

# Annual Report of the Great Lakes Fishery Commission

# 1996

## Anniversary Celebration Highlights Success and Binational Cooperation



*From the Chair*  
Gail Beggs

Dignitaries from the United States and Canada (right) were on hand to celebrate the success of the lamprey control program and to unveil a commemorative plaque (top of page 2). From left to right, the dignitaries include Soo Mayor Stephen Butland; the Hon. Fernand Robichaud, MP; the Hon. Ron Irwin, Minister DIAND; Paul Steckle, MP; Bill Hartwig, U.S. Fish and Wildlife Service; Stan Dromisky, MP; and the Hon. Walter North, Michigan Senate. Not pictured: Joe Comuzzi, MP.

Photos: Great Lakes Fishery Commission



In mid-September, 1996, nearly 1,800 school students, fishery management professionals, dignitaries, and members of the general public—from both the United States and Canada—visited the Sea Lamprey Control Centre in Sault Ste. Marie Ontario to celebrate the 40th anniversary of the sea lamprey control program in the Great Lakes. The event also marked the Centre's 30th anniversary. Visitors did more than observe the success of sea lamprey control; they also honored the international cooperation that makes the sound management of our shared Great Lakes fishery possible.



The anniversary celebration in the Soo was a fitting tribute to the hard work and dedication to the resource that has characterized fishery management in the Great Lakes for 40 years. Indeed, by working together, we have demonstrated a strong and lasting commitment to the Great Lakes fishery resources.



As an enduring reminder of this cooperation, dignitaries from the United States and Canada—including five members of Canada’s House of Commons, a Michigan State Senator, the Mayor of Sault Ste. Marie Ontario, the Chairman of the International Joint Commission, and the Regional Director of the U.S. Fish and Wildlife Service—unveiled a commemorative plaque during the ceremonies.


Just how far have we come in 40 years? Very far.

- Sea lamprey populations have been reduced by 90% in most areas of the Great Lakes. This is a remarkable success considering that 40 years ago, prior to sea lamprey control, lampreys swarmed to streams by the millions during their spawning runs.
- Native species restoration is on the move and remains an important goal of management agencies throughout the Great Lakes basin. Our valuable native species—such as lake trout and ciscoes—were nearly extirpated from the Great Lakes 40 years ago directly and indirectly because of sea lampreys. Today, lake trout no longer need to be stocked in large areas of Lake Superior, because the populations are self-sustaining. This success demonstrates that we can collectively restore the lakes to their natural splendor.
- Partnerships continue to drive fishery management on the Great Lakes. Last year, state, provincial, tribal, and federal agencies on the Great Lakes committed to review and strengthen *A Joint Strategic Plan for Management of Great Lakes Fisheries*. Under this plan, agencies agree to work together to manage the Great Lakes fishery as an ecosystem. In 1996, agencies met on several occasions to focus on several aspects of the Joint Strategic Plan and on how the working relationship among agencies can be improved. Agencies expect the revised plan to be ready for signing in 1997.
- The commitment to sound science has remained paramount in the management of our natural resources. The release of the RESTORE and HabCARES symposia papers in 1995 and 1996, respectively, are just two recent examples of science on the Great Lakes that has provided the United States and Canada with the know-how to manage this international fishery.

Of course, there are challenges ahead. Consistent with the commission’s Strategic Vision, we remain committed to reducing our lampricide use by 50% by the year 2001. Although this is ambitious, we will continue to seek alternative ways of delivering an effective program by devoting significant attention to alternative controls and research.

We shall work hard to create a healthy environment for fish to thrive; we shall build on the successful rehabilitation of lake trout in Lake Superior in hopes of achieving restoration of native species in the other Great Lakes.

Although sea lampreys produced in the St. Marys River are suppressing the success of the Lake Huron fishery, and although we have in the past been unable to treat the St. Marys River because of its size and because of funding shortfalls, we are now poised to achieve sea lamprey control there thanks to years of assessment, research, and planning.

To prepare for the future, it is vital to understand where we have been. The 40-year anniversary we mark reminds us of just how far we have come and it allows an opportunity to recognize a job well done. The anniversary also allows us to pause and reflect on how we have been able to achieve our goals and how we can improve upon our work. The commission’s guiding principles, the overriding desire to restore a healthy fishery, and the solid foundation of cooperation built over four decades, leaves us ready and able to tackle today’s problems and face our future challenges. 



HabCARES and RESTORE symposia papers were published recently in prominent scientific journals.

