



# GREAT LAKES FISHERY COMMISSION

## Program Requirements and Cost Estimates

### Fiscal Year 2010

(Prepared April, 2008)

### EXECUTIVE SUMMARY

Since 1955, the Great Lakes Fishery Commission has played a pivotal role in protecting and improving the Great Lakes fishery. The commission keeps the destructive sea lamprey under control, a service that remains essential to provincial, state, tribal, and federal fishery management efforts. The commission also supports bi-national obligations between the United States and Canada, helps the management agencies—at all levels of government—work together effectively, and conducts and coordinates fishery research.



Millions of sport and commercial fishers benefit from a healthy Great Lakes fishery.

Today, the Great Lakes fishery contributes at least \$4 billion to Canadian and U.S. economies each year. The Great Lakes Fishery Commission’s program helps maintain that economic value. During 2007 (the most recent field year), the commission:

- Significantly increased sea lamprey treatments to reduce the number of sea lampreys, in response to a spike in sea lamprey abundances;
- Continued field trials exploring pheromone-based alternative sea lamprey control methods;
- Helped the management agencies work together more closely and effectively by facilitating *A Joint Strategic Plan for Management of Great Lakes Fisheries*;
- Conducted a highly respected, targeted, basinwide fisheries research program that funded more than 75 quality research projects;
- Worked with states and provinces from the Great Lakes and Atlantic regions to develop a multi-jurisdictional response to the severe decline in American eel populations; and
- Promoted invasive species legislation and worked to prevent the Asian carp invasion.

This document outlines the commission’s fiscal 2010 program. The budget is organized into four components: the sea lamprey control program (page 4), alternative sea lamprey control including priority additions (pages 5-6), committee and scientific support (page 7), and program management (page 8).

The commission’s program requirements and cost estimates for fiscal 2010 are summarized in the table below. All figures are in millions of U.S. dollars.

Program Area	FY 2008 Program	FY 2010 Program	FY 2010 Priority Additions	FY 2010 Total
Sea Lamprey Control	17.8	18.7	0.0	18.7
Alternative Sea Lamprey Control	5.0	4.9	6.1	11.0
Committee and Scientific Support	2.7	3.1	0.0	3.1
Program Management	1.4	1.8	0.0	1.8
<b>Total</b>	<b>26.9</b>	<b>28.5</b>	<b>6.1</b>	<b>34.6</b>
(Canadian Contribution)	7.8	9.8	1.8	11.6
(U.S. Contribution)	16.1	18.7	4.3	23.0

Summary table: FY 2010 program requirements and cost estimates (USD, in millions).

## **THE VALUABLE GREAT LAKES FISHERY**

A healthy and vibrant fishery epitomizes all that is great about the Great Lakes. Millions of people enjoy the fishing experience each year and the commercial fishery supports thousands of jobs. The fishery brings \$4 billion annually to the region.

Provincial, state, tribal, and federal management agencies invest hundreds of millions of dollars annually to support fishery programs, protect and improve habitat, and preserve water quality. All levels of government depend on the commission's program as the foundation for the achievement of their fishery objectives. Moreover, the millions of citizens who fish the Great Lakes recreationally, tribally, and commercially rely on the commission's program as the foundation for the benefits they enjoy.

The Great Lakes Fishery Commission was established in 1955 under the Canadian/U.S.

*Convention on Great Lakes Fisheries*, a binational treaty. The commission has three primary responsibilities: (1) to control sea lampreys in the Great Lakes; (2) to facilitate federal, provincial, state, and tribal cooperation through *A Joint Strategic Plan for Management of Great Lakes Fisheries*; and (3) to conduct and coordinate fisheries research, in support of the management of fishery resources.

Fishery managers at all levels face major challenges. Fish stocks are under constant stress and require careful management. Native fish species require rehabilitation after decades—if not centuries—of depletion. Invasive species continue to enter the Great Lakes and play havoc on the ecosystem. Sea lamprey control—the backbone of Great Lakes rehabilitation and ecosystem management—must improve.



