

Fisheries Program

**Continuing the Battle
Spawning Behavior
Similar**

**Construction Continues
Despite Winters
Deep Freeze**

**Fight against Asian
Carp Continues**

**Monarch Recovery
Efforts**



U.S. Fish & Wildlife Service Fisheries, Midwest Region

Conserving America's Fisheries

Sea Lamprey Control Program Larval Assessment Unit Critical in Continuing the Battle

BY AARON JUBAR, LUDINGTON BIOLOGICAL STATION

The 2015 Sea Lamprey Control Program field season has come to a close, and with that, the U.S. Fish and Wildlife Service (Service) would like to highlight and share some of the remarkable work accomplished over the past 7-8 months. During the field season, sea lamprey control staff based in the Ludington and Marquette Biological Stations work around the clock, and at times, 10 day shifts in order to reduce the impacts of the invasive sea lamprey on the Great Lakes ecosystem.

Service employees work in one of three units of sea lamprey control: larval assessment, lampricide control, and adult assessment and barriers. Each unit plays a different role in facilitating the decline of sea lampreys in the Great Lakes, but collectively, they work together to keep this voracious parasite at bay.

The larval assessment unit is responsible for finding streams and tributaries containing sea lamprey larvae throughout the Great Lakes. They use specialized electrofishers to stimulate larvae from their burrows and estimate the sea lamprey larval population in each infested stream. The team surveys all tributaries to the Great Lakes that have potential to harbor sea lampreys, including those where larval sea lampreys have been found in the past, and those where they have never been detected. Larval assessment data are then used to decide which streams will be treated with lampricides the following year, the exact locations where lampricides will be applied in each stream, and the spatial distribution of the larval population within a stream. Access to many locations requires travel to remote areas of a stream by hiking and ATVs.



Service employee Matt Symbal conducts a sea lamprey larval assessment survey in the Big Garlic River, Michigan. Credit: Lynn Kanieski, USFWS



Sea Lamprey Control staff from the Ludington and Marquette Biological Stations conduct a larval assessment survey on the St. Clair River, Michigan. Credit: Lynn Kanieski, USFWS

control because it determines not only when and where to treat streams, but also if treatments have worked in the past and where they are most needed in the future.

By the numbers, here is just a brief glance at what the larval assessment team was up to during 2015:

- Number of sites sampled for larval sea lampreys: 2,842
- Number of streams surveyed for larval sea lampreys: 315
- Number of offshore areas surveyed for larval sea lampreys: 33
- Number of employees in the larval assessment program: 12 from Ludington Biological Station and 16 from Marquette Biological Station
- Number of states worked in: 8

As shown by the numbers, the larval assessment team assesses thousands of sites from northern Minnesota to the southern tip of Wisconsin, east to Buffalo, New York. All of this hard work happens during the short field season that lasts from April to October. When larval survey sites border the United States and Canada, the Service often partners with staff from the Department of Fisheries and Oceans, Canada, to complete these surveys. The larval assessment unit is crucial to sea lamprey

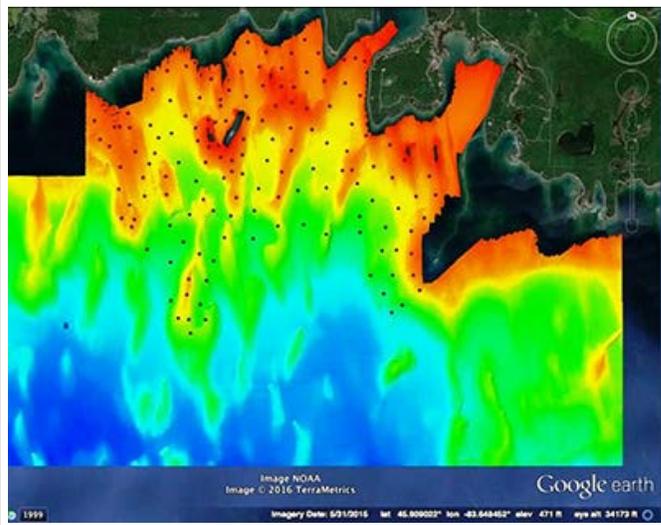


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Service Reared Lake Trout Spawning Behavior Similar to Wild Lake Trout

BY CHARLES BRONTE, GREEN BAY FWCO



Acoustic receiver array off Drummond Island, Michigan.
Credit: Chuck Krueger, Michigan State University

between wild and hatchery-reared lake trout is unclear, but similarities in estimates suggest that many hatchery-reared fish use similar spawning sites to wild fish and that most return to those sites annually for spawning.