## Sea Lamprey Control

Sea lamprey control, under the *Convention on Great Lakes Fisheries*, is a critical fishery management action delivered to support the fish community objectives developed by the Lake Committees. To carry out sea lamprey control, the commission relies on an integrated management of sea lamprey approach that uses lampricides and alternative, non-chemical techniques such as barriers, trapping, and the release of sterile males. Many agencies, including the U.S. Fish and Wildlife Service (USFWS), the Department of Fisheries and Oceans (DFO), the National Biological Service, the tribes, the province of Ontario, and the states contribute resources and expertise to the integrated sea lamprey management program.

In 1996, DFO and the USFWS—the two agencies contracted to conduct the field work for the sea lamprey control program—collectively:

- treated 57 tributaries with lampricides;
- surveyed 223 Great Lakes tributaries, inland lakes, and lentic areas to assess TFM treatment or barrier effectiveness, to plan future TFM treatments, and to establish production capacity of streams; and
- operated assessment traps in 63 tributaries to capture spawning lamprey and to estimate the spawning-phase population in each lake.

The target for the sea lamprey population in Lake Ontario, set by the Lake Committee, is being met. The uncontrolled population of sea lamprey larvae in the St. Marys River continues to produce an unacceptably high population of parasitic lampreys in Lake Huron that is compromising lake trout rehabilitation in that lake. In addition, parasitic sea lampreys are more abundant in the northern part of Lake Michigan than in the south and likely are a threat to lake trout survival in the rehabilitation refuges and zones. Wounding rates on lake trout in Lake Erie have edged slightly above the target level of five percent.

The commission's Strategic Vision calls for a 50% reduction in the use of lampricides (from the average use in the 1980s) by the year 2001. Although this target is optimistic, substantial progress with alternative controls is significantly well advanced compared to 1991, the year the Strategic Vision was developed. By 1996, the commission was using approximately 25% less TFM compared to the average use in the 1980s.

Further progress was achieved in development of an effective strategy to control sea lampreys in the St. Marys River. Mapping of the distribution and density of sea lamprey larvae was completed in 1996. The new granular Bayluscide formulation was tested and found effective in large-scale applications. A full-river dye study, conducted in August, 1996, provided vital information about the potential effectiveness of TFM use in the St. Marys River.

Implementation of the sterile-male-release-technique continued in Lake Superior and the St. Marys River. The sterilization facility continued to meet the needs of the program. In 1996, lamprey control personnel sterilized 16,380 male lampreys and released them into streams. A four-year systematic evaluation of the technique was initiated in eight streams in Lake Superior.

The Barrier Task Force worked on expanding the development and use of sea lamprey barriers. To date, 54 barriers have been constructed or modified on Great Lakes tributaries to stop sea lamprey migration. In 1996, one barrier was constructed and six existing dams were modified to prevent passage of spawning sea lampreys.

In April, 1996, the commission established an Assessment Task Force to evaluate and recommend any changes to the larval and spawning-phase sampling programs. The Lampricide Control Task Force met in March and September of 1996 to formulate and communicate options for reducing TFM during stream treatments.

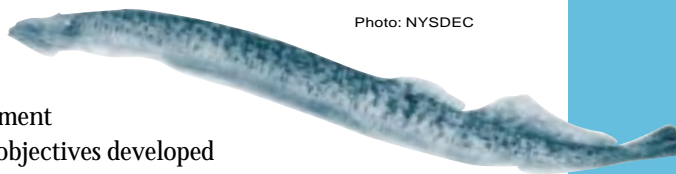


Photo: NYSDEC



Biologists wear backpack electro-fishing gear to stimulate larval sea lampreys out of their burrows. The data are used to measure larval sea lamprey abundance in Great Lakes streams and tributaries.

Photo: U.S. Fish and Wildlife Service



Scientists applied a harmless dye from a railway bridge of the Great Lakes Power generating station on the St. Marys River to measure the potential effectiveness of TFM for a St. Marys River treatment.

Photo: Great Lakes Fishery Commission

## Fishery Management, Research, and Environment

Sound science is the basis for our understanding of the environment in which we live and of the fishery management practices we wish to undertake. Achieving the Convention's goals for a healthy, diverse, and sustained fishery relies on the commitment to and the application of science. The Great Lakes Fishery Commission depends on advice from its Board of Technical Experts, its Habitat Advisory Board, its Sea Lamprey Integration Committee, the Lake Committees and their technical committees, and the Great Lakes Fish Health Committee to guide its decisions on the direction of research.