**Commercial fishing supports thousands of jobs in the region and is economically important to many communities.**



**The Great Lakes supports a thriving recreational fishery.**

Unfortunately, at a time when the challenges are as great as they have ever been, resources for fishery programs are dwindling and government agencies must do more to coordinate their activities, leverage resources, and avoid contradictory efforts. The Great Lakes Fishery Commission plays an integral role in multi-jurisdictional coordination by facilitating the implementation of *A Joint Strategic Plan for Management of Great Lakes Fisheries*, a plan in which all fishery agencies on the Great Lakes participate.

The commission's *Strategic Vision for the First Decade of the New Millennium* guides the commission's program and communicates to management agencies and stakeholders a vision for the future of the Great Lakes fishery. This strategic vision is available on the commission's website: [www.glfcc.org/pubs/SpecialPubs/StrategicVision2001.pdf](http://www.glfcc.org/pubs/SpecialPubs/StrategicVision2001.pdf).

## **RECENT HIGHLIGHTS**

The Great Lakes Fishery Commission delivered a successful program during 2007 that addressed short-term and long-term challenges. Some notable highlights from the most recent field year (2007) include:

- **Increased and improved sea lamprey effort throughout the Great Lakes basin.** Sea lamprey control was enhanced during 2006 and 2007 to continue to address the challenge of too many sea lampreys. During 2007, the quantity and quality of stream treatments were increased above the 2006 level by increasing treatment effort and the application of lampricides, and treating more streams using improved techniques. The commission delivered a 2007 sea lamprey control program approximately 30% greater than applied during the late 1990s. The enhanced effort has removed millions of destructive sea lamprey larvae from the system and protected valuable Great Lakes fish. The commission remains committed to improving suppression noting that continued sea lamprey control efforts will be necessary into the foreseeable future.
- **Continued development of pheromone-based sea lamprey control methods.** The commission's goal is to achieve 50% of sea lamprey control through the use of alternative techniques. Sea lamprey pheromones—natural attractants that sea lampreys release—have the potential to be a major part of the sea lamprey control effort. During 2007, work on pheromones continued in the field with large-scale studies conducted in streams.
- **Support for *A Joint Strategic Plan for Management of Great Lakes Fisheries*.** Federal, provincial, state, and tribal governments together manage the Great Lakes fishery. They work cooperatively through the Joint Strategic Plan, which the commission facilitates. During 2007, the commission continued to support the plan and provided the participating agencies with better briefing materials and improved support for their joint activities. At the request of the management agencies, the commission also helped develop a multi-jurisdictional response to the precipitous decline in the American eel, a species native to the Great Lakes.
- **An energetic and respected research program.** Under the *Convention on Great Lakes Fisheries*, the commission coordinates fishery research on the Great Lakes. During 2007, the commission funded more than 75 projects focusing on such issues as native species restoration and the impact of invasive species. Research funded by the commission's program is peer-reviewed and published in the primary scientific literature.
- **Invasive Species.** During 2007, the commission worked with Congress, sportfishing and commercial fishing organizations, and NGOs to support legislation to protect the lakes from invasive species. With the passage of the Water Resources Development Act of 2007, the region received full authorization for the "Asian Carp" dispersal barrier on the Chicago Sanitary and Ship Canal, a major victory in the effort to keep out this troubling invader.
- **Continuing success of the integrated control program on the St. Marys River.** During the 1980s and 1990s, the St. Marys River was producing so many sea lampreys that efforts to restore the Lake Huron fish community were abandoned. In response, the commission invested in a highly successful and extensive multi-faceted effort to remove larval sea lampreys from the river and to prevent adults from reproducing there. Lampricides are precisely delivered to treat larval hot-spots. Male sea lampreys are trapped, sterilized and released into the St. Marys River to prevent reproduction. Female sea lampreys are trapped and removed from the system.
- **A strengthened partnership with the U.S. Army Corps of Engineers.** The commission continued to improve its collaboration with the Corps of Engineers during 2007 through an on-going partnership to support the Corps' Great Lakes Fishery and Ecosystem Restoration Program.



