



FORUM

FOR STEWARDSHIP AND SUSTAINED BENEFITS

Great Lakes
Fishery
Commission

New Life for a Joint Strategic Plan for Management of Great Lakes Fisheries

By Gary Isbell

Representatives of the fifteen fishery management agencies on the Great Lakes gathered in Ottawa in June to sign an updated Joint Strategic Plan for Management of Great Lakes Fisheries.

Photo:
Great Lakes
Fishery Commission



What forces fifteen agencies to work together for the good of the people and the fisheries resources of the Great Lakes?

everyone agrees that the future of the Great Lakes fisheries is extremely bright — unless the political boundaries that carve up the lakes become barriers to effective fisheries management.

New Life, CONTINUED ON PAGE FOUR 

Nothing. That is, the tremendous cooperation among the agencies that have the responsibility to manage some of the world's finest freshwater fisheries is the result of voluntary agreement and consensus-building processes. The good news is, with the reaffirmation of the Joint Strategic Plan for Management of Great Lakes Fisheries, this desirable coalition of governments will continue. This plan, first adopted in 1981, was reviewed and fine-tuned by representatives of the agencies in workshops held in 1996 and 1997. A signing ceremony was held at the Annual Meeting of the Great Lakes Fishery Commission in June of 1997.

Without a doubt, there are serious problems and fantastic opportunities facing Great Lakes fisheries managers as we approach the next century. Exotic species still invade the lakes, environmental and habitat issues persist, and contentious fish harvest policy dilemmas occur. However, almost

Fishery Agencies Endorse Updated Plan After Two Year Review Process

By Margaret Dochoda and Marc Gaden

Agencies with fishery management authority on the Great Lakes gathered in Ottawa, Ontario on June 10 to officially endorse an updated version of a Joint Strategic Plan for Management of Great Lakes Fisheries, the landmark plan under which the Great Lakes fishery is collectively managed as an ecosystem. The plan, which is widely hailed as one of the world's best examples of cooperative fishery management, was the subject of an inten-

Fishery Agencies, CONTINUED ON PAGE FOUR 

Calendar

- Lake Committee Meetings
 - March 16-19 Thunder Bay, ON
 - March 24-26 Niagara Falls, ON
- GLFC Annual Meeting
 - June 2, 3 Chicago, IL

New Online

<http://www.glfc.org>

- Great Lakes Fishtank
 - A gallery of Great Lakes fish images
- Sea Lamprey Fishtank
 - A gallery of sea lamprey images
- Early Mortality Syndrome Issue Brief
 - by Sue Marcquenski and Scott Brown
- A Joint Strategic Plan for Management of Great Lakes Fisheries
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From the Chair...

Chuck Krueger

PERM Partnership Elevates Great Lakes Science

The year 1997 witnessed a new approach by the commission to accomplish sea lamprey research — an event with auspicious implications for Great Lakes science basinwide. In February, the Great Lakes Fishery Commission entered into a new agreement with Michigan State University, the U.S. Geological Survey, and the State of Michigan to forge a truly collaborative arrangement between academic and governmental research institutions for the purpose of conducting sea lamprey research. The new arrangement — within the Partnership in Ecosystem Research and Management, or PERM, program at Michigan State University — places governmental and university researchers in a framework where the administrative boundaries between them disappear and a bonafide, permanent team approach emerges.

Here is how PERM works. The commission — which has the responsibility to conduct sea lamprey research — has combined



Dr. Mike Jones (below, right) and Dr. Weiming Li are Michigan State University's PERM sea lamprey scientists. The PERM scientists work with colleagues at the Lake Huron Biological Station (above left), Michigan State University, the State of Michigan and the commission to formulate and implement sea lamprey research.

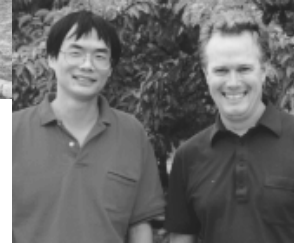


Photo: Pat Soranno

its resources with the other PERM partners to fund two tenured-track, research-scientist positions at Michigan State University. The PERM partners share facility, equipment, and other costs, and have formed a committee to identify key resource issues and to provide direction for scientific research. The commission funds the PERM scientists' salaries. Like all in academia, PERM scientists compete for grants to carry out the research.

