

U.S. Fish & Wildlife Service - Midwest Region

Fisheries Program

fish lines

**Record Breaking Annual
Kids Ice Fishing Day**

**City Creek Fish
Passage Restoration**

**Chinook Salmon Mass
Marking**

**Another Successful
Field Season in 2015**

**Collecting Fish Tissues
for Research**





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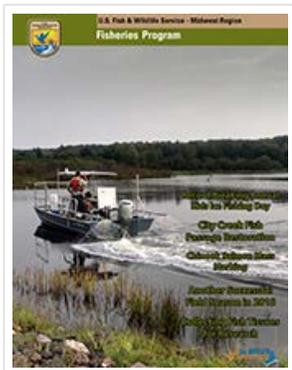
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Field Focus

[Alpena Fish & Wildlife Conservation Office](#)

During October and November 2015, staff from the Alpena FWCO embarked on a project to describe cisco spawning in the Les Cheneaux Islands...[Read More](#)

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Record Breaking Kids Ice Fishing Day



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Another Successful Field Season in 2015



Collecting Fish Tissues for Research

Fish Tails

"**Fish Tails**" refers to articles that are submitted by field staff that do not appear as a feature in the current edition of Fish Lines. These articles provide examples of the diverse work that the Service's Midwest Fisheries Program and partners perform on behalf of our aquatic resources and for the benefit of the American public.

Field Notes

"**Field Notes**" is an online searchable database that showcases hundreds of employee-written summaries of field activities and accomplishments of the U.S. Fish and Wildlife Service from across the nation.

Last updated: February 25, 2016



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Record Breaking Annual Kids Ice Fishing Day

BY DOUG ALOISI, GENOA NFH



Overview of Pond #11 during 2016's Kids Ice Fishing Day. Credit: USFWS

The 2016 Annual Kids Ice Fishing Day was great fun for all in spite of warmer than normal winter conditions this year which caused doubt as to whether the ice would be thick enough to hold the event. A recent cold snap moved in to save the day, giving us about 18 inches of ice to literally "support" the event.

The U.S. Fish and Wildlife Service's La Crosse area fisheries offices (the La Crosse Fish Health Center (FHC), the La Crosse Fish and Wildlife Conservation Office and the Genoa National Fish Hatchery (NFH)) again hosted the event, which is sponsored by our Friends Group, the Friends of the Upper Mississippi.



Young angler with her fine catch. Credit: USFWS

The event has evolved from its humble beginnings back when it was held at Goose Island Park just south of La Crosse Wisconsin, but is now a highly anticipated winter outing. More than 630 people arrived at



A Kiss for Luck! Credit: USFWS

Genoa NFH (definitely an attendance record) on the Saturday February 6th to learn more about ice fishing, and to give kids ages 5-12 an opportunity to fish a stocked pond for rainbow trout at the hatchery. Three hundred and twenty five children ages 5-12 years old and their families, some who had never been ice fishing before, were given a short primer on ice fishing and ice safety by Eric Leiss, (fish biologist and ice fishing expert from the La Crosse FHC). Then the kids had an opportunity to try out their new found skills for the rest of the morning fishing on the hatchery's two acre rearing Pond #11. The children and their families were provided a light lunch by our Friends Group and sent home very happy.

On this record breaking day- many children caught their "very first" fish through the ice, and the majority of the kids went home with their limit of three keepers, some as large as 18 inches. A whopper!

Many thanks go to our volunteers, the Friends of the Upper Miss, the Friends of Pool 9 and the staff at the three La Crosse area fisheries offices. Your commitment to get kids and their families outside to enjoy all nature has to offer in the winter wonderland of Wisconsin is appreciated by all.



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

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City Creek Fish Passage Restoration

BY TED KOEHLER, ASHLAND FWCO



Construction on City Creek Fish Passage Restoration. Credit: Ted Koehler, USFWS

making these projects happen and assisted with the survey, planning, engineering design, permit coordination, and construction oversight on all three projects. These projects enhanced cold-water tributary habitat and restored aquatic connectivity to approximately 5 miles of cold-water stream. An added benefit is that projects like these and many others are preserving biodiversity in the face of climate change.

