

# *State of the Great Lakes*



**2000  
Annual  
Report**

## Muskegon River Big Rapids Dam, 1912



There are hundreds of dams in Michigan, both small and large. While many continue to provide important benefits to society (drinking water, irrigation, electricity, flood control), there are a few that have outlived their usefulness and have become a detriment to the environment (see the article "Dams in Decline" on page 11). One such dam was this one in Big Rapids. It began generating power in 1912. The dam was deactivated in 1955 and partially removed in 1966. To improve fish habitat and preserve the safety of river users, the dam was totally removed in 2000. The process of dismantling the dam is chronicled throughout the pages of this report complete with photos and dates.

# Protecting Michigan's Waters and the Lands that Surround Them

*A Message from the Governor*

Michigan is blessed with more than 36,000 miles of rivers and streams which are essential to the well being of the Great Lakes into which they all flow. These unparalleled resources provide economic, cultural, recreational and aesthetic opportunities to all our citizens and the many visitors to our state.

The year 2000 marked the 30<sup>th</sup> anniversary of the Natural Rivers Act which currently protects 1,698 miles on 14 river systems statewide, making Michigan a national leader in protecting its free-flowing river sources and, by extension, the Great Lakes ecosystem of which it is a part.

In recognition of this milestone, I declared June 2000 as Michigan Rivers Month.

Protecting these priceless waters requires protecting the land surrounding them. Activities on the land can impact the health of water bodies, sometimes negatively. That is why I have worked to promote "brownfield" development over "greenfield" development and watershed protection over polluted runoff or nonpoint source pollution from paved surfaces, farms, timber operations, and the like.

Michigan has made tremendous progress in cleaning up and redeveloping abandoned industrial sites that have sat idle for decades. That progress has been so good that the National Governors' Association (NGA) just named Michigan a national leader – along with four other states – in brownfield cleanup projects in its "New Mission for Brownfield: Attacking Sprawl by Revitalizing Older Communities" report.

The NGA's Center for Best Practices noted Michigan's success in integrating brownfield projects into the state's smart growth vision, plans, policies and programs. Its report shows that Michigan has cleaned up 2,944 brownfield projects, generating \$1.1 billion in tax revenues from private investment. In the process, those projects have resulted in the creation of approximately 8,000 jobs and 1,400 housing units.

Michigan's program has become a national model, ranking first in the nation in a study by Consumers Renaissance Development Corporation.

March 6, 2000



March 20, 2000



In 1998, we expanded Michigan's urban redevelopment program when voters approved the Clean Michigan Initiative (CMI), a \$675 million bond issue. More than \$300 million of that overall bond is dedicated to environmental cleanup and urban renewal. Other bond commitments include waterfront redevelopment, clean water projects, contaminated sediment cleanup, and nonpoint source pollution control. In Fiscal Year 2000 we were able to appropriate over \$129 million of CMI dollars to move forward on all of these key programs.

Complementing the CMI is the state's latest tool to protect and enhance Michigan's water quality, soil and wildlife habitat – the Conservation Reserve Enhancement Program (CREP). The program is a cooperative effort with the federal government to enroll land for specific conservation practices with improved compensation for participants.

Initially, CREP will target 80,000 acres of sensitive farmland in three watersheds: Saginaw Bay, Lake Macatawa, and River Raisin. It will reduce sediment runoff, stop erosion, improve water quality and restore bird, fish and mammal habitats. Eventually, Michigan's financial commitment of \$35 million will match a federal outlay of \$142 million as the program expands throughout the state.

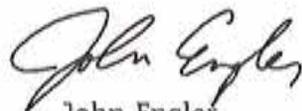
Of great importance to the Great Lakes is a new initiative we entered into with international and domestic shipping companies to develop a coordinated, regional strategy to confront the invasion by aquatic nuisance species, such as the Eurasian ruffe and the zebra mussel. These nuisance species are a distinct threat to Michigan's \$1 billion-a-year sport fishery. One hundred and sixty such exotics now inhabit the Great Lakes.

Officials from the Department of Environmental Quality and the Office of the Great Lakes are working with shippers to explore a threefold attack on the problem: technology, biocides and management practices relating to ballast water discharges. The most promising solutions will be presented to the Council of Great Lakes Governors and the United States Coast Guard for possible implementation throughout the entire Great Lakes – St. Lawrence region.

On the crucial matter of Great Lakes water management, we are making progress toward the development of a common standard by which all the Great Lakes states would evaluate water withdrawals and retain control of these resources in the region. As this article went to press, the Council of Great Lakes Governors released for public comment a draft Annex 2001, a proposed amendment to the Great Lakes Charter of 1985.

Annex 2001 creates a new standard requiring improvement to the water and water-dependent natural resources of the Great Lakes before allowing new or increased water withdrawals. Moreover, the applicant for the withdrawal would have to implement all reasonable and appropriate water conservation measures while not causing any significant adverse impact to the Great Lakes waters and ecosystem.

I am excited about the future of resource protection in Michigan and the Great Lakes region generally. Whether it be the cleaning up of brownfields, the protection of watersheds, the control of exotic species, or the management of our water resources, Michigan continues to lead the way as *the* Great Lakes state.

  
John Engler  
Governor

June 15, 2000



# The Rivers and the Great Lakes

"Eventually, all things merge into one, and a river runs through it."

*A River Runs Through It* by Norman Maclean

June 16, 2000



The Michigan peninsulas are laced with rivers inseparable from the Great Lakes, both as tributaries and connecting channels. Gravity, hydrology, and geology all contribute to this organic link, this interpenetration of very different bodies of water, to forge the greatest freshwater ecosystem in the world.

Under optimal conditions, surface water and tributary groundwater replenish the lakes with clean, fresh water; offer habitat to spawning fish; and provide a natural flow regime which regulates and secures the chemical, physical and biological functions of the system.

However, given the history of human settlement and economic development, conditions are often suboptimal. Tributary rivers discharge sediments and deliver unwelcome loadings of nutrients and persistent, bioaccumulative toxics. They offer safe havens for the parasitic sea lamprey to spawn and thrive to the detriment of the Great Lakes sport fishery. Hydraulic modifications (e.g., dredging, dams) of the rivers result in considerable change to the flow dynamics impacting coastal areas of the lakes.

In Michigan, almost 2,500 dams obstruct fish passage and reproduction on key rivers and streams, all of which drain into the Great Lakes. Loss of riverine wetlands aggravates flooding problems. Polluted runoff from farm lands, timber operations and impervious surfaces degrade the waters, the channels and the biota of these rivers, which give life to the big lakes into which they flow.

This year's *State of the Great Lakes 2000 Annual Report* focuses on this crucial relationship of the Great Lakes to the great rivers of Michigan. There is a lot more here than simple plumbing. While transportation, water supply, agriculture and power generation remain important priorities, environmental degradation and loss of biodiversity have led Michigan citizens to concern themselves with more than just water quality and water quantity of the lakes themselves. As our lead article points

out, restoration of the natural flow regime of tributary rivers and their watersheds is at the center of recovery efforts throughout the Great Lakes region and Michigan in particular.

Articles covering voluntary removal of dysfunctional dams, watershed management on the Muskegon River, restoration of the Detroit River, and an assessment of native clams on the Grand and St. Joseph Rivers round out our theme of Michigan's rivers and the Great Lakes.

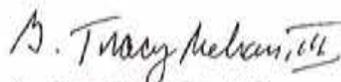
The successful resolution of the long-standing controversy over tribal fishing rights on the Great Lakes is the subject of two guest contributions. Surely, this is a sign of social and environmental improvement in the state and region.

The reader will also encounter in this year's report informative discussions on the region's incredible shrinking congressional delegation, tourism, and the new Thunder Bay National Marine Sanctuary and Underwater Preserve.

The new Michigan Dune Alliance, an innovative land conservancy partnership, as well as the Lake Huron Initiative are the subjects of two useful articles, the latter by Jim Bredin of the Office of the Great Lakes. Jim has managed the initiative since its inception. No longer is Lake Huron the "forgotten lake" as we opined, tongue in cheek, on the cover of our 1997 annual report.

As is my pleasure each year, I want to thank our guest contributors, volunteers all, for their excellent articles. Thanks, too, for the efforts of our colleagues within the Departments of Environmental Quality and Natural Resources for their expert advice and counsel on the production of this year's annual report.

Finally, we note the retirement from state service of our friend and colleague, Mark Coscarelli, who has seized an exciting opportunity in the private sector. Mark is, without a doubt, the state's leading policy expert on aquatic nuisance species, the single biggest threat to the biological integrity of the Great Lakes. We wish him Godspeed.



G. Tracy Mehan, III  
Director  
Office of the Great Lakes



June 19, 2000



# Table of Contents

<i>Protecting Michigan’s Waters and the Lands that Surround Them</i> John Engler, Governor of Michigan	1
<i>The Rivers and the Great Lakes</i> G. Tracy Mehan, III, Director, Office of the Great Lakes	4
<b>Michigan Rivers – Nurturing the Great Lakes</b> <i>The Natural Flow Regime: An Organizing Principle for Great Lakes Ecosystem Restoration</i> Russell Van Herik, Executive Director, Great Lakes Protection Fund	8
<i>Dams in Decline</i> Sharon Hanshue, Settlement Management Specialist, Michigan Department of Natural Resources	11
<i>An Innovative Collaborative Partnership for the Muskegon River Watershed</i>	13
<i>Enhancing Quality of Life through the Greater Detroit American Heritage River Initiative</i> John H. Hartig, River Navigator, Greater Detroit American Heritage River Initiative	15
<i>The Detroit River Lake Sturgeon Project</i> Dr. Tracy D. Hill, Fisheries Biologist, U.S. Fish and Wildlife Service	18
<i>In Search of Native Clams in the Grand and St. Joseph Rivers</i> Dr. Reuben R. Goforth, Aquatic Ecology Project Leader, Michigan Natural Features Inventory, Michigan State University Extension	21
<b>Great Lakes Tribal Fishing Agreement</b> <i>1836 Treaty Tribes and State of Michigan Come to Agreement</i> Tom Gorenflo, Director, Inter-Tribal Fisheries and Assessment Program	24
<i>Great Lakes Fishing Pact Stresses Science</i> James R. Goodheart, Executive Director, Michigan United Conservation Clubs	27



## **Great Lakes Issues of Interest**

- The Shrinking of the Great Lakes Congressional Delegation*** 30  
Dick Munson, Executive Director, Northeast-Midwest Institute
- Egrets, alligators, lake trout and eagles*** 33  
Reprint of an article by Dr. Michael J. Donahue, Executive Director,  
Great Lakes Commission
- Michigan-Heart of the Great Lakes (tourism)*** 34  
Suzy Avery, Vice President, Travel Michigan,  
Michigan Economic Development Corporation
- Thunder Bay National Marine Sanctuary and Underwater Preserve*** 36  
Ellen Brody, Project Coordinator, Thunder Bay National Marine Sanctuary and  
Underwater Preserve
- Michigan Dune Alliance: Conserving Lake Michigan's Sand Dunes*** 38  
Margaret A. Kohring, Director, Midwest Office of The Conservation Fund
- Lake Huron - A Lake in the Middle*** 41  
Jim Bredin, Assistant to the Director, Office of the Great Lakes,  
Michigan Department of Environmental Quality

## The Natural Flow Regime: An Organizing Principle for Great Lakes Ecosystem Restoration

*By Russell Van Herik*

June 23, 2000



Nearly thirty years have passed since the Great Lakes Water Quality Agreement committed us to “restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes basin ecosystem.” During that time, extensive effort and investment have focused upon the chemical and biological components. For those components, we have witnessed a general concurrence that our ecosystem restoration agenda must include approaches like pollution control, site remediation, pollution prevention, and habitat protection. We have made great progress using those tools.

But the journey toward a general organizing principle for restoring the physical integrity of the ecosystem has been slower. Perhaps the absolute abundance of water in the basin seemed to make the application of flow dynamics, as a restoration tool, less than intuitive. Recently, the Great Lakes Protection Fund began specifically reaching out for expertise and experience, to help identify fundamentally useful ways to include restoration of the physical dynamics of water resources within the larger agenda for improving ecosystem integrity.

