



GREAT LAKES FISHERY COMMISSION

Program Requirements and Cost Estimates Fiscal Year 2009 (Prepared June, 2007)

EXECUTIVE SUMMARY

For more than fifty years, the Great Lakes Fishery Commission has been the backbone of Great Lakes fishery management. The commission protects the fishery from the destructive sea lamprey; without sea lamprey control, most provincial, state, tribal, and federal management efforts would be seriously undermined. The commission also upholds key bi-national obligations and coordinates critical fisheries research.

Today, the Great Lakes fishery is worth up to \$4 billion to the people of Canada and the United States. The Great Lakes Fishery Commission is a key component of that economic value.

During 2006 (the most recent field year), the commission:

- Increased the quantity and quality of sea lamprey treatments to increase suppression throughout the Great Lakes basin;
- Found more evidence of the success of its efforts to control the St. Marys River with an integrated program of lampricide and alternative controls;
- Moved pheromone-based alternative sea lamprey control methods from the laboratory to field trials;
- Facilitated and supported *A Joint Strategic Plan for Management of Great Lakes Fisheries*;
- Conducted a respected, basinwide research program that funded more than 75 quality research projects;
- Continued to play a key role in stopping the decline of the American eel, a native species near extirpation; and
- Promoted invasive species legislation and helped prevent the Asian carp invasion,



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

This document describes the commission's program, justifies the program elements, and requests the funds needed in fiscal 2009. This budget reflects inflationary increases and priorities for fiscal 2009 above the fiscal 2007 program. The document also includes priority additions to the alternative sea lamprey control program. The budget is organized into four major components: sea lamprey program (page 4), alternative sea lamprey control (page 5), committee and scientific support (page 7), and program management (page 8).

The commission's program requirements and cost estimates for fiscal 2009 are summarized in the table below. All figures are in millions of U.S. dollars.

Program Area	FY 2007 Program	FY 2009 Program	FY 2009 Priority Additions	FY 2009 Total
Sea Lamprey Control	14.1	17.2	0.0	17.2
Alternative Sea Lamprey Control	4.7	5.0	5.9	10.9
Committee and Scientific Support	1.3	2.9	0.0	2.9
Program Management	2.5	1.8	0.0	1.8
Total	22.6	26.9	5.9	32.8
<i>(Canadian Contribution)</i>	7.6	9.2	1.8	11.0
<i>(U.S. Contribution)</i>	15	17.7	4.1	21.8

Summary table: FY 2009 program requirements and cost estimates (USD, in millions).

THE VALUABLE GREAT LAKES FISHERY

Fish are what make the Great Lakes great and the Great Lakes fishery is certainly a treasured American and Canadian resource. Millions of anglers fish the lakes each year and the commercial fishery supports thousands of jobs. The fishery brings \$4 billion annually to the region and a healthy fishery means a healthy Great Lakes environment.

Fishery managers at all levels of government rely on the commission's work as the foundation for the achievement of their fishery objectives. The millions of citizens who fish the Great Lakes recreationally, tribally, and commercially depend 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 lead and coordinate fisheries research, in support of the management of fishery resources.



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



The Great Lakes supports a thriving recreational fishery.

Fishery officials from all jurisdictions—whether they be provincial, state, tribal, or federal—face many challenges. Fish stocks require careful management to prevent depletion. Native fish stocks require rehabilitation to levels of self-sustainability. Invasive species threaten the very future of the resource and must be kept out. Sea lamprey control—the backbone of Great Lakes rehabilitation and ecosystem management—must improve.

Today, resources to manage the fishery are becoming scarcer, meaning government agencies at all levels must do more to coordinate their activities, leverage resources, and avoid contradictory efforts. Indeed, fish do not observe political boundaries and agencies are well-served when they work together. 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-line at www.glf.org/pubs/SpecialPubs/StrategicVision2001.pdf.