The study was led by Dr. Tom Binder, a post-doctoral researcher at Michigan State University, in collaboration with the U.S. Geological Survey, Michigan Department of Natural Resources and the U.S. Fish and Wildlife Service, and funded under the Great Lakes Fishery Commission by way of the Great Lakes Restoration Initiative. The work was published in the January 2016 issue of the *Canadian Journal of Fisheries and Aquatic Sciences*.

A cooperative multi-agency research project has discovered that lake trout stocked by the Service in Lake Huron return to the same spawning sites with the same fidelity as wild lake trout do. Fidelity to high-quality spawning sites helps ensure that lake trout adults repeatedly spawn at sites that maximize reproductive success. Fidelity is also an important behavioral characteristic to consider when hatchery-reared individuals are stocked for species restoration, because artificial rearing environments may interfere with cues that guide appropriate spawning site selection.

Acoustic telemetry was used in conjunction with statistical capture–recapture models to compare degree of spawning site fidelity of wild and hatchery-reared lake trout in northern Lake Huron. Annual survival was estimated to be between 77% and 81% and did not differ among wild and hatchery males and females. Site fidelity estimates were high in both wild and hatchery-reared lake trout, and ranged from 0.78 to 0.94, but were slightly lower in hatchery-reared fish than in wild fish. The ecological implication of the small difference in site fidelity



Acoustic tag in lake trout. Credit: Tom Binder, USGS



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Genoa National Fish Hatchery Visitor Center Construction Continues Despite Winters Deep Freeze

BY DOUG ALOISI, GENOA NFH



Workers installing insulation and wallboard in winter temperatures. Credit: USFWS

Construction of Genoa National Fish Hatchery's Visitor Center continued despite high temperatures of the single digits being reached in some of this winter's coldest weather. Construction crews from C3T Inc., of Milwaukee Wisconsin continued steel erection and buttoning up the building so work could continue in a somewhat controlled environment, at least compared to outside temperatures.

The Visitor Center is aptly named the Great River Road Interpretive Center due to the project receiving a grant from the Department of Transportation's Scenic Byway Program. The Scenic Byway Program is a grass-roots collaborative effort established to help recognize, preserve and enhance selected roads throughout the United States. The U.S. Secretary of Transportation recognizes certain roads as All-American Roads or National Scenic Byways based on one or more archeological, cultural, historic, natural, recreational and scenic qualities, and State Highway 35 which intersect the hatchery has been selected as one of America's scenic byways.

The purpose of the center will be to interpret and inform travelers of the great history of the local area, the conservation history and value of local natural resources, and local history exhibits of the area such as the Blackhawk war, in regards to its local and national significance.

Timeline for completion of the building is somewhat fluid due to weather and material constraints; construction completion is still planned for the fall of 2016. Exhibit design and construction will continue into the winter with building opening tentatively scheduled for the spring of 2017. The Genoa NFH staff is excited about the new center and looks forward to the benefits it will add to our outdoor classrooms and conservation education program.



North side of the building closed and insulated from winter's extremes. Credit: USFWS



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Wilmington Substation Continues the Fight against Asian Carp

BY REBECCA NEELEY, CARTERVILLE FWCO- WILMINGTON IL SUBSTATION



Small Asian Carp. Credit: Jimmie Garth, USFWS

Project has grown considerably since 2012. The 2015 sampling season lasted from early April to the middle of November, which is the longest field season in the four years of this project. A total of ninety-three species and 89,857 fish were identified to species within the Starved Rock, Marseilles, and Dresden Island (including the Des Plaines River) pools.

In October, the Wilmington office captured two small Asian carp (6 -7 inches long) in the Marseilles Pool which was the furthest upstream that small Asian carp have been collected. The enhanced monitoring project sampled from May to October and consisted of 241 net sets, 33,650 yards, 216.9 hours of netting time, with 802 total fish captured (451 Asian carp) using our gill and trammel nets. Another project looked at how fish were using the Brandon Road Lock and Dam. A stationary acoustic remote sensing system was deployed at the Brandon Road Lock chamber which allowed for continuous data collection and real time fish track data processing twenty-four hours a day throughout July, August, and September. During the course of the stationary deployment, over 2100 hours of acoustic data were collected, and are currently being analyzed, and more than 1100 lockage operations took place.

Being at the Midewin office has proven to be an asset to our program and to the fight against Asian carp. We are able to have crews on the water in a moment's notice and as was noted we have dramatically increased our sampling efforts. Over the summer our office had the opportunity to take several of the Midewin staff for a one day cross-training experience in the field. They had the chance to set nets and electrofish for Asian carp in the upper pools of the Illinois Waterway. After a long, satisfying day in the field, the Forest Service staff left feeling like they had a grasp on the projects the Fish and Wildlife are pursuing and promising a possibility of reciprocation.

The Wilmington station continues to be at the forefront of the Asian carp battle. The 2016 field season promises to be another year of conducting cutting edge research and testing new specially designed equipment in order to keep Asian carp out of the Great Lakes.