What we have found should surprise none of us. Throughout the basin research scientists, agency personnel, local units of government, the hydropower industry, and private, nongovernmental organizations are testing actions and ideas that can advance not only a Great Lakes restoration agenda, but can help guide aquatic ecosystem initiatives world wide. We found teams testing a variety of methods to improve ecological integrity—changing the structure and operation of dams, modifying runoff regimes, mapping groundwater connections, examining effects of lake level alterations on coastal systems, reconnecting tributaries and wetlands, and building new techniques to identify, characterize and prioritize

restoration efforts, among dozens of other initiatives—and achieving remarkable early results.

While we found that we are some ways away from anything like a flow-regime-based ‘unified field theory’ for Great Lakes application, and that our knowledge is (and will likely always be) incomplete, those cautions were accompanied by confidence in using flow regime restoration as an organizing principle to guide the next sets of investments in adaptively managed ecosystem improvement.

Hydrologists identify five critical components within the system’s flow regime, which allow us to better consider the ecological consequences of particular human activities that modify one or more of those components. They are the **magnitude, frequency, duration, timing, and rate of change of water movements**. Reference to the flow regime as the system’s master variable gives us access, at relevant scales, to two fundamental characteristics of our system that inform all legal and policy discussion:

1. **The system is a system.** The Great Lakes basin contains a single, integrated, hydrological system. The water in precipitation, aquifers, tributaries, wetlands, lakes, sewers, and organisms is all connected.
2. **Every change is a choice.** Every human-induced change in basin hydrology has impact upon the health of the ecosystem and its components. Not all changes are bad; they must be viewed in the context of what has occurred prior to the change and what we can expect of the system following the change.

The importance of flow regime management decisions is magnified by the fact that the watershed of each lake is governed by many jurisdictions and each lake is hydrologically dependant on upstream multi-jurisdictional sources of water.

The majority of water entering the Great Lakes ecosystem starts as rain or snowfall on the watershed, becomes ground water, and is discharged to the lakes through tributaries. About a quarter of system-wide input is surface runoff that drains directly into tributaries and then into the lakes, bypassing the groundwater pathway. Over lake precipitation, subtracting evaporation losses, accounts for about one fifth of water entering the system. About three percent of inputs are diversions from the Hudson Bay system that enter Lake Superior. As one moves south and east through the system—from Lake Superior toward Lake Ontario—each lake is increasingly dependant on the waters flowing from upper lakes. Lake Erie, on average, receives

## On-going Natural Flow Projects

*The Great Lakes Protection Fund projects awarded funding to demonstrate how restoring the physical dynamics and structure of the basin’s water systems can lead to a healthier ecosystem. Projects funded include:*

**American Rivers** - cooperative hydropower relicensing efforts.

**Applied Ecological Services** - monitor effectiveness of stormwater treatment.

**City of Big Rapids** - removal of dam to restore natural hydrological and ecological conditions.

**Cornell University** - develop a GIS of flow restoration opportunities in eastern Great Lakes.

**Friends of the Rouge** - implement a rain barrel demonstration and monitoring project.

**Ohio DNR** - develop risk assessment protocols for flow regime restoration.

**Ohio State University** - develop an engineering approach to improve ecosystem function of agricultural drainage channels.

**State University of New York** - restore seasonal hydrological cycles to coastal wetlands.

**The Nature Conservancy** - reestablish natural flow regimes at three conservation sites.

**Trout Unlimited** - remove small dams in the headwaters of the Sheboygan River.

**University of Michigan** - document effects of physical alterations on flow and biological communities.

**University of Michigan** - model the impact of dams on fish habitat, density, and production.

**University of Wisconsin** - evaluate flow restoration of two priority watersheds in southeast Wisconsin.



June 27, 2000



nearly ninety percent of its new water supply from the outflow of the Detroit River.

Managers of any dynamic system – ecological or man-made – are helpless if they cannot measure, analyze, and regulate the intentional modification of system inputs. We have changed virtually every hydrological input affecting the Great Lakes system, yet hope to continue to rely on the Great Lakes ecosystem to support biodiversity, food production, power generation, waste assimilation, transportation, recreation, domestic water supply, and numerous other goods and services. Managers concerned about that list of goods and services are increasingly using a flow regime framework to understand and assess management options:

- In tributary and coastal environments, the flow regime drives the movement of materials, energy, and biota through the system, and is thus a primary factor in how they interact. In those environments, the dynamic character of flow can be thought of as a “master variable”, controlling ecological integrity.
- Historically, we often changed flow regimes in attempts to reduce extremes, particularly flood events and lake level changes. Natural systems dependent upon variability were not at the table when the first rounds of flow regime modifications were negotiated.
- We ask better questions about land use options once all parties recognize that tributaries are connected laterally to surface runoff, vertically to the aquifers, and longitudinally to the upper and lower watersheds.
- Once we acknowledge that ecological integrity is affected by where, when, how and how fast water is withdrawn and returned to an ecosystem, we no longer need to – nor can we – defend the assumption that integrity is predictably associated with the net volume of water present, absent, removed or returned.
- Significant progress does not require a return to pristine or presettlement conditions. We can make incremental ecological gains by restoring a more naturalized flow regime in several key places, take advantage of the synergies inherent to the system, and achieve results greater than the sum of individual actions.
- When we inventory the multitude of outdated, unnecessary, or low yield hydrological modifications

that populate the Great Lakes ecosystem, we see restoration opportunity. Those modifications constitute a shopping list of ecosystem improvement opportunities that can, and will, get swapped for higher and better uses of flow, now that we are increasingly able to ascribe value to the components of naturalized flow.

Perhaps the most powerful result of recognizing the flow regime as an organizing principle for restoration activity will be this: it offers the most useful way to categorize, array, and offer for public discussion the costs and benefits of specific changes, in specific places. It may well become an invaluable tool, as we witness the transformation of ecosystem governance from a process that describes and documents permissible cumulative harm to a process requiring that every change in basin hydrology result in systemic improvement.

*Russell Van Herik is Executive Director of the Great Lakes Protection Fund in Chicago.*

## Dams In Decline

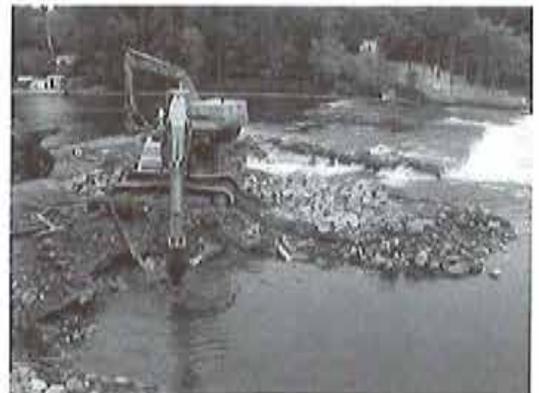
*By Sharon Hanshue*



Michigan is a state blessed with an abundance of water, from the Great Lakes to world class trout streams. Timber, minerals, and rich agricultural harvests have depended on our rivers and lakes for transport and production. To maximize use of those waters, private enterprises in our state's early history found it beneficial to change them,

to control spring flooding, to deepen channels and to enhance the land's natural capacity to drain water. While recent laws control any new alteration of streams, part of the legacy from that early era is an inventory of over twenty-five hundred dams. Many of these dams are over 100 years old yet they no longer serve any real purpose. Still, according to state law, they must be maintained, for dam failure may put life and property at risk, and threatens fish and other aquatic resources as well. Dams are expensive to maintain, however, and there is a growing awareness that an alternative to continued repair of some older dams is needed.

June 28, 2000



*"Dam removal has recently been demonstrated to improve water quality and river dependent fisheries in Wisconsin, Maine, Pennsylvania and California."*

*Net production from hydropower operations in Michigan provide approximately 1.5% of the energy used in the state.*

Dams profoundly alter rivers and streams. They block movement of fish and other organisms that depend on access to various water flows in the channel and floodplain during different life stages. Dams also hold back flow of leaf litter, woody debris and other natural material that provide energy and habitat structure to aquatic insects upon which many fish and other aquatic organisms feed. Dams also halt the natural flow of sediment – in one recent study, footings on a bridge in the Grand River had been scoured out up to 2 feet over 10 years because the normal supply of sediment had been cut off by a dam located just above the bridge. The river was described as "sediment starved" below the dam and the water picked up sediment from the river bottom, in this case around the bridge footings, to replenish what was lost behind the dam.

Often the highest gradient sections of a river were dammed to produce power, to supply water or to allow sorting and milling of logs. High gradient river segments provide some of the best spawning habitat for fish species such as smallmouth bass, walleye, channel catfish and the now rare, lake sturgeon. Sediment trapped by dams buries this high quality fish-spawning habitat. Water temperature can increase significantly while it sits in an impoundment created by a dam, in some cases to levels not tolerated by fish and other aquatic organisms that would otherwise be present in the stream. Nutrients also accumulate in impoundments which, when coupled with trapped sediment, encourage plant growth that can reach nuisance levels. These conditions reduce dissolved oxygen needed to support fish and aquatic insects.

Boating and fishing uses in the impoundment also suffer as it fills with sediment. When we no longer need dams to produce power, to supply water or to allow the processing of timber, for example, does it make sense to keep paying for their repair? This is especially true when fisheries and water quality benefits provide added incentive to dam removal.

Dam removal has recently been demonstrated to improve water quality and river dependent fisheries in Wisconsin, Maine, Pennsylvania and California. Michigan has also seen dams removed on occasion, for instance the Salling dam on the Au Sable, the Stronach dam on the Pine and the Big Rapids dam on the Muskegon. But dam removal in Michigan has usually been done to eliminate risks of dam failure or avoid expense of dam repair, rather than for environmental improvement. That may be changing.

Recently, environmental grant-making foundations and other funding sources are making dam removal projects not just a possibility, but a priority. They include the

National Fish and Wildlife Foundation and the Great Lakes Protection Fund. It is my hope that our state recognizes and develops the means to support individual dam owners, which are often townships, counties, and cities, which choose to remove their dams in a proactive effort that acknowledges the many benefits of this strategy.

Not all dams are candidates for removal. Over a hundred still produce hydropower and many more support legal lake levels or other recreational uses. Also, we rely on the lowermost dam on major Great Lakes tributaries to block invasion by sea lamprey and other unwelcome exotics. But numerous other dams have outlived both their intended use and their engineered integrity. They threaten recreational users and drain financial resources of their owners.

Our rivers and streams are incredibly vast and diverse public resources. Today, we carefully consider any proposal to convert public resources to private use. I can't imagine that so many dams would be built under current law if they were proposed today. Yet numerous old dams are minimally maintained and are slowly deteriorating, with no state-wide discussion of their continuing environmental and financial cost. Potential benefits that dam removal offers to recreational users of Michigan rivers, and all those businesses and communities that depend on them, let alone the financial relief to dam owners, is enormous and unknown. Perhaps it's time to find out.

*Sharon Hanshew is a Settlement Management Specialist for the Great Lakes Fishery Trust with the Michigan Department of Natural Resources.*

## An Innovative Collaborative Partnership for the Muskegon River Watershed

The Peter M. Wege Foundation has initiated a partnership for the protection of the Muskegon River watershed designed to foster new and innovative research and policy analysis. Because the Muskegon River is fed by a network of streams, marshes, and lakes spread across nine counties, a collaborative effort is needed. The Muskegon River Watershed Partnership is supported by a number of Michigan universities, the Great Lakes Protection Fund, the Great Lakes Fishery Trust, W. K.



Muskegon River watershed



Comparative size of the watershed

***“Removing or providing fish passage around the lowermost dams on the Muskegon River would result in enough salmon reproduction to support most of Lake Michigan’s chinook salmon fishery.”***

K.L. Cool, Director of the Michigan Department of Natural Resources

Kellogg Foundation, the Beldon Foundation, the Frey Foundation, the C. S. Mott Foundation, and the Community Foundation for Muskegon. This partnership is focusing its efforts on a risk assessment/risk management analysis in order to identify and remediate ecosystem stressors. The risk assessment will identify and rank on a relative scale the existing stressors affecting the environmental quality and the natural resource attributes.