A student researcher uses dyes to identify stream flow regimes and pheromone concentrations during research trials to identify better sea lamprey management techniques.



American eel, a species native to the Great Lakes, experiences mortality during every part of its life stage. The American eel is in severe decline throughout North America. The commission is working with agencies from the Great Lakes and Atlantic regions on a multi-jurisdictional response to the American eel decline. Photo: J. Casselman.

## **PROGRAM REQUIREMENTS AND COST ESTIMATES: FISCAL 2010**

The Great Lakes Fishery Commission presents to the governments of Canada and the United States a budget of \$28.5 million for fiscal 2010 (all figures are presented in United States dollars). This budget requests \$9.8 million from Canada and \$18.7 million from the United States. The commission has identified priority additions for fiscal 2010 that require an additional \$6.1 million. The priority additions will allow the commission to accelerate the development and implementation of alternative sea lamprey control techniques such as sea lamprey pheromones and barriers. **With these additional priorities, the commission requests a total of \$34.6 million from Canada and the United States in fiscal 2010 (\$11.6 million from Canada and \$23.0 from the United States).**

The commission's program is summarized in four major components:

1. Sea lamprey control
2. Alternative sea lamprey control including priority additions
3. Committee and scientific support
4. Program management

Each component and its associated program requirements and cost estimates for fiscal 2010 are described below.

### **1. SEA LAMPREY CONTROL**

Sea lamprey control is the foundation of the Great Lakes fishery. Without sea lamprey control, federal, provincial, state, and tribal agencies would be unable to manage effectively. Without sea lamprey control, the millions of dollars these agencies invest annually in rehabilitation and stocking programs would be jeopardized. Moreover, the value of the Great Lakes fishery—worth at least \$4 billion annually to the people of Canada and the United States—would be significantly diminished. Sea lamprey control is a Canadian/U.S. responsibility under the 1954 *Convention on Great Lakes Fisheries*.

Sea lampreys invaded the Great Lakes through shipping canals during the early 20<sup>th</sup> century and destroyed a thriving fishery by the 1940s and 1950s. Through the commission's coordinated program, sea lamprey populations have been reduced by a remarkable 90% in most areas of the Great Lakes. Nevertheless, sea lamprey populations have increased recently in many areas. More control is needed to protect the lakes and support the rehabilitation efforts. Sea lamprey control is an ongoing effort, because eradication is impossible.



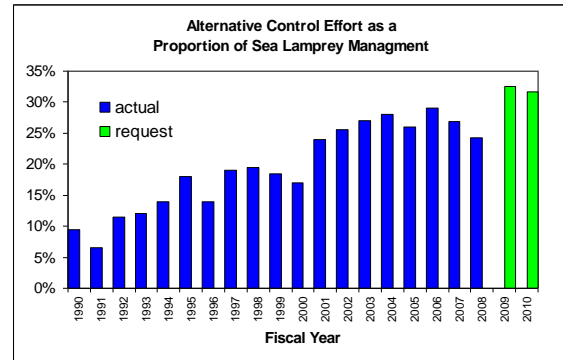
Sea lampreys attach to fish with a suction cup mouth, rasp a hole through the fish's scales and skin, and feed on the fish's body fluids.