The restoration work performed here continues the partnership tradition in the Bad River watershed to remove barriers and improve habitat for native brook trout, inventory culverts, monitor habitat changes, and engage citizens. Many of these efforts have been funded in part by the U.S. Fish and Wildlife Service's National Fish Passage Program in cooperation with the Ashland County LWCD, Bayfield County LWCD, Iron County LWCD, BRWA, U.S. Forest Service, U.S. Geological Survey, the Bad River Band of Lake Superior Chippewa Indians, and the Great Lakes Indian Fish and Wildlife Commission.

An extensive culvert inventory and assessment was initiated by the U.S. Fish and Wildlife Service's Ashland Fish and Wildlife Conservation Office, the Bad River Watershed Association (BRWA) and other partners several years ago, which provided a first glance at the extent and distribution of fish passage barriers at many roads across the Bad River watershed in northern Wisconsin's Ashland, Bayfield, and Iron Counties. This initial inventory led us to look more closely at culvert passage conditions in the City Creek watershed where we discovered several opportunities for passage restoration at driveway culverts that were not initially inventoried.

The latest work has entailed the removal of three perched culverts that were barriers to fish passage and replace them with pipe arch culverts installed in a "fish friendly" manner and following applicable standards and specifications of the Natural Resources Conservation Service (NRCS). The Ashland County Land and Water Conservation Department (LCWD) was an integral player in



Site #1 after restoration on City Creek Fish Passage Restoration. Credit: Ted Koehler, USFWS



After: Project completed on City Creek Fish Passage Restoration. Credit: Ted Koehler, USFWS



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

Conserving America's Fisheries

2016 “Marks” Sixth Year of Great Lakes Chinook Salmon Mass Marking

BY JAMES WEBSTER, GREENBAY FWCO

In March 2016, the Great Lakes Fish Tag and Recovery Lab will commence tagging more than 2.5 million Chinook salmon at seven states hatcheries in Michigan, Wisconsin, Illinois and Indiana. This will be the sixth year that all Chinook salmon released into lakes



Automated tagging trailer in use at the Indiana Department of Natural Resources Mixsawbah State Fish Hatchery. Credit: USFWS

Michigan and Huron receive a coded wire tag and adipose fin clip.

The lab staff will use their four automated fish tagging trailers at the hatcheries when the fish are 3” to 4” long and about a month prior to their release. The tagging equipment automatically implants the 1.1-mm long coded wire tag into the nose of the salmon, while simultaneously removing the adipose fin. The tags bear a unique number assigned to specific groups of fish, and the adipose fin clip identifies the fish as hatchery-reared and possessing a tag. When a tagged fish is recovered from the sport fishery by bio technicians, the head is retained and sent to the Lab in New Franken, Wisconsin for tag extraction and identification.

Information collected from the recovered tagged fish and their wild counterparts helps fishery managers understand levels of natural reproduction, movement, and the contributions of hatchery-reared fish to regional fisheries. In addition, the tag recoveries aid in the evaluation of the size and health of the population by providing a detailed understanding of growth and survival rates and the comparative successes of rearing and stocking practices. Management of the multi-million dollar Chinook salmon fishery centers on balancing the stocking of the predatory fish with the available prey, and the data from the recovery of tagged fish help with this cooperative effort to manage the inter-jurisdictional fishery.

| Hatchery | Agency | Number of Chinook salmon | Tentative Dates of Tagging |
|--------------|---|--------------------------|----------------------------|
| Jake Wolf | Illinois Department of Natural Resources | 264,000 | March 8 - 15 |
| Mixsawbah | Indiana Department of Natural Resources | 201,000 | March 8-14 |
| Les Voight | Wisconsin Department of Natural Resources | 98,000 | April 24 - 27 |
| Wild Rose | Wisconsin Department of Natural Resources | 710,000 | April 4 - 23 |
| Wolf Lake | Michigan Department of Natural Resources | 231,000 | March 15 - 24 |
| Platte River | Michigan Department of Natural Resources | 974,000 | April 19 - 28 |
| Thompson | Michigan Department of Natural Resources | 46,000 | 2-May |
| | Total Chinook salmon to be coded wire tagged: | 2,524,000 | March 8 – May 2 |