The Muskegon River watershed, once a pristine system that flowed through a landscape of scattered marshes and large inland lakes, supported a plethora of fish and wildlife. Today, the Muskegon River is plagued with environmental problems caused by logging, dams and pollution from cities, factories, and farms. While this watershed is still considered “good” by most standards, the system has reached a turning point requiring new management strategies. Many alterations to the river and its watershed have severely degraded and fragmented the Muskegon River system. The presence of 92 small dams has been the most serious environmental problem that has disrupted the natural flow, blocked fish passage, and warmed water temperatures. “Removing or providing fish passage around the lowermost dams on the Muskegon River would result in enough salmon reproduction to support most of Lake Michigan’s chinook salmon fishery,” according to K.L. Cool, Director of the Michigan Department of Natural Resources.

The Wege Foundation has convened a team of collaborators composed of researchers and policy analysts, from the private and public sectors, to develop research projects focusing on watershed analysis, community outreach, and environmental mediation. The projects focus on topics such as the development of effective watershed planning and management strategies, application of new ecological assessment techniques, and enhancement of sustainable fisheries. This is the beginning of a three to five yearlong commitment to modeling advanced research and restorative practices in the Muskegon River watershed. Activities have been designed to create awareness, encourage collaborative projects and produce a series of innovative, multidisciplinary research.

The removal of the Big Rapids dam remnants is one success story for the Muskegon River Watershed. The Great Lakes Fishery Trust and the Great Lakes Protection Fund have spent more than \$1 million combined to remove the remnants of the dam and restore the natural hydrological and ecological conditions in the river. This project will reconnect upstream and downstream habitat of Michigan’s most productive salmon stream, thus increasing the number of naturally reproducing trout and salmon.

The Muskegon River watershed is one of Michigan's largest remaining cold water river systems. The Wege Foundation has created a unique collaborative model of public and private sector involvement designed to achieve immediate results to restore and protect this watershed. The Muskegon River Watershed Partnership will strive to ensure that every aspect of this river system will be evaluated. This partnership will, hopefully, be a leader in watershed restoration and stimulate watershed protection throughout the region.

## Enhancing Quality of Life through the Greater Detroit American Heritage River Initiative

By Dr. John H. Hartig



In 1998, the Detroit River was honored to become one of the 14 American Heritage Rivers. The American Heritage River (AHR) Initiative is a locally driven and designed set of solutions for revitalizing rivers and their waterfronts.

The federal government role is fostering community empowerment and helping provide focused resources to help river communities revitalize their economies, renew their culture and history, and restore their environment.

The AHR Initiative also encourages investment in river communities, promoting partnerships and leveraging of state, nonprofit, and business resources.

Oversight of the Greater Detroit American Heritage River Initiative is provided by a four person Executive Committee. Executive Committee members include:

- Mr. Peter Stroh, former Chief Executive Officer of The Stroh Companies, Inc.
- Detroit Mayor Dennis Archer
- Wayne County Executive Edward McNamara
- W. Curt Boller, Supervisor of Brownstown Township



Artist's rendition of the renovated Detroit riverfront



## “Pass the Paddle”

*Michigan state and local officials, conservationists, educators and industry representatives gathered in August in a series of celebrations, as part of RIVERS 2000 – a national event to highlight the importance of our nation’s more than 3.2 million river miles and their watersheds. These activities were part of the “Pass the Paddle” event, an effort to bring together public officials and river enthusiasts from across the continent to carry the official RIVERS 2000 paddle from state to state, culminating with presentation of the paddle to President Clinton before making its official home in the Smithsonian Institution. Rivers 2000 stressed the importance of river conservation and restoration activities and their role in revitalizing local communities.*

*Some interesting facts about “Pass the Paddle” include the following:*

- *the paddle visited some 250 North American rivers;*
- *it traveled a total of 25,000 miles – approximately 1,000 by water, 16,000 by land and 8,000 by air;*
- *it visited all 50 states as well as Mexico and Canada*

A multi-stakeholder Steering Committee is also in place to provide advice to the Executive Committee. Project management and administrative support is provided by Metropolitan Affairs Coalition (MAC). MAC is a public-private partnership of business, labor, and governmental leaders that facilitates solutions to regional issues in Southeast Michigan.

The Greater Detroit AHR Initiative is an action-oriented process based on assessment, setting priorities, and taking action in an iterative fashion for continuous improvement. Currently, six first-phase priorities have been identified. These include:

- **Improving Belle Isle** — Belle Isle is a 980-acre island park located in the Detroit River. Detroit’s Recreation Department has developed a master plan to guide improvements such as reconfiguring a road, improving trails, restoring structures, and enhancing wildlife habitats. Current projects include: restoring the Bus Stop Comfort-Shelter Station; enhancing habitat at Blue Heron Lagoon and Lake Muskoday; and constructing sturgeon spawning reefs off the east end of the island.
- **Restoring Fort Wayne** — Fort Wayne was built in the early 19<sup>th</sup> century during a period of tension with the British in North America. It was used during the Civil War and both World Wars. Later, it became one of the largest induction centers during the Korean and Vietnam Wars. Strategically located at a bend in the Detroit River, it comprises 83 acres and over 40 buildings. The Greater Detroit AHR Initiative is working with the city of Detroit and other partners to restore the fort and open up about one mile of riverfront.
- **Redeveloping a Brownfield Site** — The Greater Detroit AHR Initiative is working with federal, state, county, and community partners toward a model brownfield redevelopment project for Southeast Michigan. One site under consideration is the DSC site in the cities of Riverview and Trenton. Mixed-use redevelopment of this 200-acre site would open up approximately 1.2 miles of riverfront.
- **Furthering Linked Riverfront Greenways** — The Greater Detroit AHR Initiative is working with community partners on a vision of linked greenways from Lake St. Clair to Lake Erie, across to Canada, and up key tributaries like the Rouge and Huron Rivers. In the last 18 months a total of 14 riverfront greenway projects have been funded along

the Detroit River. These greenway projects are key linkages and unique destinations that provide open space, protect natural and cultural resources, and improve quality of life.

- **Restoring Black Lagoon** — In conjunction with a \$9 million planned sediment remediation project in 2001, the City of Trenton and U.S. Army Corps of Engineers will be recreating an island historically lost to shoreline development and rehabilitating habitat under Section 206 of the U.S. Water Resources Development Act.
- **Promoting Soft Engineering of Shorelines** — The Greater Detroit AHR Initiative held a major conference in 1999 on shoreline soft engineering techniques. Hard engineering of shorelines is generally defined as use of concrete breakwalls or steel sheet piling to stabilize shorelines and achieve safety. There are many places along the Detroit River where hard engineering is required for navigational purposes. Much of the Detroit River shoreline is already hardened. However, there is growing interest in using soft engineering of shorelines in appropriate locations. Soft engineering is the use of ecological principles and practices to achieve stabilization of shorelines and safety, while enhancing habitat, improving aesthetics, and saving money.

Although six first-phase priorities were initially established, additional ones will be addressed opportunistically as time, interest, and resources become available. Through the Greater Detroit AHR Initiative, the Detroit River is being rediscovered as an incredible asset and a key ingredient in achieving quality of life. For more information you can visit the Greater Detroit AHR website at: [www.tellusnews.com/ahr/](http://www.tellusnews.com/ahr/).

*Dr. John H. Hartig is River Navigator with the Greater Detroit American Heritage River Initiative and a U.S. Coast Guard Marine Safety Officer.*

June 29, 2000



*“Lake sturgeon were considered a nuisance by early commercial fishers because of the damage they did to nets. The fish were removed from the lakes and stockpiled for drying before being burned in boilers of early Great Lakes steamships”*



- **Lake sturgeon can live for 50 up to 150 years.**
- **They range from 3 to 6 feet long and can weigh over 200 pounds.**
- **The largest lake sturgeon on record was 7 feet 11 inches long and weighed 310 pounds.**

Source: “Sturgeon, Salmon and Steelhead” website

## The Detroit River Lake Sturgeon Project

By Dr. Tracy Hill



The lake sturgeon *Acipenser fulvescens* is one of the few species of sturgeon which lives its entire life in freshwater. Lake sturgeon once ranged throughout the Mississippi River, Hudson Bay and Great Lakes drainages. Of the twenty-seven species of sturgeon worldwide, nine are endemic to the North American Continent. Only the lake sturgeon is native to the Great Lakes. Lake sturgeon were once abundant in all of the Great Lakes and were an important component of the nearshore, coolwater fish community. Prior to European settlement of the Great Lakes region, Native Americans relied upon lake sturgeon for subsistence.

A number of factors led to a dramatic decline in lake sturgeon abundance in the Great Lakes during the late 1800s. Lake sturgeon were considered a nuisance by early commercial fishers because of the damage they did to nets. The fish were removed from the lakes and stockpiled for drying before being burned in boilers of early Great Lakes steamships. Other factors contributing to the initial decline of lake sturgeon populations include over-exploitation, habitat destruction and habitat fragmentation. Lake sturgeon are listed as either threatened or endangered by 19 of 20 states within its original range. The American Fisheries Society considers this fish a threatened species in North America and the U.S. Fish and Wildlife Service (USFWS) identify them as a species of special concern.

Lake sturgeon are unique fish that belong to one of the most primitive groups of bony fishes that evolved millions of years ago. Fossil evidence suggests sturgeons existed one hundred to two hundred million years ago. Lake sturgeon are the largest freshwater fish in the Great Lakes basin. Lake sturgeon are slow-growing and long-lived, and can attain ages of 100 to 150 years. Lake sturgeon also have unique life histories. Unlike many fishes, lake sturgeon require fifteen to twenty-five years to reach sexual maturity and are intermittent spawners. Biologists believe that male lake sturgeon spawn every two to three years while females spawn every four to seven years.

Although sturgeon research often generates intense interest and support from the media and the public, little is known about the abundance, distribution, recruitment, or genetic diversity of current populations. Within the Great Lakes, little is known about the basic ecology, life history or population dynamics of lake sturgeon. Historic records from commercial fisheries of the late 19<sup>th</sup> century indicate that the Detroit River once supported the largest known spawning populations of lake sturgeon in the Great Lakes.

Remnant, free-ranging, riverine spawning populations of Great Lakes lake sturgeon are now known to exist in only a few tributaries to southern Lake Superior, the St. Clair River and the St. Lawrence River. Recent incidental catch of young, genetically unique, juvenile lake sturgeon indicates that recruitment has occurred in western Lake Erie. The source of this recruitment is undetermined but is speculated to be associated with the lower Detroit River. Seven historical lake sturgeon spawning sites were identified in the Detroit River, however, no assessment has been conducted to evaluate current use by lake sturgeon. Similarly, no studies have been initiated in the Detroit River to determine the location or current condition of other potential microhabitats that are known to support self-sustaining stocks of lake sturgeon even though it is generally accepted that availability of spawning habitat is among the most limiting factors for most lake sturgeon populations. Identification and qualitative assessment of habitats utilized by the various life stages of any species is critical for successful recovery efforts, and for guidance of habitat protection, enhancement or restoration efforts.

Lake sturgeon are frequently encountered by sport fishers in United States and Canadian waters of the Detroit River. However, essentially no biological information is available on this population and no knowledge exists relative to the connection or contribution of this population to those existing in the St. Clair system or western Lake Erie. A study was undertaken to begin filling the data gaps that exist for the lake sturgeon population and their habitats in the Detroit River. In 1998, the Alpena Fishery Resources Office (FRO) of the USFWS assumed the lead role in assembling resource personnel from federal, state and provincial agencies and universities for the development of a collaborative effort to better define the population status of lake sturgeon in the Detroit River. The primary goal of the project is to provide current information about the distribution, movements, and habitat use of lake sturgeon in the Detroit River.

The study will collect biotic data on lake sturgeon captured by set lines and monitor seasonal movements



A scene from the past – a lake sturgeon fishery



June 30, 2000



and habitat use of sturgeon within the Detroit River with the use of sonic telemetry. Attempts will be made to monitor the movement of 20 adult lake sturgeon. At the conclusion of the study a complete history of the spatial and temporal movements of the tagged fish will be compiled. The migratory profile and movement of each fish will help to identify "high use" areas in the Detroit River that contain critical habitats such as staging, resting, feeding, and spawning grounds. Habitats utilized by lake sturgeon in the Detroit River will be given highest priority in recommendations for protection, restoration, and enhancement. Without this information on habitats that are critical to Detroit River lake sturgeon, restoration of this population of sturgeon will be problematic.

