encouraging water conservation across all sectors through incentive programs. Michigan is moving closer to adopting the Great Lakes-St. Lawrence River Basin Water Resources Compact Agreement between eight states and two Canadian provinces in the Great Lakes basin to prevent Great Lakes water from being diverted to other areas of the country or even other areas of the world. A water withdrawal assessment tool has been designed for Michigan that will promote the use of well-reasoned, science-based methods of analyzing water uses. In addition, Michigan is moving forward on an important component of the Compact: water conservation.

Protecting the Great Lakes Against Diversions: The Great Lakes - St. Lawrence River Basin Water Resources Compact

On December 13, 2005, the Great Lakes governors signed the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement and endorsed the Great Lakes-St. Lawrence River Basin Water Resources Compact, which details how the states will manage water use in the Great Lakes basin. Through this effort, the Great Lakes governors and the premiers of Ontario and Québec are taking the lead in protecting the Great Lakes and St. Lawrence River basin.

The Agreement and the Compact detail how the states and provinces will manage water use in the Great Lakes basin and provide a framework for each state and province to enact laws for its protection. The Compact will be the management tool for the states and includes the following points:

- Economic development will be fostered through the sustainable use and responsible management of Great Lakes waters.
- New diversions of water from the Great Lakes will be banned. Limited exceptions could be allowed, such as for public water supply purposes in communities near the Great Lakes basin, but exceptions would be strictly regulated.
- The states will use a consistent standard to review proposed uses of water.
- Regional goals and objectives for water conservation and efficiency will be developed and reviewed every five years. Each state and province will develop and implement a water conservation and efficiency program.
- The collection of technical data will be strengthened, and the states will share the information, which will improve decision-making by the governments.
- Public involvement will be emphasized and continued in the implementation of the agreements.

The governors and premiers are working aggressively to put these agreements into action. No federal legislation is required in Canada; however, in order to put the agreement into law in Ontario and Québec, the provinces will be amending their statutes and regulations as appropriate. In the United States, each of the eight state legislatures must ratify the interstate Compact. Then, Congress will also be asked for its consent. After this, the Compact will become both state and federal law. To date, the Great Lakes states have taken significant steps to enact the Compact:

- Minnesota became the first state to ratify the Compact on February 20, 2007.
- Illinois ratified the Compact on August 17, 2007.
- The Compact has passed both houses in New York and is expected to be sent to the governor for signature this fall.
- A bipartisan coalition of representatives from more than two-thirds of the Michigan Senate and 40 members of the Michigan House are co-sponsoring legislation to implement the Compact.
- Compact legislation has also been introduced in Indiana and Pennsylvania.
- Further action is anticipated in Wisconsin and Ohio.

For more information regarding the Compact visit the Council of Great Lakes Governors' Web site or contact the Office of the Great Lakes at 517-335-4056.

Council of Great Lakes Governors

Protecting Michigan's Water Resources through Michigan's New Water Withdrawal Legislation

In February 2006, Michigan adopted a series of bills that address large quantity water withdrawals, those that have a capacity to withdraw more than 100,000 gallons per day in any 30-day period from waters of the state. For the first time in Michigan, owners of facilities that utilize our waters are required to protect Michigan's surface water bodies, such as lakes and streams, from adverse resource impacts (ARI), defined as "decreasing the flow of a stream by part of the index flow such that the stream's ability to support characteristic fish populations is functionally impaired."

The water withdrawal statute charged Michigan's Groundwater Conservation Advisory Council to develop a water withdrawal assessment tool, intended to allow proposed users of water resources to determine if their facility is likely to cause an ARI. The statute requires a water withdrawal permit from the state for very large withdrawals over 2 million gallons per day from inland lakes, streams, and groundwater and over 5 million gallons per day from the Great Lakes and connecting channels. In addition, state law requires annual reporting of water use that will be used in conjunction with the assessment tool to track withdrawals and account for cumulative impacts in any area.

Following passage of the legislation, an intense 18-month work effort commenced to develop the water withdrawal assessment tool, supported by a Joint Funding Agreement with the U.S. Geologic Survey (USGS) with subcontracts to the University of Michigan and Michigan State University. The water withdrawal assessment tool, which is expected to be completed by the end of 2007, is a combination of several models involving surface water hydrology, groundwater hydrology, and a model predicting the biological response of fish populations to flow reductions in streams.

The water withdrawal statute is not intended to affect any riparian rights or reasonable use rights to water resources. If proposed withdrawals exceed the available capacity needed to prevent an ARI, a mechanism has been established to allocate water through voluntary participation by local water users. Michigan is fortunate to be rich in water resources. By assuring that water withdrawals do not create ARIs to our waters, we are practicing good stewardship for all the various and competing uses of water that enhance our economy and provide a high quality of life.

For more information contact Jim Cleland, Michigan Department of Environmental Quality (MDEQ), Water Bureau at 517-241-1300.

Developing a Science-based Tool to Protect Michigan's Water Resources

In July 2007, the Michigan Groundwater Conservation Advisory Council produced recommendations to the state legislature in response to the charge given in Public Act 34 of 2006. This charge was rooted in the Great Lakes-St. Lawrence River Basin Water Resources Agreement commitment to develop an enhanced water management system that protects, conserves, restores, and improves the waters and water-dependent natural resources of the Great Lakes basin.

The Groundwater Conservation Advisory Council's report advances a science-based and consensus-driven framework for developing water policy in Michigan. The report proposes development of a water withdrawal assessment process to provide better understanding of withdrawl impacts, minimize adverse natural resource impacts, minimize conflicts over water use, facilitate water planning and conservation among stakeholders, and assess long-term sustainability of water use. At the center of the process is a quantitative impact assessment model that links water withdrawal to stream flows, and stream flows to maintenance of fish populations. The model establishes a standard definition of an "adverse resource impact" and can be applied either to a specific water withdrawal or used within an automated, statewide, Internet-based environment.

Moving Forward with Water Conservation


Brigadoon Golf Course

All across Michigan, small businesses are taking advantage of the MDEQ Small Business Pollution Prevention Loan (P2 Loan) Program to assist them in deploying preferred technologies and practices. Established under the 1998 Clean Michigan Initiative (CMI) Bond approved by voters, the P2 Loan program has disbursed more than $3.5 million in 31 loans to small businesses. Half of the loan monies come from the CMI Bond fund proceeds set aside for the loan program. The other half of the loan proceeds are provided by banks through a loan participation arrangement with the MDEQ.

Brigadoon Golf Club in Grant, Michigan received a P2 loan to update its irrigation system with an efficient irrigation system to reduce annual water consumption by 40 percent (60 million gallons) and will drastically reduce the chemicals needed to manage plant growth. Also, R & R Ready Mix of Saginaw, Michigan received a P2 loan to conduct improvements at its ready mix concrete facilities in Hemlock and Clio. Improvements included construction of a closed loop wash water recycling system for operations dealing with spent concrete mix materials from mix-truck washing at each of these locations, as well as a dust collection/recovery system for the cement truck loading area at the Clio facility. With these improvements, water consumption will decrease from 2.1 million gallons per year to 1.475 million gallons. In addition, 625,000 gallons per year of liquid industrial waste will be eliminated, truck cleaning chemicals will be reduced by 50 percent, and air emissions will be reduced by 26,562 pounds per year.

Michigan small businesses that want to invest in pollution prevention can apply for P2 loans of up to $400,000, at an interest rate of five percent or less. Any business that employs 500 or fewer people, is independently owned or operated, and not dominant in its field, is eligible to apply.

For more information contact Karen Edlin, MDEQ, Environmental Science and Services Division at 517-335-2419.

Retired Engineers Assisting with Water Conservation

The Michigan Retired Engineer Technical Assistance Program (RETAP) provides onsite pollution prevention, water conservation, and energy efficiency assessments to Michigan businesses (with 500 or fewer employees) and institutions of any size. RETAP assessments are free, confidential, and strictly non-regulatory. To date, RETAP has conducted over 1,150 assessments, with the capacity to assess 125 facilities per year.

Prior to an assessment, RETAP assembles a team of retired engineers appropriate for the operations of the facility to be assessed. Currently, 52 retired engineers participate in the RETAP, each having 30 to 40 years of professional experience. For each assessment, RETAP provides a written report containing specific recommendations to save money, reduce energy usage, conserve water, and eliminate waste generation to the facility within 60 days of the assessment. The report also includes anticipated dollar and resource savings associated with the major recommendations from the assessment. Since December 2005, RETAP assessments have helped Michigan businesses and institutions conserve water by identifying over 42 million gallons in potential water conservation opportunities at their facilities.

For more information contact David Herb, MDEQ, Environmental Science and Services Division at 517-335-2419.


A. Ehrsam

CHAPTER 2

Governors' Restoration Priority:

PROMOTE PROGRAMS TO PROTECT HUMAN HEALTH AGAINST ADVERSE EFFECTS OF POLLUTION IN THE GREAT LAKES ECOSYSTEM.

Michigan's near shore waters and coastal areas are an important source of drinking water and recreational activity for its citizens. Michigan has focused strategic efforts to minimize the risk to human health by improving controls on combined sewer overflows and sanitary sewer systems, establishing extensive monitoring and reporting programs for near shore waters, protecting drinking water sources, and promoting fish consumption advisories. Web-based systems have been developed to provide the public with real time data and information.

Reducing Human Exposure to Mercury

People can be exposed to unhealthy levels of mercury by eating contaminated fish and by inhaling vapors when mercury is spilled from devices such as thermometers, thermostats, and sphygmomanometers (blood pressure monitors). Harmful health effects include chest tightness, fever, weakness, stomach upset, gingivitis, and eventually kidney failure and neurological disorders. Chronic exposure to mercury at low levels can result in many health effects some of which are personality changes, decreased vision and hearing, peripheral nerve damage, hypertension, and kidney damage.

To address these issues, the Michigan Department of Community Health (MDCH), the MDEQ, Michigan's Local Public Health Departments (LPHDs), the U.S. Environmental Protection Agency (U.S. EPA), the Agency for Toxic Substances and Disease Registry (ATSDR), the Saginaw Bay Watershed Initiative Network (WIN), and the Michigan Department of Agriculture (MDA) have partnered to address human exposure to mercury.

To address exposure from eating contaminated fish, MDCH partners with MDEQ and Michigan Department of Natural Resources (MDNR) to monitor contaminants in fish taken from Michigan waters. Fish are a healthy food choice. However, some sizes and species of fish from the Great Lakes and from some of Michigan's inland lakes and streams contain chemicals that may be harmful if eaten too often or in high quantities. All fish from Michigan waters also contain some amount of mercury. To address this public health concern, MDCH has issued the *2007 Michigan Family Fish Consumption Guide* that describes the species and amounts of fish people can safely eat from Michigan waters. The fish advisory provides advice on which sport fish to avoid eating and gives guidelines on how often to eat others. Special caution about eating fish is recommended for pregnant women, nursing mothers, women who intend to have children, and children under the age of 15. Using funding from WIN, MDCH worked with MDA to produce a brochure based on the U.S. Food and Drug Administration's national mercury fish consumption advisory. The brochure gives advice on selection of fish low in mercury from grocery stores and restaurants.

Travel Michigan

To address accidentally spilled mercury MDCH with Michigan LPHDs, the U.S. EPA, and the ATSDR work together to respond to indoor liquid mercury spill events. MDCH has a network of public health contacts and mercury air analyzers throughout Michigan that allows rapid responses to protect public health.

For more information contact Kory Groetsch, MDCH, Division of Environmental Health at 1-800-648-6942 or 1-800-MIToxic.

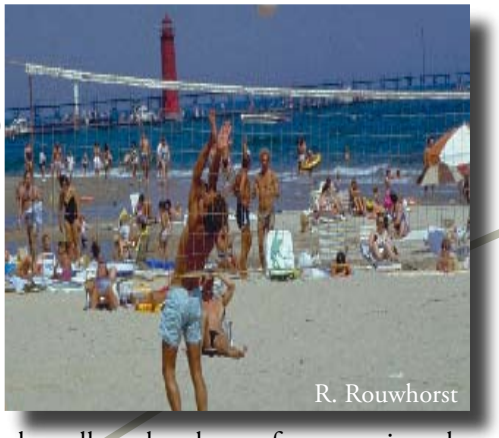
WaterWatch Survey System

MDCH has developed a human health survey to help capture possible illnesses associated with recreational and drinking water exposures in the Saginaw Bay area. The survey, named WaterWatch, features online Web availability 24 hours a day with the ability to accommodate hundreds of visitors simultaneously. Anyone who recreates in the Saginaw Bay area is able to self-report illnesses, of any severity, believed to be associated with exposure to water, sand, or muck. The survey asks questions pertaining to illness onset, symptoms experienced, duration of illness, exposure location, duration of exposure, type of exposure (recreational or drinking water), water activities, weather conditions, odors present, debris present, wildlife observed, etc.

MDCH monitors and analyzes the data for trends over time and relays identified human illness/reported exposure data to toxicologists at MDEQ. The intent of WaterWatch is to increase public health surveillance for waterborne diseases, both sporadic cases and potential outbreak situations. MDCH and MDEQ are working together to coordinate illness data and environmental data in hopes of detecting potential health risks in the Saginaw Bay area and implement appropriate public health interventions should the data indicate action is required.

For more information contact Brenda Brennan, MDCH, Communicable Disease Division at 517-335-8165.