RECENT HIGHLIGHTS

The Great Lakes Fishery Commission delivered a successful program in 2006 that addressed short-term and long-term challenges. Some notable highlights from the most recent field year (2006) include:

- **Increased and improved sea lamprey effort throughout the Great Lakes basin.** Sea lamprey control was enhanced during 2006 to tackle the continuing challenge of too many sea lampreys. Sea lamprey populations have increased in many areas of the Great Lakes and are above target levels necessary to protect fish communities. The quantity and quality of stream treatments was increased during 2006 by increasing staff and lampricide purchases and treating more streams using improved techniques. The commission's sea lamprey

control program was approximately 30% greater in 2006 than it was in the late 1990s. This enhanced effort removed millions of sea lamprey larvae from the system that would otherwise have destroyed valuable Great Lakes fish. The commission is focused on improving suppression to reach targets that best support objectives for the fish communities of the lakes. Sea lamprey control efforts to protect and improve the fishery must be increased in the coming years if targets are to be reached.

- **Continuing success of the integrated control program on the St. Marys River.** During the 1980s and 1990s, the St. Marys River, the large connecting channel between Lake Superior and Lake Huron, 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. Extensive surveys define the hot-spots where larval sea lampreys are living; lampricides are then precisely delivered to treat the hot-spots.



This test flume mimics a natural stream channel, allowing scientists to observe fish and sea lamprey swimming behavior, reactions to varying current eddies and velocities, and reactions to pheromones in the water.

- **Major advances in alternative control research, including the movement of sea lamprey pheromone research from the laboratory to field trials.** The commission set a goal of achieving 50% of sea lamprey control through the use of alternative control techniques. One very promising technique is the use of sea lamprey pheromones—natural attractants that sea lampreys release. In 2006, work on pheromones continued in the field with large-scale studies conducted in streams to advance pheromones as a control technique.

- **Support for A Joint Strategic Plan for Management of Great Lakes Fisheries.** The commission facilitates the implementation of the Joint Strategic Plan, the plan designed to foster international, federal, provincial, state, and tribal management of the shared fishery. In 2006, the commission continued to support the lake committee process and sought to provide the participating agencies with better briefing materials and greater support for their coordinated efforts to improve management.

- **A vibrant GLFC research program.** The commission continues to improve the quality of science it supports. In 2006, the commission funded more than 75 advanced projects focusing on such issues as native species restoration to the impact of invasive species. The research program is coordinated with other programs to ensure maximum applicability to the needs of fishery managers. Research funded by the commission's program is usually peer-reviewed and published.



The commission has been working with other agencies to prevent the introduction of Asian carp into the Great Lakes.

- **Helping to stop the loss of American eel.** The commission's strategic vision calls for no loss of any native species. The American eel is on the brink of extirpation. The American eel is a highly migratory fish that originates in the Sargasso Sea and extends its native range to the Great Lakes. Overfishing during all life stages, spawning habitat loss, and impingement at power plants has led to catastrophic declines in the American eel. The commission has joined with agencies throughout North America to respond to and, hopefully reverse, this decline.

- **Invasive Species.** The commission continued to work with Congress, sportfishing and commercial fishing organizations, and NGOs in the advancement of legislation to protect the Great Lakes from invasive species.

- **A strengthened partnership with the U.S. Army Corps of Engineers.** The commission continued to improve its collaboration with the Corps of Engineers in 2006 through an on-going partnership to construct sea lamprey barriers and traps and through support for the corps' Great Lakes Fishery and Ecosystem Restoration Program.

PROGRAM REQUIREMENTS AND COST ESTIMATES: FISCAL 2009

The Great Lakes Fishery Commission presents to the governments of Canada and the United States a budget of \$26.9 million for fiscal 2009 (all figures are presented in United States dollars). This budget requires \$9.2 million from Canada and \$17.7 million from the United States.

The commission has identified critical tasks that require an additional \$5.9 million in priorities for fiscal 2009. These priority additions will advance the effort to develop and implement alternative sea lamprey control techniques, including acceleration of the pheromone program and continued improvement of sea lamprey traps and barriers. **With these additional priorities, the commission requests a total of \$32.8 million from Canada and the United States in fiscal 2009 (\$11 million from Canada and \$21.8 from the United States).**

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

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

Each component and its associated program requirements and cost estimates for fiscal 2009 are described below.