Because lake sturgeon are popular with sport fishers and stir the imagination of the public, support for restoration of sturgeon in these waters would provide highly visible results of a clear and lasting benefit to the fisheries of the Great Lakes and to the 5 million people that live within an hour's drive of the Detroit River. Success of this project is due in large part to the following cooperators: U.S. Environmental Protection Agency Great Lakes National Program Office, Ohio Division of Wildlife, Detroit Edison Company, U.S. Geological Survey Great Lakes Science Center, and Central Michigan University.

*Dr. Tracy Hill is a fishery biologist with the U.S. Fish and Wildlife Service Alpena Fishery Resources Office. His primary duties involve restoration of lake sturgeon populations in Lake Huron and western Lake Erie and their connecting waterways. He is also Fish Passage Coordinator for Region 3 of the Fish and Wildlife Service.*

# In Search of Native Clams in the Grand and St. Joseph Rivers

By Dr. Reuben R. Goforth



Rivers of southern Lower Michigan support numerous rare, unique, threatened and/or endangered aquatic species considered to be significant elements of biodiversity within the Great Lakes basin. Included among these species are native freshwater mussels (*Unionidae*), which are currently considered to be the most imperiled group of freshwater organisms worldwide. The imperilment of unionids results from their intolerance of degraded environmental conditions and inability to move rapidly in response to environmental stressors. Updated status and distribution information is essential for developing effective conservation strategies to protect these highly threatened organisms and their ecosystems. Systematic surveys of Great Lakes basin tributary rivers are key for providing such information and for identifying continuing and potential threats to the long-term viability of mussel communities and the species that comprise them, including the spread of exotic aquatic species.

Past surveys of the main stem of the Grand River have reported a rich freshwater mussel fauna, including at least 28 species (32 species have been reported throughout the Grand River watershed and 42 native unionids have been reported throughout Michigan). Extensive historical mussel surveys by van der Schalie (1941, 1948) and others provide a valuable frame of reference for evaluating the current status and distributions of native mussel populations in the Grand River. Michigan Natural Features Inventory (MNFI) Aquatic Ecology staff have revisited a subset of van der Schalie's historic survey sites in the Grand River between Ionia and Grand Rapids, Michigan, in an effort to evaluate population trends of the mussel communities over a 55-year period. The MNFI surveys were conducted using SCUBA equipment and are part of an initiative to systematically survey rivers throughout Michigan to evaluate the current status of mussels and associated communities.

Comparisons of the species composition at study sites between the 1945 and 1999 surveys suggest variable species population trends for unionids in the main stem of the



Clams are measured and recorded for future reference

*"The documentation of two new species (including a state-listed endangered species) and largely unchanged status of most of the remaining mussel species at the Grand River sites surveyed is encouraging."*

July 5, 2000



Grand River. Two species were observed during the 1999 surveys that were not reported from the 1945 surveys, including the deertoie (*Truncilla truncata*) and the state-listed as endangered snuffbox mussel, *Epioblasma triquetra*. Both species attain comparatively small sizes as adults and were likely not susceptible to the commercial braille harvesting methods used by van der Schalie during the 1945 surveys. The relative abundance of the mucket (*Actinonaias ligamentina*) was strikingly higher during the 1945 surveys, and while the spike (*Elliptio dilatata*) was observed at most sites during the 1945 surveys, no individuals of this species were observed during the 1999 surveys. The round pigtoe (*Pleurobema sintoxia*) and elktoe (*Alasmidonta marginata*) appear to have comprised a relatively small but consistent portion of the community across all sites in 1945, although both were only observed in very small numbers at a few sites in 1999. The relative abundance estimates for most other species observed during the surveys were largely unchanged between the historical and current surveys. The pocketbook (*Lampsilis ventricosa*) was more abundant in the 1999 surveys, and the three-ridge (*Amblema plicata*) was more abundant at upstream sites during the 1999 surveys. The pimpleback (*Quadrula pustulosa*), Wabash pigtoe (*Fusconaia flava*) and mapleleaf (*Quadrula quadrula*) comprised relatively large portions of the mussel communities at multiple sites during both surveys. Rarer species occurred in low but comparable numbers in 1945 and 1999, including the purple wartyback (*Cyclonaias tuberculata*), the black sandshell (*Ligumia recta*), the fluted shell (*Lasmigona costata*) and the squawfoot (*Strophitus undulatus*).

No zebra mussels (*Dreissena polymorpha*) were observed during the surveys, although a few Asiatic clams (*Corbicula fluminea*) were observed at three of the survey sites.

The documentation of two new species (including a state-listed endangered species) and largely unchanged status of most of the remaining mussel species at the Grand River sites surveyed is encouraging. The apparent significant decline of muckets and disappearance of spikes is cause for concern and indicates a need for a rangewide reassessment of the status of these species to determine whether they should be recognized as species in decline and given listed status. This section of the Grand River appears to be little affected by invasive mollusk species, perhaps in part due to the presence of downstream dams. However, local recreational boat traffic in the river may introduce zebra mussels, and the occurrence of Asiatic clams, even in small numbers, is cause for concern. This first stage of an initiative to conduct systematic surveys of mussel

communities throughout Michigan demonstrates the utility for this type of work in identifying population trends and providing useful information that will contribute to conservation efforts, resource management and the environmental review process. It also provides a frame of reference for future status and distribution surveys to detect population trends over time and to determine the appropriate listing status of mussel species at state, regional and international levels.

Funding for the survey was provided by the Michigan Department of Environmental Quality's Office of the Great Lakes through Michigan's Comprehensive Management Plan to Control Aquatic Nuisance Species.

*Dr. Ruben Goforth is an Aquatic Ecology Project Leader with the Michigan Natural Features Inventory, Michigan State University Extension.*

## **Great Lakes Tribal Fishing Agreement**

**A**fter months of contentious, complex and creative negotiations, state and federal government officials joined representatives from five Michigan Indian tribes on August 7, 2000, to sign a historic new 20-year settlement on treaty fishing rights in the Great Lakes.

The agreement ushers in a new era of cooperation among the parties and covers a plethora of significant state-tribal issues, including:

- An ambitious plan to rehabilitate lake trout in Lakes Michigan and Huron;
- A reduction in the use of gill nets (which kill fish indiscriminately) by the tribes. In all, the tribes will remove more than 14 million feet of annual large-mesh gill net effort;
- new limits on fish harvested by both tribal and sport fishers;
- new geographical limits to reduce conflict and
- a dispute resolution process.

An important aspect of the settlement is the creation of a Technical Fisheries Committee (TFC). The TFC will be an inter-governmental body comprised of biologists that will seek to resolve issues using the best available science. The TFC will strive for consensus among all parties.

## **Parties to the Great Lakes Tribal Fishing Agreement**

**Bay Mills Indian Community**

**Grand Traverse Band of  
Ottawa/Chippewa Indians**

**Little River Band of Ottawa  
Indians**

**Little Traverse Bay Band of  
Odawa Indians**

**Sault Ste. Marie Tribe of  
Chippewa Indians**

**State of Michigan**

**United States Departments of  
Justice and Interior**

**Michigan United Conservation  
Clubs**

**Michigan Fisheries Resource  
Conservation Coalition**

**Bay de Noc Great Lakes  
Sportfishermen  
Association, Inc.**

**Michigan Fish Producers**



# 1836 Treaty Tribes and State of Michigan Come to Agreement

By Tom Gorenflo

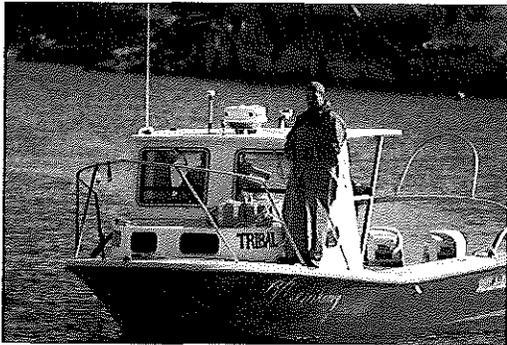


Following two years of complex negotiations, an historic agreement was reached that will govern fisheries management in the 1836 treaty-ceded waters of the upper Great Lakes for the next two decades. On August 7, 2000, seven governments and four non-governmental groups signed a stipulation endorsing an agreement that was entered into federal court as a Consent Decree.

The Consent Decree was signed during a special ceremony atop a bluff on the Bay Mills Indian Community reservation overlooking Lake Superior. This location had special significance as it is only a few miles from the location where in 1971, Albert "Big Abe" Leblanc, a Bay Mills commercial fisherman, was arrested for fishing in violation of State regulations for the purpose of testing fishing rights reserved in the Treaty of 1836.

The 2000 Consent Decree ("Agreement") replaces the 1985 Consent Order that expired in May 2000. In most respects the Agreement built on the foundation of the 1985 Consent Order, but much has changed in the Great Lakes ecosystem and in fisheries management since 1985, and the Agreement strived to recognize and incorporate those changes. As a result, the Agreement is far more lengthy and complex than the 1985 Consent Order. The Agreement includes two additional tribes that were not included in the 1985 Consent Order, the Little River Band of Ottawa Indians and the Little Traverse Bay Bands of Odawa Indians, as they recently received federal recognition. Also, unlike the 1985 Consent Order, the Agreement has full support of all the governments involved.

It is important to note the distinction between the Agreement and the fishing rights reserved in the Treaty of 1836. The right of the tribes to fish and self-regulate under the 1836 Treaty was firmly established in state and federal courts during the 1970s – early-1980s, and was never a point of discussion in the negotiations leading to the Agreement. Rather, the Agreement was intended to



Tribal research vessel "Atikameg", which means whitefish in Ojibway

*"In the end, none of the parties achieved all that they desired, but they all achieved enough to allow them to agree to the outcome."*

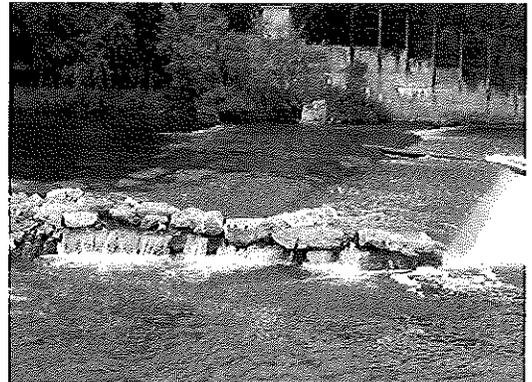
resolve specific allocation and management issues among the parties and user groups.

Allocating the fish resource among commercial and recreational fishers could have been pursued in a variety of ways. The parties agreed early in negotiations that dividing the resource within the 1836 treaty waters "equally" by fish species was not in their best interests. As a result, the basic premise of the tribal-state allocation approach was that the tribal fishery would focus primarily on "commercial" fish species, while the recreational fishery would be based largely on "sport" fish species. There were also numerous allocation-related issues among the tribes themselves, which were addressed mostly through the establishment of tribal management zones and various restrictions on fishing effort. The concept behind these approaches was that each fishery could direct their management efforts on those species or geographic areas that were most important to them, while at the same time recognizing the interests of the other parties. However, how best to accomplish this allocation strategy in a fair and equitable manner, and in a manner that would protect and sustain the resource, represented a monumental challenge for negotiators.