Monitoring Michigan Beaches


R. Rouwhorst

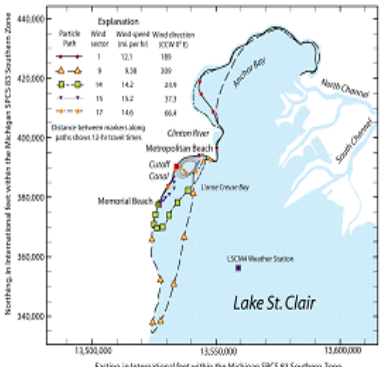
Michigan has 594 public beaches stretching along 542 miles of Great Lakes shoreline. Since 2005, the MDEQ has distributed over $970,000 of federal Beaches Environmental Assessment and Coastal Health Act funds to help local health departments monitor 200 high priority beaches located on Michigan's Great Lakes and Lake St. Clair, as well as the connecting channels, which include the St. Marys, St. Clair, and Detroit Rivers. An average of 97 percent of the 2,430 samples collected each year from monitored beaches indicated that water quality standards (WQS) for safe swimming are being met. All beaches, their current status (open or closed), and *E. coli* test results are provided on the MDEQ's Beach Monitoring Web site which allows interested individuals to automatically receive the latest updates on beach closures and advisories. State park beaches listed on the Beach Monitoring Web site are also linked with the MDNR state park Web sites.

In 2007, the MDEQ and ten local health departments received $108,000 in funding from the U.S. EPA to more closely monitor and investigate potential sources of contamination at 26 high priority beaches that in the past had exceeded WQS for *E. coli*. The MDEQ and local health departments are using a new beach sanitary survey tool to determine sources of bacterial contamination that affect the quality of beach water. The beach sanitary survey tool provides monitoring data that can be used to develop a forecasting model for a beach. A forecasting model is valuable because it can be used to predict current water quality conditions at beaches based on the relationships between beach water quality and the amount of rainfall, wave height, temperature, etc.

Monitoring data and results from investigations of the beach sanitary survey project were presented in October 2007, at the Great Lakes Beach Conference in Traverse City, Michigan. The monitoring data showed that storm water and waterbirds can significantly affect beach water quality. The Great Lakes Beach Conference provided an excellent opportunity for beach managers to share suggestions for remediation to minimize and eliminate sources of bacterial contamination that impact beach water. Local health departments indicated they will continue to use the beach sanitary survey tool in next year's beach monitoring program.

For more information contact Shannon Briggs, MDEQ, Water Bureau at 517-241-1300.

Addressing Problems at Lake St. Clair Beaches



Beach closures result in loss of dollars to the local economy and loss of recreational opportunities for the public. More importantly, they represent water conditions that would pose potential health risks to our families. Prompted by a long history of frequent beach closures, Metropolitan and Memorial Beaches in Macomb County were added to the MDEQ's list of impaired waters due to exceedances of the *E. coli* Water Quality Standards (WQS). Section 303(d) of the Clean Water Act requires states to develop a Total Maximum Daily Load (TMDL) when a water body does not meet WQS.

With a goal of identifying and ultimately working toward control or elimination of the sources of *E. coli,* MDEQ developed a TMDL working with local and federal agencies, which was submitted to the U.S. EPA in August 2007. Actions will continue at both the local and state level to eliminate sources of *E. coli*. In addition, it is anticipated that the information generated from this project can assist local officials in making water quality decisions at both beaches and possibly result in implementation of new techniques, such as predictive models, to forecast water quality at other beaches on Lake St. Clair. The Lake St. Clair TMDL information is available at the MDEQ TMDL Web site.

For more information contact Christine Alexander, MDEQ, Water Bureau at 517-241-1300.

Controlling Combined and Sanitary Sewer Overflows

The state of Michigan has long recognized combined sewer overflows (CSO) and sanitary sewer overflows (SSO) releases as a priority and has been making steady progress toward addressing these pollution sources. SSOs differ from CSOs. CSOs are overflows from older sewer systems designed to carry both domestic and storm water loads. SSOs are discharges of raw or inadequately treated sewage from municipal separate sanitary sewer systems, which are designed to carry domestic sanitary sewage but not storm water. These overflows may also contain industrial wastewater that is present in the sewer system.

CSOs have been a specific priority for Michigan since the initiation of the CSO control program in 1988. More work is needed to address CSO and SSO discharges. Even so, the MDEQ is proud of its progress. In 2005 and 2006, the MDEQ entered into 12 administrative settlements with municipalities to address sanitary sewer overflows into the environment and awarded over $185 million in low-interest loan assistance for projects to address sewer overflows. In addition, the MDEQ administers a permit program for the control of pollution that enters waters of our state. All combined sewer systems are under permit and these permits contain corrective programs for proper treatment of these discharges.

Michigan's CSO and SSO data, especially the detailed data collected for the last six years shows that while more progress is still needed, efforts appear to be having a significant impact. Based on this data, there is a downward trend in the volume of SSOs. For CSOs, the volume of discharges appears to be closely related to rainfall in any given year; however, since inception, the CSO control program has also made progress. In 1988 there were about 80 systems discharging untreated CSO wastewater. In 2006 only 13 systems reported untreated releases. Municipalities around the state should be applauded for their efforts to control these discharges. Several challenges exist in controlling CSOs and SSOs, the most significant being the costs associated with mounting wastewater infrastructure improvements and the financial resource-intensive nature of controls. Sewer projects typically involve major infrastructure investments that compete with other community financial needs.

The Clean Water State Revolving Fund (SRF) and the Strategic Water Quality Initiatives Fund (SWQIF) remain the primary sources of financial assistance for local units of government facing wastewater infrastructure investment needs. Created in 1989 and capitalized with federal grant funds and a required state match, the SRF has tendered nearly $2.4 billion in loan assistance to Michigan communities for the construction, expansion, and upgrade of publicly owned sewers and wastewater treatment facilities. The continuation of these financial assistance programs along with regulatory oversight for implementation of control plans well into the future are vital to the success of these control programs.

More information about Michigan's CSO and SSO control programs is available in the program's annual report.

For more information contact Peter Ostlund, MDEQ, Water Bureau at 517-241-1300.


MDEQ

PROMOTE PROGRAMS TO PROTECT HUMAN HEALTH AGAINST ADVERSE EFFECTS OF POLLUTION IN THE GREAT LAKES ECOSYSTEM.

Real Time Monitoring of Water Quality

In response to a large number of spills and discharges over the years to the waterways that connect Lake Huron and Lake Erie, three counties and 14 public water systems are engaged in development of a real time water quality monitoring network. The public water systems use the St. Clair River, Lake St. Clair and the Detroit River to supply drinking water to over 4 million residents of Michigan.

The project employs several pieces of analytical equipment, some that provide measurements continuously and others on a 15 minute interval. The samples originate from the plant intakes into the surface water bodies that are logged to a common data system for universal access. When fully functional, this system will provide continuous feedback on water quality to all users, allowing water treatment operators early warning of any contamination event. The system can be readily integrated with other emergency notification systems, allowing timely and appropriate response.

Funding for the real time water quality monitoring system has been provided by the U.S. Department of Homeland Security, U.S. EPA, MDEQ, and local government match.

For more information contact Jim Cleland, MDEQ, Water Bureau at 517-241-1300.

Phosphorus Policy Advisory Committee

In June 2006, MDEQ Director Steven E. Chester invited a wide range of stakeholders to participate on the MDEQ's Phosphorus Policy Advisory Committee. The Committee was asked to identify the major sources of phosphorus to Michigan's waters, review and compile the voluntary and regulatory management approaches currently being used to control phosphorus, and develop recommendations to eliminate or control phosphorus sources. Outside experts and state agency staff provided information regarding sources, fate, and transport of phosphorus in the environment; negative impacts of excess phosphorus on aquatic ecosystems; and ongoing regulatory and nonregulatory programs and initiatives to reduce or eliminate sources of phosphorus to the environment.

Phosphorus is a naturally occurring element essential to plant and animal growth. However, elevated levels of phosphorus can lead to abnormally high growth of algae and aquatic vegetation in lakes and streams resulting in reduced aesthetic and recreational value of the waters. The Committee identified a number of phosphorus sources including municipal and industrial wastewater treatment plants, combined sewer overflows, sanitary sewer overflows, urban storm water, agricultural practices, septic tank tile fields, stream bank erosion, and atmospheric deposition.

The Committee completed its report in March 2007 including 32 findings and 39 recommendations. The MDEQ is currently implementing about 75 percent of the recommendations and would like to enhance other efforts related to recommendations if additional resources were available. For more information about the Phosphorus Policy Advisory Committee Final Report, contact Robert Day, MDEQ, Water Bureau at 517-241-1300.

Report findings and recommendations are organized in nine general areas including:

- Education and technical assistance
- Community education initiatives
- Incentives and voluntary programs
- Funding issues
- Monitoring, source identification, and loadings analysis
- Land use development
- Phosphorus-containing product changes
- Regulation
- Watershed initiatives


Randall McCune

CHAPTER 3

Governors' Restoration Priority:

CONTROL POLLUTION FROM DIFFUSE SOURCES INTO WATER, LAND, AND AIR.

Through extensive partnerships, Michigan has reduced pollution from diffuse sources into the water, land, and air in the Great Lakes region. Controlling nonpoint source pollution has been approached through cropland soil management and other agricultural practices, wastewater and watershed management, as well other programs targeting recreational activities.

Controlling Nonpoint Sources of Pollution

Nonpoint source (NPS) pollution, or polluted runoff, is our nation's largest water quality problem. In Michigan, NPS threats to the waters of the state include storm water runoff, hydrologic modification of streams and rivers, failing septic systems, livestock access to water bodies, and soil erosion and sedimentation.

Michigan has a NPS Program that is focused on restoring impaired waters and protecting high-quality waters. To accomplish this, the NPS Program assists local units of government, nonprofit entities, and numerous other state, federal, and local partners to reduce NPS pollution statewide. Implementation activities include best management practices to reduce or eliminate NPS pollution, land use tools such as conservation easements and local ordinance development, and education outreach activities. To date, the NPS program grants have resulted in the reduction of pollutant loads to the waters of the state including 301,377 tons of sediment, 272,057 pounds of phosphorus, and 638,773 pounds of nitrogen.

In 2007, the NPS Program awarded 15 grants, totaling nearly $5.9 million in state and federal funds, to municipalities, watershed councils, and other nonprofit organizations, to reduce and prevent NPS pollution and to create watershed plans. The NPS Program provided engineering and education expertise to the nearly complete city of Lansing rain gardens project, Michigan Avenue Bioretention Facilities. The NPS Program provided funding to Houghton/Keweenaw Conservation District for the Kearsarge Creek restoration project conducted in Houghton County to stabilize 2.5 acres of stream banks and revegetate the upland areas. The creek was impaired from copper mining operations dating from the 1860s. Tons of mine tailings, known as stamp sands, with excessive copper concentrations were deposited in the floodplains of the creek and eventually made their way into streams, degrading aquatic life. This project reduced copper concentrations and restored diverse biological communities. It is expected that Kearsarge Creek will be removed from the state's list of impaired waters in 2008 because of this successful project.

For more information on the NPS Program contact Tyler Kitchel, MDEQ, Water Bureau at 517-241-1300 or visit www.michigan.gov/deqnps.

Addressing On-site Wastewater Treatment

A comprehensive plan to protect the waters of the state was unveiled in 2004 by Governor Jennifer M. Granholm, which included the development of a statewide code for on-site wastewater treatment as a key component. Under the direction of the MDEQ, a task force representing a variety of interests involving the on-site wastewater industry was successful in defining critical issues needing to be addressed in the proposed code and how to resolve them. The MDEQ was successful in working with local health departments in drafting statutory language for an overall code. Although legislative initiatives aiming toward implementation of key components of a state code continue to be pursued, none of these have been successful. To date, the MDEQ is continuing to provide input and focus in development of updated guidance documents to adequately manage on-site disposal systems to result in improved long-term environmental and public health protection.

A marked increase in the number of community on-site wastewater treatment systems serving small groups of homes in existing and proposed developments has been observed over recent years. Regulatory oversight after construction is needed to assure the proper management of systems regulated by local health departments and those falling under state regulations. The MDEQ has been meeting with local health departments to define issues that should be considered in regulatory guidance, to more clearly communicate the overall regulatory structure, and to provide up-to-date technical guidance for design, operation, and maintenance. In addition, the development of a regulatory/technical guidance document is also underway.

Michigan has witnessed an increasing reliance on decentralized systems to serve new construction, and it is presently estimated that 50 percent of new building is served by such systems. Although the downturn in the economy has slowed development pressure, there remains the need to improve the regulation and management of on-site systems statewide.

For more information contact Richard Falardeau, MDEQ, Water Bureau at 517-241-1300.

Michigan's Conservation Reserve Enhancement Program

Michigan's Conservation Reserve Enhancement Program (CREP) was created to help protect our environment and wildlife. The Michigan Department of Agriculture (MDA), MDNR, MDEQ, and private partners like Ducks Unlimited and Pheasants Forever, are partnering with the federal government to implement conservation practices of great significance to the state and value to the nation.

The goal of CREP is to target nonpoint source pollution, reduce wind and water erosion, improve water quality, establish and restore wildlife habitat, and conserve soil. The original goal was to have 80,000 acres in conservation practices. These practices encouraged the use of native species and were designed to reduce phosphorus loading to waterways by 70 percent. CREP has been highly successful in encouraging farmers to adopt conservation practices for the long term. To date, over $175 million has been invested in protecting Michigan's valuable resources and sustaining its bountiful agriculture enterprise.

Due to the outstanding accomplishments, Michigan's CREP agreement was recently modified to include watersheds that flow into the Maumee River Basin. Michigan is now part of a tri-state project focusing on the waters of Lake Erie. Together with Ohio and Indiana, Michigan's CREP will restore an additional 5,000 acres of wetlands and grasslands. The new goal is to have 85,000 acres in conservation practices. The CREP amendment was made possible through the work of Environmental Defense and with funding through the Ohio U.S. Department of Agriculture (USDA), Natural Resources Conservation Service, and the Joyce Foundation. The Michigan Chapter of the Nature Conservancy is also involved in the program.

Michigan CREP has restored over 17,000 acres of wetlands, established over 3,000 miles of filter strips, and 11,000 acres of grasslands in the Saginaw Bay, River Raisin, Lake Macatawa, and Maumee River Watersheds. The response by wildlife to these restored native ecosystems has been tremendous. Biological monitoring conducted by the MDNR has indicated a statistically significant response by waterfowl and pheasant.