Great Lakes Fish Tag and Recovery Laboratory 2016 Chinook salmon tagging and marking projects with tentative dates of tagging. Credit: USFWS



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

Conserving America's Fisheries

Sea Lamprey Control Program Another Successful Field Season in 2015

BY JESSE HAAVISTO, MARQUETTE BIOLOGICAL STATION



Physical Science Technicians Dan Kochanski and Patrick Wick treat the lentic area off the mouth of the Trap Rock River, Michigan with 3.2% granular Bayluscide.
Credit: USFWS

areas, whereas 3.2% granular Bayluscide (2', 5-dichloro-4'-nitrosalicylanilide) is used to treat lentic (still or slow moving water) areas.

During the first few days of a field trip, employees travel to a stream site and begin collecting water chemistry data to determine how much TFM will be needed to effectively eliminate larval sea lamprey in a particular stream. Crews also conduct dye studies to measure stream flow characteristics and schedule lampricide applications during a treatment. Initial applications, as well as boost sites are required to maintain a lethal concentration of TFM throughout the entire infested length of stream. The lampricide control teams regularly coordinate with local landowners to access private or remote areas of stream that are critical to treatment and controlling sea lamprey.

Control staff also administers 3.2% granular Bayluscide using a highly specialized spray boat to control larval lamprey populations inhabiting lentic areas. The lampricide control team targets several streams and lentic areas across eight states throughout the Great Lakes region.

During the six month field season the Service's sea lamprey control program teams coordinated with 537 landowners to deliver effective treatments and completed lampricide treatments in 80 streams and 12 lentic areas. Another successful field season!

The accomplishments of the U.S. Fish and Wildlife Service's Sea Lamprey Control Program during 2015 were exceptional and noteworthy. The many large river systems that were targeted for treatment as part of a large-scale invasive species control initiative were ambitious, and its accomplishment was no small feat. The outstanding lampricide control program is administered by the Great Lakes Fishery Commission and delivered by staff from the Marquette and Ludington biological stations and their international partners from the Department of Fisheries and Oceans Canada. Field staff from all three stations work around the clock and in challenging environmental conditions to reduce the impacts of the invasive sea lamprey on the Great Lakes fishery. At times, teams work for 10 days straight to complete a treatment on a single stream.

Lampricides have been approved since 1958 to control sea lampreys in tributaries to the Great Lakes. The lampricide control teams apply two different types of lampricides to streams or lentic areas that have been found to harbor larval sea lampreys. TFM (3-trifluoromethyl-4-nitrophenol) is used to treat streams or lotic (rapidly moving water)



Biological Science Technician Ross Gay adds TFM at the Otter River application site during Sturgeon River, Michigan treatment.
Credit: USFWS



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

Conserving America's Fisheries

Great Lakes Fish Tag and Recovery Lab Collecting Fish Tissues for Research on Salmon and Trout in Lake Michigan

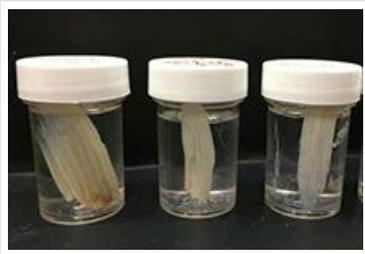
BY MATTHEW KORNIS, GREEN BAY FWCO

The U.S. Fish and Wildlife Service's Great Lakes Fish Tag and Recovery Lab (GLFTRL), based at the Green Bay Fish and Wildlife Conservation Office, employed eight teams of biological technicians in 2015 to assist states with collecting biological data and recovering tags from sport-caught salmon and trout from Lakes Michigan, Huron and Ontario. In addition to these core duties, GLFTRL biological technicians on Lake Michigan collected tissue or fin clip specimens from over 2,000 fish to maximize the value of this immense field effort by assisting three other scientific studies.