This past spring, a substation of the Carterville Fish and Wildlife Conservation Office opened south of Chicago in Wilmington, Illinois. The continued mission of this station and staff is to assist in keeping Asian carp out of the Great Lakes.

The substation now consists of a station lead, three fish biologists, and four technicians. Four seasonal staff will be hired to help during the busy summer months. Our office will continue with several ongoing projects during the 2016 field season including: hydroacoustic and DIDSON monitoring of fish populations around the barrier in the upper pools of the Illinois River, eDNA sampling, small fish population monitoring and seasonal intensive sampling for Asian carp. Several new projects are currently being developed that will increase the station's fight against Asian carp.

Due to the close proximity of the substation to the upper Illinois Waterway, crews are able to complete more work within the waterway each season. The U.S. Fish and Wildlife Service's Small Asian Carp



U.S. Forest Service employee Jean Keenan holding her catch of the day with Chris Hoffman from USFWS. Credit: Rebecca Neeley, USFWS



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Genoa National Fish Hatchery Supports Monarch Recovery Efforts

BY AARON VON ESCHEN, GENOA NFH



Biologists Liz Hackner and Erin Johnson display the fruits of their labor, milkweed seeds, all ready for this year's planting. Credit: USFWS

In response to declining monarch butterfly habitat the Genoa National Fish Hatchery (NFH) has made it a priority to participate in a Monarch Joint Venture to conserve monarch butterfly habitat along their 3,000 mile migration route. Last fall, staff at Genoa NFH collected hundreds of pods from two different types of milkweed containing thousands of seeds. Those seeds were planted around the hatchery grounds including the native prairie and notable increases in common milkweed and swamp milkweed plants were seen.

Throughout this past summer adult monarchs and monarch caterpillars were seen all over the hatchery on the milkweed signaling that the efforts taken were successful. Milkweed plants are an essential diet for monarch caterpillars and adults feed on the nectar of the flowers. Providing an area rich in milkweed will attract adults continuously to lay their eggs on the plants. This fall staff was at it again collecting even more seed pods than the previous year in hopes of providing even more essential habitat next summer for the migrating monarch butterflies.

Genoa NFH has also taken additional steps in monarch conservation in the form of information about monarchs available to the public, such as milkweed and monarchs in the classroom, as well as including information and trips around the wetland to explain monarch life history and habitat on guided tours. The staff at Genoa NFH is looking forward to informing the public about the importance of monarchs and steps that can be taken to assist in recovery of these butterflies. Information can also be found on the internet for anyone who is interested in the status of monarch butterflies and steps that can be taken assist maintaining butterfly habitat as well as information on flower gardens to help attract them on their migration routes.



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Jordan River National Fish Hatchery Cisco Restoration Project Underway

BY ROGER GORDON, JORDAN RIVER NFH

Fishery crews from the Alpena Fish and Wildlife Conservation Office and Jordan River National Fish Hatchery (NFH) spent over a month in October/November 2015 searching for spawning populations of cisco in northern Lake Huron. These efforts were part of a comprehensive project involving federal, tribal, state, and academic partners to restore this important native fish to additional areas within this Great Lake.

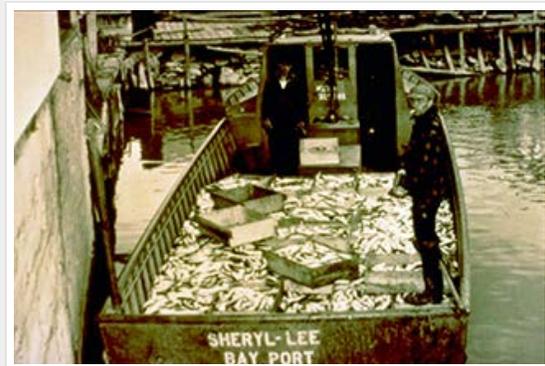
There were several key goals for this early work including; identification of active spawning areas in the northern portion of Lake Huron, development of capture techniques for mature fish for gamete collection, delineating spawning times of these populations, and finally the collection of fertilized eggs for use by cooperators working on cisco early life history projects. During the project, which ran from October 19 to November 23, 2015, crews were able to gather valuable data on several populations within the target area. All goals for the project were met with a wealth of information collected outlining when, where, and how these small populations use portions of the lake for reproduction. Fertilized eggs were supplied to the US Geological Survey Great Lakes Science Center, Ann Arbor, Michigan and Lake Superior State University, Sault Ste. Marie, Michigan for use in various research and student projects.