What is most remarkable about PERM is the quality of the scientists involved. The positions are attractive to top quality scientists because they include professorial appointments at a leading university. This desirable outcome results from a commitment by Michigan State University to secure tenured-track faculty positions without the long-term assurance of salary remuneration from the other partners.

The commission is very pleased to have Dr. Michael Jones (formerly of the Ontario Ministry of Natural Resources) and Dr. Weiming Li (formerly of Monell Chemical Senses Center) as the PERM sea lamprey scientists. Dr. Jones — a sys-

tems ecologist with expertise in fish population dynamics — and Dr. Li — a fish physiologist with expertise in chemical ecology — work with scientists at cooperating state and federal agencies to formulate and implement sea lamprey research.

Although individual agencies forego some of their direct authority over research programs under PERM, everyone benefits from close collaboration and resource sharing. Indeed, with this arrangement, all PERM partners come out ahead. The Lake Huron Biological Station benefits because PERM brings the advantages of a major university to a remote research station. Michigan State University benefits because PERM allows the otherwise landlocked university access to the Lake Huron Biological Station (and to the expertise of the facility's personnel). The commission, the U.S. Geological Survey, the State of Michigan, other fishery agencies, and the resource itself benefit from more a cohesive science program — ultimately better information for improved sea lamprey management.

As problems on the Great Lakes become increasingly complex, greater expertise in more areas of science is required for their solution. In times when research dollars are shrinking and when individual research facilities are limited, enhanced collaboration is essential. Through better collaboration, we not only direct research dollars to where they are most needed, but we also stretch those dollars further.

The commission is very enthusiastic about the direction of science on the Great Lakes and about the future of this new partnership. The PERM agencies are using innovative approaches to science as we enter the 21st Century. Certainly, PERM represents science, scientific direction, and partnerships at their best. ≈

Commission Honors Former Advisor Dick Kubiak

During its recent annual meeting in Ottawa, Ontario, the Great Lakes Fishery Commission took great pleasure in honoring Dick Kubiak for his many years of service as a Lake Erie sportfishing advisor to the U.S. section. Dick was nominated to serve on the advisory committee in 1981 by then Pennsylvania Governor Dick Thornburgh; he served as advisor for 15 years. Throughout his service as advisor, Dick was known for his dedication to the advisory committee and for his strong respect for the natural resources. He never hesitated to raise major issues of importance, whether the issues were resource-related or whether the issues related to functions of the advisory committee itself. Dick is the past



Commission Chairman Chuck Krueger (left) presents former Advisor Dick Kubiak with a special certificate of recognition for his many years of service to the Great Lakes Fishery Commission. Photo: Great Lakes Fishery Commission

President of Great Lakes United and currently serves as a Professor of History at Mercyhurst College in Pennsylvania. ≈

With Rifle River Sea Lamprey Control, Everyone Wins... but Lampreys

By Terry Morse

With the reason of a scientist, the precision of a hunter, and the grace of a choreographer, a binational team carried out the single largest sea lamprey control treatment in history on Michigan's Rifle River and its tributaries. The Rifle River treatment — which took place in July — was the first time lamprey control agents from both the United States and Canada have worked side-by-side on the same stream. It was also the first time lamprey control agents have treated a river as large and as complex as the Rifle in one application. All told, the Rifle River sea lamprey control effort was a tremendous success: treatment crews killed tens of thousands of lamprey larvae, saved nearly \$100,000 in lampricide costs, and significantly reduced the time to treat the river from 30 days to just eight days.

The Rifle River is an extremely hospitable place for sea lampreys. The river contains the gravel and silt areas that lampreys prefer and biologists estimate that the river, if left unchecked, would produce 30,000 sea lampreys annually, all eager to prey on Lake Huron's fish.

The river's large size and extensive tributary system (19 major tributaries) require a very labor intensive effort to treat for sea lampreys. "In previous years, agents treated the river in three sections, doing an initial lampricide application in some tributaries and then returning later to treat the mainstream," explained Dorance Brege of the U.S. Fish and Wildlife Service, the primary treatment supervisor. "The treatment had to be split into three sections because it was simply too large for one crew to manage in one treatment."