A lot of information can be learned from a small piece of fish tissue. Plugs of muscle tissue, about the size of a gummy bear, were collected from lake trout, Chinook salmon, coho salmon, brown trout, and rainbow trout to better understand how mercury (and other contaminants, pending funding) move through the Great Lakes food web. This study, led by researchers at the University of Notre Dame, will look at patterns of contaminant accumulation in fish from different regions of the lake, and will provide insight into how changes related to shifts in the abundance of forage fish (e.g., decreases in alewife, increases in round goby) have affected contaminant accumulation. To address these objectives, muscle tissues will be analyzed for contaminant concentrations and for stable isotopes of carbon and nitrogen, which provide information on diet and help to characterize the food web. The Notre Dame led study will build on a U.S. Fish and Wildlife led study that is evaluating stable isotopes of carbon and nitrogen to describe competition among Lake Michigan salmon and trout species.



U.S. Fish and Wildlife Service biological technicians Zach Kleemann and Shannon Cressman prepare dried fish muscle tissue for analysis by grinding the tissue into a powder and placing a known amount of tissue into a tin capsule. Credit: Matt Kornis, USFWS



Fins collected from wild lake trout for genetic analysis. Credit: Matt Kornis, USFWS

Belly tissue and stomachs, typically discarded by anglers, were also collected to provide detailed information on salmon and trout diets and potential for competition among predatory fishes in the Great Lakes. A study led by scientists with the Illinois Natural History Survey will examine fatty acid profiles from the belly tissues, which are rich in fat. Over 20 unique fatty acids have been described from Lake Michigan prey fish and invertebrates, and the buildup of specific fatty acids in the tissue of predators indicates prey consumed over the past 4-12 weeks. Analysis of stomach contents will be used to help support and interpret fatty acid patterns.

Finally, GLFTRL technicians also collected fin clips from wild, angler-caught lake trout to assist with a genetics study led by University of Wisconsin-Stevens Point. All hatchery-reared lake trout stocked in Lake Michigan receive a fin clip and/or a coded wire tag, so lake trout without any fin clips are identified as being from wild reproduction. The U.S. Fish and Wildlife Service has long been a leader in the effort

to rehabilitate lake trout in Lake Michigan, and has stocked numerous genetic strains of lake trout since the early 1960's. Over the past five years, the number of wild lake trout recovered in the southern part of the lake has increased substantially. The genetics study will help identify which genetic strains are contributing most to the production of wild fish, and help inform the restoration effort.

GLFTRL scientists are actively collaborating on each of these studies by contributing their expertise in Great Lakes fisheries and data analysis. Moreover, these studies highlight some of the varied ways that the lake-wide sampling effort conducted by the GLFTRL each year benefits the Great Lakes fishery management community.



U.S. Fish & Wildlife Service

Fisheries, Midwest Region

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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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Assessing Cisco Populations in Lake Huron Alpena FWCO Supports Future Saginaw Bay Stocking Study

STEPHEN LENART, ALPENA FWCO



Cisco collected from Lake Huron's LCI by the Alpena FWCO in October 2015. Credit: USFWS

FWCO was tasked by the LHTC to evaluate the feasibility of utilizing the LCI population. The primary goals of this feasibility work were to determine 1) where and when spawning occurs; 2) whether the fish are abundant enough to allow for gamete collection; and 3) which collection methods are most efficient. Secondary objectives were to collect specimens for fish health testing and to obtain fertilized eggs for pilot rearing projects being conducted by partners.



Cisco come aboard the RV Ardedi at the LCI in early November, 2015. Credit: USFWS

Alpena FWCO staff, along with staff from the Jordan River National Fish Hatchery, conducted sampling on 12 days during October 19 to November 23, 2015. The team was successful in determining key spawning areas (which appear to be concentrated on the eastern end of the LCI chain) and gathered valuable information on the time of spawning and the behavior of spawning fish. Peak cisco spawning in the LCI during 2015 occurred during a fairly narrow period in the third week of November and fish were found in concentrations similar to those observed at other known Lake Huron spawning locations, such as the St Marys River and the North Channel (Ontario). The size distribution of the population suggests a healthy stock, with multiple year classes contributing to spawning. The team was successful in collecting fertilized gametes for pilot rearing projects being conducted by partner agencies and the morphometry of cisco collected from the LCI will be compared to that of other Great Lakes populations to evaluate relatedness to historical populations. Future work will include a comparison of parasite populations among

the different spawning aggregates at the LCI and an evaluation of fecundity (the number of eggs produced by female fish). The geography of the LCI, with its many protected bays, is logistically appealing for work conducted during the late fall and the LCI cisco population appears to be a good candidate for future gamete collections.