The commission requests a total of \$18.7 million from Canada and the United States for the sea lamprey program, which includes stream treatments using lampricides, the purchase of lampricides, sea lamprey assessment, sea lamprey research, and registration of the lampricides. Specifically, the fiscal 2010 program will allow the commission to:

- Increase the quantity and quality of **stream treatments**. The fiscal 2010 request allows for the commission to deliver sea lamprey control in all required areas and to expand sea lamprey control to areas where sea lamprey abundances are too high. The request includes funds to maintain control on the St. Marys River. The proposed program also includes funds to significantly expand sea lamprey control on Lake Michigan, in response to increased abundances on that lake.
- Maintain its highly successful **sea lamprey research** program, including support for the Partnership in Ecosystem Research and Management (PERM) program with Michigan State University and the University of Guelph, and support for research at the Hammond Bay Biological Station near Rogers City, Michigan. The commission depends on sea lamprey research to improve sea lamprey control, to better understand the effect of sea lamprey control, and to keep the lampricides **registered** in Canada and the United States.
- Conduct the **assessment** needed to determine the location of sea lamprey larvae, to identify which streams require treatments, and to determine the success of sea lamprey treatments. This budget request includes a full program of sea lamprey trapping, ongoing evaluation of the effectiveness of traps and fishways, assessment of sea lamprey larvae in streams, and assessment of hitherto un-surveyed streams.

## **2. ALTERNATIVE SEA LAMPREY CONTROL**

In its *Strategic Vision for the First Decade of the New Millennium*, the Great Lakes Fishery Commission set the target of using alternative control techniques to achieve at least 50% of the sea lamprey suppression. To help achieve this goal, the vision calls for the development of additional control techniques. The fiscal 2010 program continues the commission's aggressive pursuit of alternative controls by proposing new investments in research. The commission set this ambitious alternative control goal because lampricides are expensive and because a truly integrated program uses several techniques to achieve its goals. The commission has allocated a sizeable percentage of its sea lamprey control budget to alternative control techniques.



The commission currently uses three main alternative control techniques: sea lamprey barriers, sea lamprey traps, and the sterile-male-release-technique. The commission is also investing in research into sea lamprey pheromones—including continued research at the field trial level.

**The commission has been devoting significant percentages of its sea lamprey budget to alternative control techniques in an effort to achieve more suppression through alternative controls.**

The commission requests \$11.0 million from Canada and the United States for its alternative sea lamprey control program during fiscal 2010. This amount includes \$4.9 million for the base program and \$6.1 million for priority additions.

### **The fiscal 2010 budget would allow the commission to:**

- Expand the **sea lamprey trap and barrier** program. The budget would allow the commission to partner with the Corps and with U.S. and Canadian agents to plan, design, and construct new barriers and to repair or replace existing barriers. The budget also allows the commission to build barriers on two large rivers, leading to significant future cost savings.
- Maintain **trapping**, collection, and facility operations at the current levels and refine trapping projects on the St. Marys River. Traps remove spawning lampreys from the system and provide a source of male sea lampreys for the sterile-male-release-technique.
- Continue the highly successful **sterile-male-release-technique**. Sterilized male sea lampreys, which are in their spawning (not feeding) stage, compete with fertile males and waste the female's spawning potential. This technique is used as the cornerstone of sea lamprey control on the St. Marys River. The budget allows the commission to maintain current efforts and to expand research on the effectiveness of sterile females.



**Low head barriers prevent sea lampreys from reaching their spawning grounds, while allowing fish to pass. A component of the integrated program, they help control sea lampreys without the use of lampricides.**

### **Priority Additions, Fiscal 2010, Alternative Sea Lamprey Control:**

The commission remains committed to developing and implementing alternative control techniques, consistent with goals established under its *Strategic Vision for the First Decade of the New Millennium*.

