

ANNUAL REPORT 2009

From the Chair
Mike Hansen



Unprecedented Partnerships to Protect the Great Lakes from Asian carp



Asian carp have become a prominent threat to the Great Lakes.

Asian carp refers to three species of fish originating from Asia—the bighead, silver, and black—imported into the southern U.S. to keep aquaculture ponds clean and to serve niche fish markets. The fish escaped into the Mississippi basin after large flooding events during the 1980s and 1990s and have since expanded their range northward.

Because of their large size, fecundity, and ability to consume considerable amounts of plankton—a food source at the bottom of the food web—Asian carp have significantly altered the fishery and ecosystem of the Mississippi and Illinois River systems, causing major declines in abundances of native fish species.

The carp are now threatening to expand from the Mississippi River to the Great Lakes basin through the Chicago Area Waterway System—a series of man-made canals that link the two basins. If the Asian carp enter the Great Lakes, they will compete for the same food that valuable commercial and sport fish rely on. Because silver carp are easily startled by

boats, (earning them the nickname “flying carp”), these fish will likely discourage water-related recreation by causing serious injuries to boaters, as they have done in the Mississippi basin.

If Asian carp enter the Great Lakes, their establishment and spread are highly likely. Though electrical barriers currently should prevent fish from passing through the waterway, they are not a permanent solution.

To prevent Asian carp from entering the Great Lakes, several agencies, including the commission, have developed the *Asian Carp Control Strategy Framework*. The strategy’s goal is to coordinate hitherto disparate Asian carp responses. Agencies now are together monitoring the movement and presence of carp intensively, are maintaining the electrical barriers to prevent carp migration, are working to block other potential connections, and are considering emergency actions like the rotenone treatment on the waterway that occurred in December, 2009 to drive the carp downstream. The U.S. Army Corps of Engineers is also conducting a comprehensive study looking at the feasibility of options to prevent the movement of invasive species between the Mississippi and Great Lakes basins.

Asian carp clearly pose a real threat to the Great Lakes ecosystem. The coalition to attack the threat is unprecedented in scope and nature. This partnership is the best chance we have to defend ourselves against this troubling invader. To find out more, visit www.asiancarp.us. ≈



PHOTOS: T. LAWRENCE, GLFC



Silver carp, one of three invasive carp threatening the Great Lakes, are easily startled by the sound of a boat motor. Currently in the Illinois and Mississippi Rivers, these “flying carp” can cause significant physical harm.

Sea Lamprey Control

The Great Lakes Fishery Commission partners with the Department of Fisheries and Oceans Canada (DFO) and the U.S. Fish and Wildlife Service (USFWS) to conduct sea lamprey control for healthy Great Lakes fisheries. The sea lamprey control program is guided by the *Strategic Vision for the First Decade of the New Millennium* and the lake committees' Fish Community Objectives. During 2009, DFO and the USFWS:

- conducted lampricide treatments on 94 tributaries;
- surveyed 427 Great Lakes tributaries and 59 lentic areas to assess control effectiveness and plan future TFM treatments; and,
- operated assessment traps in 72 tributaries to estimate spawning-phase sea lamprey populations in each of the Great Lakes.

During 2009, a large-scale field trial was conducted using mating pheromones to increase the number of migrating sea lampreys caught in traps. Preliminary estimates suggest that 30% more sea lampreys are trapped when the mating pheromone is added. This large-scale test will be expanded during 2010.

Control efforts on Lake Superior increased during the 2008 and 2009 seasons to include more stream and lentic area treatments, resulting in below the target level populations of spawning-phase sea lampreys for a second year in a row. Increased control efforts are planned again for

2010. Likewise, during the past few years, Lake Michigan has been, and continues to be, the focus of intensive treatment efforts. Successful results were observed in 2009 with the estimated adult sea lamprey population at target levels. Lake Ontario saw a reduction in the estimated spawning-phase sea lamprey population during 2009, but the estimates are still above the target level.

A new customized boat, commissioned by DFO control experts and designed for the effective application of granular bayluscide, was tested during 2009. The boat used high-pressure spray technology, originally developed for herbicide application, to apply lampricide at rates almost twice as fast as previous methods. This new application technology will be used to treat the St. Marys River.