Funding on the state side of the Michigan CREP agreement remains an obstacle to further develop the program in Michigan. The USDA is dedicated to expanding into additional watersheds as Michigan is able to secure the finances for its part of the agreement.

For more information contact Steve Shine, MDA, Environmental Stewardship Division at 517-241-0236.

Michigan's Clean Marinas

Boating is one of Michigan's most popular pastimes with almost one million registered boats, more than any other state, and 750 marinas. But this popularity also has a downside. Each year, hazardous substances are inadvertently released into Michigan's land, water, and air as a result of common boating practices.

In December 2005, a public-private partnership between Michigan Sea Grant College Program, Michigan Boating Industries Association and the MDEQ launched the Michigan Clean Marina Program. The program was developed to protect Michigan's water resources and wildlife habitat by promoting environmentally sound marina and boating practices. The Michigan Clean Marina program is a voluntary stewardship program open to all public and private marinas within the state that supports the management of profitable businesses, while protecting and enhancing the quality of Michigan's waterways.

As a pledging participant in the Clean Marina Program, marinas implement environmentally-sound best management practices to improve and maintain Michigan waterways by reducing and eliminating releases and discharges of harmful pollutants, sediments, nutrients, general refuse into aquatic environments, as well as preventing introduction and spread of invasive species. In order to receive official designation as a Clean Marina, participants are required to complete a ten step process, which starts by attending a workshop where marina operators learn about proper management practices and environmental stewardship. Following attendance at a workshop, the marina operator returns to their facility and completes a self-evaluation checklist for their property, and when appropriate, requests a site visit and eventual designation. A total of fifteen marinas have earned the title of Michigan Clean Marina through the designation process with 87 facilities currently participating. Numerous Clean Marinas workshops have been conducted as well as other outreach efforts to locations throughout Michigan including Cheboygan, Holland, Harrison Township, Manistee, Copper Harbor, Port Austin, and Lexington.

A shrink-wrap pilot program began in 2007 which resulted in the manufacture of over 15,000 pieces of reused plastics by Mondo Polymers. Each participating marina reduced their cost associated with waste collection by approximately $250. Through the combined efforts of shrink-wrap recycling programs in Michigan and Ohio, approximately 350,000 pounds of plastic wrap was diverted from landfill.

The Michigan Clean Marina Program is currently focused on commercial and public boating facilities and will eventually extend to boaters and other related industries in the future. Adoption of sustainable practices that protect our natural resources and provide enhancement to the recreational and commercial value of our Great Lakes is a positive step forward in supporting the marine industry in Michigan.

For more information contact Jeff Spencer, MDEQ, Environmental Science and Services Division at 517-335-2419 or visit www.miseagrant.umich.edu/cmp/index.html.

"I can personally testify that this program has helped us become a stronger, more informed marina. As we now look around our facility, we are proud of what we see. As a member of the Michigan Clean Marina Program, we will continue to help protect our clean water and our environment."
- Ward Walstrom, Jr. Walstrom Marine


Don Simonelli

CHAPTER 4

Governors' Restoration Priority:

CONTINUE TO REDUCE THE INTRODUCTION OF PERSISTENT BIOACCUMULATIVE TOXICS (PBT) INTO THE GREAT LAKES ECOSYSTEM.

Michigan has spent millions of dollars to reduce and prevent the introduction of persistent bioaccumulative toxics (PBT) into the Great Lakes ecosystem. Programs targeting reduction of releases and elimination of original sources of mercury, dioxins, pesticides, and other toxic substances that pose threats to human and wildlife health have been a primary focus in Michigan.

CONTINUE TO REDUCE THE INTRODUCTION OF PERSISTENT BIOACCUMULATIVE TOXICS (PBT) INTO THE GREAT LAKES ECOSYSTEM.

Michigan's Efforts to Reduce PBTs from Atmospheric Sources

Michigan has long recognized persistent bioaccumulative toxic (PBT) pollutants as a concern for our environment and health of people and wildlife in Michigan. The MDEQ limits the release of PBTs through the air permitting process and facilitates the identification of atmospheric sources of PBTs through emission inventory and some degree of air monitoring activities. MDEQ also participates with other Great Lakes states' air programs and the Great Lakes Commission to help fund research in the Great Lakes basin to monitor, model, and identify impacts from PBTs to human and wildlife health.

Emphasis has been placed on the PBT pollutant mercury because it continues to be used in commerce and is released in significant quantities from processes such as coal combustion, waste processing, and from cement and steel making industries. To address mercury released from coal combustion, a stakeholder workgroup, facilitated by MDEQ developed recommendations for reducing mercury from this source category. The findings of this workgroup and its recommendations are summarized in their final report dated June 20, 2005, *Michigan's Mercury Electric Utility Workgroup Final Report on Mercury Emissions from Coal-Fired Power Plants*. Following this report, the Governor directed the MDEQ on April 17, 2006 to reduce mercury emissions from this source category by 90 percent by 2015. The stakeholder workgroup was then reconvened in May 2006 to develop rules to follow through on this directive. The rules are still being developed and are expected to be finalized in 2008.

The MDEQ is further addressing mercury in the environment by participating in the regional Great Lakes Mercury in Products Phase-Down Strategy and actively participates in the Quicksilver Caucus on national mercury efforts that impact all states and the nation. Additionally, the MDEQ developed a Mercury Strategy Staff Report with the goal of eliminating anthropogenic mercury use and release in Michigan was released to the public for input in fall 2007.

For more information contact Joy Taylor Morgan, MDEQ, Air Quality Division at 517-373-7023.

Disposing of Dangerous Pesticides – Michigan's Clean Sweep Program

The advent of synthetic pesticides following World War II led to the widespread use of products that negatively impacted the environment in ways that were unimagined at the time. Even though these products (many of which are persistent, bioaccumulative, and toxic chemicals such as DDT, Chlordane, and Agent Orange) have been banned for decades, they still remain stored in thousands of barns, basements, and garages throughout the state. Landowners often find these unwelcome products when properties are bought and sold.

Michigan's Clean Sweep program provides for the disposal of these dangerous pesticides and any other pesticide, which is otherwise unusable and/or unwanted. The MDA, Michigan Groundwater Stewardship Program (MGSP), in cooperation with federal, county, and local units of government, has established 15 permanent Clean Sweep sites located throughout the state. All Clean Sweep sites are run concurrently with local Household Hazardous Waste (HHW) programs.

Michigan residents and businesses may dispose of unused and unwanted pesticides by taking them to one of these Clean Sweep sites where they will be collected, packaged for shipping, and disposed of properly. There is no charge for this service. Program costs are paid by the MGSP, grants from the U.S. EPA, and services provided by local Clean Sweep site hosts. Michigan's Clean Sweep program collected over 125,000 pounds of pesticides in 2006, and has collected over 1.3 million pounds of pesticides since 1995. As an additional environmental benefit, the Clean Sweep program in cooperation with the MDEQ also accepts mercury at any of the 15 Clean Sweep sites. Through this partnership, over 4,600 pounds of elemental mercury has been collected since 2000.


MDA

The success of the Michigan Clean Sweep program is based on the synergistic nature of the local, state, federal partnership. This synergy also provides for a high level of the program's cost-effectiveness (disposal costs are typically less than $1.50/pound) and for its broad-based support throughout the state.

For more information contact Jack Knorek, MDA, Environmental Stewardship Division at 517-241-0236.

Clean Michigan Initiatives

The Clean Michigan Initiative (CMI) is a $675 million bond initiative that was approved by Michigan voters on November 3, 1998 to improve and protect Michigan's water resources. The CMI includes numerous programs that continue to protect and improve the Great Lakes ecosystem.

The Southeast Michigan Council of Governments (SEMCOG) and MDEQ teamed up to summarize some of the facts and accomplishments of the CMI funding through fiscal year 2006. Brownfield projects accounted for $335 million of the CMI initiative and consisted of:

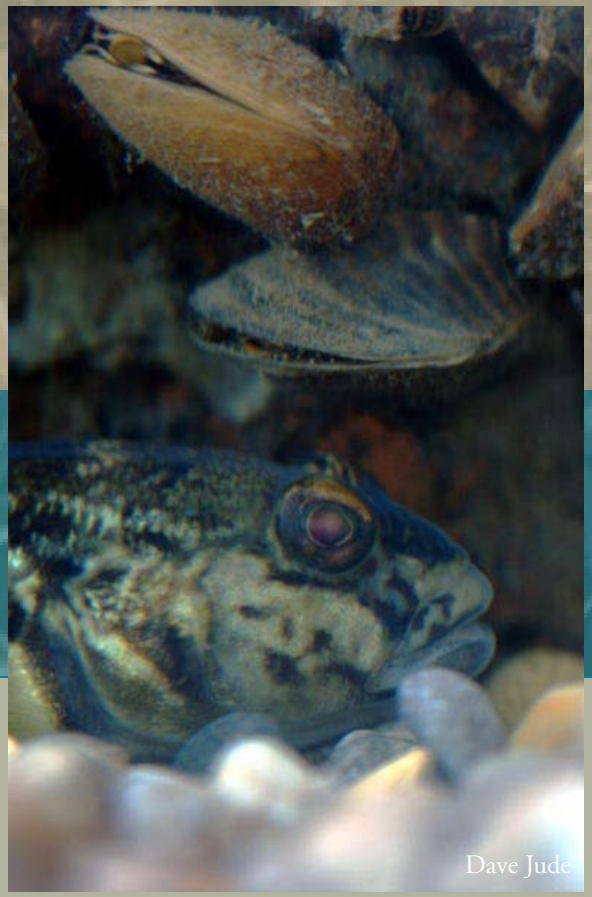
- $155 million for site cleanups and redevelopment, which resulted in work at 585 sites including site investigations and cleanups, demolition of structures, underground storage tank removal, and asbestos removal.
- Over $90 million for acute site cleanups supporting work at 210 sites.
- $75 million in grant and/or loan funding for 45 projects which collectively since 2003 have resulted in the creation of 7,699 permanent jobs and leveraging of over $8 million in private investment.
- $8 million which supported 11 municipalities undertaking mitigation activities at landfill sites on the national priority list.

CMI funding also supported $90 million for a variety of activities under the Clean Water Fund, including implementing the MDEQ's surface water quality monitoring strategy, supporting the Conservation Reserve Enhancement Program and providing grants for monitoring, locating and plugging abandoned wells, identifying and correcting failing on-site septic systems, implementing water quality recommendations in Remedial Action Plans and Lakewide Management Plans, protecting high quality waters, implementing activities in "voluntary" storm water permits, and identifying and correcting illicit connections to storm sewers. As an example of just one of the many accomplishments, as of February 1, 2007, the 13 completed illicit connections projects have resulted in correcting 1,304 illicit connections to storm drains; collectively, these projects have resulted in the annual reduction of 37 million gallons of untreated water from entering the state's surface waters. The CMI also funded:

- $47 million to reclaim and revitalize waterfront property which funded 44 projects in 25 counties.
- $3 million for 13 lighthouse projects in 12 counties.
- $50 million to implement nonpoint source pollution controls. The 33 grants completed by February 2007 collectively resulted in annual pollutant reductions of 80,114 tons of sediment, 78,974 pounds of phosphorus, and 185,385 pounds nitrogen.
- $25 million for addressing contaminated sediment particularly in Areas of Concern.
- $20 million for pollution prevention activities including the Retired Engineer Technical Assistance Program, Small Business P2 Assistance Revolving Loan Fund, the Michigan Household Hazardous Waste Grant Program, Regional Pollution Prevention Grant Program, and Environmental Education Curriculum Grants.
- $5 million for Lead Hazard Remediation Program and Childhood Lead Poisoning Prevention.
- $100 million for park improvements, used to support 221 grants to 215 communities for local park improvements, and 174 projects in 50 state parks.

Programs are administered by the MDEQ, MDNR, and Michigan Department of Community Health (MDCH). Information on specific projects funded under each major program can be found in the Fiscal Year 2006 Consolidated Reports.

For more information contact Amy Peterson, MDEQ, Environmental Science and Services Division at 517-335-2419.


Dave Jude

CHAPTER 5

Governors' Restoration Priority:

STOP THE INTRODUCTION AND SPREAD OF NON-NATIVE AQUATIC INVASIVE SPECIES.

Immediate action is needed to stop the further introduction of more aquatic invasive species (AIS) into the Great Lakes. Michigan has taken several significant strides forward to prevent future ecological and economic damage to the Great Lakes including establishing itself as a leader in ballast water policy, demonstrating innovative management and control techniques, developing policies restricting trade in live organisms, and advancing the knowledge and understanding of ecosystem impacts through research and furthering public awareness. Michigan continues to support the need for passage of comprehensive federal legislation.

Michigan Leading Regional Action on Controlling Aquatic Nuisance Species

Aquatic nuisance species remain a major destructive force to the economy and environment of the Great Lakes, and there remains a significant, ongoing threat of additional species arriving in the ballast tanks of oceangoing vessels from around the world. To reduce that threat, the Great Lakes Aquatic Nuisance Species Coalition (Coalition) of the Great Lakes states has been formed through an agreement entered into with other states in the Great Lakes basin to implement water pollution laws on a basin-wide approach that prohibit the discharge of aquatic nuisance species into the Great Lakes from oceangoing vessels.

The Coalition was initiated by Public Act 33 of 2005, passed by the Michigan legislature (147 to 1) and signed by Governor Jennifer M. Granholm in July of that year. The Act also established Michigan's ballast water control permitting process. The Coalition received support from each of the eight Great Lakes states who appointed members to the Coalition. An Operating Principles Agreement for the Coalition has been signed by members of seven of the eight Great Lakes states.