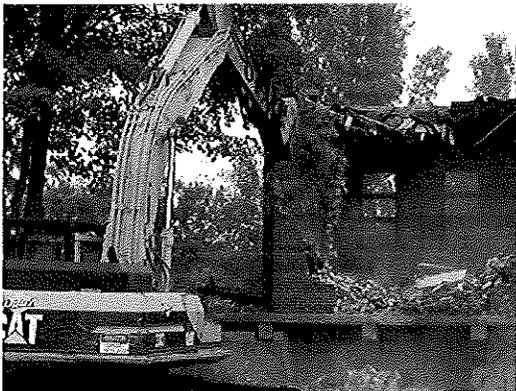
In order to reach agreement, there were three major issues that required resolution: allocation, lake trout rehabilitation, and gear conflict/gill net use. The difficulty was that these issues had to be resolved simultaneously. A breakthrough in negotiations occurred when the state-licensed trap net fishers operating in Bay de Noc, Lake Michigan, offered to sell their operations to the state. This created the opportunity for tribal fishers to take over the whitefish fishery in this area – an area closed to tribal fishing under the 1985 Consent Decree. The state agreed to purchase the trap net operations and turn them over to the tribal fishers who were willing to convert their operations from gill nets to trap nets and had fished enough gill nets in recent years to qualify for the program. In exchange for receiving a trap net vessel and gear, converting fishers had to relinquish their gill net vessels and gill nets to the state. A target "retirement" of at least 14.0 million feet of gill net from Lakes Huron and Michigan by 2003 was established. It was also believed that achieving this level of gill net reduction would help alleviate many of the social conflicts related to the incidental harvest of sport species in gill nets.

While the conversion program helped resolve most of the whitefish and lake trout allocation issues, some situations or species required direct apportionment or regulation. For example, in the few remaining zones where the tribes

July 6, 2000



July 12, 2000



and the state will share the whitefish harvest, specific percentages of the allowable harvest were applied to the tribal and state-licensed commercial fisheries. Similarly, specific percentages on allowable harvest are applied to the tribal and recreational fisheries for lake trout in all management zones. Harvest opportunities for yellow perch, walleye, and chinook salmon were recognized as being smaller and more geographically localized than whitefish or lake trout, and allocation of these species was addressed by placing specific area, gear, and possession restrictions on the tribal fishery, such as the closure of the inner Les Cheneaux Islands area of Lake Huron. In the case of chinook salmon, tribal harvest will be further restricted by reducing stocking at certain locations.

All parties supported continuation of the lake trout rehabilitation effort, although opinions varied on how best to proceed given the need to resolve the overall allocation issues. Along with allocating harvest opportunities for lake trout, negotiators had to recognize and incorporate ongoing rehabilitation objectives and strategies, particularly in Lakes Huron and Michigan. The Agreement facilitates the lake trout rehabilitation effort in Lakes Huron and Michigan by placing harvest limits on the commercial and recreational lake trout fisheries, eliminating "deferred" rehabilitation zones, and recommending increasing stocking in areas containing high quality spawning habitat. These actions should allow for the build-up of sizeable spawning stocks, thereby improving the chances for successful reproduction. It is important to note, however, that there are many forces, unrelated to mortality caused by commercial or recreational fishing, that are impeding lake trout rehabilitation (e.g. exotic species). Therefore, the Agreement in itself does not guarantee successful reproduction of lake trout in Lakes Huron and Michigan.

Negotiating the Agreement was a long arduous process lasting over two years. The parties' strong desire not to litigate was reflected in their commitment to meet on a regular basis, their efforts to maintain productive working relationships and show flexibility, and by employing a mediator, Mr. John Bickerman, to assist in the negotiation process. In the end, none of the parties achieved all that they desired, but they all achieved enough to allow them to agree to the outcome.

At the signing ceremony, U.S. District Court Judge Richard Enslin characterized the Agreement as far different from the 1985 Consent Order, as more positive than negative by offering opportunities to all, and as an agreement that will require continued cooperation. He both advocated for and explained his belief in alternate dispute resolution -

where the parties resolve conflict rather than the courts:

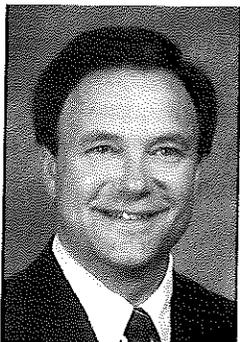
"People build trust. They grow friends on the other side of the table," he said. "Negotiations can be so lengthy, emotional, and difficult. There's a sense of relief when it is over. There's no false sense all the problems will disappear. The only one who can resolve the dispute is you."

*Tom Gorenflo is Director of the Inter-Tribal Fisheries and Assessment Program.*

## Great Lakes Fishing Pact Stresses Science

***New Treaty Agreement Seeks More Lake Trout, Less Tribal-Sport Conflict***

*By James R. Goodheart*



**K**ey to the new 20-year pact governing Michigan's Treaty of 1836 Great Lakes fishery is elimination of tribal/state zones and the building of a mutually beneficial agreement based on joint, science-based management.

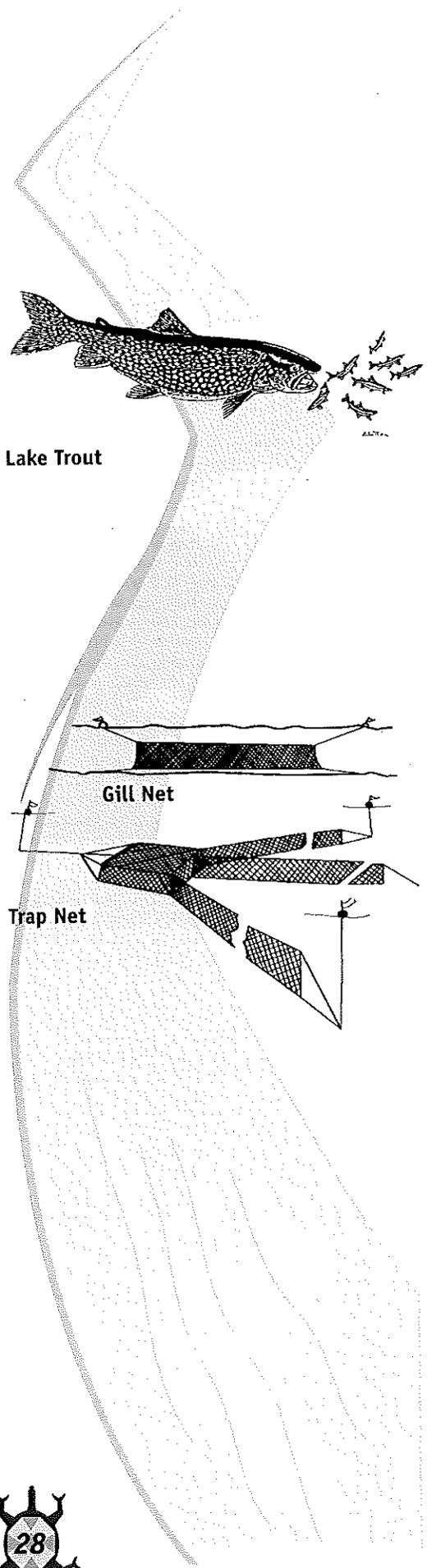
The agreement is intended to resolve long-standing differences concerning rights and obligations of tribal commercial fishers and state-licensed sport anglers to fish portions of Lakes Michigan, Huron, and Superior. Yet we at the Michigan United Conservation Clubs believe the largest victor in the negotiated settlement is the fishery resource itself.

### ***Rehabilitating Lakers***

The agreement, effective since August, revolves around a commitment by all parties—state fisheries managers, tribal interests, and sport angling groups—to seek rehabilitation of lake trout populations. To accomplish that goal, the parties agreed to a biology-based framework for determining safe harvest levels.

Within the first six years, the goal is to reduce lake trout mortality between 40 and 45 percent, the level biologists find necessary to increase the numbers, size, and age structure of lake trout. Lake trout refuges in Lakes Michigan and Huron will remain unchanged.





Lake Trout

Gill Net

Trap Net

Now, when managing for lake trout rehabilitation, we can be assured fish will be protected as they move throughout the lakes. This will result in larger numbers of bigger fish, but more importantly, increased numbers and fish sizes will set the necessary stage for achieving successful spawning populations.

Missing under the old Treaty were the management tools necessary to make a realistic lake-wide agreement. These tools are commitments by tribal, state, and federal managers to utilize biological models to monitor and predict population changes, manage fishing efforts, increase information gathering and sharing, and jointly enforce efforts to ensure compliance with regulations.

### *Modeling with Biology*

Lake trout population models have been jointly created by biologists representing all parties. These models allow for prediction of population response to changes in fishing pressure from tribal and state fishers, reduced lamprey predation due to treatment of the St. Marys River, and varying stocking strategies.

Using these models, a Technical Fisheries Committee (TFC) consisting of tribal, state, and federal biologists will set harvest and effort limits. The number of lake trout to be harvested would then be split approximately 50:50 between state sport anglers and tribal commercial fishers, but will vary among management areas. The TFC's duties also extend to biological management of other species harvested under this agreement.

### *Managing the Harvest*

Eliminating excessive harvest of lake trout is only possible through reduction of at least 14 million feet of gill nets. This state-financed conversion to trap nets or impoundment gear will allow the tribes to maintain or expand their whitefish fishing while reducing their use of gill nets and the impact those nets have on lake trout and other sport fish. Great credit goes to the state-licensed commercial fishers at Bay de Noc and the Michigan Fish Producers Association for their involvement in crafting such a pivotal conversion program.

The tribes are committed to managing their gill net effort based on the biology of the fish stocks and their harvest rates. Biologists will calculate how many lake trout are expected to be caught in each foot of gill net and then allow only the amount of gill net that would not exceed tribal shares of the harvest. That should essentially prevent replacement of gill nets removed through conversions and might require future reductions to accommodate a

recovering population.

The state will manage the sport harvest of lake trout through size limits. Size-limit regulation changes will be phased in so they don't hurt the sport harvest numbers. Over time, as lake trout populations improve, less and less effort should be required for sport anglers or tribal nets to harvest current numbers of lake trout. More importantly, an improved population means more and larger fish will be available for harvest.

### ***Enforcing the Pact***

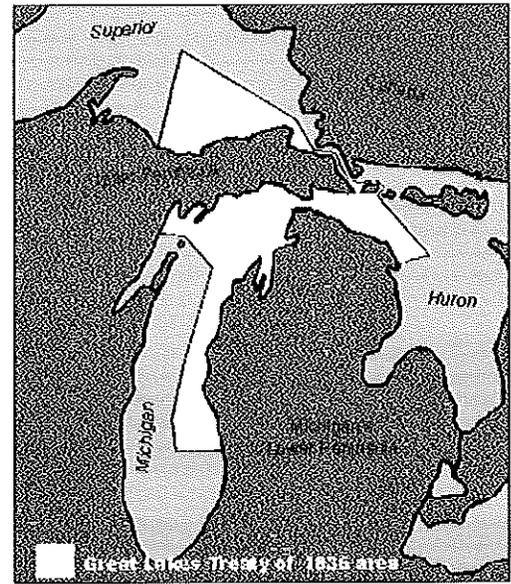
Lake trout harvest limits carry with them penalty provisions for the tribes or the state if harvest limits are exceeded by more than 15 percent in a year or over a three-year period. To ensure compliance with the harvest limits and other provisions, the decree creates a Law Enforcement Committee of federal, state, and tribal members who will collaborate in addressing public safety concerns, enforcement priorities, and coordination of shared resources. The committee will maintain an advisory group made up of sport anglers, tribal fishers, and other non-governmental citizens.

State and tribal parties to the agreement have committed resources to making it work, including staffing joint patrol efforts in areas of concern and the establishment of a 24-hour, toll-free "hotline" for handling violation complaints. The Michigan Department of Natural Resources has even created a special unit to monitor all aspects of state and tribal commercial fishing.

### ***Allocating the Fish***

The agreement features an allocation of fish species in treaty-ceded waters. The tribes will focus on whitefish fishing while state-regulated anglers continue to focus on traditional sport species. Issues of gear and social conflict are addressed by designating specific areas, seasons, equipment, and allocations of fish in ways that maximize benefits for tribal commercial and sport anglers in sharing the Great Lakes fishery resource.