During 2008 and 2009, an unprecedented back-to-back treatment effort, where all larval sea lamprey producing streams were treated, was completed on Lake Erie. The results of these treatments are expected during 2011.

An expansive treatment is planned for 2010 to target higher sea lamprey populations in Lake Huron. The treatment will target hot spots in the St. Marys River and the largest sea lamprey producing rivers in the North Channel. These treatments are anticipated to greatly reduce the number of sea lampreys in Lake Huron.

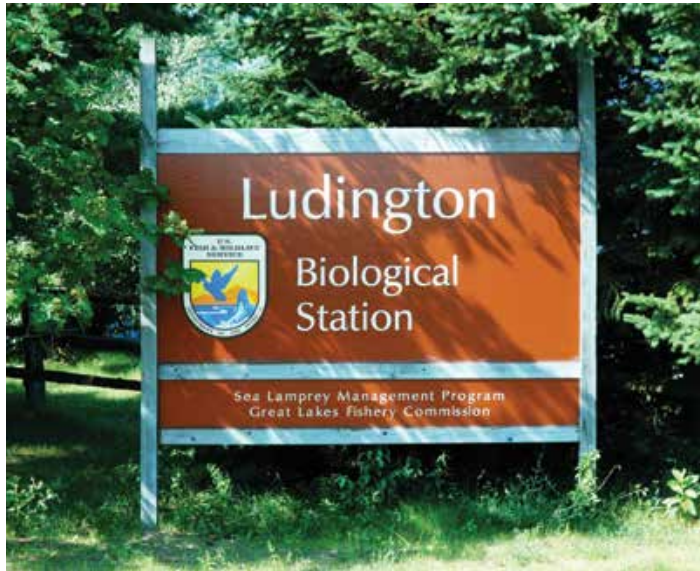


An innovative granular bayluscide sprayer boat employs a high pressure spray system and GPS to effectively target lentic areas on the St. Marys River system.

PHOTOS: T. LAWRENCE, GLFC

The complete report, *Integrated Management of Sea Lampreys in the Great Lakes 2009*, is available on the GLFC Annual Report home page, www.glfcc.org/pubs_out/annualreports.php

Science



The Ludington Biological Station hosts researchers, equipment, and vessels to develop and implement effective sea lamprey control. PHOTO: G. CHRISTIE, GLFC

Outlined in the *Strategic Vision of the Great Lakes Fishery Commission*, the commission coordinates a fishery and sea lamprey research program, and directs and supports projects designed to transfer science to resource managers.

Based on recommendations from the commission's scientific and expert advisory bodies, the commission approved the following research projects for 2009:

Fishery Research

- Genetic structure of the American eel by means of amplified fragment length polymorphism markers
- Evaluating the negative effect of slimy sculpins on bloater recruitment in Lake Michigan
- Evaluating multi-species harvest strategies for Lake Huron using decision analysis
- Predicting the effect of viral hemorrhagic septicemia virus IVb on walleye recruitment
- Patterns and processes of cisco trophic differentiation in relation to food web structuring using ecological tracers

- Mixed stock analysis of Lake Michigan's lake whitefish commercial fishery and historical integrity of resolved genetic units
- Forecasting ecosystem effects of *Hemimysis anomala* in Lake Ontario
- Are thiamine levels in lake whitefish eggs in the upper Great Lakes lower in fish that consume dreissenid mussels?
- Effect of activity on bioenergetics model performance in the laboratory

Sea Lamprey Research

- Gene silencing technologies to control sea lamprey, a proof-of-concept
- Determination of micro-elemental stability of sea lamprey statoliths
- Sea lamprey mark type, wounding rate, and parasite-host preference and abundance relationships for lake trout and other species in Lake Ontario
- Establishment of a PCR-based method for fertility assessment in sterile male sea lamprey



Research is essential to understanding fish behavior, species recovery, sea lamprey control, and healthy ecosystems in the Great Lakes.

PHOTOS: T. LAWRENCE, GLFC

For more information about the commission's science program, including research completion reports, visit: www.glfc.org/research.php

Partnerships

The commission's lake committees and the Council of Lake Committees are the action arms for implementing *A Joint Strategic Plan for Management of Great Lakes Fisheries* and developing operational procedures for coordinated fisheries management on the Great Lakes. In 2009, these committees addressed a variety of issues critical to a healthy Great Lakes ecosystem and sustainable fisheries.