Throughout 2006 and 2007, the Coalition addressed key ballast water regulatory issues including:

- State legislation on ballast water regulation, including implementation of Michigan's ballast water control permit legislation. Details of this implementation are available at the MDEQ Ballast Water Control Permit Web site.
- Progress on ratification of the International Convention on Control and Management of Ships' Ballast Water and Sediments adopted in 2004 by the International Maritime Organization.
- Implementation of the remedy for the judgment against the U.S. EPA for the federal exemption by rule of ballast water from the Clean Water Act.
- Canada/Ontario ballast water regulations.
- Development and implementation of new ballast water treatment technologies and management strategies.
- Progress on federal legislation regulating ballast water.
- Implementation of the ballast water provisions of the National Invasive Species Act of 1996, amending the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990.
- Interactions with other regional government entities, including the Council of Great Lakes Governors, the Great Lakes Panel on Aquatic Nuisance Species, the Great Lakes Fishery Commission, the International Joint Commission, the Great Lakes Commission and Canadian/Ontario agencies.

The Coalition intends to continue discussions facilitated by the MDEQ on the key topics above, including state regulation of ballast water. For more information contact Roger Eberhardt, Ph.D., MDEQ, Office of the Great Lakes at 517-335-4056.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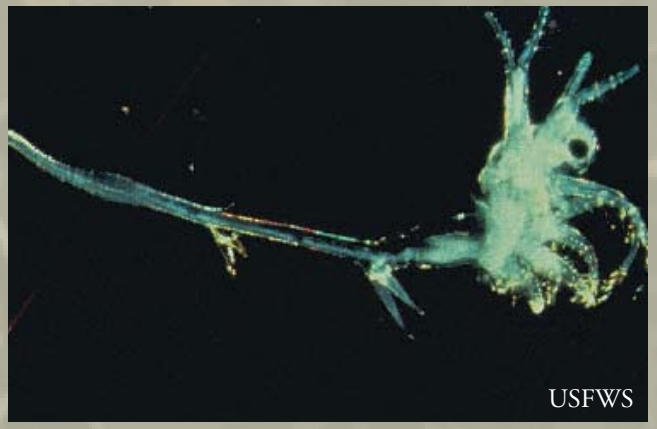

USFWS


Dave Brenner

Controlling Ballast Water - Michigan's Permitting Program


Todd Marsee

Governor Granholm signed bipartisan legislation, Public Act 33 of 2005, to protect Michigan waters from nonnative aquatic invasive species (AIS) introductions from the ballast water of oceangoing vessels. Ballast water discharges are required to be treated by methods determined by the MDEQ to be effective in preventing the discharge of AIS. The new ballast water permitting process allows MDEQ to monitor and regulate the ballasting and de-ballasting activities of oceangoing vessels engaging in port operations in Michigan. When no discharge is planned, operators of oceangoing ships must provide written certification to the MDEQ that ballast water will not be discharged into the waters of the state while in port. The Ballast Water Control General Permit became effective January 1, 2007. As of October 2007, MDEQ has issued 83 permits to 28 international shipping companies to conduct port operations in Michigan.

A lawsuit was filed in federal court in Detroit by a group of shipping interests, who sought to nullify Public Act 33 of 2005; however, a federal judge dismissed the suit determining the statute was clearly rational and valid due to the fact that Michigan is facing a serious threat to its environment caused by AIS, has determined the likely avenues by which those species are being introduced, and has taken measures to stop this introduction.

MDEQ will continue to require permits for oceangoing vessels and in the absence of protective federal policies, encourages other Great Lakes states to enact laws to regulate ballast water discharges and further protect the Great Lakes from AIS.

For more information contact Barry Burns, MDEQ Water Bureau at 517-241-1300.

Monitoring and Controlling the Spread of Viral Hemorrhagic Septicemia Virus

To help slow the spread of Viral Hemorrhagic Septicemia (VHSv), the MDNR has enacted a number of regulations that focus on the movement of potentially infected fish within Michigan waters. These regulations are the foundation of fish pathogen control best management practices for anglers, boaters, the bait industry, and commercial fishing operations.

Major fish kills have been occurring in some areas of the Great Lakes since 2005 that have been attributed to a new fish virus, VHSv. VHSv likely arrived in the Great Lakes around 2002. In 2005 and 2006, VHSv caused large scale fish mortalities from Lake St. Clair to the St. Lawrence River with smaller mortalities in northern Lake Huron and in inland lakes in New York. In 2007, large fish kills attributable to VHSv were found in Lake Winnebago, Wisconsin, Budd Lake, Michigan, eastern Lake Erie and in Lake Ontario. The current Great Lakes range for VHSv is from northern Lake Michigan (Green Bay, Wisconsin) to the St. Lawrence River in New York. The distribution is spotty in lakes Michigan and Huron as the entire basins are not yet infected and only one inland lake in Michigan (Budd Lake) has been found to be positive.

Targeted surveillance and monitoring of VHSv in Michigan waters of the Great Lakes and inland lakes and rivers began in February, 2007. Samples from fish in the Great Lakes and inland lakes and rivers have been collected and sent to the Aquatic Animal Health Lab at Michigan State University for analysis. To date, 6,482 samples have been collected from 36 species and at 64 sites and analyzed for VHSv. These include 420 samples collected from wild broodstocks, 5,854 samples collected as part of the surveillance and monitoring program, 504 collected as the result of fish kills/symptomatic fish, and 124 collected for VHSv research. Fish testing positive for VHSv were found in Budd Lake, Clare County; however, all fish tested from Great Lakes water since surveillance began in February 2007, have been negative showing that the distribution is not continuous in Great Lakes waters. Collection of samples continues to monitor the presence and prevalence of VHSv in Michigan waters. The MDNR regulations can be found on the MDNR Web site at www.michigan.gov/dnrfishing. For more information contact Martha Wolgamood or Gary Whelan, MDNR, Fisheries Division at 517-373-1280.

Managing *Phragmites* in Saginaw Bay

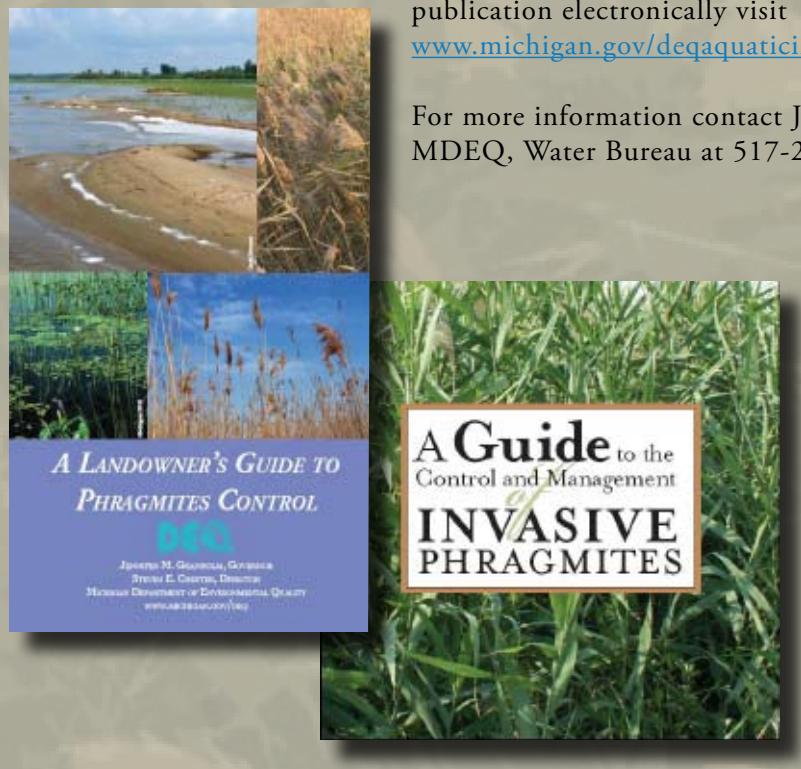
Phragmites australis, also known as common reed, is a perennial, wetland grass that can grow to 15 feet in height. While *Phragmites australis* is native to Michigan, an invasive, nonnative, variety of *Phragmites* is becoming widespread and is threatening the ecological health of wetlands and the Great Lakes coastal shoreline. *Phragmites* tend to create dense stands which degrade wetlands and coastal areas by crowding out native plants and animals, blocking shoreline views, reducing access for swimming, fishing, and hunting, and potentially creating fire hazards from dry plant material.

In response to the growing need to address the rapid spread of *Phragmites* in Saginaw Bay, and to better communicate effective treatment methods and regulatory requirements to the public, the MDEQ and the MDNR in partnership with U.S. EPA-Great Lakes National Program Office (GLNPO) are cooperating with other agencies and local stakeholders to implement a *Phragmites* control demonstration project along selected reaches of *Phragmites*-infested public and private owned shorelines (e.g., Great Lakes coastal wetlands). The MDEQ has received funding from the GLNPO for this effort. Other contributors to this project include Ducks Unlimited, Cygnet Enterprises, Consumers Energy, and Hampton Township.


Tracy Collin

The project will demonstrate control methods for *Phragmites* that can result in restoration of native plant communities, shoreline views, and recreational activities. The control plots will be chemically or mechanically treated to demonstrate to landowners the effectiveness of the treatment method and the benefits of managing *Phragmites* on their property. The treatment site consists of five demonstration plots including: mowing, treating with the herbicide imazapyr, treating with the herbicide glyphosate, treating with an imazapyr/glyphosate mixture, and comparing treatment sites to an untreated control site.

The Office of the Great Lakes has prepared a brochure for riparian property owners facing *Phragmites* invasion throughout Michigan entitled, *A Landowner's Guide to Phragmites Control*. The brochure includes specific information regarding management options for controlling *Phragmites* in shoreline areas of the Great Lakes and Michigan wetlands, associated state permit requirements, and benefits to managing *Phragmites*, including the protection and restoration of fish and wildlife habitat and biodiversity. Another publication, *A Guide to the Control and Management of Invasive Phragmites,* developed jointly by MDEQ and MDNR was published in November 2007. This publication provides technical information for resource managers and applicators about *Phragmites* control. To obtain either publication electronically visit www.michigan.gov/deqaquaticinvasives.



For more information contact Julie Sims, MDEQ, Water Bureau at 517-241-1300.

Type E Botulism Outbreaks in Sleeping Bear Dunes

From August to late November 2006, Sleeping Bear Dunes National Lakeshore (SLBE) experienced an extensive die-off of native fish-eating waterbirds in the near shore waters of Lake Michigan. Approximately 3,000 birds including gulls, cormorants, Horned Grebes, Red-necked Grebes, Mergansers, Common Loons, and White-winged Scoters were lost in an area concentrated along 11 miles of SLBE coastline with just a few birds scattered to the north and south of the main die-off area. Sample bird carcasses from each species were collected and sent to the MDNR Wildlife Disease Laboratory. All were found to have died from Type E Botulism toxins. Much smaller die-offs of waterfowl and sport fish also occurred at other new sites around Lake Michigan and the western edge of Lake Huron. Lakes Erie, Huron, and Ontario continue to experience die-offs at varying scales of 2,500 to 25,000 birds each year since 1999. The cause of these die-offs is thought to be attributed to an unusual array of native and invasive species that are creating the right conditions for endemic Type E bacteria spores (*Clostridium botulinum*) to grow into a vegetative state, produce deadly toxins, enter the food chain, and then to cause extensive yearly die-offs to occur in native bird and fish species.

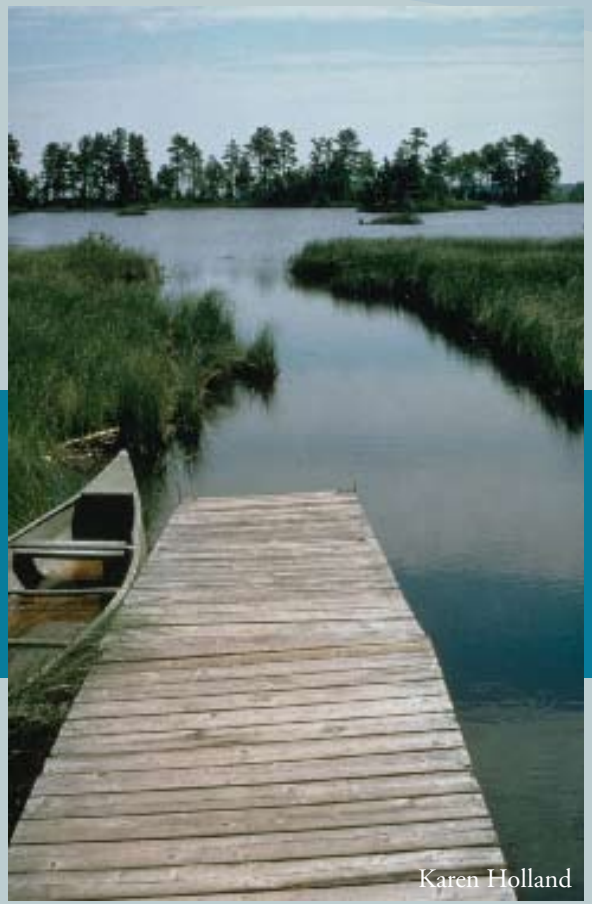
Zebra and quagga mussels appear to be the first link in the die-off chain. They invaded many of the Great Lakes in the late 1980s and have since re-engineered the near shore environments of these lakes. Where present, as at SLBE, the invasive mussels have effectively stripped the water column of plankton and nutrients, resulting in increased water clarity and a substantial shift in nutrients and energy flow. Both species appear to filter out and concentrate either the vegetative *C. botulinum* bacteria or toxins. During warmer water conditions, the large colonies of zebra and quagga mussels may actually be creating near anoxic conditions on the lake bottoms with a combination of increased nutrients, decaying mussels (which may contain concentrated amounts of *C. botulinum)*, and shell piles all creating niches for other bacteria. The recent introduction of quagga mussels exacerbates the situation because it can inhabit and filter deeper water environments, does not need a rocky substrate, is larger than the zebra mussel, and filters much more water daily.