This work is linked to a variety of strategic management agency and Fisheries Program goals, including Conserving Aquatic Species, and is directly linked to the Upper Midwest and Great Lakes Landscape Conservation Cooperative.



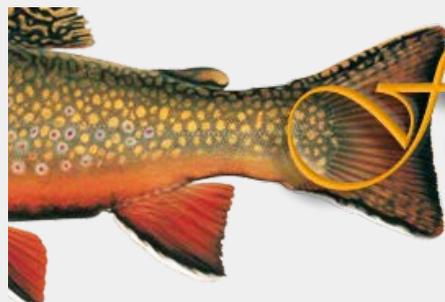
Developing cisco larva hatched from gametes collected at the LCI in, November 2015. Credit: W. Stott, USGS



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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.

2016 Coolwater Fish Culture Meeting

BY ANGELA BARAN, GENOA NFH

Genoa National Fish Hatchery (NFH) and U.S. Geological Survey Upper Midwest Environmental Sciences Center (UMESC) co-hosted the 2016 Coolwater Fish Culture Workshop in Onalaska, Wisconsin, January 11th-13th. Biologists from over 15 states gathered to present information about various hatchery techniques, new equipment or studies they have been working on. According to Mike Mason with Iowa Department of Natural Resources "The workshop evolved from the Interstate Musky Workshop in the late 60's and early 70's into the Coolwater Diet Workshop in the 80's and later into the Coolwater Fish Culture Workshop in the late 90's." The meeting has been held annually, each year hosted by a different state allowing participants to tour various facilities. This rotation helps to relieve the burden of planning the annual meeting as well as enabling people from different parts of the country to attend, some states may be restricted in their travel. This year's presentations included Veterinary Feed Directives, focusing on improving antibiotic use in aquaculture, culture methods for new species, recirculation systems, feed trials and new techniques for spawning coolwater fish. This exchange of information is always beneficial, many stations are culturing the same species and by changing possible techniques or procedures you can greatly increase your production and efficiency. It also helps to avoid duplication of effort and to avoid a procedure that was not very successful. Participants were able to tour the Genoa NFH (in literal sub-zero temperatures!) on Tuesday night and then the USGS UMESC facility on Wednesday morning before they departed for home. UMESC and Genoa NFH were glad for the opportunity to host the meeting as a new rotation is established for future meetings.

Lake Superior LAMP 2015 Annual Report

BY HENRY QUINLAN, ASHLAND FWCO

Several priority topics of the U.S. Fish and Wildlife Service are highlighted in the recently posted Lake Superior Lakewide Action and Management Plan (LAMP) 2015 Annual Report. The annual report is located at <https://binational.net/2016/01/22/lslampar-2015-paaplsra/>, and highlights the recent completion of the Lake Superior Biodiversity Conservation Plan and 20 step down Regional Plans for the basin, and leadership in science through coordination of the lakewide lake sturgeon survey and aquatic invasive species early detection and monitoring effort, which notably are being coordinated by Ashland FWCO fishery biologists and are two projects selected for the 2016 Cooperative Science and Monitoring Initiative (CSMI) for Lake Superior. Other key points include the delisting of the Torch Lake (MI) Area of Concern (AOC), and climate change impacts and adaptation report for the Lake.

The Great Lakes Water Quality Agreement promotes advancement in restoration of AOC's, LAMP development and implementation, CSMI's; as well as targeted commitments to address legacy and emerging issues such as aquatic invasive species, climate change impacts, nutrients, chemicals and other environmental concerns related to Great Lakes water quality. The Lake Superior Partnership has members from dozens of U.S. and Canadian agencies at multiple levels of government. The Partnership is organized via seven committees (Aquatic Community, Terrestrial Community, Habitat (includes both terrestrial and aquatic), Chemical, Sustainability, Mining, and Communication) responsible for development, implementation and reporting of the Lake Superior LAMP, identification, prioritization, and implementation of CSMI projects, as well as other products noted above. Henry Quinlan serves as the U.S. co-chair of the Aquatic Community committee.