Based on recommendations from its boards, the commission, in 1996, approved research projects under the following categories:



The GLFC approved a research project in 1996 that will investigate Chinook salmon survival after sea lamprey attacks.

Photo: National Biological Service

### Alternative Control

- Fish community impacts of low head barriers
- Pheromones as sea lamprey attractants
- Alternative sterilization techniques
- Methods to identify lamprey's stream of origin
- Controlling and preventing sea lamprey transformation

### Internal Research

- Improving ability to classify lamprey larval habitat
- Survival of chinook salmon attacked by lampreys
- Formulation and efficacy of liquid formulation of Bayluscide
- Evaluation of the sterile-male-release-technique
- Evaluation of sterilants used in the sterile-male-release technique
- Natural enemies and host resistance to lampreys
- St. Marys River control options
- Models of feeding and growth of parasitic sea lampreys
- Survival to spawning phase of metamorphosed sea lampreys
- Registration of lampricides and lampricide safety

### Board of Technical Experts

- The role of biodiversity in managing the Great Lakes fishery resources

### Integrated Management of Sea Lamprey Protocol

- Benefits of sea lamprey control (value of fish)
- Lake trout mortality caused by sea lamprey

### Other partnerships

- Movement of walleye and sturgeon in the Bad River, Wisconsin
- Conceptual model of the Lake Ontario fish community
- Fish passage and lamprey exclusion aspects at the Dow dam, Tittabawassee River, Michigan
- Evaluation of the sterile-male-release-technique
- Lampricide transport in the St. Marys River



The commission's *Strategic Vision for the Decade of the 1990s* reaffirms the importance of the ecosystem approach to management of Great Lakes resources. The Vision states that "the ecosystem approach to decision making recognizes the interconnection of air, land, and water of the Great Lakes basin and its inhabitants. All components of the ecosystem (such as nutrients, primary production, forage fish, predatory fish, habitat, chemical contaminants, climate, and human use) interact with each other and therefore must be considered in terms of their system-level effects."

To support the ecosystem approach, the commission pledged to encourage the rehabilitation and protection of healthy aquatic ecosystems in the Great Lakes that are based on foundations of: naturally reproducing fish populations, self-sustaining fish communities, sustainable benefits to society, and the conservation of biological diversity. The commission noted that such things as introductions of invasive species, loss of native species, loss of habitat, and the presence of persistent toxic substances threatens the achievement of objectives for a healthy ecosystem.

Based on commission-supported and other research, the commission undertook several initiatives in 1996 in support of its vision for healthy ecosystems. For instance, the commission:

- commended the fishery management agencies on Lake Superior for their decades-long effort to restore lake trout to self-sustainability. During the commission's annual meeting, agencies received special recognition. The commission also presented Interior Secretary Bruce Babbitt with a certificate acknowledging the contributions of the U.S. Fish and Wildlife Service and the National Biological Service in the lake trout restoration effort and presented the Secretary with a copy of the RESTORE symposium proceedings, which contains much of the science behind this remarkable success;
- approved funds from the Coordination Activities Program to support work on a Predation Model for Lake Huron;
- supported the Lake Erie Committee's proposal for Interagency Fisheries Acoustic Assessment of Lake Erie's forage fish community. In doing so, the commission agreed to coordinate the collective purchase of acoustic equipment for the fisheries management agencies on Lake Erie;
- asked its Habitat Advisory Board to propose a policy regarding impacts of aquaculture, in particular cage culture, on habitat;
- advised the International Joint Commission (IJC) on exotic species issues in preparations for the IJC's 1995 Biennial Report to Governments;
- funded a workshop to determine the state of the changing Lake Ontario fish community and options for management; and
- at the request (and with the financial support) of the U.S. Environmental Protection Agency and the Great Lakes Protection Fund, supported administrative and technical aspects of the binational State of the Lakes Ecosystem Conference.



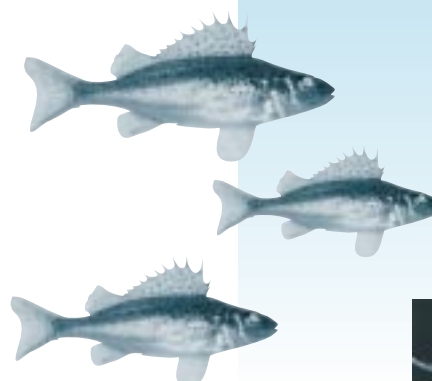
Loss of native species—such as the shortnose cisco, declared extinct in 1996—threatens the health of the ecosystem.