These die-offs represent a serious threat to the endangered Piping Plover, the threatened Bald Eagle, and a number of state listed bird and fish species. Having hundreds of bird carcasses strewn along the SLBE beaches also had a tremendous impact on visitor enjoyment and caused great concerns for health and safety. SLBE is collecting baseline data and documenting the conditions, contributing factors, and impacted species while taking steps to identify potential management actions necessary to reduce and possibly break the rapidly developing conditions leading to these devastating die-offs.

Cladophora levels in parts of Lake Michigan now rival or exceed nuisance levels recorded before the Clean Water Act. Researchers have begun to investigate the cause of the Cladophora resurgence and to collect Cladophora from SLBE during 2006 as part of a larger effort to study the conditions in the area. Due to similar and much more extensive and recurring die-offs on Lakes Erie, Huron, and Ontario, a number of state Sea Grant organizations, universities, and U.S. Geological Survey (USGS) Research Stations are in the early stages of conducting research intent on identifying the sources of Type E Botulism toxins, the food chain pathways, and opportunities for breaking the pathway in order to preserve the native bird species being impacted greatly by these die-offs.

For more information contact MDNR, Wildlife Division at 517-373-1263.


MDNR



Karen Holland

CHAPTER 6

Governors' Restoration Priority:

ENHANCE FISH AND WILDLIFE BY RESTORING AND PROTECTING HABITATS AND COASTAL WETLANDS.

In Michigan, substantial efforts have focused on restoring and protecting habitat and coastal wetlands for fish and wildlife in the Great Lakes. From major stream restorations, mapping of coastal wetlands, acquisition of globally rare environments inhabited by rare and endangered species, and recognized fish stocking programs, major progress has been made to restore, protect, and conserve coastal shorelines, near shore waters, and their inhabitants.

Protecting Michigan Coastal Habitats

With the launch of a new coastal habitat acquisition program, Michigan has taken a great stride toward the Great Lakes Regional Collaborative Strategy's goal of "enhancing fish and wildlife by restoring and protecting habitats and coastal wetlands." The new Coastal and Estuarine Land Conservation Program is a long-awaited addition to the Michigan Coastal Management Program's (MCMP) suite of resources available to address coastal habitat loss and fragmentation.

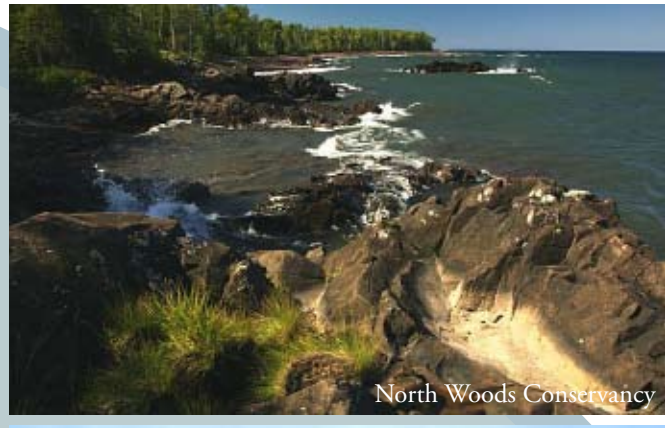
Congress established the Coastal and Estuarine Land Conservation Program in 2002 to help states acquire coastal lands or interest in lands with significant conservation, recreation, ecological, historic, or aesthetic values. Lands with significant ecological value are Michigan's highest priority for protection. The National Oceanic and Atmospheric Administration (NOAA) administers the program at the federal level, and selects land acquisition proposals nominated by coastal states to compete for federal cost-share funds. Congress appropriated funding for the competitive grants for the first time in 2007.

A large parcel of land on the Keweenaw Peninsula will be Michigan's first acquisition made through this nationally competitive program. Michigan has received a $927,000 grant for acquiring the Seven-Mile Point property on Lake Superior. The 120-acre property includes 2,000 feet of Great Lakes shoreline, and globally rare basalt bedrock beach, wooded ridges and swales, endangered species habitat, and a bedrock near shore aquatic system. The addition of this property to the Gratiot River Watershed and Lake Superior Coastal Conservation Area will increase this conservation area to 4,090 acres and almost four miles of shoreline.

Two additional projects submitted by Michigan for funding in 2009 are highly ranked in the national list and are awaiting federal funding. These include $1,422,000 for acquisition of 1,340 acres and 16 miles of Lake Superior shoreline in the Keweenaw Coastal Wildlife Corridor running between Eagle Harbor and Copper Harbor, and $1,222,500 for the acquisition of 475 acres of wetlands and 3,500 feet of frontage on Lac Labelle in the northern Keweenaw Peninsula.

NOAA intends to limit the future availability of the CELC funds to states with federally-approved CELC plans. The MDEQ with assistance from MDNR has prepared a draft CELC plan to submit to NOAA, consistent with federal guidance. Michigan's draft CELC plan was sent to several land conservancies and state-wide environmental and conservation organizations for external review and comment and was posted for public review on the MCMP Web site at www.michigan.gov/deqcoastal.

For more information contact Cathie Ballard, MDEQ, Environmental Science and Services Division at 517-335-2419.



North Woods Conservancy

North Woods Conservancy

North Woods Conservancy

Mapping High Priority Wetlands in Saginaw Bay

Many high quality wetland areas existing in the Saginaw Bay area are currently threatened by development and/or alteration. These wetlands are extremely important to the health of Saginaw Bay as a whole, as they contribute to water quality, flood control, wildlife and fish habitat, and many other aspects of Great Lakes health. In an effort to preserve these important habitats, a Technical Work Group has been formed as part of the Saginaw Bay Coastal Initiative to identify wetlands that are high priority acquisition areas, and to inform local authorities of the various methods that may be used to preserve these areas. The workgroup is a partnership of representatives from a variety of agencies, including the MDEQ, MDNR, U.S. Fish and Wildlife Service, Department of Transportation, Ducks Unlimited (DU), Saginaw Basin Land Conservancy, The Nature Conservancy, and Michigan Natural Features Inventory.

To conduct this analysis, the workgroup has begun to use Geographic Information System technology along with existing inventories and conservation plans to develop this list of priority areas. Updated U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) maps will be used as a foundation for the project. Each wetland area shown on the NWI will be assigned a priority ranking. A variety of criteria will be used to define priority areas, including, but not limited to, presence of threatened and endangered species, existence of a rare and imperiled community, proximity to the coast, threat of development, and quality of the surrounding wetland buffer. The results of this study will be displayed on color coded maps and may be used by local municipalities, townships, and conservation groups to identify focus locations for restoration and protection efforts.

The Technical Work Group will also identify various mechanisms that may be used to protect these wetland resources. Mechanisms will be recommended with the understanding that the landowner's concerns and objectives must be taken into consideration. Options for preservation may include conservation easements, management agreements, limiting development options through zoning changes, or sale or donation of parcels to land conservancies, among others.

The initial efforts of the Technical Work Group have consisted of coordination meetings, with a focus on bringing natural resource agencies and interest groups together to assist in the identification of the high priority wetland acquisition areas within the Saginaw Bay coastal area. Scoring of the wetlands in Bay, Saginaw, Iosco, Huron, Tuscola, and Arenac counties has begun, and it is anticipated to be completed by the summer of 2008. The group hopes to expand this pilot study to other counties throughout the state if the methods prove successful. Funding for this effort has been provided by the Coastal Management Program through a grant from NOAA.

For more information contact Tracy Collin, MDEQ, Land and Water Management Division at 517-373-1170.

Dave Brenner

Improving and Protecting Great Lakes Habitat


J. Gunderson

The MDNR continues to work within the framework for coordinated action provided under *A Joint Strategic Plan for Management of Great Lakes Fisheries* (1997) and the Great Lakes Regional Collaboration Strategy to Restore and Protect the Great Lakes to strengthen relationships and forge new partnerships for implementing programs and activities specifically designed to restore habitat and protect the Great Lakes. MDNR played key roles in the development and reauthorization of the Great Lakes Fish and Wildlife Restoration Act of 2006. Since reauthorization, MDNR continues to coordinate with the U.S. Fish and Wildlife Service (USFWS) and other Great Lakes state fisheries and wildlife agencies to develop proposals and make recommendations to the USFWS for funding.

A number of notable achievements in habitat restoration were accomplished with partners such as MDEQ, Great Lakes Fishery Commission (GLFC), USFWS, U.S. Geological Service (USGS), the U.S. Army Corp of Engineers, and individual state fisheries and wildlife management agencies. MDNR has been instrumental in enhancing stream geomorphology and natural channel design resulting in stream restoration and aquatic habitat protection and enhancement. Since 2005, MDNR has restored fish passage and stream habitats in many areas throughout the state and continues to assess and evaluate areas for future work. Approximately four miles of the Dead River in Marquette County which were heavily impacted due to the failure of the emergency spillway at the Silver Lake Basin in 2005 have been restored. Work has been completed to reduce the head of the Potagannissing River dam on Drummond Island and to design a natural rock fish way restoring fish passage and reconnecting thousands of acres of potential spawning habitat. Fish passage and stream habitat have also been restored in the McCormick Creek on Drummond Island and Jackson County Airport. In addition, a stream channel was modified at Quaker Brook, a designated trout stream in Barry County, to allow for fish passage and stream habitat improvement.

In 2006 and 2007, MDNR and MDEQ assisted in the ongoing development and/or implementation of Environmental Objectives for Lakes Superior, Michigan, Huron, and Erie which outline issues and define the environmental conditions necessary for realizing habitat quality important to achieving the Lake Committees stated Fish Community Objectives. MDNR is continuing to coordinate and address environmental and regulatory issues related to the implementation of sea lamprey management activities across the state. Because sea lamprey barriers remain an effective alternative to lampricide treatments, MDNR is continuing to pursue the design and construction of sea lamprey barriers on Michigan streams.

For more information contact Kurt Newman or Chris Freiburger, MDNR, Fisheries Division at 517-373-1280.

Removing Dams in Michigan

With over 2,500 dams, Michigan is facing an infrastructure crisis of dam failure over the next decade. Many dams have outlived their usefulness and because they provide no economic return, are often neglected and deteriorating. Dams require regular, often expensive maintenance which many owners are either unable or unwilling to provide. They pose a safety risk to the public and other public infrastructure and are subject to regulatory review by the MDEQ dam safety program.

MDNR and MDEQ have been working collaboratively to assist dam owners by developing Web-based guidance for owners and have provided technical expertise to design and conduct dam removals that minimize adverse environmental impacts. Since 2005, almost $4 million has been committed to remove seven dams in the state. The MDNR's primary goal is to remove or alter a dam to minimize potential for failure and to provide fish passage capacity beyond the dam. The MDNR's role is as collaborator and facilitator to owners and nonprofit organizations who are often the ones directly performing the work.

Completed dam removals provide many benefits including: improved public health and safety by addressing unsafe structures and avoiding dam failure, improved water quality and aquatic habitat, improved recreational opportunities, reduced dam maintenance costs, and restored fish passage and improved fisheries productivity.

For more information contact Sharon Hanshue, MDNR, Fisheries Division at 517-373-1280.

Dam Name	River	Year Built	Year Removed	Project Cost
Charlotte City Dam	Battle Creek	1903	2005	$180,100
Dimondale Dam	Grand River	1880	2006	$442,400
Elm Street Dam	Battle Creek	1909	2005	$124,500
Grayling Dam	AuSable River	1880's	2005	$325,000
Hersey Dam	Hersey River	1958	2006	$274,600
Potagannissing Dam	Potagannissing River	Unknown	2006	$36,000
Sturgeon Dam	Sturgeon River	1919	2005	~$2 million

Sturgeon River Dam before and after removal.

Restoring the Dowagiac River

The MDNR and MDEQ as members of the Partnership for MEANDRS, a nonprofit organization focused on addressing ecological and agricultural needs, is restoring meanders to the Dowagiac River. The Dowagiac River is a tributary to the St. Joseph River in southwest Michigan and is one of the largest coldwater streams south of the Muskegon River. Unfortunately, the river was channelized between 1900 and 1920 to facilitate wetland drainage in the headwaters for agricultural purposes. This turned 20 miles of slow meandering stream into a 15 mile fast flowing ditch. Straight runs and high velocities contributed to erosion, degraded water quality, and limited habitat diversity. Further, high banks disconnected the river from its floodplain giving flashiness to a system with otherwise very stable flows. In a sense, flow had become the pollutant in the Dowagiac River.

With a total project cost of $307,000, MDNR completed this restoration project in August 2007. This pilot project reconnected a one-quarter mile of the river with its floodplain and restored the original meandering river channel at Arthur Dodd Memorial Park in Cass County. Over 12,000 cubic yards of silt were hydraulically dredged from the old meander, 600 tons of rock were used to create grade control riffles, and another 500 tons of rock were used to divert the river into the restored meander.

The project will provide a successful model to move forward with restoring other reaches of the Dowagiac River and other rivers in the Great Lakes region.

For more information contact Jay Wesley, MDNR, Fisheries Division at 517-373-1280.

Managing Michigan's Fishery - Fish Stocking and Hatchery Activities

Fish stocking is a powerful fisheries management tool that the MDNR uses to help achieve fisheries and ecosystem management objectives. Hatchery fish production and stocking is necessary to rehabilitate degraded fish populations, provide ecosystem balance, provide additional fishing opportunities, and to reintroduce species that have been extirpated from their former range. The primary concerns in determining stocking strategies for the Great Lakes include considerations such as balance in predator and prey fish populations and genetic implications of stocking hatchery fish in certain areas of the Great Lakes.