Following guidance from the Great Lakes Fishery Commission, the Lampricide Control Task Force suggested that U.S. and Canadian treatment crews work together to carry out the treatment in a single, coordinated effort. This would save time, money, and lampricide. So this year, Canadian lamprey control crews joined U.S.



Photo: U.S. Fish and Wildlife Service

The Rifle River attracts thousands of anglers, canoeists, and tubers each week. This past summer's sea lamprey treatment — the largest treatment in history — required only eight days to complete, thus minimizing the intrusion into people's recreational time.

crews to conduct one large lamprey control treatment on the Rifle River — the largest sea lamprey treatment in history.

"Implementing this large-scale treatment was no small task," said Canadian supervisor Wayne Westman of the Department of Fisheries and Oceans. "It involved coordinating the work of 50 personnel, obtaining special authority for Canadian personnel to work in U.S. waters, maintaining the lampricide concentration at an appropriate level for nine-hour blocks of time, and assuring that the lampricides arrived at the desired areas at exactly the time required. The treatment team carried out this scientific and logistical challenge without a hitch, and ultimately prevented tens of thousands of sea lam-

by 50% by the year 2001. Through improved precision and better application procedures, the Rifle River treatment saved nearly 3,500 pounds of lampricide (about 5% of total lampricide used annually in the Great Lakes), worth nearly \$100,000. Lampricide savings like that are very encouraging and make future large-scale treatments attractive.

Conservation of time was also an important driving force behind the Rifle River treatment. Previous treatments required about 30 days to complete. With everyone working together, this year's treatment took only eight days. The Rifle River is one of Michigan's most popular recreation spots, with thousands of anglers, canoeists, and tubers using the river each week. By significantly reducing the treatment time, agents also significantly reduced the intrusion into people's recreational time. Feedback from canoe livery managers and from recreational users was overwhelmingly positive in this regard.

With this treatment we have ushered in a new era of U.S. and Canadian cooperation, we have applied some of the best lampricide-saving techniques available, and probably most important, we have achieved significant sea lamprey control with minimal inconvenience to Rifle River users. With a success like this, everyone wins but lampreys! ≈

Terry Morse supervises the USFWS lamprey control unit. He currently serves as Lampricide Control Task Force Chairman and is a member of the Lake Huron Technical Committee.



Angie Boyer, a lampricide application specialist with the U.S. Fish and Wildlife Service, applies TFM in the exact concentration necessary to selectively eliminate larval sea lampreys.

Photo: U.S. Fish and Wildlife Service

preys from killing Lake Huron fish."

With the tremendous success of the Rifle River treatment, sea lamprey control managers are working to identify other rivers where such large-scale, joint treatments can occur.

Program managers also are considering the impact of large combined treatments on the Great Lakes Fishery Commission's strategic vision to reduce lampricide use

Who carries the big stick that controls Great Lakes fisheries policies?

No one. Each of the fifteen federal, state, provincial, and tribal agencies have distinct and sovereign responsibilities for the protection and enhancement of fisheries. Each entity has and will exercise authorities to perform such functions as regulating harvests, conducting scientific investigations, and implementing habitat enhancement projects. With the assistance of the Great Lakes Fishery Commission — formed by treaty between the United States and Canada in 1955 — the

James Schlender (center left) and Neil Kmiecik (center right) of the Great Lakes Indian Fish and Wildlife Commission sign the revised plan on behalf of their agency. Commission Chairman Chuck Krueger (far right) and Commission Vice-Chairman Bill Beamish (far left) observe.



Photos: Great Lakes Fishery Commission

agencies have renewed their commitment to the plan and its mechanisms for dealing effectively with shared resources.