Adult cisco collected in fall of 2015 in northern Lake Huron. Credit: USFWS



Night sampling for cisco on northern Lake Huron. Credit: USFWS



Historic mid - 20th century photo of cisco catch out of Bay Port, MI, on Lake Huron. Credit: Great Lakes Fishery Commission

The ultimate goal of this and other scheduled field work with these populations of cisco is to gather data to assist in large scale restoration activities on Lake Huron. Jordan River NFH is in the process of modifying infrastructure on the federal hatchery to accommodate the annual production and release of up to 750,000 fingerling cisco for areas in Lake Huron where cisco are depressed or absent. This international, multi-agency project is supported by a host of federal, tribal, state, and provincial natural resource entities all focused on restoring these depressed fish stocks back to Lake Huron.

For more information on this or other cisco projects on Lake Huron please feel free to contact Roger Gordon, Hatchery Manager, Jordan River NFH at 231-584-2461 or email at roger_gordon@fws.gov



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Fish Tails

Articles submitted by field staff that do not appear as a feature within Fish Lines. These articles provide examples of the diverse work that is performed on behalf of aquatic resources.

Mass Marking Presentation Featured at Michigan Sea Grant Regional Fishery Workshop

BY CHARLES BRONTE, GREEN BAY FWCO

Senior Biologist Chuck Bronte, from the Great Lakes Fish Tag and Recovery Lab/ Green Bay Fish and Wildlife Conservation Office, was invited to present updates on the results of the coded wire tagging studies being conducted on Lake Michigan at the annual Ludington Regional Fishery Workshop. This annual meeting, always conducted in early January, is organized by Dan O'Keefe, Extension Educator of Michigan Sea Grant, and is organized to inform and update anglers on the latest information related to the fishery and ecosystem changes that are occurring in Lake Michigan. Speakers from U.S. Geological Survey, Michigan Sea Grant, and Michigan Department of Natural Resources among others are routinely invited to provide technical presentations and field questions from sport and commercial fishermen, charter boat captains, and others that attend. This is the fourth year that the Service Fisheries Program has been invited to speak. Bronte presented results from the interagency coded-wire tagging studies that provide insights into the movements of lake trout and Chinook salmon, estimate wild production of lake trout and Chinook salmon, and evaluating restoration strategies for lake trout in Lake Michigan. About 100 anglers attended the meeting.



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Midwest Region Fisheries Divisions

National Fish Hatcheries

The Region's National Fish Hatcheries (NFH) focus on native species recovery and restoration. Primary species include: lake trout, endangered pallid sturgeon, and endangered, threatened, and native mussels. Other major programs include coaster brook trout and lake sturgeon restoration, fulfilling tribal trust responsibilities for native aquatic species, and cost reimbursed rainbow trout production for recreational fishing. Hatcheries also provide technical assistance to other agencies, provide fish and eggs for research, and develop and maintain brood stocks of various species and strains.



Fish and Wildlife Conservation Offices

Fish and Wildlife Conservation Offices (FWCO) conduct assessments of fish populations to guide management decisions, play a key role in targeting and implementing native fish and habitat restoration programs; perform key monitoring and control activities related to aquatic invasive species; survey and evaluate aquatic habitats to identify restoration/rehabilitation opportunities; work with private land owners, states, local governments and watershed organizations to complete aquatic habitat restoration projects under the Service's National Fish Passage Program, National Fish Habitat Partnerships, Partners for Fish and Wildlife and the Great Lakes Coastal Programs; provide coordination and technical assistance toward the management of interjurisdictional fisheries; maintain and operate several key interagency fisheries databases; provide technical expertise to other Service programs addressing contaminants, endangered species, federal project review and hydro-power operation and relicensing; evaluate and manage fisheries on Service lands; and, provide technical support to 38 Native American tribal governments and treaty authorities.

Sea Lamprey Biological Stations

The Fish and Wildlife Service is the United States Agent for sea lamprey control, with two Biological Stations assessing and managing sea lamprey populations throughout the Great Lakes. The Great Lakes Fishery Commission administers the Sea Lamprey Management Program, with funding provided through the U.S. Department of State, U.S. Department of the Interior, and Fisheries and Oceans Canada.

Fish Health Center

The Fish Health Center provides specialized fish health evaluation and diagnostic services to federal, state and tribal hatcheries in the region; conducts extensive monitoring and evaluation of wild fish health; examines and certifies the health of captive hatchery stocks; and, performs a wide range of special services helping to coordinate fishery program offices and partner organizations. The Whitney Genetics Lab serves as a leading edge genetics laboratory and conducts environmental DNA (eDNA) sample processing for early detection of invasive species.

Whitney Genetics Lab

The Whitney Genetics lab provides environmental DNA (eDNA) surveillance for the early detection of invasive Silver and Bighead carp as part of the Asian Carp Regional Coordinating Committee's plans to detect, monitor, and respond to the threat of invasive carp in the Great Lakes. The lab also provides analysis for determining the ploidy of wild-caught Black and Grass carp, two more invasive carp species.



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