The MDNR operates six major fish hatcheries for the production of cool and cold water fish species and approximately 50 to 60 extensive rearing ponds annually for production of coolwater species (walleye, muskellunge, and northern pike). Since December, 2005 the MDNR has planted fish at 785 stocking sites including 344 Great Lakes sites. The MDNR produced and stocked over 53 million trout, salmon, and walleye. Of the brown trout stocked statewide, approximately 50 percent are stocked into the Great Lakes. Of the rainbow trout stocked statewide, approximately 8 percent are stocked into the Great Lakes. Eighty-two percent of the steelhead and all the salmon are stocked into the Great Lakes or Great Lakes tributaries.

The State of Michigan supports a continuing investment in the state's hatchery system. Fish hatcheries and weirs require regular maintenance to ensure hatcheries can reliably produce the fish required to meet fisheries management objectives. Recent renovations and improvements include:

- At the Thompson State Fish Hatchery obsolete reuse pumps were replaced with new submersible pumps to allow future addition of low-head oxygen units reducing the use of liquid oxygen at the facility.
- At the Platte River State Fish Hatchery Brundage Creek pumps were rebuilt to prevent unexpected failure. Also, disc filter screens were replaced at this hatchery to allow efficient screening of hatchery effluent water thereby reducing the volume of pollutants discharged from the hatchery.
- At the Wolf Lake State Fish Hatchery substantial repairs were made to

seven outbuilding roofs at the hatchery to prevent damage to the buildings and contents. Electrical and water delivery upgrades were also made at Wolf Lake's Fish Quality Lab and the water delivery modifications were made to improve the rearing environment for coolwater species.

- At the Harrietta State Fish Hatchery the transformer was serviced to prevent premature failure.
- At Marquette State Fish Hatchery a state-of-the-art ultra-violet sterilization system was installed to treat surface water supplies. Additionally, water well repair and the annual replacement of ultra-violet sterilizer bulbs were completed at the hatchery. These repairs were necessary to maintain the health of MDNR's captive broodstock populations of lake trout and brook trout.

For more information contact MDNR, Fisheries Division at 517-373-1280.

MDNR

MN Sea Grant

Expanding Michigan's Fisheries Research Fleet - RV Lake Char

In May 2007, the Research Vessel Lake Char became MDNR's new work platform for fisheries research on Lake Superior. "Lake Char" is the top native predator fish in Lake Superior. Besides being new and up-to-date, the Lake Char provides tremendous improvements in safety, flexibility, and dependability.

The MDNR's fleet of four Great Lakes vessels are vital to protect, promote, and preserve Great Lakes resources. Michigan has management responsibility for 43 percent of the Great Lakes, much more than any other entity. Vessel crews conduct inventories used to estimate relative abundance, biomass, age and growth, health, diet, survival rates, natural reproduction, and movements of fishes in the Great Lakes. This information enables MDNR to identify and separate major fish stocks, set stocking levels that are consistent with fish community goals, do contaminant analysis, follow lamprey wounding trends, and document effects and spread of aquatic invasive species and diseases. Vessel data are also used to help evaluate fishing regulations and the success of stocking (strains, survival, return to creel, cost efficiencies). This work is closely tied to collaborative agreements with other management agencies and governments, including those tied to legal mandates of the 2000 Consent Decree. The 2000 Consent Decree governs allocation, management, and regulation of State and Tribal fisheries in the 1836 Treaty waters during the term described in section XXII.

For more information contact MDNR, Fisheries Division at 517-373-1280.

U.S. EPA

CHAPTER 7

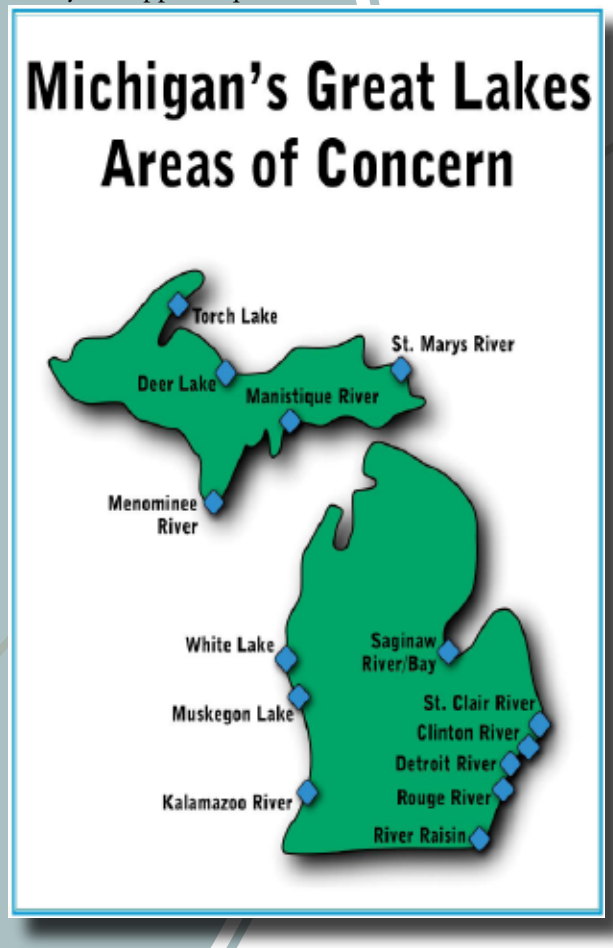
Governors' Restoration Priority:

RESTORE TO ENVIRONMENTAL HEALTH THE AREAS OF CONCERN IDENTIFIED BY THE INTERNATIONAL JOINT COMMISSION AS NEEDING REMEDIATION.

Michigan has taken a leadership role in addressing restoration of the Great Lakes Areas of Concern (AOC). Michigan has been actively working with federal and local governments utilizing Great Lakes Legacy Act funds to advance cleanup and restore the environmental health of Michigan's AOCs. Major AOC restoration projects have been completed in Michigan and many are underway. Beneficial use impairments have already been removed and several others are under assessment in Michigan's AOCs. Michigan continues to work with federal, local, and tribal interests to speed up cleanups and build local capacity to manage AOC cleanups.

20 Years of Progress towards Delisting Michigan's Great Lakes Areas of Concern

2007 is the 20th anniversary of the Amendments to the United States/Canadian Great Lakes Water Quality Agreement that established the Great Lakes Area of Concern program. An Area of Concern (AOC) is defined as "a geographic area that fails to meet the General or Specific Objectives of the Agreement where such failure has caused or is likely to cause impairment of beneficial use or of the area's ability to support aquatic life." There are 14 AOCs located in Michigan. Three of these AOCs (St. Marys River, St. Clair River, and Detroit River) are shared boundary waters with the Province of Ontario. One area (Menominee River) is a shared boundary water with the state of Wisconsin. The remaining ten AOCs (Torch Lake, Deer Lake, Manistique River, White Lake, Muskegon Lake, Kalamazoo River, Saginaw River and Bay, Clinton River, Rouge River, and River Raisin) are completely within the jurisdiction of the state of Michigan.



The Agreement listed 14 possible beneficial use impairments which are caused by a detrimental change in the chemical, physical, or biological integrity of the Great Lakes system. Assessments in Michigan's AOCs identified a total of 110 beneficial use impairments. The scope of the AOC program is based on the concept that each area has had at least one beneficial use impairment that is an extraordinary problem; one that sets the area apart from other sites in the state that are not an AOC. Details can be found on the AOCs Web sites at www.epa.gov/glnpo/aoc/index.html.

To restore the beneficial uses in the AOCs, Remedial Action Plans were developed and have been implemented. Significant progress has been made in that restoration effort. As restoration goes forward in the AOCs, the MDEQ is documenting that work. Michigan recently finalized guidance for formal removal of beneficial use impairments that have been restored and for delisting AOCs from which all beneficial use impairments have been removed.

Three beneficial use impairments have already been removed and several others are under assessment for removal in Michigan's AOCs. The impairments and remedial actions are assessed by a technical team and recommendations for removal are made to the U.S. EPA when the assessments demonstrate criteria for restoration have been met.

Local Public Advisory Councils and a Statewide Public Advisory Council are integral to the work through providing input and support necessary to make the investments in restoration. The collaborative effort underway to restore the state's AOCs is leading to new opportunities for these sites as the 20th anniversary of the program is marked.

The Clean Michigan Initiative and the Great Legacy Act have significantly advanced progress in AOCs. These programs have provided state and federal funding to allow for dredging of historically contaminated sediments. Several dredging projects have been completed with more underway or in the planning stages. Some of the AOCs contain designated Superfund sites and have benefited from sediment cleanups under this program.

For more information contact Roger Eberhardt, Ph.D. MDEQ, Office of the Great Lakes at 517-335-4056.

Making Progress by Removing Contaminated Sediment in Great Lakes Areas of Concern

In 1998, the citizens of Michigan made the quality of our environment a priority by passing the Clean Michigan Initiative (CMI). The CMI is a $675 million general obligation bond designed to enhance Michigan's environment. As part of the bond initiative, $25 million was set aside for the investigation and remediation of contaminated sediments in Michigan lakes, rivers, and streams. In 2002, Congress passed the Great Lakes Legacy Act which provides funding to take the necessary steps to clean up contaminated sediment in "Areas of Concern located wholly or partially in the United States," including specific funding designated for public outreach and research components. The U.S. EPA Great Lakes National Program Office (GLNPO) was designated to implement the Legacy Act. By combining the Michigan CMI funding with the Great Lakes Legacy Act funding, Michigan has made great strides towards the remediation of contaminated sediments within the Michigan AOCs.

The following describes the sediment and remediation projects that have been completed in Michigan:

Detroit River AOC: Black Lagoon - In September 2004, the MDEQ signed the first Great Lakes Legacy Act Project Agreement with the U.S. EPA for the remediation of contaminated sediments in the Black Lagoon, Trenton Channel, located in the Detroit River AOC. This project resulted in the removal of approximately 115,000 cubic yards of sediment contaminated with mercury, polychlorinated biphenyl, and oil and grease. In the summer of 2007, the Black Lagoon was renamed Ellias Cove. It is also the future site of a seasonal marina. Without the Black Lagoon project, the economic redevelopment in this portion of the Detroit River would not have been possible.

Detroit River AOC: Trenton Channel - The MDEQ has been working on a 30-acre site situated on the Trenton Channel. The area was the site of historic industrial waste disposal activities and was heavily contaminated with a range of hazardous substances, including mercury, PCBs, and dioxins. In addition, sediments in the Trenton Channel adjacent to the site were found to contain some of the highest mercury levels known in the Detroit River system. A recent Consent Judgment has resulted in the installation of containment and treatment systems at the site and removal of up to 30,000 cubic yards of contaminated sediments from the Trenton Channel. These measures are designed to create a physical and hydraulic control system that will prevent any further discharge of contaminants to the river.

Muskegon Lake AOC: Ruddiman Creek - Another site completed with CMI contaminated sediment bond funds was the Ruddiman Creek project in the Muskegon Lake AOC. As with the Black Lagoon, the MDEQ used CMI bond monies to leverage federal Great Lakes Legacy Act funds for cleanup of Ruddiman


Todd Marsee

U.S. EPA


Todd Marsee

Creek. This project was completed in the summer of 2006 and resulted in the removal of approximately 95,000 cubic yards of sediments contaminated with cadmium, chromium, lead, and organic chemicals. For a detailed description of this project, visit www.epa.gov/glnpo/aoc/msklake.html. The MDEQ is currently working with U.S. EPA on another remedial investigation within the Muskegon Lake AOC, near the Division Street storm sewer outfall.

St. Marys River AOC:Cannelton Industries, Inc. - The Cannelton Industries, Inc. site, formerly known as the Northwestern Leather Tannery, resulted from tannery operations between 1900 and 1958, which left soils and sediments contaminated with substantial chromium, mercury and other heavy metals. Under an innovative cost-share agreement, the MDEQ contributed $600,000 from the CMI bond monies, with the U.S. EPA and a private party paying the balance of the $8.5 million project to remove contaminated sediments from the St. Marys River in Sault Ste. Marie. The U.S. EPA used Great Lakes Legacy Act funding for their cost-share portion of this cleanup.

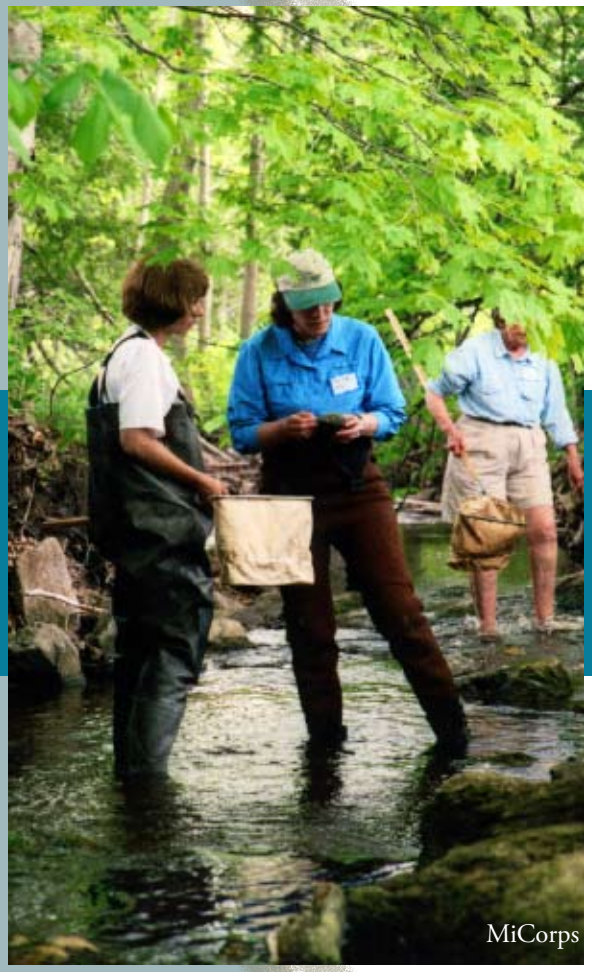
In June 1999 the responsible parties funded excavation of 33,000 tons of waste and soils from the St. Marys River upland shoreline. The subsequent sediment removal project completed in the summer of 2007 included the removal of 65,000 tons of contaminated river and wetland sediments with about one million pounds of chromium and 70 pounds of mercury. In total, 98,000 tons of contaminated soils and sediments were removed from this site on the St. Marys River.