1. SEA LAMPREY CONTROL



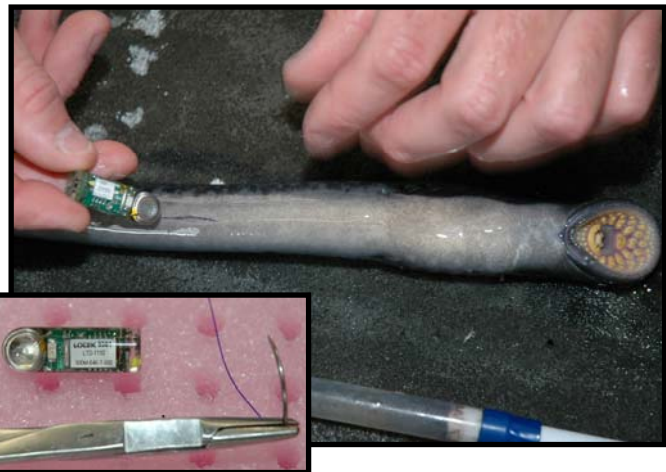
Sea lampreys attach to fish with a suction cup mouth, rasp a hole through the fish's scales and skin, and feed on the fish's body fluids.

The Great Lakes fishery depends on sea lamprey control. Federal, provincial, state, and tribal agencies rely upon the commission to deliver sea lamprey control in support of their management activities. Without sea lamprey control, the millions of dollars these agencies invest annually in rehabilitation and stocking programs would be jeopardized. 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 in the early 20th century and destroyed a thriving fishery by the 1940s and 1950s. Through the commission's coordinated program, sea lamprey populations have been reduced by 90% in most areas of the Great Lakes—a remarkable achievement. Nevertheless, sea lamprey populations are still too high in many areas, stressing that more needs to be done to suppress this invasive predator. The sea lamprey control program is ongoing as sea lampreys, like other invasive species such as zebra mussels and Eurasian ruffe, have become permanent fixtures of the Great Lakes ecosystem.

The commission requests a total of \$17.2 million from the governments of Canada and the United States for the sea lamprey program. The sea lamprey program consists of several components including stream treatments using lampricides, the purchase of lampricides, adult and larval sea lamprey assessment, sea lamprey research, and registration of the lampricides. Specifically, the 2009 program will allow the commission to:

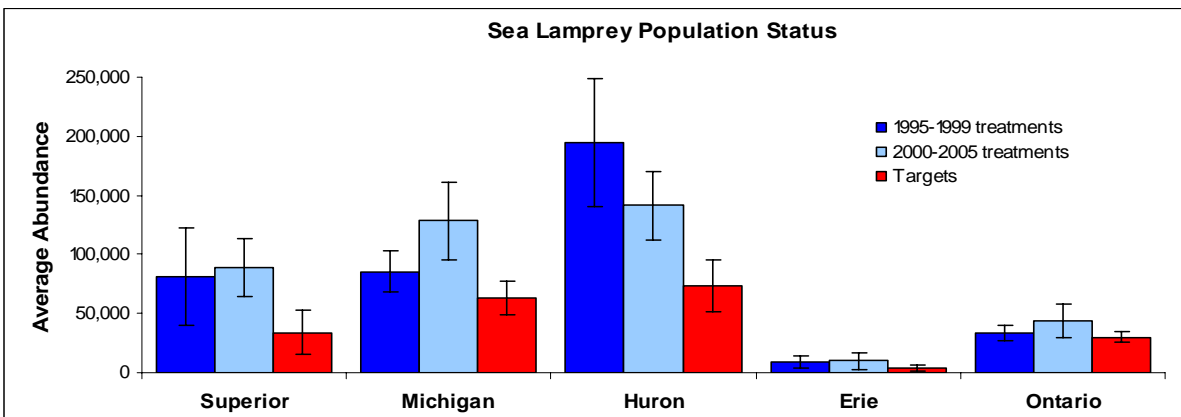
- Increase the **stream treatment** program. The 2009 request allows for the commission to deliver sea lamprey control in all areas that require it and to significantly increase sea lamprey control in areas where sea lamprey abundances are too high. The request also includes funds to maintain control on the St. Marys River.



Commission-supported research helps fishery managers better understand sea lamprey behavior. Tagging allows researchers to track lamprey movement throughout the lakes which will allow more efficient control techniques to be developed.