Photo: Coregonid Fishes of the Great Lakes, W. Koetz



In June, 1996, Interior Secretary Bruce Babbitt visited Lake Superior to mark the successful restoration of lake trout. Babbitt was presented with a copy of the RESTORE volume, which contains much of the science behind this success.

Photo: Great Lakes Fishery Commission



Exotic species, such as ruffe (above) and the spiny water flea (above, right) were an important topic in the International Joint Commission's 1995 Biennial Report to Governments.

Photo: Gary Cholwek; Sea Grant

## Partnerships

The Great Lakes Fishery Commission places an extremely high value on partnerships. According to its Strategic Vision, fishery agencies, in the 1970s, “recognized that threats to the Great Lakes fishery resources and opportunities for rebuilding the resource required greater management capability than any one agency or government could provide.” The Vision extends that respect for strong partnerships to the commission’s relationship with fishery management agencies, with environmental agencies, and with the public.

A *Joint Strategic Plan for Management of Great Lakes Fisheries* is the plan under which management agencies work in partnership for the day-to-day and for the long-term management of the fishery. The eight states that border the Great Lakes, the Province of Ontario, tribes with management authority, and federal agencies are signatory to the Plan. The Great Lakes Fishery Commission has the responsibility to facilitate the implementation of the Plan.

Last year, the Plan’s signatory agencies committed to review and strengthen the Plan; in 1996, agencies met on several occasions to revise some aspects of the Plan and to investigate how the working relationship among agencies could be improved. These efforts culminated in a December, 1996 workshop in Detroit that produced recommendations for Plan revisions. Agencies expect to sign a revised Plan in 1997.

### Highlights of 1996 Lake Committee Actions

Under the Joint Strategic Plan, the management agencies identified the commission’s lake committees—which meet annually—as their major action arms for achieving joint objectives.

**THE COUNCIL OF LAKE COMMITTEES** asked each lake committee to assist in building a “clean list” of aquatic species which may be cultured in the Great Lakes watershed without undue risk to the Great Lakes ecosystem. The council also agreed to write to the National Biological Service concerning the importance of the forage-base research program.

**THE LAKE ERIE COMMITTEE** convened a special technical session to address changes in the Lake Erie ecosystem resulting from decreased phosphorus loading and continuing invasion of exotic species. The committee noted that production of phytoplankton, zooplankton, and fish is demonstrably reduced lakewide, but is most severe in the east basin. Based in these changes, the committee stressed that expectations for traditional fisheries must be tempered to the realities imposed by the ecosystem changes.

**THE LAKE HURON COMMITTEE** supported action by the Great Lakes Fishery Commission which asked the National Biological Service to give priority attention to developing a diagnostic tool for EEDV. The committee asked the Service to conduct research to determine the genetic origin of the wild lake trout recruits collected on Six-Fathom Bank. The committee supported a study being conducted by the Lake Huron Biological Station to investigate chinook survival after a sea lamprey attack.

**THE LAKE MICHIGAN COMMITTEE** agreed to produce a list of deepwater lake trout strains and to provide concerns and issues related to different types of strains for evaluation by the Lake Michigan Technical Committee. Information from this investigation would be used to consider options for future stocking.

**THE LAKE ONTARIO COMMITTEE** noted that management agencies will evaluate whether opening the American eel fishery in Chaumont Bay would threaten the continuing viability of the population. The committee established an ad hoc task group of the Lake Ontario Technical Committee (to be named the Native Prey Fish Task Group) to advise on options for establishing native prey fish among fish community objectives. The committee also developed a procedure for public consultation on fish community objectives.

**THE LAKE SUPERIOR COMMITTEE** celebrated a significant milestone in the effort to restore native species in the Great Lakes: Lake trout, a key native species in the Great Lakes, will no longer be stocked in Michigan and Wisconsin waters due to successful rehabilitation.



The Lake Erie Committee noted that exotic species, such as zebra mussels, are having an effect on the Lake Erie ecosystem.

Illustrations: Margaret Van Bolt

The committee also resolved to revisit fish community objectives with the intent of making them more specific, of developing procedures for establishing environmental objectives, and of merging with ecosystem objectives.

### Committee of Advisors

Advisors to the Great Lakes Fishery Commission met during the lake committee meetings and during the annual meeting to discuss and make recommendations about fishery issues of concern. In 1996, advisors considered and passed resolutions that (1) recommended stricter ballast water enforcement to prevent the introduction and spread of exotic species in the Great Lakes; and (2) supported development of a brood stock of the Klondike Reef strain of Lake Trout and supported agency efforts to stock this strain in Lake Michigan.