*James R. Goodheart is the Executive Director of Michigan United Conservation Clubs, which served as an amici group throughout Great Lakes tribal fishing negotiations. He is a board member of the Great Lakes Fishery Trust.*

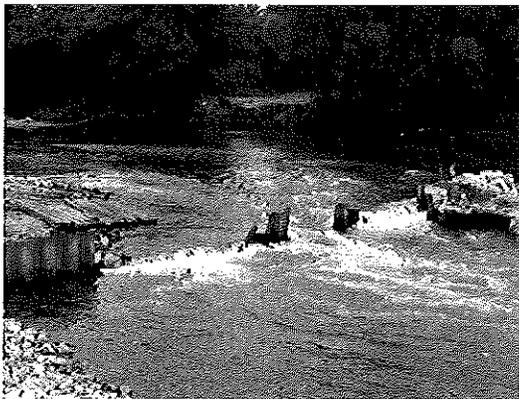


Treaty of 1836 area

# The Shrinking of the Great Lakes Congressional Delegation

*By Dick Munson*

August 2, 2000



Perhaps unique among regions, the Great Lakes have inspired generations of policymakers to work cooperatively for environmental and natural resource protection. That cooperation has achieved remarkable successes. Yet confronting today's remaining and significant challenges will be particularly hard in light of the region's congressional delegation's shrinking size, and it will require increased efforts to avoid political partisanship and international and interregional conflicts.

Bipartisan cooperation long has been a key guideline of the Great Lakes delegation within the U.S. Congress. Republican and Democratic lawmakers from the region in the late 1970s formed Great Lakes Task Forces (House and Senate) within the Northeast-Midwest Congressional Coalitions. With current leadership from Senators Mike DeWine (R-OH) and Carl Levin (D-MI) and Representatives Steve LaTourette (R-OH), John Dingell (D-MI), Vernon Ehlers (R-MI), and James Oberstar (D-MN), the Great Lakes Task Forces have advanced an array of federal program authorizations, including the National Invasive Species Act, the Great Lakes Fish and Wildlife Restoration Act, and a \$100-million ecosystem restoration project. The bipartisan approach is particularly important as the Great Lakes delegation becomes smaller.

No doubt the region's political numbers are shrinking. Because of demographic shifts, the Great Lakes delegation in the House of Representatives has fallen by 21 percent since 1979. In contrast, states bordering the Gulf of Mexico increased their representation by a whopping 27 percent. California alone has boosted its political numbers by 23 percent. The 2000 census and reapportionment highlight these historic shifts from the Great Lakes region to the West and South. Illinois, Indiana, Michigan, Ohio, and Wisconsin each will lose a seat in the House of Representatives, while New York and Pennsylvania will lose two. Two-seat winners will be Arizona, Florida, Georgia and Texas, while California,

Colorado, Montana, North Carolina and Nevada each will gain one seat.

While sheer numbers are clearly important, calculating a delegation's "clout" on Capitol Hill is difficult. Yet there's no denying that congressional leadership is decidedly Southern. Other than the elevation of Illinois Rep. Dennis Hastert to be Speaker of the House, senior House leaders are from Texas and other southern states. No member of the Senate leadership – on either side of the political aisle – is from the Great Lakes region.

Because of Republican rules associated with the tenure of committee chairs, the leadership of many House panels have changed. The Great Lakes region in the new 107<sup>th</sup> Congress is expected to have three full committee chairmen in the House: Rep. Sherwood Boehlert (R-NY) on the Science Committee – which authorizes the National Oceanic and Atmospheric Administration, Sea Grant, and the Environmental Protection Agency's science budget – Rep. James Sensenbrenner (R-WI) on the Judiciary Committee, and Rep. Mike Oxley of Ohio on the newly-reorganized House Committee on Financial Services. Among key appropriations subcommittees, Republican tenure requirements will cause the Interior panel's chairmanship to shift from Rep. Ralph Regula of Ohio to Rep. Joe Skeen of New Mexico.

The region is fairly well placed in the ranking member category. Rep. John Dingell of Michigan is the leading Democrat on the House Commerce Committee, and Rep. James Oberstar of Minnesota is the same for Transportation and Infrastructure. Rep. David Obey of Wisconsin as the Ranking Member on the full Appropriations Committee is joined by Reps. Marcy Kaptur of Ohio as the lead Democrat on the Agriculture Subcommittee, Peter Visclosky of Indiana on the Energy and Water Development Subcommittee, and Martin Olav Sabo of Minnesota on the Transportation Subcommittee. Rep. John Conyers of Michigan is ranking member of the Judiciary Committee.

The region will have only two Senate committee chairs. Senator Richard Lugar of Indiana leads the Senate Agriculture Committee, and Senator Arlen Specter of Pennsylvania directs the Committee on Veterans Affairs. On Senate panels important to environmental considerations, consider:

- No regional member sits on Commerce.
- Only three Great Lakes members are on Appropriations (Senators Herbert Kohl of Wisconsin, who is ranking member of the Agriculture

August 9, 2000



August 17, 2000



Subcommittee; Arlen Specter of Pennsylvania, who chairs the Labor-HHS panel; and Richard Durbin of Illinois).

- Only two regional members sit on Environment and Public Works (Senators George Voinovich of Ohio and Hillary Rodham Clinton of New York).
- Three Great Lakes members are on Energy and Natural Resources (Senators Peter Fitzgerald of Illinois, Evan Bayh of Indiana, and Charles Schumer of New York).

Despite relatively scant representation, the region's advocates have done quite well in recent years. They achieved numerous sediment management and environmental restoration provisions important to the Great Lakes through the Water Resources Development Act, and they obtained increased appropriations for several region-based environmental and maritime programs. Yet with a shrinking delegation, the region's advocates need to be well organized and work cooperatively if they are to achieve positive results on today's pressing concerns.

*Dick Munson is Executive Director of the Northeast-Midwest Institute and author of **The Cardinals of Capitol Hill**.*

## *Egrets, alligators, lake trout and eagles*

*In the closing weeks of the 106th Congress, landslide votes in both the House and Senate yielded one of the largest environmental restoration projects in U.S. history. Some \$7.8 billion will be directed at efforts to reverse decades of environmental damage in the Florida Everglades. One leading advocate of the project described the bill as "our best hope to save the Everglades, to protect the egrets and alligators, and to restore the balance between the human environment and the natural system in south Florida."*

*Who was this advocate? Was it a Florida legislator looking after the interests of his constituents and their treasured resource? No. It was none other than Rep. Sherwood Boehlert, an upstate New York Republican and chair of the House Transportation Water Resources Subcommittee. And, I might add, a good friend of the Great Lakes.*

*What induced Rep. Boehlert, and his House and Senate colleagues, to collectively vote 479-15 in favor of this landmark initiative? The answer is obvious. It was a large-scale, long-term strategy that succeeded through a groundswell of unified local support and bipartisan action in Congress. And, it succeeded because the Florida Everglades were (very appropriately) characterized as a resource of national significance. The New York Times recently called them a "treasured ecosystem that lawmakers ranked with the Mississippi River, the Grand Canyon and the redwood forests of California." (Note that the Great Lakes were not mentioned among these treasures. Talk about adding insult to injury!)*

*As a former Florida resident, I'll be the first to agree that this initiative is important and well-deserved. The Everglades are indeed a national treasure, woven into the ecological and economic fabric of south Florida. I'm glad they're receiving this much-deserved attention and support. But, with all due respect, they aren't the Great Lakes.*

*What was the status of Great Lakes deliberations as all this was going on? While a nationwide bipartisan coalition was brokering a multibillion dollar initiative for the Everglades, Great Lakes advocates seemed content to seek only incremental improvements to the status quo. And, when a modest infusion of prospective funds was proposed by the administration (\$50 million for Areas of Concern cleanup), advocates seemed to expend all their energy debating how to allocate the funds, rather than how to develop a unified front to make sure the funds became a reality.*

*It's time to think big, to raise our sights and our ambitions. It's time to reassert the national and global stature of the Great Lakes and let Congress know that saving the Everglades and the Mississippi and the redwoods is only part of the equation. It's time for all Great Lakes advocates to join forces and support the big picture, and leave quibbling over the details for another time and place. And, it's time for us to reject the "inside the beltway" philosophy that focuses on what is possible from a political standpoint; we need to focus on what is good for the resource. Indeed, the greatest system of freshwater on the face of the earth deserves no less.*

*Let's take the "phantom \$50 million" of last session, add one or two zeros, and make it the goal for the Great Lakes in the 107th Congress. Working together, it can happen. Wouldn't it be great, a year or two from now, to have a Florida congressman singing the praises of a bill that is "our best hope to save the Great Lakes"? The egrets and alligators are enjoying their day in the sun; our lake trout and eagles deserve theirs.*

*Michael J. Donahue, Ph.D. Executive Director, Great Lakes Commission. From the Great Lakes Commission "News and Views" section of the November/December, 2000 edition of **Advisor***

Note: The Great Lakes Commission is supporting a renewed focus on congressional advocacy through a new staff position and regional strategy. For details, contact Mike Donahue at 734-665-9135 or [mdonahue@glc.org](mailto:mdonahue@glc.org)



# Michigan—Heart of the Great Lakes

By Susy Avery



Michigan has been shaped—figuratively and literally—by the Great Lakes. Carved by glaciers more than 12,000 years ago, its two peninsulas are visible from the moon and instantly recognizable on any globe or atlas.

These two peninsulas are dotted with more than 11,000 inland lakes, laced with 36,000 miles of rivers and streams and defined by a 3,200-mile Great Lakes coastline—a shoreline dotted with more than 100 public beaches, some of the highest freshwater sand dunes in the world, stunning multi-colored sandstone cliffs, two National Lakeshores and the only national marine sanctuary in the Great Lakes—the Thunder Bay National Marine Sanctuary in Lake Huron. More than 100 lighthouses, numerous maritime museums, ten shipwreck-diving preserves and historic military fortifications dating from the American Revolution and the Civil War also rim Michigan's Great Lakes shoreline.

The Michigan shore of Lake Michigan has been described as "an American Riviera"—with mile after mile of blond-sand beaches, more than a score of state parks, a National Lakeshore, charming lakeside villages, lighthouses, artists' colonies, designer golf courses and world class resorts.

Michigan is defined not only by its vast expanses of water but also by the forests that cover more than 30,000 square miles—more than half the size of the state. Lakes, campgrounds, wildlife refuges, and 99 state parks and recreation areas scattered throughout these vast forests create a wide variety of recreational pursuits. Rivers for canoeing, kayaking, fishing and swimming, and thousands of miles of hiking, biking, riding, cross-country skiing and snowmobiling trails thread their way among some 100 species of trees.

Michigan's tens of thousands of square miles of Great Lakes and inland waterways teem with more than 140 varieties of fish—ranging from finger-sized smelt to 20- and 30-pound Chinook salmon and lake trout.

Hundreds of islands dot Michigan waters. Isle Royale National Park is a remote wilderness retreat in Lake Superior

October 12, 2000



where wolves and moose roam free. Mackinac Island, located in the Straits of Mackinac, is a lush 19th-century resort fixed firmly in the Victorian era—a car-free island dominated by an 18th-century fort and the more than a century-old Grand Hotel, America’s largest summer resort hotel.

A maritime climate has blessed Michigan agriculture with one of the most diverse ranges of crops in the United States and thrice-blessed golfers with more public courses (more than 800) than any other state, with long hours of daylight in summer and a lingering autumn season that can stretch into early December. It is no wonder that Michigan visitors enjoy fruit right off the tree, fine wine from local vintners, golf on designer courses with some of the finest turf grass available, and nearly a score of some of the best and largest resorts in the Midwest.

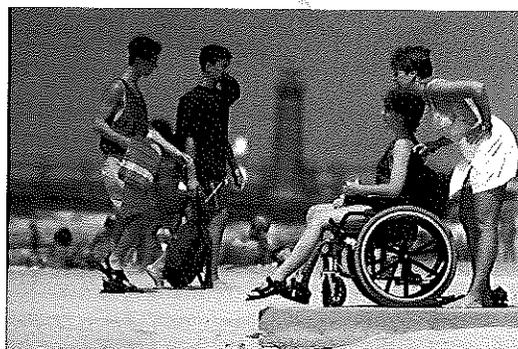
That same maritime climate guarantees a steady stream of snow-laden winds from the Great Lakes all winter long—making Michigan the winter sports capital of the Midwest—with more than 40 downhill ski areas, more than 6,000 miles of snowmobile trails, some 3,500 kilometers of cross-country ski paths, dogsled races, ice fishing and a full season of winter festivals. And, Michigan’s Upper Peninsula was recently rated by *SnowGoer* magazine readers as the “Best Overall Snowmobiling” area in the country.