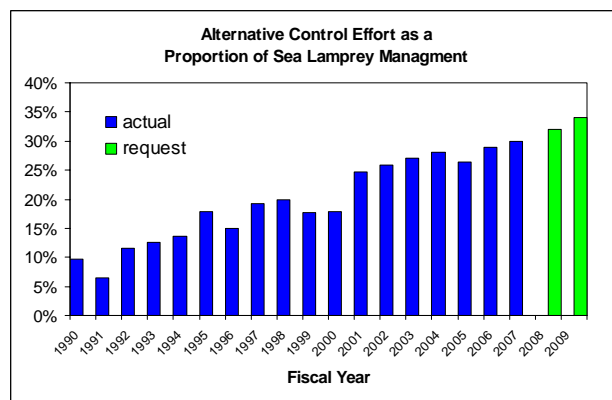
- Conduct the **assessment** needed to determine where sea lamprey larvae are located, identify which streams to treat, and analyze the success of sea lamprey treatments. This budget request includes a full program of sea lamprey trapping, new studies into the effectiveness of traps and fishways, assessment of sea lamprey larvae in streams, and expanded coverage of un-surveyed streams.
- Continue 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 Hammond Bay, Michigan. Sea lamprey research helps the commission improve sea lamprey control and better understand the effect of sea lamprey control.
- Maintain the required **registration** of the lampricides TFM and granular Bayluscide with the U.S. Environmental Protection Agency and Health Canada.

2. ALTERNATIVE SEA LAMPREY CONTROL



Aggressive lampricide control efforts are underway to reduce sea lamprey populations to suppression targets in the Great Lakes. Numbers of spawning sea lampreys provide measures of the effects of past treatments. During the late 1990s, the commission focused efforts on control of the St. Marys River that have resulted in dramatic reductions in the destructive infestation in Lake Huron. Effective control in Lake Ontario has kept sea lampreys at the suppression target there. With increased funding, the commission has mounted a significantly increased treatment program in Lakes Superior, Michigan and Erie to combat elevated populations. The effects of these efforts will be seen in assessment surveys during the next 3 years.

The Great Lakes Fishery Commission's *Strategic Vision for the First Decade of the New Millennium* calls for the commission to achieve at least 50% of sea lamprey control through the use of alternative control techniques. The FY 2009 program envisions an expansion in the use of alternative controls, including major new investments in alternative control 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 strategic vision calls for the development and implementation of at least one new alternative control technique by the year 2010.



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.

To facilitate this goal, 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 the movement of this research from the lab to field trials.

The commission requests \$10.9 million from Canada and the United States for its alternative sea lamprey control program in fiscal 2009. This amount includes \$5.0 million for the base program and \$5.9 million for priority additions.

The 2009 budget would allow the commission to:

- Continue its ongoing partnership with the U.S. Army Corps of Engineers 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 up to two large rivers, leading to significant future cost savings. Sea lamprey barriers are important to an integrated (multi-method) control program because once a barrier is constructed in a stream, that stream does not require lampricide treatments above the barrier. New technologies associated with commission barriers enhance the passage of desirable fish.



Low head barriers prevent sea lampreys from reaching their spawning grounds, while allowing fish to pass through. They help control sea lampreys without the use of lampricides.

- Maintain **trapping**, collection, and facility operations at the current levels. This budget also allows for refinements to new trapping projects on the St. Marys River. Traps remove spawning lampreys from the system and provide a source of sea lampreys for the sterile-male-release-technique.
- Maintain the highly successful **sterile-male-release-technique**. Sterilized male sea lampreys, when released into streams, compete with fertile males and waste the female's spawning potential. The commission developed this technique after years of research and field trials. This technique is now 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.

Priority Additions, Fiscal 2009: Pursuant to its strategic vision, the commission remains committed to developing and implementing alternative control techniques. To achieve its goals, the commission has proposed a major new investment in alternative control research. The priority additions (\$5.9 million in fiscal 2009) would allow the commission to:

- Add major field trial initiatives for both the sea lamprey migratory and sex **pheromones**. Previously developed alternative control techniques (such as the sterile-male-release-technique and barriers) have helped the commission achieve control without the use of lampricides. The commission, therefore, is 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. The commission requests additional funds in 2009 to continue the pheromone field trials, to produce the pheromones, and to add new trapping projects on the St. Marys River.
- Take advantage of the **sea lamprey genome project**, which is being conducted by the National Institutes of Health. Commission research will expand on 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.
- Double the **barrier repair and maintenance or replacement** program in partnership with the 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 huge backlog of barrier repair and maintenance or 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.