In 1996, the Committee of Advisors started a process to develop a terms of reference.

The commission welcomed Wes Maurer, Dennis Grinold, Ronald Laitinen, Russ Weisinger, Todd Grischke, Chuck Pistis, and Mel Both to the committee of advisors in 1996.



Photo: National Biological Service



During its annual meeting, the commission recognized the management agencies for their work to restore lake trout (left) in Lake Superior. Pictured above: GLFC Chair Gail Beggs presents a certificate to Bill Horns of the Wisconsin Department of Water Resources.

Photo: Great Lakes Fishery Commission

## Budget

In 1996, the Great Lakes Fishery Commission—with the support of the parties to the *Convention on Great Lakes Fisheries*—approved establishment of trust funds in Canada and the United States to provide enhanced support for sea lamprey management and fishery research programs. The funds were designed to enable interested parties to make tax deductible contributions in accordance with tax regulations in each country. In 1996, the U.S. trust fund received donations from Kinetic Industries and Plumley Engineering.

U.S. Section Chair Charles Krueger provided testimony about the commission's program to the U.S. House Subcommittee on Commerce, Justice, State, and the Judiciary.

The commission received the following contributions from the governments of the United States and Canada (in U.S. dollars) for 1996:



U.S. Section Chair Charles Krueger testified about the commission's budget before a U.S. Congressional committee.

Photo: Great Lakes Fishery Commission

	U.S.	CANADA	TOTAL
Sea Lamprey Management and Research	\$7,723,750	\$3,637,521	\$11,361,271
Administration and General Research	\$629,250	\$549,250	\$1,178,500
<b>TOTAL</b>	<b>\$8,353,000</b>	<b>\$4,186,771</b>	<b>\$12,539,771</b>



## Great Lakes Fishery Commission

The Great Lakes Fishery Commission was established by the Convention on Great Lakes Fisheries (between Canada and the United States) in 1956 to improve and perpetuate fishery resources.

### COMMISSIONERS, 1996

Burton Ayles (Can.)  
Don Barry (U.S.)  
Bill Beamish (Can.)  
Buzz Besadny (U.S.)  
Gail Beggs, Chair (Can.)  
David Dempsey, alternate (U.S.)  
Cheryl Fraser (Can.)  
Bernie Hansen (U.S.)  
Charles Krueger, Vice Chair (U.S.)

### SECRETARIAT, 1996

Pat Bronkowski  
Mary Brown  
Gavin Christie  
Marg Dochoda  
Randy Eshenroder  
Marc Gaden  
Chris Goddard  
Angie Meyers-Purkiss  
Mike Millar  
Barb Staples  
Sharon Thelen  
Camille Ward

### EXECUTIVE SECRETARY

Chris Goddard

### ANNUAL REPORT AUTHOR/EDITOR

Marc Gaden

### ANNUAL REPORT CONTRIBUTING EDITORS

Gary Klar, USFWS  
Larry Schleen, DFO  
Rob Young, DFO

## Awards and Honors

During the commission's annual meeting in Milwaukee, the commission honored Buzz Besadny, who retired from the commission after six years of service. In her comments recognizing Buzz's accomplishments, Chair Gail Beggs said: "His energy, depth of knowledge, dedication, and sincere appreciation for the resources helped drive the commission and has certainly been of great benefit to the health of the Great Lakes resources." The commission and annual meeting participants wished him much success in his retirement.

To celebrate the successful restoration of lake trout in Lake Superior to self-sustainability, the commission presented a special certificate of recognition to the state, provincial, tribal and federal management agencies on Lake Superior. The commission presented a similar award and a copy of the RESTORE symposium papers to U.S. Interior Secretary Bruce Babbitt during a trip Secretary Babbitt made to the Great Lakes to recognize this success.

The commission recognized U.S. Advisor Paul Wendler for his efforts to facilitate an important partnership between Dow Chemical and the commission to enhance fish passage on Michigan's Tittabawassee River, while stopping lamprey migration.



GLFC Chair Gail Beggs honors former commissioner Buzz Besadny for his service to the Great Lakes Fishery Commission.

Photo: Great Lakes Fishery Commission



The commission recognized all agencies involved in lake trout restoration on Lake Superior. From L-R: Gail Beggs, GLFC; Doug Jester, MI DNR; Bill Horns, WI DNR; Bob Thomson, OMNR; Neil Kmiecik, GLIFWC; Dale Burkett, USFWS; Vic Gillman, DFO; and Mike Hansen, NBS.

Photo: Great Lakes Fishery Commission



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