As a result of this most recent removal, the U.S. EPA, in coordination with the MDEQ, is now preparing to delete the site from the National Priorities List. The City of Sault Ste. Marie is interested in redeveloping the more upland portions of the site for municipal purposes, and zoning the shoreline land for residential and recreational purposes.

Kalamazoo River AOC: Contaminated Sediments and Landfills - U.S. EPA and MDEQ are overseeing cleanup work in the Kalamazoo River AOC due to historic releases of polychlorinated biphenyls (PCBs), which originated primarily from de-inking operations at local paper mills. Cleanup work began in early June 2007 at the Plainwell Impoundment in the Kalamazoo River AOC. Since work began, nearly 11,000 cubic yards of PCB-contaminated sediment have been removed from the river and nearby banks. PCBs are a chemical compound commonly used by industry that at high concentrations and exposures can cause illnesses in humans and wildlife. When completed, the Plainwell cleanup will have removed about 132,000 cubic yards of sediment containing 4,400 pounds of PCBs. The estimated cost of the removal action is $30 million and is expected to continue through the fall of 2008. Photographs of the Plainwell Impoundment Removal Action can be viewed at www.epa.gov/region5/sites/kalproject/photos.htm.

Other cleanup activities are also occurring in the Kalamazoo River AOC. Work has begun on an erosion control system at the 12th Street Landfill. Approximately 900 cubic yards of contaminated sediment from the channel next to the landfill will be removed. As part of the project, PCB-contaminated floodplains on the adjacent river banks will also be removed. Approximately 4,000 cubic yards of PCB-contaminated material were excavated in 2007. In addition, at another site, 50,691 cubic yards of waste will be removed from nearby floodplains of the Kalamazoo River.

For more information contact the MDEQ, Water Bureau at 517-241-1300 or Remediation and Redevelopment Division at 517-373-9837.

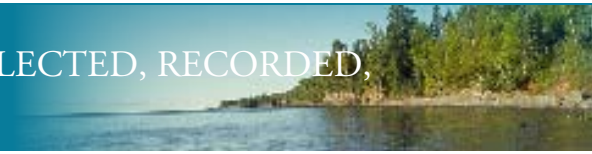

MiCorps

CHAPTER 8

Governors' Restoration Priority:

STANDARDIZE AND ENHANCE THE METHODS BY WHICH INFORMATION IS COLLECTED, RECORDED, AND SHARED WITHIN THE REGION.

Michigan is developing new, state-of-the-art Internet applications designed to provide the public and resource managers easy and efficient access to environmental information. Better access to this information will improve water quality decision-making at all levels of government. Standardizing and enhancing the methods by which information is collected, recorded, and shared within Michigan and the region is enabling sound management decisions to be made to protect and restore the Great Lakes ecosystem. Utilizing volunteer monitoring programs, Geographic Information Systems, and regional coordination efforts, Michigan has advanced its ability to manage its resources and communicate information to the public, decision makers, and others involved.



Monitoring Great Lakes Water Quality

The MDEQ monitors water quality in the Great Lakes, supported primarily with funding from the Clean Michigan Initiative Clean Water Fund. MDEQ continues to make significant progress in protecting and restoring the Great Lakes through the use of monitoring data. Annual water sampling in the Great Lakes connecting channels, Saginaw Bay, and Grand Traverse Bay supports the Remedial Action Plan and Lakewide Management Plan programs. In cooperation with the U.S. Geological Survey (USGS), concentrations and loads of nutrients, metals, and other selected contaminants in 31 Great Lakes tributary sites in Michigan are measured each year. In 2005, monitoring in Lake Michigan tributaries in Michigan (St. Joseph, Kalamazoo, Grand, Muskegon, Manistee, Manistique, and Menominee Rivers) was coordinated with monitoring by the state of Indiana (Grand Calumet River) and the state of Wisconsin (Milwaukee and Fox Rivers) to generate data capable of updating the tributary portion of the Lake Michigan Mass Balance Model.

During this time MDEQ also began the collection of benthic invertebrate, zooplankton, and water quality data from Lakes Michigan, Superior, Huron, Erie, and St. Clair near shore areas. The resulting information will fill an existing data gap and establish benchmarks for detecting future environmental change in Great Lakes near shore areas. In addition to the continuation of long-term biological and chemical trend measurement, future priorities for MDEQ monitoring programs are likely to include more comprehensive monitoring of nuisance algal conditions along Great Lakes shorelines and the identification/ distribution of aquatic invasive species in the Great Lakes and inland waters.

In 2007, Lake Michigan was selected as one of three pilot water bodies for testing the National Monitoring Network (NMN). This effort, in which the MDEQ is playing a leading role, requires participating federal and state agencies to identify Lake Michigan management needs, review ongoing monitoring activities, determine whether the proposed NMN design meets the requirements of the management needs, assess gaps between ongoing and proposed monitoring activities, develop an approach to overcome potential data management barriers, and estimate the costs for additional monitoring to address the monitoring gaps. A report summarizing the findings of the Lake Michigan Pilot Study will be completed by December 2007. For more information contact Gary Kohlhepp, MDEQ, Water Bureau at 517-241-1300.

Providing Public Access to Water Quality Data

The MDEQ, in cooperation with the MDNR and Michigan Department of Information Technology, recently made available the Michigan Surface Water Information Management (MiSWIM) system. The MiSWIM system is a new, state-of-the-art Internet mapping application designed to provide the public with easy access to water quality (biological, chemical, and physical) data and other information that has been obtained for the Great Lakes, as well as Michigan's rivers, inland lakes, and streams. New information (e.g., beach closing information) is added to the system on a daily basis. The MiSWIM application can be found at www.michigan.gov/miswims. For more information contact Jason Smith, MDEQ, Water Bureau at 517-241-1300.

Types of water quality information available to MiSWIM system users include:

- Water and sediment chemistry
- Fish contaminants
- *E. coli* bacteria
- Fish and aquatic macroinvertebrate communities
- River flow
- Fish stocking
- Lake bathymetry
- River valley segments
- Industrial and municipal wastewater discharge sites
- Septage land disposal sites
- Coldwater and natural river classifications
- Nonpoint source program grants
- Land use classifications
- Soil types
- Aerial photographs

Expanding Water Quality Monitoring Efforts – The Michigan Clean Water Corps

Governor Jennifer M. Granholm issued Executive Order 2003-15 creating the Michigan Clean Water Corps (MiCorps) to assist the MDEQ in collecting and sharing water quality data for use in water resources management and protection programs. The MiCorps mission is to network and expand volunteer water quality monitoring organizations statewide for the purpose of collecting, sharing, and using reliable data; educate and inform the public about water quality issues; and foster water resource stewardship to facilitate the preservation and protection of Michigan's water resources. The Great Lakes Commission administers the MiCorps program in partnership with the Huron River Watershed Council under the direction of the MDEQ and with the advice of a steering committee.

The MiCorps Program provides training for stream and lake monitoring; disseminates methods for accurate data collection, implements effective quality assurance practices, facilitates data reporting and information sharing online, and provides a forum for communication and support among volunteer monitoring groups in Michigan. Approximately, $50,000 is available annually for funding nonprofit organizations interested in monitoring lakes and rivers.

MiCorps is building upon existing volunteer monitoring programs established by the MDEQ, including the Volunteer Stream Monitoring Grant Program and the Cooperative Lakes Monitoring Program (CLMP). The CLMP has been an important component of Michigan's inland lakes monitoring program for over 30 years (since 1974), making it the second oldest volunteer lake monitoring program in the country. Typically, 230 lakes are monitored annually.

Through the Web-based MiCorps Data Exchange platform, MiCorps has made great strides toward facilitating data use and data exchange for lake and stream volunteer monitoring groups. Additional information regarding the MiCorps and recent grant awards may be found online at www.MiCorps.net.

For more information contact John Wuycheck, MDEQ, Water Bureau at 517-241-1300.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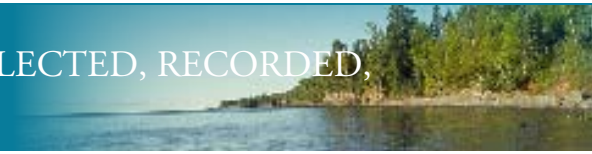

Providing Real Time Air Quality Information

In fall of 2006, MDEQ rolled out MIair, an Internet tool that displays near real-time data, maps, and charts. MIair provides timely air quality information for Michigan residents via the initial easy-to-understand Air Quality Index graphic for those who want simplicity, plus plenty of detail for those who prefer more comprehensive technical information. The announcements and forecast portion allow MDEQ to provide updated information in real-time. MIair features the following seven categories:

Air Quality Index (AQI)
The AQI is a health indicator useful for making decisions about daily activity levels. The MIair page opens to a graph of current conditions and forecast information plus a color-coded AQI map. The AQI sorts air into one of six, color-coded categories ranging from good to hazardous air. Michigan's air is generally 'good' to 'moderate,' but occasionally reaches the 'unhealthy for sensitive groups' level. Michigan's air quality seldom reaches the 'unhealthy' for everyone level. MDEQ meteorologists provide a daily forecast to help people make informed choices when air quality is poor. Air quality forecasts are available for 75 Michigan counties with the potential to reach 98 percent of Michigan's population. The AQI is calculated using hourly concentrations from continuous air monitors. (The AQI should not be confused with National Ambient Air Quality Standards that determine an area's compliance with federal Clean Air Act provisions.)

ACTION! Days
An Action! Day is issued when poor air quality is expected. Everyone is encouraged to "take action" to reduce air emissions and to protect their health by reducing physical exertion if pollution levels become elevated. Formal "Ozone Action!" programs are promoted by Michigan Clean Air Coalitions. Because these coalitions are locally driven, they receive broad support from community members.

Air Quality Notification - ENVIROFLASH
EnviroFlash sends automated messages about air quality via e-mail and/or cell phone text messages. Residents select the AQI level at which they want to be notified with most people picking "orange." The Michigan program is a partnership between MDEQ and U.S. EPA. EnviroFlash notifications currently represent forecasts, not real-time values.

Monitoring Data
Hourly air quality and meteorological measurements from each monitor site are reported in end-hour local time. Ozone data collected from April through October are graphed and can be viewed in near real-time. Past air data is available by selecting from options at the top of the Web page.

Ozone Maps
The current day eight-hour average ozone concentration is reported as an average of the previous eight hourly values. Current day data is reported in end-hour local time. Past day's data are reported in begin-hour standard time.

PM2.5 Maps
The current 24-hour average PM2.5 (fine particle) concentrations are reported as an average of the previous 24 hourly values. Current data are reported in end-hour local time. Past data are midnight-to-midnight averages to align with National Ambient Air Quality Standard reporting methodologies.

Links
The links page includes information about the MIair Web site, MDEQ air information, Partners, Regional links, U.S. EPA links, and more.

MIair data and information is provided as a public service because MIair is your air. For more information contact Laura DeGuire, MDEQ, Air Quality Division, at 517-373-7023.

Making Available Fish and Wildlife Management Information

Many agencies and organizations responsible for managing and conserving resources in the Great Lakes basin have traditionally managed resources in their jurisdiction independently. To facilitate data sharing and holistic management of the Great Lakes basin, a Geographic Information System (GIS) for Great Lakes Aquatic Habitat is being developed known as the Great Lakes GIS (GLGIS). The GLGIS provides a standard, basin-wide platform for inventory, classification, and management of fish, aquatic wildlife species, and their aquatic habitats. The GLGIS also provides a planning tool needed by managers and lake committees to access and query habitat data on a landscape scale to implement management strategies such as planning assessment, rehabilitation and enhancement projects for habitats of fish and wildlife, and for implementation plans that address the priority threats and conservation needs of aquatic species.

Substantial progress has been made in developing GIS projects for the waters of Michigan's Great Lakes. Databases on distribution, relative abundance, and habitat of Species of Greatest Conservation Need (SGCN) have been acquired and assembled into GIS projects for Lake Michigan, Lake Huron, and Lake Erie. Preliminary classifications of offshore habitats have been made for Lake Michigan, Lake Huron, and Lake Erie, and offshore classification of Lake Superior habitats is underway. The offshore habitat classifications are being evaluated by regional experts. Classifications of near shore habitats are in progress. Habitat suitability criteria are being developed and mapped for critical life stages of selected SGCN. Progress has been made on development of decision support tools to evaluate impacts of proposed dredging activities and other lake bed alterations and dam removals on SGCN and their habitats.

The GLGIS project has resulted in the development of environmental objectives that support fish community objectives for Lake Michigan, and demonstrate how habitat issues and invasive species affect fisheries in tributary, wetland, and coastal habitats. The GLGIS project also developed a special GIS project to map invasive species distributions over time relative to habitat type in Lake Erie.

The GLGIS has contributed to standardizing and enhancing methods by which information is collected, recorded, and shared within the Great Lakes basin. As development of the databases for the GLGIS has been largely completed, the focus has shifted to developing progressive strategies for database management and distribution utilizing Internet-based methods for data visualization and distribution. Workshops and tutorials have been developed to teach principles of GIS and how to use the GLGIS to visualize and analyze habitat needs and distributions of SGCN. Other goals for the future include developing decision support tools for managers to evaluate impacts of lakebed alteration, windmill siting, shoreline hardening, dam removal, and land use change on wetland and coastal habitats.

For more information contact Edward Rutherford or Christine Geddes, MDNR, Fisheries Division at 517-373-1280.


K. Holland


National Park Service


R. McCune


Dave Brenner

CHAPTER 9

Governors' Restoration Priority:

ADOPT SUSTAINABLE USE PRACTICES THAT CAN PROTECT ENVIRONMENTAL RESOURCES AND THAT MAY ENHANCE THE COMMERCIAL AND RECREATIONAL VALUE OF OUR GREAT LAKES

From innovative approaches for expanding local tourism and economic development, partnerships in sustainable agriculture programs, and alternative energy programs, Michigan has been adopting sustainable use practices to protect environmental resources and enhance the commercial and recreational value of our Great Lakes.