Under the plan, none of the agencies is required to relinquish their authorities. Rather, they commit to analyze problems collectively and agree to adopt solutions jointly. While consensus agreement is the name of the game, the plan outlines mechanisms for dispute resolution when consensus cannot be achieved. Several organizational arrangements help the

agencies approach the monumental task of managing fisheries from Lake Superior to Lake Ontario. For example, each of the lakes has its own committee, consisting of representatives from each of the associated fishery management agencies of the states, the Province of Ontario, and the tribes. These lake committees are the essence of the plan. They tackle the complex and difficult management questions that are critical to the management of fisheries in each lake. Not only do the lake

sive two-year review process in an effort to identify ways in which cooperative Great Lakes fishery management can be enhanced. Major changes to the plan include:

An expanded commitment by fish managers to work together to influence all management activities which affect fish

The plan, since its inception, has epitomized the ecosystem approach to fishery management; the revised plan reaffirms this approach. The plan acknowledges that management practices that deal with the environment, with shipping and transportation, with dredging, or with myriad other issues can impact the fishery. The revised plan calls for signatories to work together more closely to influence and respond to all practices — not just fishery management activities of the other signatories — which affect fish communities.

Stronger links with environmental management agencies

The revised plan acknowledges that more needs to be done to coordinate fishery objectives with environmental management. Lakewide Management Plans (LaMPs) and Remedial Action Plans



Ohio Fish Chief Gary Isbell, Chairman of the new Council of Great Lakes Fishery Agencies, moderates the Joint Strategic Plan signing ceremony. The revised Plan created the Council to ensure mutual accountability among agencies with fishery management authority on the Great Lakes.

(RAPs) are identified in the revised plan as processes which fishery management agencies can work more effectively with their environmental counterparts.

The establishment of a Council of Great Lakes Fishery Agencies

The original plan was created by an ad hoc Committee of the Whole made up of high-ranking officials of the signatory agencies. In practice, the Committee of the Whole met infrequently. The new Council of Great Lakes Fishery Agencies is made up of fishery management officials (fish chiefs or their equivalents) empow-

ered to act on behalf of their respective agencies. The council is designed to make decisions by consensus to ensure mutual accountability of the parties in the implementation and periodic review of the plan and to provide guidelines within the plan's institutional arrangement, among other responsibilities. This council will receive administrative support from the Great Lakes Fishery Commission.

A revised mechanism to resolve interjurisdictional disputes

Signatories to the plan have agreed to seek consensus when management practices may affect other jurisdictions. The original plan relied on the Great Lakes Fishery Commission to provide non-binding arbitration in the settlement of disputes between jurisdictions. If consensus cannot be achieved, the revised plan allows for independent third-party mediation.

A copy of the revised Joint Strategic Plan for Management of Great Lakes Fisheries is available on the Great Lakes Fishery Commission's website at www.glfc.org/sglfpmp97.htm or by calling the commission at 313-662-3209, extension 10. ≈



Gregory Smith of the U.S. Geological Survey, Biological Resources Division (USGS/BRD), signs for his agency. Management agencies invited USGS, formerly the National Biological Service, to become a signatory to the revised plan.

Douglas Jester, Council of Lake Committees Chair, presents Margaret Dochoda of the Great Lakes Fishery Commission staff with the pen used to sign the revised plan, in recognition of her work to facilitate the revision process.

committees address such issues as catch quotas and stocking strategies, but they also devise joint plans for biological assessment projects. A new feature of the plan is the development of a Council of Great Lakes Fishery Agencies. This new group could be thought of as the “keeper of the plan.” In the years ahead the Council will oversee the plan’s function, especially as it relates to the coordination between fishery management, environmental, and law enforcement agencies.

Where can you go to see a better plan in action for managing complex, shared fisheries?

Nowhere. At least that’s the opinion of those of us who rely upon the cooperation of other agencies for the future well-

being of Great Lakes fisheries. The plan and all of the associated committees and organizations may not be perfect, but it has an excellent track record of dealing with tough fishery issues. With the renewed commitment of the fifteen agencies, there is good reason to be optimistic about the future of Great Lakes fisheries. ≈


Gary Isbell is Chief of Fisheries for the State of Ohio. He currently chairs the Council of Great Lakes Fishery Agencies.