The Upper Peninsula, which is 90 percent forested, retains its aura of accessible wilderness. Vast wildlife and waterfowl refuges, 150 waterfalls, Ernest Hemingway’s “Big Two-Hearted River,” Hiawatha’s Tahquamenon Falls, iron mines, copper mines, the Soo Locks (where ocean-going freighters make the 21-foot leap from Lake Superior to Lake Huron and then to the rest of the world’s shipping lanes) are well within an easy drive of one another.

And Detroit, the eighth largest metropolitan area in the United States, boasts one of the United State’s largest and finest art museums, a world-renowned symphony orchestra, a revitalized theater district, one of America’s finest restaurants (according to *Conde’ Nast Traveler* magazine), the home of the Motown sound (and the refurbished Motown Museum), the largest African American history museum in the country, homes of the “Auto Barons,” major league sports, and America’s most popular indoor/outdoor history museum complex—Henry Ford Museum & Greenfield Village and its new IMAX Theatre. Is it any wonder that some 35 million travelers choose to vacation in Michigan annually, contributing more than ten billion dollars to its economy?



Winter sports lure many tourists



Michigan’s beaches bustle in the summer



Michigan offers numerous fishing opportunities



Michigan

GREAT LAKES  
GREAT TIMES  
WWW.MICHIGAN.ORG

Michigan and its lakes—both “Great” and small—make up a place that is unlike anyplace else in the world. It is this uniqueness that behooves us to reflect on these extraordinary resources, our impact on them, our stewardship of them, and our obligation to pass them on to future generations.

*Ms. Susy Avery is Vice President of Travel Michigan, Michigan Economic Development Corporation.*

## Thunder Bay National Marine Sanctuary and Underwater Preserve

*By Ellen Brody*



Lake Huron’s mercurial weather—its murky fog banks and sudden gales—coupled with rocky shoals helped Thunder Bay earn the unfortunate name of “Shipwreck Alley.” During the Great Lakes’ 200-year shipping history, scores of vessels ended their careers on the lake floor off Alpena, Michigan. Many of the wrecks remain undiscovered.

On October 7, 2000, in Alpena, Michigan, Governor John Engler and Elgie Holstein, Senior Advisor to the U.S. Secretary of Commerce, hosted the official designation ceremony for the Thunder Bay National Marine Sanctuary and Underwater Preserve. The designation by the National Oceanic and Atmospheric Administration (NOAA) creates the first Great Lakes national marine sanctuary and builds on the existing state underwater preserve designated in 1981. It is only the second national marine sanctuary created solely to protect underwater cultural resources. NOAA and the state of Michigan will jointly manage the sanctuary and underwater preserve.

The new 448-square mile sanctuary and underwater preserve protects an estimated 116 historically significant shipwrecks. National historic significance is attached to the entire collection of shipwrecks, as well as to individual vessels. These vessels, preserved in time within the fresh, cold waters of Lake Huron, still have stories to tell of



A Thunder Bay diver explores a shipwreck

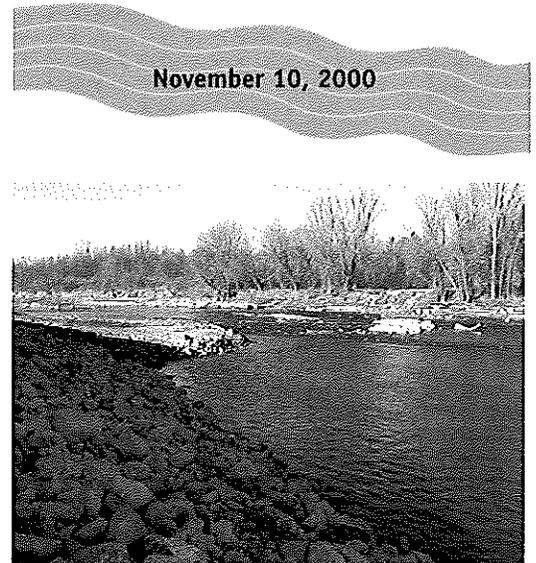


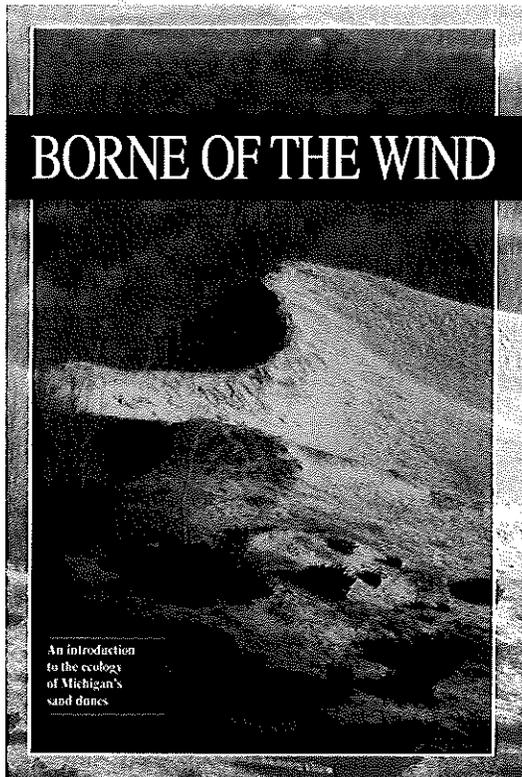
U.S. maritime history and commerce, from the earliest explorations to westward expansion in the 1800s and modern day lake trade. Through exploration, education, and research, this sanctuary and underwater preserve will bring to the American public the lore of Great Lakes maritime heritage. Behind each shipwreck is a story that helps us understand what led to so many shipwrecks in Thunder Bay and what these sailors sacrificed for the settlement of our nation.

The Thunder Bay shipwrecks include a wide range of structures that chronicle U.S. maritime architecture from nineteenth century wooden side-wheelers to twentieth century steel-hulled steamers. One such vessel, the *Isaac M. Scott*, a steel-hulled propeller driven vessel, was lost in the "Great Storm of 1913." This storm has been described as the most disastrous storm in recorded history to sweep the Great Lakes region. A 200-foot passenger and trade ship, the *Pewabic*, collided with another ship on August 9, 1865, and now rests in 170 feet of water. In June 1849, the *New Orleans*, a wooden side-wheel steamer encountered fog near Thunder Bay. Before daylight, the vessel smashed onto a reef of rocks on Sugar Island at the mouth of the bay. Local fishermen helped the 300 passengers and crew off the sinking boat and into the care of the lighthouse-keeper on the island until they were picked up by another steamer.

The Thunder Bay National Marine Sanctuary and Underwater Preserve will implement a five-year operation plan that focuses on cultural resource protection, education, research, and recreation. Specific activities are likely to include conducting an archaeological survey of Thunder Bay's shipwrecks, installing a mooring buoy system, establishing underwater video links from shipwrecks to school classrooms, and examining the potential for a Maritime Heritage Center. The state of Michigan has committed one million dollars over the initial five-year period. NOAA will contribute \$500,000 – \$700,000 per year.

A decade-long sanctuary designation process between NOAA and the state of Michigan reached fruition in June 1999 in an agreement announced by Governor Engler and NOAA. As part of this agreement, a federal/state Joint Management Committee will be established to guide management of the sanctuary. NOAA and the state will enter into a Memorandum of Understanding that describe the terms of joint management. The agreement will affirm the state's continuing sovereignty and jurisdiction over its state waters, submerged lands, and other resources within the Thunder Bay National Marine Sanctuary and Underwater Preserve.





*Borne of the Wind, an Introduction to the Ecology of Michigan's Sand Dunes is a publication of the Michigan Natural Features Inventory; Dennis A. Albert, author. It can be obtained from the Michigan Natural Features Inventory, Box 30444, Lansing, MI, 48909-7944. It is also available electronically at: <http://www.dnr.state.mi.us/wildlife/heritage/mnfi/dunes/index.html>*

For more information on the Thunder Bay National Marine Sanctuary and Underwater Preserve, visit <http://www.glerl.noaa.gov/glsr/thunderbay>.

*Ellen Brody has been NOAA's Project Coordinator for the Thunder Bay National Marine Sanctuary and Underwater Preserve since 1996. Prior to that, she worked at NOAA Headquarters overseeing the Great Lakes coastal zone management programs.*

## Michigan Dune Alliance: Conserving Lake Michigan's Sand Dunes

*By Margaret A. Kohring*



The Michigan Dune Alliance, a collaboration of land trusts and government agencies formed in 1999, focuses on conserving Lake Michigan's eastern shore dunes, freshwater river systems, back dune forests and coastal marshes. The Michigan Dune Alliance is blending the best science of freshwater ecosystems with land trusts, which are community-based organizations.

The towering Great Lakes dunes are the largest assemblage of freshwater dunes in the world, many on the eastern shore of Lake Michigan. Yet, more than half of Lake Michigan's eastern shore is in private ownership. Building on the landowner knowledge and appreciation of these unique systems to motivate landowners to conserve and steward their land is one of the critical issues facing Michigan's conservation community.

Land trusts are nonprofit, non-governmental organizations whose primary mission is to conserve land, by purchasing or accepting donations of land or conservation easements and working in partnership with private landowners. Land trusts provide individuals a way to make a direct and lasting difference to the community they live in and the world they leave their children. In Michigan there are 38 land trusts that have permanently preserved 105,015 acres.

The strength of land trusts is illustrated by several projects undertaken by collaborators in the Michigan Dune



Alliance. From Saugatuck to Ludington, the majority of sand dunes and back dune forests are owned by second homeowners making land conservation a unique challenge for the Land Conservancy of West Michigan. In many cases the residences only impact a small amount of land providing an opportunity to conserve the shoreline and steep wooded bluffs by working with these landowners. The Land Conservancy of West Michigan, working with interested landowners, is linking together land conserved through conservation easements to give the land protection while it continues to be enjoyed as private property. The thirty-five acre Paprocki Conservation Easement in northwestern Muskegon County illustrates private landowners making a difference. Steep wooded dunes have protected the large beech and hemlocks that crown the dune ridges from logging on the Paprocki Conservation easement. The Paprockis have donated all the development rights on the prime wooded dunes so that there will not be additional residential or commercial development. The Paprockis will continue to own and use their family home. Land Conservancy of West Michigan will use the Paprocki easement as a model for other private landowners to see how to have it all, the enjoyment of their land and the peace of mind to know that it will be forever protected from additional development.

Land acquisition is the first step in land conservation and needs to be followed by land stewardship of the protected properties. Leelanau Conservancy is using their Houdek Dunes Preserve for habitat restoration demonstrations and completing a hiking trail. Located near the tip of the Leelanau Peninsula, Houdek Dunes is a good demonstration site for aspen management and invasive species control. There are several mature aspen clones within Houdek Dunes, which are no longer providing good game bird and neotropical bird habitat. By removal of the mature aspen on the preserve, the habitat will be regenerated. Houdek Dunes also has a number of invasive species that out compete the native plants. By developing a demonstration program on how to remove spotted knapweed and bladder campion, two invasive weeds, adjoining private landowners will have a model showing how to adapt the invasive plant control to their property.

In the fall of 1999, G. Tracy Mehan, III, Director of Michigan's Office of the Great Lakes, invited a number of land trust leaders to brainstorm with him on how to address conservation of private lands on Lake Michigan's sand dunes. They identified three needs that would facilitate their collaboration: funding for their organizations to focus on Lake Michigan's shoreline and rivers, clear priorities for

*"...Great Lakes dunes are the largest assemblage of freshwater dunes in the world, many on the eastern shore of Lake Michigan. Yet, more than half of Lake Michigan's eastern shore is in private ownership."*

## Michigan Dune Alliance Partners

**Grand Traverse Regional Land Conservancy**  
3860 N. Long Lake Road Suite D  
Traverse City, MI 49684  
231-929-7911  
Glen Chown  
Executive Director

**Land Conservancy of West Michigan**  
1345 Monroe NW Suite 324  
Grand Rapids, MI 49505  
616-451-9476  
Julie Stoneman  
Executive Director

**Leelanau Conservancy**  
PO Box 1007  
Leland, MI 49654  
231-256-9665  
Brian Price  
Executive Director

**Little Traverse Conservancy**  
3264 Powell Road  
Harbor Springs, MI 49740  
231-347-0991  
Tom Bailey  
Executive Director

**The Conservation Fund**  
30 W. Monroe #1800  
Chicago, IL 60603  
312-332-6293  
Margaret A. Kohring  
Midwest Director

**Southwest Michigan Land Conservancy**  
6851 Sprinkle Road  
Kalamazoo, MI 49002-5829  
616-324-1600  
Donna Southwell  
Executive Director

dune protection and the development of sound educational materials for landowners.