To achieve its goals, the commission has proposed a significant investment in alternative control research. The priority additions (\$6.1 million during fiscal 2010) would allow the commission to:

- Continue major developmental initiatives for both the sea lamprey migratory and mating **pheromones**. Previously developed alternative control techniques (such as the sterile-male-release-technique and barriers) have yielded great dividends to the commission's program, by helping the commission achieve control without the use of lampricides and saving money. The commission remains deeply motivated to develop new and innovative alternative control techniques. The use of pheromones to control sea lampreys shows tremendous promise; the commission has made research and development of this potential control technique a high priority in recent years. The commission requests additional funds during 2010 to continue the development of pheromone-based control methods, and to add new trapping projects on Great Lake tributaries.
- Take advantage of the **sea lamprey genome project**, which is being conducted by the National Institutes of Health. Commission research will draw from the wealth of information from this study to explore novel control applications.
- Accelerate **alternative control research**, such as repellants, barriers, and sterilizations, to pursue multiple tracks of research to increase the probability of making a breakthrough in the discovery of new technologies.
- Significantly increase the **barrier repair, maintenance, and replacement** program (conducted in partnership with the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and Fisheries and Oceans Canada). Additional funding will allow the commission to begin to address a large backlog of barrier repair, maintenance, and replacement projects throughout the Great Lakes basin. Many dams that have historically blocked sea lamprey are deteriorating and will pass sea lamprey unless this priority work is funded.



**A researcher conducts sea lamprey blood plasma separation at the Hammond Bay Biological Station. Continual innovative research helps the commission better understand how to efficiently control lampreys.**



**Researchers collect sediment core samples from the bottom of the lake. Continual habitat assessment is part of the ecosystem-based approach the commission takes to ensure a healthy fishery.**

### **3. COMMITTEE AND SCIENTIFIC SUPPORT**

The Great Lakes Fishery Commission, under the *Convention on Great Lakes Fisheries, A Joint Strategic Plan for Management of Great Lakes Fisheries*, and the commission's *Strategic Vision for the First Decade of the New Millennium*, coordinates research, fosters cooperation among the fishery management agencies, and supports various committees and initiatives.

The fiscal 2010 budget includes \$3.1 million from Canada and the United States for committee and scientific support. These funds are used to:

- Develop and implement the commission's **fishery research** program. The fishery research program is designed to conduct research and develop recommendations for achieving a healthy Great Lakes ecosystem. Most projects supported by this research program are organized under research themes that describe a broad topic of importance to Great Lakes fishery management. Current fishery research themes range from ecosystem health of large lakes to native species restoration to the disruption of the food web caused by invasive species. The commission prioritizes research after consulting a range of partners including federal, provincial, state, and tribal officials, as well as experts from outside of government. Research themes provide an exposition of, and rationale for, the theme; a review of the relevant literature; a list of pertinent research questions or hypotheses; and a call for proposals. The fiscal 2010 budget request will allow the commission to continue this vigorous research program and add new theme areas where appropriate.

- Bring about international **cooperation** among the management agencies of the Great Lakes basin through active support for *A Joint Strategic Plan for Management of Great Lakes Fisheries*, a non-binding, multi-agency agreement. Eight states, two inter-tribal groups, the province of Ontario, the commission, and the two federal governments work together to manage, protect, and improve the Great Lakes fishery. The commission is responsible for helping these jurisdictions cooperate through the Joint Strategic Plan. Under the plan, the management agencies together collect and interpret data, share research, develop management objectives and operational plans, and agree to implement these objectives



The commission's research program supports a wide variety of critical projects. Whitefish tagging allows more accurate population and behavior assessment throughout the region and assists with ecosystem health analysis.

through their own agencies. This process is essential to the proper management of the Great Lakes fishery. The budget will allow the commission to support the Council of Great Lakes Fishery Agencies, the Council of Lake Committees, the individual lake committees, lake technical committees, the Great Lakes Fish Health Committee, and the Great Lakes Law Enforcement Committee.

- Support **science transfer**. The commission supports a science transfer program to help lake committees incorporate the results of fisheries research into management of Great Lakes fishery resources.