- Agencies party to
A Joint Strategic Plan
for Management
of Great Lakes Fisheries:
- Canada Department of Fisheries and Oceans
 - Chippewa-Ottawa Treaty Fishery Management Authority
 - Great Lakes Indian Fish and Wildlife Commission
 - Illinois Department of Natural Resources
 - Indiana Department of Natural Resources
 - Michigan Department of Natural Resources
 - Minnesota Department of Natural Resources
 - National Marine Fisheries Service
 - New York State Department of Environmental Conservation
 - Ohio Department of Natural Resources
 - Ontario Ministry of Natural Resources
 - Pennsylvania Fish and Boat Commission
 - U.S. Fish and Wildlife Service
 - U.S. Geological Survey
 - Wisconsin Department of Natural Resources

A SHORT HISTORY OF COOPERATIVE FISHERY MANAGEMENT

As early as 1937, the Great Lakes states recommended consideration of an inter-state compact for bringing about agreements for conservation of their fisheries that included the other Great Lakes fish management authority of the day, the Province of Ontario (1937 New York Conference). Unable to obtain advance Congressional approval for an inter-state compact that included a contiguous dominion or its province, and with the sea lamprey invasion underway, state efforts were redirected and the U.S. and Canada signed the 1955 Convention on Great Lakes Fisheries.

The subsequently established Great Lakes Fishery Commission (GLFC) increasingly became the forum favored by the fishery agencies to coordinate their research and management. Thus it was in the late 1970s that Great Lakes States again rejected an opportunity to form a U.S.-only coordinating



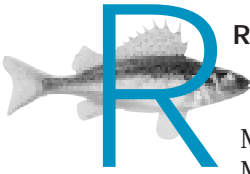
body, this time a Regional Fishery Management Council under the (Magnuson) Fishery Conservation and Management Act of 1976. Instead, with their provincial counterparts, U.S. natural resource agencies requested the assistance of the GLFC in drafting a strategic plan in which fishery agencies would formalize their commitment to Lake Committees as their “major action arm”.

In 1981 A Joint Strategic Plan for Management of Great Lakes Fisheries was signed by state, federal and provincial fish management agencies. Directors restated their commitment in a 1985 review of the resulting strategic plan and again in the review just completed. At the invitation of the original signatories, the Chippewa-Ottawa Treaty Fishery Management Authority and the Great Lakes Indian Fish and Wildlife Commission signed the plan in 1988, and the U.S. Geological Survey signed in 1997.

Art Holder (left) and Alan Pope (standing) of the Ontario Ministry of Natural Resources sign the original Joint Strategic Plan in 1981. Also pictured, former Executive Secretary Carlos Fetterolf.

Great Lakes Impacts “Ruffed” Out at International Symposium

By Jeff Gunderson



Ruffe are Ideal Invaders

Results of an International Ruffe Symposium held March 21–23 in Ann Arbor, Michigan, offer hope that ruffe (pronounced rough), a small but aggressive fish native to Eurasia, may not be as destructive or as costly to the Great Lakes as feared. The symposium, sponsored by the Minnesota and Michigan Sea Grant College programs, brought together 100 managers, administrators and scientists from around the world to present results of their ruffe research.

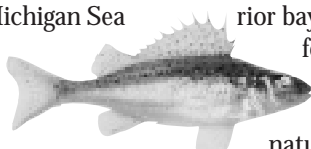
Historically, ruffe have had little use in industry or as a source of human food, even in their native waters. They were introduced into the St. Louis River, the main tributary to western Lake Superior, in the early 1980s, probably in the freshwater ballast of ocean-going vessels. The ruffe’s traits make it an ideal invading species. Literature at the time of their first appearance suggested that ruffe matured and reproduced quickly, adapted to a wide variety of environments, and competed with native fishes, such as yellow perch, for food. As a result, ruffe were considered a serious threat to the delicate predator-prey balance vital to sustaining healthy commercial and sport fisheries.

True to those early predictions, within five years ruffe became one of the most abundant fish in the St. Louis River. They quickly spread on their own along the south shore of Lake Superior (nearly 200 miles). Ruffe were also deposited in Thunder Bay, Lake Superior (Ontario waters), and Thunder Bay, Lake Huron (Michigan waters), most likely via ballast water of ships leaving the Port of Duluth/Superior. Populations in both Thunder Bays are small but reproducing.