Tracy Mehan then asked The Conservation Fund, a nationally recognized land protection organization, for ideas based on successful models in other parts of the Midwest. The Conservation Fund proposed an alliance of land trust to address the needs outlined by the land trusts. The land trusts leaders agreed to jointly tackle the issues threatening Lake Michigan's key coastal areas through establishing the Michigan Dune Alliance. Key government partners were invited to become part of the process. The partner organizations in the Michigan Dune Alliance cover the entire Lake Michigan coast in Michigan.

In December 1999 the Michigan Dune Alliance formed and each local land trust developed work plans for their area. Each land trust proposed to continue work in their geographic area while collaborating on educational information and capacity building that could best be accomplished collectively. The number one priority was having good site information from the Michigan Natural Features Inventory.

The Conservation Fund serves as fiscal agent, convener of meetings and arranger of training. Where appropriate, it submits joint fund raising requests on behalf of the Michigan Dune Alliance.

The first task of the Michigan Dune Alliance was to determine the priority areas for conservation action and to find the funding to do the work. The Nature Conservancy's Great Lakes Program and Michigan Field Office shared the results of their ecoregional planning by identifying 14 key sites along the eastern shore of Lake Michigan for focus by the Michigan Dune Alliance.

Michigan's Coastal Zone Management Program and the Environmental Protection Agency granted \$50,000 and \$72,000 respectively to the Michigan Dune Alliance to complete site packages for all 14 sites. The Michigan Natural Features Inventory will be contracted to produce the site packages. The site packages will provide basic biological information about the aquatic sites, the ecological requirements of the plants, animals and ecosystems and a list of threats to the system.

The Charles Stewart Mott Foundation is supporting the Michigan Dune Alliance with a \$600,000 grant to build the capacity of the land trusts both to develop the site conservation plans from the site packages and to build capacity so that the organizations are ready to implement the plans. When the site packages are completed, site



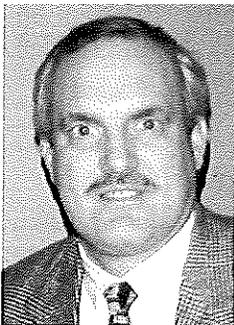
conservation planning will begin. The site conservation plans will identify what is important to conserve at each aquatic and dune site.

Through collaborating on the data gathering, capacity building and funding, Michigan Dune Alliance collaborators will be able to conserve Lake Michigan's unique coastal and river systems.

*Margaret A. Kohring is Director of the Midwest Office of The Conservation Fund, a national, non-profit conservation organization that purchases and protects land-more than 2 million acres since 1985.*

## Lake Huron – A Lake in the Middle

By Jim Bredin



**I**n the 1997 State of the Great Lakes report, we described Lake Huron as the 'Forgotten' lake. State, provincial and federal governments were undertaking significant planning efforts on all of the Great Lakes except Lake Huron. Since then, the Lake Huron Initiative (LHI) has been formed and the Lake Huron Initiative Action Plan

developed. The LHI includes state, provincial, federal and local agencies and interest groups with a common goal "to restore and maintain the chemical, physical, and biological integrity of the waters, tributaries, and nearshore terrestrial and aquatic ecosystems of Lake Huron." With this goal as a focus, the Lake Huron Initiative Action Plan has been produced to identify priority issues and future efforts in the Lake Huron Basin.

### *Some Background*

The Lake Huron watershed is home to about 2.5 million. Both sides of Lake Huron have relatively low human population densities.

As a result, Lake Huron retains much of its historic fish and wildlife habitat. Saginaw Bay, Georgian Bay and the North Channel still support some of the most extensive coastal habitat in the Great Lakes.

In the past 20 years there has been increasing development pressure. Undoubtedly, the next 20 years will likely bring more.

## Michigan Dune Alliance Partners (continued)

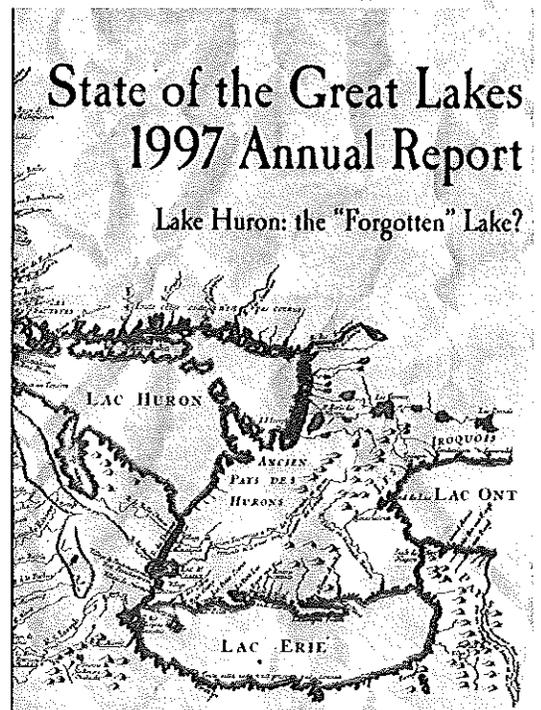
*The Nature Conservancy  
2840 E. Grand River Suite 5  
East Lansing, MI 48823  
517-332-1741  
Helen Taylor  
State Director*

*Michigan Department of  
Environmental Quality*

*Michigan Department of Natural  
Resources*

*National Parks Service*

*U.S. Forest Service*





as successful as in other Great Lakes because of the sea lamprey. The lamprey problem in northern Lake Huron is directly associated with increased lamprey production in the St. Marys River. By the 1990s the St. Marys River was producing more sea lampreys than all other Great Lakes spawning tributaries combined.

Cost-effective sea lamprey control on the St. Marys, once thought to be impossible, may now be within reach. A program of integrated pest management techniques such as adult trapping, release of sterilized males, and lampricide application have been applied to the river. Following the program, almost half the 5 million lamprey larvae are estimated to have been removed and the population is expected to be reduced by 85 percent by 2010.

In addition to sea lamprey, Lake Huron has also been subject to the invasion of non-native species since the settlement of the region. Since the 1800s at least 160 organisms have been introduced into the Great Lakes ecosystem; many of these reside in Lake Huron.

#### ***What Do We Need to Do?***

As a result of the efforts by LHI participants, there are important actions currently being implemented:

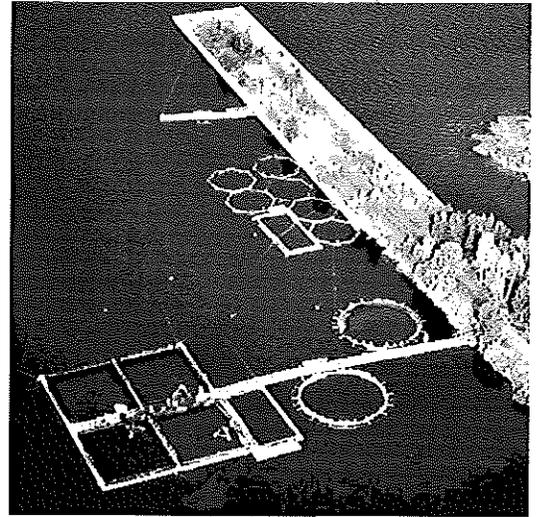
- A bi-national GIS system to quantify and map critical habitat,
- Removal of contaminated sediments in the Pine and Saginaw rivers,
- Protection of 8,000 acres of coastal wetland habitat in the Saginaw Bay watershed, and
- \$150 million for the Michigan Conservation Reserve Enhancement Program in the Saginaw Bay watershed.

These actions provide a good foundation for future progress, but there are additional actions that need to be addressed including:

- Control of atmospheric inputs,
- Control of non-native species,
- Restoration of tributary and nearshore habitats,
- Continued progress in Areas of Concern, and
- Secured funding for the lamprey control program.

For additional information on Lake Huron, access the Lake Huron Initiative web site at [www.deq.state.mi.us/ogl/huron.html](http://www.deq.state.mi.us/ogl/huron.html).

*Jim Bredin is Assistant to the Director, Office of the Great Lakes, Michigan Department of Environmental Quality.*



A fish farming caged culture facility.

#### **Fish Farming**

***An increasingly important issue in Lake Huron from both a fisheries and environmental perspective is fish farming or cage culture. Cage culture began in Lake Huron in 1982 with significant growth occurring since the mid-1990s. Now, cage culture accounts for over 60 percent of rainbow trout production in Ontario waters.***

# Acknowledgements

## ***Guest Contributors***

Suzy Avery, Travel Michigan

Jim Bredin, Office of the Great Lakes

Ellen Brody, Thunder Bay National Marine Sanctuary and Underwater Preserve

Dr. Michael J. Donahue, Great Lakes Commission

Dr. Reuben Goforth, Michigan Natural Features Inventory

James R. Goodheart, Michigan United Conservation Clubs

Tom Gorenflo, Inter-Tribal Fisheries and Assessment Program

Sharon Hanshue, Michigan Department of Natural Resources

John H. Hartig, Greater Detroit American River Initiative

Dr. Tracy D. Hill, U.S. Fish and Wildlife Service

Margaret A. Kohring, The Conservation Fund

Dick Munson, Northeast-Midwest Institute

Russell Van Herik, Great Lakes Protection Fund

## ***Writer***

Emily Bankard, Office of the Great Lakes

## ***Editor***

Martha Waszak, Office of the Great Lakes

## ***Cover and Graphic Design, Layout and Typesetting***

Stephen Bolt, Print and Graphic Services, Department of Management and Budget

## ***Photographs and Graphics***

John S. Clark, Michigan Department of Environmental Quality

David Kenyon, Michigan Department of Natural Resources

Great Lakes Fishery Commission

National Oceanic and Atmospheric Administration

*As a "Michigan Great Printer," Print and Graphic Services is significantly committed to environmental stewardship by employing environmentally sound practices in the lithographic industry.*

Annual Report for 2000  
March, 2001

Prepared by the Office of the Great Lakes -



Michigan Department of Environmental Quality  
*"Better Service for a Better Environment"*

<http://www.deq.state.mi.us>

Environmental Assistance Center: 1-800-662-9278

John Engler, Governor  
Russell J. Harding, Director

Copies of this document may be obtained free of charge by writing to:

Office of the Great Lakes  
Michigan Department of Environmental Quality  
PO Box 30473  
Lansing, Michigan 48909-7973

or by downloading from:  
<http://www.deq.state.mi.us/ogl>

Pursuant to Public Act 128 of 1985 for Governor John Engler

The Department of Environmental Quality provides equal opportunities for employment and participation in decision making processes. Both state and federal laws prohibit discrimination on the basis of race, color, national origin, religion, disability, age marital status, or sex under the Civil Rights Acts of 1964, as amended (MI PA 453 and MI PA 220, Title V of the Rehabilitation Act of 1973, as amended, and the Americans With Disabilities Act.) If you believe that you have been discriminated against in any program, activity, or facility, or if you desire additional information, please write the MDEQ Personnel Office, P.O. Box 30473, Lansing, MI 48909, or the Michigan Department of Civil Rights, State of Michigan, Plaza Building, 1200 6th Avenue, Detroit, MI 48226. For information or assistance on this publication, contact the Michigan Department of Environmental Quality, Office of the Great Lakes, P.O. Box 30473, Lansing MI 48908.



Total Number of Copies Printed: 7,500  
Total Cost: \$8,613.12 Cost Per Copy: \$1.15



***Muskegon River  
Big Rapids Dam Removal Completed***



**December 2000**