#### **4. PROGRAM MANAGEMENT**

The Great Lakes Fishery Commission executes its program through a secretariat comprising 16 full-time staff. The secretariat, located in Ann Arbor, Michigan, supports and implements the *Convention on Great Lakes Fisheries* (and related implementing legislation), the *Strategic Vision of the Great Lakes Fishery Commission for the First Decade of the New Millennium*, and *A Joint Strategic Plan for Management of Great Lakes Fisheries*. This budget request provides for staffing to accommodate the level of activity associated with the committee and scientific support, sea lamprey management, and research activities. The budget covers staff salaries and benefits and the travel, meeting arrangements, communications, printing, supplies, and equipment associated with business management operations.

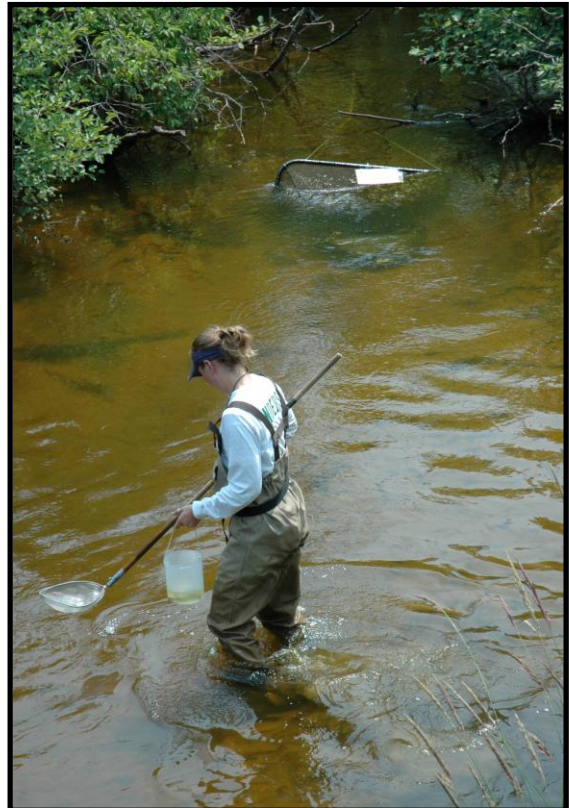
The process for securing and applying information on Great Lakes fish communities, their ecosystems, and related issues such as use, is becoming increasingly important and complex, as managers seek to improve habitat and fisheries through partnerships. To meet their objectives, fishery management agencies are increasing their reliance on the international/interjurisdictional forums supplied by the commission. Many resource management agencies also need to pool and, therefore, leverage dwindling local resources to continue providing quality fishery management for their constituents.

The secretariat provides support, leadership, and institutional memory for management and technical committees, additional special committees, task forces, and projects initiated to develop mutually beneficial, coordinated management and research programs.

The research underpinning fishery management decisions must be broad-based and comparative across lakes, accessing all information impacting aquatic ecosystems. The commission secretariat actively manages a vibrant, respected, basinwide research program, pursuant to the *Convention on Great Lakes Fisheries*.

The commission is responsible for implementing *A Joint Strategic Plan for Management of Great Lakes Fisheries*, which requires secretariat support and leadership. Increasingly, at the request of federal, provincial, state, and tribal agencies, the secretariat is providing administrative support for a variety of resource management partnerships.

Executing the commission's sea lamprey control responsibilities involves actively managing resources through several memoranda of agreement and developing budgets. The barrier program is closely managed, in cooperation with the contract agents in both countries. The secretariat leads the integrated pest management approach in the sea lamprey program. The secretariat manages the commission's research program on alternative controls and implements commission-mandated higher standards for its internal program of sea lamprey research (e.g. scientific peer review). The secretariat is primarily responsible for seamless, cost-effective procurement of lampricide in adequate amounts and with safe and effective composition. Through leadership, a range of technical task forces, and the Sea Lamprey Integration Committee, the secretariat provides the commission with effective decision support.



**Commission-supported research helps fishery managers better understand the composition of fish communities upstream of tributary barriers.**

**Great Lakes Fishery Commission**  
2100 Commonwealth Blvd., Ste. 100  
Ann Arbor, MI 48105  
734-662-3209  
[www.glfc.int](http://www.glfc.int)