Are Yellow Perch at Risk?

To the surprise of many of the International Symposium’s participants, research showed ruffe have little, if any, negative impact on yellow perch populations. Even

in the St. Louis River where ruffe are dominant, there is no evidence that yellow perch numbers declined as a result of ruffe, according to Chuck Bronte (U.S. Geological Survey, Ashland, WI). He and his co-authors compared population fluctuations of yellow perch and other native fish species in the St. Louis River to fluctuations of fish populations in a Lake Superior bay with very few ruffe. They found that St. Louis River yellow perch fluctuations were as likely the result of natural changes as of the presence of ruffe.



Colin Adams (University Field Station, Glasgow, Scotland) and Ian Winfield (NERC Institute of Freshwater Ecology, Cumbria, England) studying lakes in the United Kingdom where ruffe have invaded within the last 15 years, also concluded there is no evidence that ruffe have impacted the European perch (a species very similar to our yellow perch). Russian scientist Victor Mikheev (A.N. Severtsov Institute of Ecology and Evolution, Moscow), through his review of the Russian literature, concluded that the European perch does not seem to be impacted by ruffe where they naturally coexist.

Ray Newman (University of Minnesota, St. Paul) reported on the food preferences of ruffe and other species in two Lake Superior tributaries. Newman’s research showed that ruffe and yellow perch generally prefer and consume different food items,

although there was some diet overlap.

This is good news for the Great Lakes, where Peter Leigh (NOAA, Silver Spring, MD) estimated that even a moderate impact of ruffe on yellow perch could cause an annual loss of \$105M to the Great Lakes yellow perch sport fishery (over 50 years).

Still, a team of researchers examining the impacts of ruffe on yellow perch in enclosures (fish corrals) in the St. Louis River have found interactions between the two that suggest yellow perch may be the loser in a head-to-head confrontation.

Lake Superior Ruffe from Danube River, Not Baltic Sea

Previously, scientists speculated Lake Superior ruffe may have arrived in the ballast of ships coming from the Baltic Sea region, specifically St. Petersburg, Russia. Carol Stepien (Case Western Reserve University, Cleveland, Ohio), however, determined that Lake Superior ruffe likely hitched a ride in ships’ ballast coming from the Black Sea region. Ruffe collected from the Danube River in Slovakia are identical to ruffe she examined from the St. Louis River. The Danube River flows into the Black Sea. Stepien found that ruffe from the recent infestation in Lake Huron near Alpena, MI, are identical to the ruffe in the St. Louis River.

Some Ruffe Eat Fish Eggs, Some Don’t

Ruffe in Europe are known to eat the eggs of coregonids, relatives of Great Lakes whitefish and lake herring, which are important commercial species here. Some researchers found eggs to be very important; others did not. Vladimir Kovac

Ruffe, CONTINUED ON NEXT PAGE 

Scientists from around the world gathered in Ann Arbor, Michigan to discuss ruffe and its potential impact on the Great Lakes. Pictured from left to right are Colin Adams (Scotland), Ian Winfield (England), Victor Mikheev (Russia), Franz Holker (Germany), and Vladimir Kovac (Slovakia).