Working Together to Improve the Saginaw Bay Coastal Area


Jim Bredin

In 2006 Lt. Governor John Cherry and the MDEQ announced the Saginaw Bay Coastal Initiative (SBCI) to coordinate regional efforts supporting innovative approaches for expanding local tourism and economic development, while enhancing resource protection,and improving environmental quality. At that time, interested local decision-makers met to identify issues where collaboration between state, local, and federal interests could make a real difference in the economic development, tourism, resource protection, and environmental quality of the area. Significant progress has been made on a number of issues that were collectively agreed to pursue, including:

- Evaluation of potential human health implications of the algae on the shoreline.
- Saginaw Bay tourism.
- Controlling *Phragmites*.
- Identification and protection of high quality wetlands.
- Development of a speaker series on environmental issues of specific importance to Saginaw Bay.

Last spring, the members of the SBCI came back together to develop the framework for our second year's efforts. Reducing phosphorus entering Saginaw Bay was identified as a key issue. Last March, the MDEQ's Phosphorus Policy Advisory Committee presented a report with recommendations to reduce phosphorus statewide. While we're pursuing implementation of this report on a statewide basis, we are developing a SBCI work group to address specific recommendations of the Phosphorus Policy Advisory Committee Report. The Committee will identify local efforts to implement specific recommendations of the report within the Saginaw Bay coastal area.

In addition, the SBCI will be undertaking a number of new efforts during this coming year including:

- Implementing a number of the recommendations of the Science Committee report.
- Undertaking increased efforts to control *E. coli* in the Saginaw Bay coastal area.
- Controlling pollutants in the Kawkawlin River by working with the Bay County Health Department and the Bay County Drain Commissioner to undertake sanitary surveys to identify sources of raw sewage and illicit connections.
- Evaluating potential alternatives to increase access to Saginaw Bay with the leadership of Bay County and the assistance of the MDNR.
- Trying to find ways to solve the muck problem at the Bay City Recreation Area beach with the assistance of MDNR and local leaders.
- Continuing the speaker series on environmental issues of importance to Saginaw Bay water quality.

Through the SBCI, a number of important first steps were taken on several key issues. This coming year we will expand on those efforts, involve additional people, and continue developing a working relationship with all of the interest groups in the Saginaw Bay coastal area.

For more information on the Saginaw Bay Coastal Initiative, visit the SBCI Web site or contact Jim Bredin, MDEQ, Office of the Great Lakes at 517-335-4056.


Jim Bredin

ADOPT SUSTAINABLE USE PRACTICES THAT CAN PROTECT ENVIRONMENTAL RESOURCES AND THAT MAY ENHANCE THE COMMERCIAL AND RECREATIONAL VALUE OF OUR GREAT LAKES

Protecting Michigan's Groundwater

Recent environmental problems, including closed beaches, contaminated groundwater, and global warming, have raised the awareness of our fragile ecosystem in the eyes of Michigan residents. This environmental consciousness is shared by Michigan's agricultural community, who continually seeks to reduce the environmental footprint of the state's second largest industry. The Michigan Department of Agriculture (MDA), in conjunction with Michigan's conservation districts, works with farmers and landowners through a variety of programs to voluntarily adopt practices that are environmentally and economically sustainable and that contribute to the vitality of rural communities.

The Michigan Groundwater Stewardship Program (MGSP) is a legislatively enabled partnership, which helps Michigan residents reduce the risks of groundwater contamination associated with pesticide and nitrogen fertilizer use. The MGSP effectively addresses these risks through a variety of distinct program areas that target agricultural, residential, and golf course user groups. The MGSP also leads statewide efforts in groundwater monitoring, plastic pesticide container recycling, and pesticide/fertilizer spill response. In 2006, over 11,000 homeowners, 11 golf courses and 650 farmers conducted assessments designed to identify potential on-site environmental risks and to plan steps for corrective action. Additionally, the MGSP properly decommissioned 217 abandoned wells, recycled over 52,000 pounds of plastic pesticide containers, and conducted over 2,300 well water tests. Through a contribution agreement with the U.S. Department of Agriculture, Natural Resources Conservation Service, the MGSP has been able to leverage federal resources to assist landowners implement over 300 conservation practices such as pest and nutrient management plans, waste utilization, use exclusions, cover crops, cooperative nutrient management plan review, agri-chemical containment facilities, prescribed grazing, and tree and hedgerow planting.

Through a broad partnership, the Michigan Agriculture Environmental Assurance Program (MAEAP) protects the environment and human health using a voluntary, proactive, and comprehensive strategy. MAEAP reduces pollutants with a multi-media systems approach, emphasizing producer education, pollution prevention practice adoption, and verification that risks are appropriately addressed. In 2006, this resulted in the reduction of stream sedimentation by almost 567,000 tons of soil while saving over 7.5 million gallons of diesel fuel and nearly two million tons of phosphorus fertilizer.

To help Michigan farmers participate in and generate revenue from the emerging carbon market, MDA collaborated with the Delta Institute and Michigan's conservation districts to form the Michigan Conservation and Climate Initiative (MCCI). Through the MCCI, landowners voluntarily implement carbon-capturing farming practices then enroll their lands to earn carbon-offset credits, which are sold on the Chicago Climate Exchange. Since the MCCI began in March 2007, over 12,000 acres of cropland, representing over 12,000 tons of carbon have been enrolled. The MCCI allows landowners to benefit from the land's capacity to absorb carbon.

Through the sustainable use practices promoted by these programs, Michigan's agricultural community will continue to be a part of the solution in reducing risk to our environment.

For more information contact the MDA, Environmental Stewardship Program at 517-241-0236.


Don Breneman

Michigan's Look Ahead Toward Renewable Energy and Energy Efficiency

Governor Granholm is leading Michigan to aggressively reduce pollution and greenhouse gases by increasing Michigan's reliance on renewable energy resources and making Michigan's energy usage more efficient. These actions will protect the Great Lakes and improve Michigan's economy. As Americans grow more concerned about the impact fossil fuels have on climate change and national security, the push to become more energy efficient and to develop home-grown renewable energy sources is reaching breakneck speed. Venture capitalist John Doerr, the Silicon Valley visionary, recently predicted that green technology will be the largest economic opportunity of the 21st Century. We are in the early stages of a green industrial revolution. America's energy problem can become Michigan's economic opportunity.


Brion Dickens

The Governor is calling for an aggressive renewable portfolio standard, which would require that by the year 2025, 25% of the energy sold to Michigan electric customers must come from renewable energy resources. The Governor is also proposing legislation that requires public utilities to meet energy efficiency benchmarks by instituting programs that will result in reduced retail electricity usage – such as rebate programs for buying energy efficient appliances and light bulbs. Together, these two policies would reduce the need for Michigan to build new baseload coal-fired power plants in the future. The Legislature is actively considering both renewable portfolio standard and energy efficiency legislation at the time of this writing.

In November, Governor Granholm joined governors from other Great Lakes states in signing a regional agreement to collaborate on enhanced renewable energy and energy efficiency efforts in the Great Lakes region. The governors agreed to work toward a regional goal that by 2030, 30% of electricity consumed in the region will come from renewable resources. Governor Granholm also created the Michigan Climate Action Council by executive order in November to develop a plan to both mitigate the impact of global climate change in Michigan and capitalize on the economic opportunity that addressing those changes will present for the state.

For more information about these programs contact the MPSC at 1-800-292-9555.


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CHAPTER 10

Other Restoration Efforts

Other Restoration Efforts

Great Lakes Regional Collaboration

In May 2004, President Bush created a cabinet-level interagency task force and called for a "regional collaboration of national significance." The federal Great Lakes Interagency Task Force, the Council of Great Lakes Governors, the Great Lakes Cities Initiative, Great Lakes tribes, and the Great Lakes Congressional Task Force convened a group now known as the Great Lakes Regional Collaboration (GLRC). The Collaboration includes the federal agencies, the Great Lakes states, local communities, tribes, non-governmental organizations and other interests in the Great Lakes region. The Collaboration created the Great Lakes Regional Collaboration's Strategy to Restore and Protect the Great Lakes consisting of recommendations put forward by eight Strategy Teams for consideration by the GLRC.

For more information visit www.epa.gov/greatlakes/collaboration/strategy.html.

Council of Great Lakes Governors - Great Lakes Protection and Restoration

The Council of Great Lakes Governors has established nine priorities to guide the restoration and protection of the Great Lakes. The governors continue to identify high priority issues and list near-term action items that, if implemented, could substantially improve our long-term ability to protect and restore the Great Lakes. This effort is headed by the governors and Great Lakes mayors in consultation with members of the Great Lakes Congressional Task Force and representatives of Great Lakes tribes. As a comprehensive strategy is implemented, the governors continue to provide regional leadership in protecting and restoring the Great Lakes.

For more information visit www.cglg.org/projects/priorities/index.asp.

Great Lakes Commission's – Great Lakes Program to Ensure Environmental and Economic Prosperity

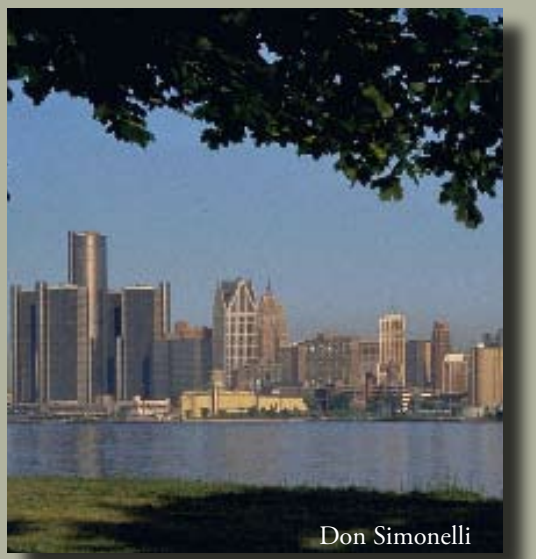
On behalf of the eight member states the Great Lakes Commission has identified specific legislative priorities to protect and enhance the quality of our region's environment and economy. The Commission's priorities are crafted to advance the conclusions and recommendations of the region's stakeholders as presented in the Great Lakes Regional Collaboration Strategy and endorse the recommendations to Congress from the Council of Great Lakes Governors. The Commission recommends funding for some specific federal programs of importance to the Great Lakes region and member states.

For more information visit www.glc.org/restore.

Great Lakes and St. Lawrence Cities Initiative

Great Lakes and St. Lawrence cities continue to spend millions of dollars on wastewater treatment, sewer systems, stormwater management, parks, beaches, water quality, water conservation, and many other initiatives to accelerate efforts toward restoration of the Great Lakes. Great Lakes and St. Lawrence Cities Initiative is taking a lead role in representing the cities in the overall Great Lakes restoration effort.

For more information visit www.glslcities.org/projects.htm.


Don Simonelli

Other Restoration Efforts

Healing Our Waters – An Agenda for Great Lakes Restoration

In May 2004, the Wege Foundation helped convene a meeting of more than 100 leading environmentalists, ecologists, scientists, and academics from throughout the U.S. and Ontario. These leading conservationists outlined a plan for restoring and protecting the Great Lakes entitled, "Healing Our Waters: An Agenda for Great Lakes Restoration." The plan identified recommendations to lead a coordinated effort to restore the Great Lakes. The restoration agenda calls for $20 billion in new federal funding to be managed in partnership with $10 billion from the Great Lakes basin states. This funding would reduce pollution, prevent harm from aquatic invasive species, remove failing dams, upgrade sewage infrastructure, improve monitoring and evaluation, encourage use of renewable energy sources, and expand wetlands habitat.

For more information visit www.healingourwaters.org.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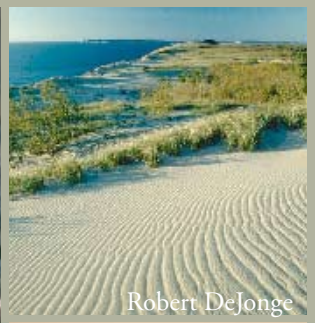
Robert DeJonge


David Riecks

Healthy Waters, Strong Economy: The Benefits of Restoring the Great Lakes Ecosystem, *by* John C. Austin, Soren Anderson, Paul N. Courant, and Robert E. Litan, The Brookings Institution

In 2005, the Brookings Institution joined with academic, public policy, business, education, environmental, and civic organizations to launch the Great Lakes Economic Initiative, a multi-year research and policy development effort focused on supporting economic growth and change in the Great Lakes region. As part of the Initiative, the Brookings Institute summarized the major findings of an in-depth study of the benefits and costs of the major elements of the Great Lakes Regional Collaboration (GLRC) Strategy. They found that restoring the Great Lakes will:

- Lead to direct economic benefits of $6.5 to $11.8 billion from tourism, fishing, and recreation alone.
- Directly raise coastal property values $12 to $19 billion by remediating Areas of Concern.
- Reduce costs to municipalities by $50 to $125 million.
- Produce additional unquantifiable but significant economic activity by making the region more attractive to business and workers.

All told, the direct economic benefit of restoring the Great Lakes total at least $50 billion. In addition, implementation of the GLRC Strategy is likely to encourage the development of new technologies and industries that will be built around an environmentally improved Great Lakes region.

Travel Michigan

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Best wishes to Ann Pohl and Martha Waszak who recently retired from the Office of the Great Lakes after many years of service.

From left to right: Emily Finnell, Roger Eberhardt, Ann Pohl, Ken DeBeaussaert, Jim Bredin

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Michigan Department of Environmental Quality
Steven E. Chester, Director
www.michigan.gov/deq

Pursuant to Public Act 451 of 1994 for Governor Jennifer M. Granholm