- The **Fish Health Committee** (FHC) focused on understanding the potential impact of various pathogens present in the basin, especially viral hemorrhagic septicemia (VHS), and keeping unwanted pathogens, such as cutthroat trout virus, from entering the basin's fish hatchery system. The FHC also sought to understand the implications of new molecular testing techniques on pathogens that could provide test results more quickly than conventional methods.
- The **Law Enforcement Committee** addressed weaknesses between state regulations in the interstate transport of bait and food fish that could have impacts on the spread of VHS. The committee is working on developing agency-wide bio-security measures for hatcheries, boats, equipment, and personnel.
- The **Lake Superior Committee** completed the report on the status of cisco in Lake Superior from 1970-2006 and is in the process of developing a siscowet report and a State-of-Lake-Superior report, to be completed by 2011.
- The **Lake Ontario Committee** (LOC) completed a number of American eel recovery and management plans. Upstream passage has been improved for the species. A pilot project to trap and transport large eels around hydro facilities to enhance recruitment also began. Some of the 2 million stocked eels are surviving and successfully growing in the system. The LOC also reported that the St. Lawrence River saw higher catches of yellow perch, small-mouth bass, walleye and rock bass.
- The **Lake Michigan Committee** continued to work toward finalizing an implementation strategy for lake trout rehabilitation. The committee remained concerned about changes in the forage base including declining alewife populations with implications for the recreational fishery.
- The **Lake Erie Committee** agreed on total allowable catches for a declining walleye population and a stable yellow perch population. The committee continued to be committed to lake trout restoration in the eastern basin and was eagerly awaiting results of the commission's back-to-back lakewide sea lamprey treatments during 2008 and 2009.
- The **Lake Huron Committee** continued to study the fundamental ecosystem changes to the lake resulting from the alewife collapse. Negatively, there has been a significant reduction in angling success for Pacific salmonines. On a more positive note, however, the alewife collapse has been followed by: substantial increases in wild lake trout production throughout the lake; increased cisco populations in the North Channel; a walleye population that has exploded in Saginaw Bay; and an increased abundance of emerald shiners.



PHOTO: GLFC

Before sea lamprey control and fish stocking, massive alewife die offs fouled beaches. Today, this non-native species, though serving as a food source for trout and salmon, continues to affect native species restoration.

Budget

The commission received the following contributions from the governments of the United States and Canada (shown in U.S. dollars) for 2009:

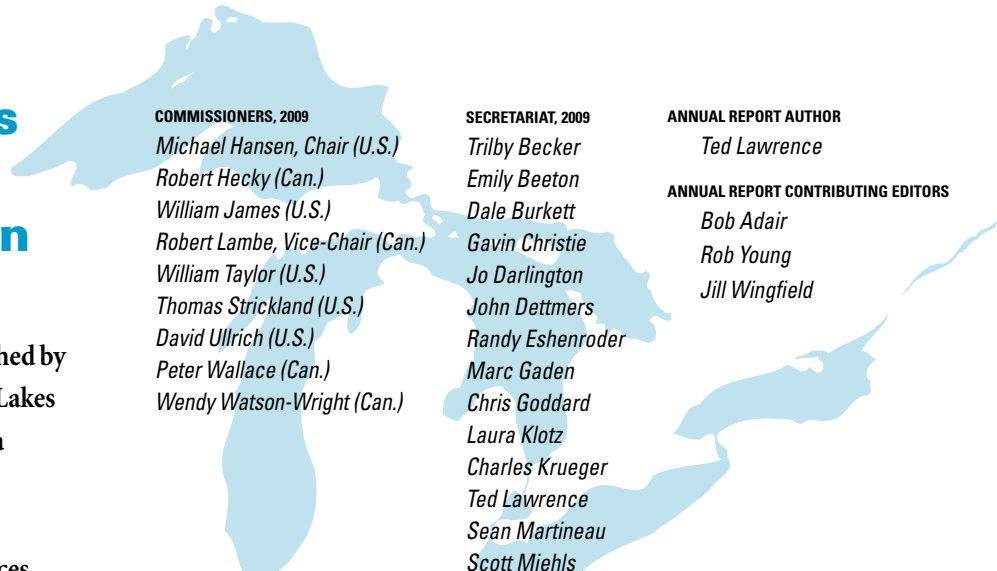
	U.S.	CANADA	TOTAL
Sea Lamprey Control and Research	\$16,987,680*	\$4,571,279	\$ 21,558,959
Research, Committee and Scientific Support, and Administration	\$ 2,212,320	\$2,058,320	\$ 4,270,640
TOTAL	\$19,200,000	\$6,629,599	\$25,829,599