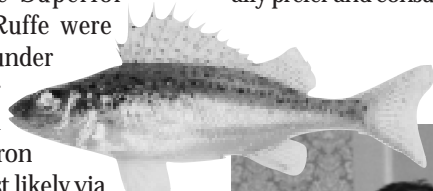


Photo: Minnesota Sea Grant

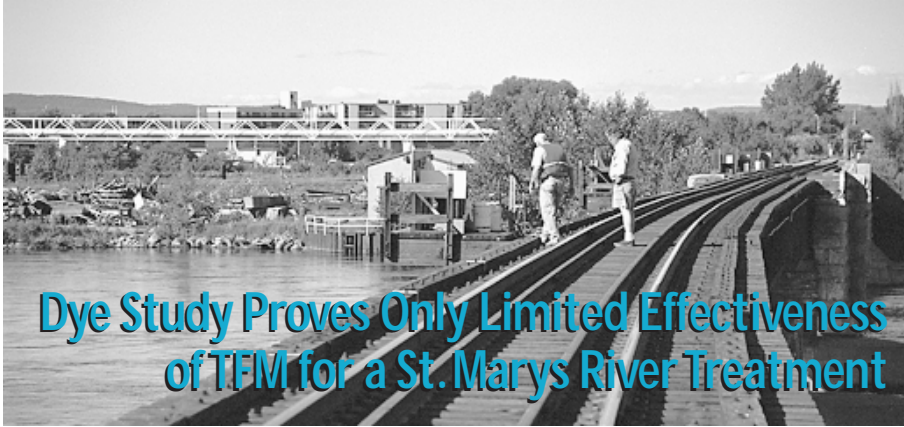


Photo: Great Lakes Fishery Commission

Dye Study Proves Only Limited Effectiveness of TFM for a St. Marys River Treatment

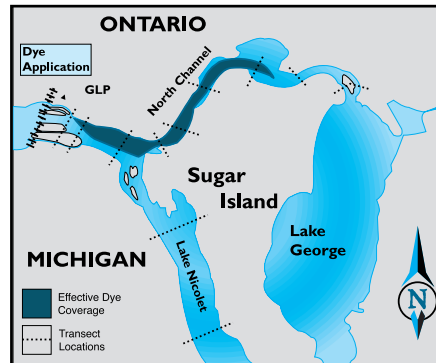
Scientists applied a harmless dye from a railway bridge upstream of the Great Lakes Power (GLP) generating station on the St. Marys River.

S By Larry Schleen

Scientists have long suspected that the conventional lampricide TFM would not be an effective tool to control sea lampreys in the St. Marys River. Results from a dye study conducted last summer confirm those suspicions: a TFM treatment would be relatively effective in the north channel portion of the river, but ineffective in the south channel (Lake Nicolet) portion, home to more than half of the river's sea lamprey larvae.

The St. Marys River is now the largest undercontrolled source of lampreys in the Great Lakes, harboring millions of lamprey larvae and producing more than 300,000 parasitic-phase lampreys annually — more than all of the other Great Lakes combined. Conventional treatment of the river's tremendous volume has not been attempted because of the unresolved questions of effectiveness and cost.

Since 1992, the Great Lakes Fishery Commission (GLFC) and its agents have undertaken extensive assessment efforts to locate and map the distribution of lam-



The dye study confirmed that a TFM treatment would be relatively effective in the north channel of the river but ineffective in the Lake Nicolet region, home to more than half of the river's sea lamprey larvae.

prey larvae in the river. Researchers at Clarkson University, led by Dr. Hung Tao Shen, used their expertise in the hydrology of large rivers to develop a computer model that simulates how TFM would move when poured into the St. Marys River. Their model suggested that a TFM treatment would be partially effective in the north channel portion of the river, but would not be effective in the Lake Nicolet portion.

But all models are only as good as the

information that goes into them. Real field data were needed to verify and refine the transport models. Thus, last summer, more than fifty people from numerous management agencies (including the U.S. Fish and Wildlife Service, the Department of Fisheries and Oceans, the National Biological Service, the State of Michigan, the Chippewa-Ottawa Treaty Fishery Management Authority, and the GLFC) brought a fleet of boats and plenty of equipment to carry out a large-scale study using dye to map river flows. Agents applied the harmless dye from the railway bridge upstream of the Great Lakes Power (GLP) generating station. As the dye moved down the St. Marys River, scientists collected water samples from various locations (transects) below the GLP plant to determine the concentration of the dye. The data were summarized and compared to known locations of sea lamprey larvae.

Although the dye study confirmed the partial effectiveness of TFM in the St. Marys River, the *cost-effectiveness* of a TFM application remains questionable. Based on the dye study and on improved model predictions, TFM, if applied at the flow conditions experienced during the dye study, would eliminate only 35% of the river's sea lamprey population and would cost more than the entire Great Lakes-wide annual budget for lampricides. By comparison, spot treatments with granular Bayer (a lampricide that targets specific areas of river bottoms) would eliminate twice as many sea lamprey for half the price.

