



## Great Lakes Fishery Commission

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### **SUPPLEMENTAL SEA LAMPREY CONTROL MOVES FORWARD TO IMPLEMENTATION STAGE, SUPPORTING BINATIONAL INVASIVE SPECIES CONTROL**

**ANN ARBOR, MI—** The Supplemental Sea Lamprey Control Initiative, known as SUPCON, has reached a major milestone: after multiple years of proof-of-concept scientific study, the initiative has moved into a five-year implementation stage to support the binational sea lamprey control program in the Great Lakes. SUPCON focuses on the use of non-traditional control methods to divert, disrupt, and remove invasive sea lampreys from Great Lakes tributaries. In the implementation stage of SUPCON, methods developed and tested during the research-based first stage are being applied in 13 streams, expanding current control efforts that are vital to protecting Great Lakes fish and the \$5.1 billion fisheries they support each year. The Great Lakes Fishery Commission funds the initiative.

Invasive sea lampreys have become one of the most significant threats to fish populations in the Great Lakes since their establishment during the mid-1800s and early 1900s. These parasitic fish attach themselves to host fish and feed on their blood and bodily fluids. The average sea lamprey is capable of killing up to 40 pounds (18 kg) of fish during its parasitic stage. Native fish species such as lake trout, whitefish, and others were severely impacted by the establishment of sea lampreys, resulting in dramatic population declines and creating long-lasting economic repercussions throughout the region.

The SUPCON initiative employs methods that complement the two primary control tools for sea lampreys—lampricides and barriers—which together have reduced sea lamprey populations by 90% in most areas of the Great Lakes. Supplemental controls integrate multiple strategies to target sea lampreys throughout their life cycle, enhancing control where primary tools are less effective due to physical, biological, chemical, or social challenges.

During the first stage of the SUPCON initiative, which ran from 2017 to 2023, experimental deployment of supplemental controls on four tributaries to Lake Huron reduced or eliminated sea lamprey reproduction and resulted in a redirection of \$400,000 of lampricide control effort to other streams. Methods tested as part of the first stage included portable traps to remove adult sea lampreys before they could spawn and seasonal electrical barriers to block sea lampreys from reaching spawning habitat. Nets to capture juvenile sea lampreys (before they harm fish) were also assessed. These nets collected a total of 1,158 juvenile sea lampreys, saving a potential loss of over 45,000 pounds (20,000 kg) of Great Lakes fish.



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Additional methods tested during the first stage include a variety of scent-based cues, such as attractant pheromones to lure adult sea lampreys into traps, pheromone antagonists to block the ability of sea lampreys to smell mates, and alarm cues to push sea lampreys into areas with poor habitat. Sterilization of adult male sea lampreys (a stage that no longer feeds on fish) was also completed in a contained river system, and led to the first-ever cancellation of a [planned lampicide treatment in a sea lamprey-infested stream in the control program's 70-year history](#).

The second stage of SUPCON, which runs from 2024 to 2029, is being implemented in 13 tributaries to lakes Superior, Michigan, and Huron. The methods identified as successful in stage one are being applied at this broader scale to control additional sea lamprey populations and assess the effectiveness of methods in other stream environments. If effective in these streams, supplemental control has the potential to reduce the production of 3 million larvae while saving valuable control program dollars.

“The Sea Lamprey Control Program is one of the most successful control programs in the world for an invasive, vertebrate species,” said Ethan Baker, chair of the Great Lakes Fishery Commission. “Sea lamprey control is critical for safeguarding the economy and livelihoods of the over 35 million people who call the Great Lakes region home. Development of supplemental sea lamprey control methods plays an important role within the program by expanding our ability to control sea lampreys in previously uncontrollable or difficult-to-control areas and advancing the Commission’s mission to protect ecologically important and economically valuable fish species, promoting the prosperity of the Great Lakes region.”

“One of the keys to success for SUPCON to date has been the focus on adaptability and assessment,” indicated Nick Johnson, U.S. Geological Survey research ecologist and scientific lead for the first stage of SUPCON. “The initiative was designed to allow for continual learning through evaluation of results and assessment of success. Moving forward, this process allows the team to learn from their experience and adjust effort to maximize effectiveness.”

“Structured decision making is also integral to the SUPCON initiative,” added Jessica Barber, U.S. Fish and Wildlife program supervisor for sea lamprey control. “This decision-making process explicitly incorporates knowledge of risks, benefits, uncertainty, and potentially conflicting interests of parties involved to identify optimal decisions among many options. Structured decision making was used to determine which supplemental control methods to apply in particular streams and how to maximize learning while reducing cost.”

“SUPCON is an outstanding demonstration of how many minds from different backgrounds can come together over a common goal to drive progress toward the protection of natural resources,” stated Tonia Van Kempen, Fisheries and Oceans Canada program manager for sea lamprey control. “This initiative would not have been possible without the support and collaboration of myriad partners, which together make our work stronger, more responsive, and relevant to our many communities.”

“We are proud to be a partner in the work of SUPCON, which enhances the safe and effective control of invasive sea lampreys in the Great Lakes,” stated Bill Mattes, chair of the Commission’s Sea Lamprey Control Board and formerly the Great Lakes Section Leader for the Great Lakes Indian Fish and Wildlife Commission. “The SUPCON initiative has demonstrated how the use of passive collection gears—such as specially designed nets to trap out-migrating juveniles based on traditional knowledge of river systems—and other methods (i.e., sterile male release and pheromones) can control sea lampreys and protect native fish species. Nearly 1.5 million people, including members of indigenous communities, fish the Great Lakes each year. Thriving fisheries would not be possible without the mitigation of sea lampreys.”



SUPCON partners include the U.S. Geological Survey, U.S. Fish and Wildlife Service, Fisheries and Oceans Canada, Great Lakes Indian Fish and Wildlife Commission, Keweenaw Bay Indian Community, Garden River First Nation, Little Traverse Bay Bands of Odawa Indians, Batchewana First Nation, Michigan State University, University of Wisconsin–Stevens Point, and Huron Pines. The Great Lakes Fishery Commission facilitates the initiative. Interested local user groups near study streams provide regular input and engage in various project activities. Many local landowners on project sites grant access to their land.

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Sea lampreys are parasitic fish—native to the Atlantic Ocean—that are invasive in the Great Lakes and cause considerable harm. Great Lakes sea lamprey populations have been controlled since the 1950s through the use of lampricides and barriers. Photo credits: Andrea Miehl, Great Lakes Fishery Commission.



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The Supplemental Sea Lamprey Control Initiative (SUPCON) is implementing methods to enhance sea lamprey control where the two primary tools—lampricides and barriers—are less effective. Supplemental controls being applied include seasonal electrical barriers to block sea lampreys from reaching spawning habitat (left) and traps to remove adult sea lampreys before they spawn (right).

Photo credits: Andrea Miehl, Great Lakes Fishery Commission.

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*The Great Lakes Fishery Commission is an international organization established by the United States and Canada through the 1954 Convention on Great Lakes Fisheries. The commission has the responsibility to promote measures that protect and improve the multi-billion-dollar Great Lakes fishery.*

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