* Includes \$1,200,000 for Lake Champlain

The commission's U.S. and Canadian trust funds received donations from Northwest Indiana Steelheaders and members of the commission secretariat.

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 1955 to improve and perpetuate fishery resources.



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Awards and Honors

The Great Lakes Fishery Commission recognizes people who make contributions toward the health and betterment of the Great Lakes. The commission's 2009 award recipients were:



Mike Ryan, Northwest Indiana Steelheaders, with the C.D. "Buzz" Besadny Award for Fostering Great Lakes Partnerships. Ryan received the award for his embodiment of the true spirit of partnerships and tireless efforts to create alliances between local, state, public, private, and other entities on behalf of the Great Lakes fishery. Ryan formed the Northwest Indiana Steelheaders in the early 1980s as a platform for Great Lakes advocacy and has been recognized nationally as a "Hero of Conservation."



Dr. John Casselman, Queens University and Ontario Ministry of Natural Resources (ret.), recipient of the Jack Christie/Ken Loftus Award for Distinguished Scientific Contributions Toward Understanding Healthy Great Lakes Ecosystems. Casselman was presented this award by Kevin Loftus (son of the late Ken Loftus, after whom the award was named) for his world-class scientific contributions to better understanding fish populations and their ecology.

He is nationally and internationally recognized as an outstanding citizen of the global fisheries community, with groundbreaking developments in Great Lakes fisheries research; advances which have transferred to global approaches in fisheries.



Dr. Robert Young, Department of Fisheries and Oceans, recipient of the Vernon C. Applegate Award for Outstanding Contributions to Sea Lamprey Control. Young was presented this award for his scientific contributions to deliver effective sea lamprey control with the goal of advancing the commission's vision of ecological, economic, and socially acceptable sea lamprey suppression. Young's strategic thinking, creativity, and foresight helped create and refine clear goals and methods for sea lamprey control in the Great Lakes.



The commission recognized former Commissioner **Lyle Lavery** for his important contributions to the Great Lakes and his role linking the commission to the administration in Washington D.C. Lavery's collegial approach, thoughtfulness, and deep interest in Great Lakes' issues contributed to the Great Lakes science and sea lamprey control programs. During his tenure as commissioner, Lavery was also the Assistant Secretary for Fish, Wildlife, and Parks at the U.S. Department of Interior (2007 to 2009).

News from the Secretariat

Barb Staples, the commission's administrative officer for 30 years, retired at the beginning of 2009. Her service was honored with a luncheon in Ann Arbor. **Bruce Swart** replaced Barb Staples as the new Chief Financial Officer; **Emily Beeton** joined the commission as the new administrative assistant working under the direction of the account manager; **Dr. Mike Siefkes** joined the commission as the sea lamprey program specialist; and **Sarah Seegert** joined the commission as the new research associate working on sea lamprey under the science director. **Jill Wingfield** held a year-long position with the International Joint Commission working on the International Upper Great Lakes Study. **Dr. Marc Gaden** left the secretariat for three months to conduct a special project for the Department of Fisheries and Oceans Canada, and **Gavin Christie** returned to the secretariat after a two year position with the Ontario Ministry of Natural Resources in Kingston, Ontario. **Hao Zhuang**, the commission's web developer, completed his MBA from the University of Michigan's Ross School of Business.

In March of 2009, at the Ontario Federation of Anglers and Hunters' 81st Annual Convention, **Dr. Chris Goddard**, the Executive Secretary of the Great Lakes Fishery Commission, and **Mike Reader**, Executive Director of the Ontario Federation of Anglers and Hunters, recognized Prime Minister Stephen Harper for his commitment to Canada's outdoor heritage.

PHOTOS: T. LAWRENCE, GLFC

Great Lakes Fishery Commission

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