3. COMMITTEE AND SCIENTIFIC SUPPORT

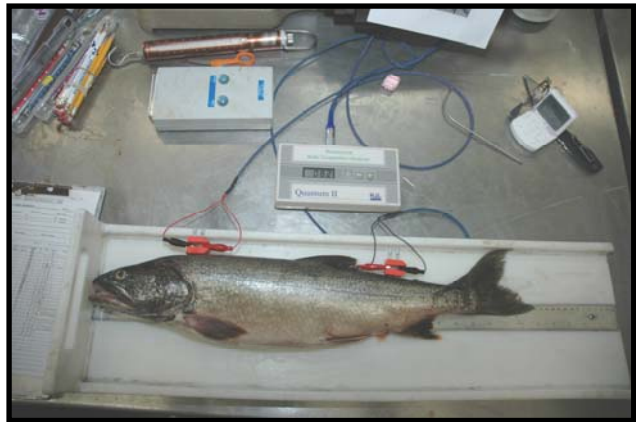
The Great Lakes Fishery Commission, under the *Convention on Great Lakes Fisheries*, *A Joint Strategic Plan for Management of Great Lakes Fisheries*, and the commission's *Strategic Vision for the First Decade of the New Millennium*, coordinates research, fosters cooperation among the management agencies,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

The fiscal 2009 budget includes \$2.9 million from Canada and the United States for committee and scientific support. These funds are used to:

- Implement the commission's **fishery research** program. The commission carries out a directed fishery research program that contributes to the development and implementation of measures that protect and improve the Great Lakes fishery. Most projects supported by this research program are organized under research theme areas that outline a broad topic of importance to Great Lakes fishery management. Current fishery research themes include: ecosystem health of large lakes, ecosystem dysfunction and fish health, reintroduction of native fishes, and governance of Great Lakes fisheries. The commission works closely with federal, provincial, state, and tribal agencies and with experts outside of government to solicit and fund worthwhile scientific research. 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 2009 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. Eight states, the province of Ontario, several tribes, the commission, and two federal governments are all involved in Great Lakes fishery management. The commission is responsible for helping these jurisdictions cooperate. This is accomplished through *A Joint Strategic Plan for Management of Great Lakes Fisheries*, a non-binding, multi-agency agreement. Under this plan, the management agencies together undertake data collection, meet to share research, develop their shared fishery management objectives, and agree to implement these objectives through their own agencies. This process—as implemented by the commission—is highly respected and necessary to the proper management of the Great Lakes fishery. The budget will allow the commission to support the Council of Lake Committees, the individual lake committees, lake technical committees, the Great Lakes Fish Health Committee, and the 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.



Commission scientists are constantly conducting research on the health of the ecosystem using a variety of fish populations; lipid content analysis assists scientists in this assessment.



The commission's research program supports a wide variety of critical projects. Lake trout assessment throughout the region assists with ecosystem health analysis.

4. PROGRAM MANAGEMENT

The Great Lakes Fishery Commission has a single secretariat, located in Ann Arbor, Michigan. The secretariat 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*. The secretariat also coordinates research into alternative methods of sea lamprey control, and carries forward a communications plan.

The commission carries out its duties with the help of 16 full-time staff. This budget request provides for staffing to accommodate the level of activity associated with the committee and scientific support and 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 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 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.

The research underpinning fishery management decisions must be broad-based and comparative across lakes, accessing all information impacting aquatic ecosystems. Many resource management agencies also need to pool and, therefore, leverage dwindling local resources to continue providing quality fishery management for their constituents. To meet their objectives, fishery agencies are increasing their reliance on the international/interjurisdictional forums supplied by the commission.

In 1986 and again in 1997, the Great Lakes natural resource agency directors recommitted themselves to implementing *A Joint Strategic Plan for Management of Great Lakes Fisheries*. Each initiative requires secretariat support, leadership, and institutional memory in some measure to contribute to the overall goal of responsible husbandry of fishery resources. Increasingly, at the request of federal, provincial, state, and tribal agencies, the secretariat is providing administrative support for a variety of resource management partnerships.



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

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.

GREAT LAKES FISHERY COMMISSION

2100 Commonwealth Blvd., Ste. 100

Ann Arbor, MI 48105

734-662-3209