All told, the information provided by the dye study has confirmed that alternatives to TFM — such as the sterile-male-release-technique, trapping, and the granular Bayer lampricide — must be used if effective control of the St. Marys River is to be achieved. The dye study proved to be an instrumental part of a comprehensive assessment of the St. Marys River's sea lamprey problem and its success is a tribute to the innovation and partnerships of all those who support the effort to restore the fish communities of Lake Huron and northern Lake Michigan. ≈

Larry Schleen supervises the Canadian DFO sea lamprey control unit. He currently serves as St. Marys River Task Force Chairman and is a member of the Lampricide Control Task Force.

RUFFE, CONTINUED

(Comenius University, Bratislava, Slovakia) suggested that egg predation by ruffe may be related to water clarity. Ruffe do not eat eggs in the turbid St. Louis River or the Danube, but they do eat eggs in many European lakes with greater water clarity.

Ruffe are Here to Stay

Even though the symposium ended on a note of guarded optimism, we should not be complacent. We still need to take steps to ensure that ruffe aren't carried inland. Boater and angler education is extremely important in this respect.

The bottom line is that ruffe are pros-

pering and they will continue spreading across North America. Unlike the effects of oil spills and pollution, which can sometimes be reversed, ruffe will change our North American fish communities forever. We must close the door to new introductions, because once they get here, they're here to stay. ≈

Jeff Gunderson is the Associate Director and Fisheries and Aquaculture Extension Educator for Minnesota Sea Grant. Minnesota Sea Grant has produced a 65-page booklet (cost: \$5) containing the symposium abstracts, which can be ordered by calling 218-726-6191 or at www.d.umn.edu/seagr/contents.html on the Internet.

Commission Lauds Little Calumet River Partnership

By Marc Gaden

SEA LAMPREY BARRIERS prevent lampreys from reaching their spawning grounds while still allowing for the passage of other fish. Indeed, a sea lamprey barrier is an attractive control technique because once one is installed in a river, that river is removed from the list of those that require full-scale lampricide treatments. Barriers are not cheap, but, over the long run, they pay for themselves in what we save in lampricide treatment costs.

Because barriers are so important to the control effort, the commission, during its recent annual meeting, took great pleasure in recognizing a group of people who made a sea lamprey barrier on Indiana's Little Calumet River a reality at no cost to the commission.

Mike Ryan, a U.S. Advisor to the commission and the President of the Northwest Indiana Steelheaders, brought it to the commission's attention that the Praxair Corporation, which owns a dam on Indiana's Little Calumet River, intended to repair the dam because it had deteriorated to the point that it blocked steelhead passage. Ryan pointed out that as long as Praxair intended to repair the dam, the dam might as well be engineered to also serve as a sea lamprey barrier.

Over the course of several months, Ryan and the Northwest Indiana Steelheaders, Ellie Koon of the Fish and Wildlife Service, Greg Martin of Praxair, Jim Francis of the Indiana Department of Natural Resources, and barrier engineer Tom McAuley of the Department of Fisheries and Oceans, worked to develop a barrier design that would block lampreys and pass other fish, and to do that in a cost-effective way that satisfied all partners.

Praxair worked the recommended changes into its final barrier design and financed the construction of the barrier at



Photo: U.S. Fish and Wildlife Service

Engineers included sea lamprey blocking attributes to a dam on Indiana's Little Calumet river in order to prevent sea lampreys from migrating upstream to spawn. This sea lamprey barrier—constructed by the Praxair Corporation at no cost to the commission—will save approximately \$25,000 per year in treatment costs.

no cost to the commission. It is estimated that the savings in lampricide treatments alone amount to \$25,000 per year while still allowing the same level of sea lamprey control.

The Great Lakes Fishery Commission was proud to recognize the contributions of these individuals and the organizations they represent for their efforts to improve sea lamprey control; for their creativity in recognizing and acting on an opportunity to build a partnership between government, industry, and an angling group; and for their ability to deliver real savings in program dollars. ≈



Commissioner Burton Ayles (far right) presented an award to the people involved in the Little Calumet River barrier project. Award recipients (L-R): Jim Francis (IN DNR), Mike Ryan (NW IN Steelheaders), Ellie Koon (USFWS), and Tom McAuley (DFO). Not pictured: Greg Martin of Praxair

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