

Fisheries Program

Fish Lines

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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: April 10, 2014



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Fisheries, Midwest Region

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Lake Michigan Wild Egg Collections Lead to the Return of Deepwater Cisco in Lake Ontario!

BY DALE HANSON, GREEN BAY FWCO



The vessel "Peter Paul" in the midst of a bottom trawl. Surface-ice was common this winter and finding open water pockets was a necessity to avoid filling the net with ice when the trawl was deployed and lifted to the surface. Credit: USFWS

For the fifth consecutive winter, U.S. Fish and Wildlife Service (Service) biologists collected bloater eggs (*Coregonus hoyi*), a species of deepwater cisco, from Lake Michigan to assist with efforts to restore this species into Lake Ontario. To date 24,000 bloater juveniles have been stocked into Lake Ontario that originated from the Service's egg collections in 2010 – 2012, and another 67,000 are scheduled to be stocked this fall from 2013 egg collections. These stockings have returned bloater to Lake Ontario, where they disappeared in the 1950s from the combined effects of invasive species, poor water quality, and commercial exploitation. Their disappearance disrupted the historical foodweb structure in the lake as bloater were the primary link between deep water invertebrates and top predator species including lake trout. Lake Ontario managers hope to restore self-sustaining bloater populations through large-scale annual restocking efforts of 500 thousand bloater juveniles. This will increase the diversity among forage fish populations, reestablish the historical foodweb structure, and ultimately increase lake trout production. The USFWS Midwest Region Fisheries Program egg collection work is making a

major contribution to the advancement of fish culture methods for bloater and is paving the way to achieve these large-scale stocking efforts needed for bloater restoration in Lake Ontario.

Accessing bloater eggs in the wild is extremely challenging as Lake Michigan bloater spawn at depths in excess of 300 feet in the heart of winter (January – March). Service crews, led by Dale Hanson from Green Bay Fish and Wildlife Conservation Office and Roger Gordon with Jordan River National Fish Hatchery, logged 24 trips in 2014 aboard two commercial bottom trawling vessels based out of Two Rivers, Wisconsin, located on the western shore of Lake Michigan. Despite one of the coldest winters on record, the boats broke through several miles of ice to reach the spawning grounds where bottom trawls caught roughly 25,000 bloater adults. Bloater spawn over a protracted period and only 394 "ripe" females contained fully developed eggs suitable for spawning. These ripe females yielded 500 thousand eggs that were fertilized and shipped via overnight delivery to the White Lake Fish Culture Station in Ontario, and the USGS Tunison Lab in New York. Half of these eggs (51%) successfully reached the eyed-egg stage and by mid-April these eggs will have hatched to produce over 180 thousand bloater fry to be reared in these hatcheries for the next 18 months. Managers anticipate the 2014 egg collections will produce 60,000 bloater juveniles that will be available for stocking into Lake Ontario in the fall of 2015.



Freshly trawled bloater: These fish are sexed and the eggs are visually inspected to ensure they are fully developed and suitable for fertilization. Credit: USFWS



Since their inception in 2010, the egg collection surveys have made substantial progress towards meeting the annual stocking targets of 500 thousand juveniles. Most notably, USFWS hatchery personnel have been on all surveys since 2012 to ensure only fully developed eggs are collected, and since 2013 surveys have employed bottom trawl gear, instead of gillnets, which has resulted in higher catches and markedly





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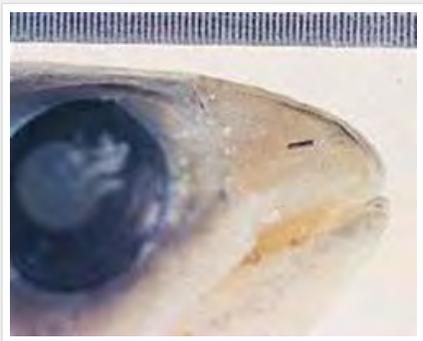
Great Lakes Fish Tag and Recovery Laboratory Begins 2014 Chinook Salmon Tagging

BY ALLEN LANE, GREEN BAY FWCO

In early March, the Great Lakes Fish Tag and Recovery Laboratory, located at the Green Bay Fish and Wildlife Conservation Office, began marking and coded wire tagging (CWT) Chinook salmon. Over the next two months, the biologists from the lab will travel to seven state operated hatcheries in Illinois, Indiana, Michigan, and Wisconsin. About 2.4 million Chinook salmon destined for Lake Michigan and Huron will be tagged and marked (Table 1). Each salmon will receive a 1-mm coded wire tag made of stainless steel and injected into the snout prior to release into the Great Lakes. Each tag has a six digit numerical code that allows fish to be traced back to a hatchery, stocking location, and year class. Along with the CWT, the fish is marked by removing its adipose fin. Removing the fin allows anglers and technicians to identify the fish as one that may contain a CWT.



A Chinook salmon with an adipose fin clip. Credit: Nick Legler, Wisconsin DNR



A Chinook salmon injected with a Coded Wire Tag. Credit: American Fisheries Society Education Section

recovered, provide state agencies with an understanding of the levels of natural reproduction, post release survival, movement within and between Lake Michigan and Huron, interjurisdictional contributions to the creel, evaluation of stocking locations, and hatchery performance.

The snouts of fish containing a CWT are sent to the lab in Green Bay to be extracted and read. Since 2010, nearly 13 million Chinook salmon have been tagged and marked, and when

2014 Chinook salmon tagging and marking season			
Hatchery	State agency	Dates at hatchery	Salmon to be tagged
Jake Wolf	Illinois DNR	March 11-20 2014	270,000
Mixsawbah	Indiana DNR	March 18-22 2014	210,000
Wolf Lake	Michigan DNR	March 23-27 2014	220,000
Kettle Moraine	Wisconsin DNR	April 1-5 2014	100,000
Wild Rose	Wisconsin DNR	April 8-17 2014	660,000
Platte River	Michigan DNR	April 22- May 1 2014	920,000
Thompson	Michigan DNR	May 5-9 2014	50,000
Total			2,430,000

Table 1. The 2014 Chinook salmon tagging and marking season schedule in order of appearance by lab biologist at state hatcheries. Credit: Allen Lane, USFWS



Elastomer Tags to Be Tested For Use in Identifying Broodlines

BY JORGE BUENING, GENOA NFH

In the wild, genetic variability between parents over multiple years of reproduction makes sure that populations stay healthy and are able to adapt to environmental changes. This is a criteria that we strive to meet with our fish production at the Genoa National Fish Hatchery. To do this, we collect wild fish every three to four years and integrate them with fish from our production lots. A problem arises when trying to distinguish hatchery fish and wild fish or the various year classes that these broodlines are made up of. This is where marking the fish can be helpful.

Traditionally, fin clipping was done as our marking technique. This is a technique where combinations of the fish's fins are clipped off. Based on these clips the origin and age of a specific fish can be identified. Fin clipping is not harmful or painful to the fish; it is similar to us clipping our fingernails. However, there are problems that arise with fin clipping; one of those is the possibility that the fin regenerates without leaving any trace of the clip. This basically puts us back where we started. There is also the risk of infection or fungal growth stemming from the clip site. For these reasons we are looking for new marking techniques that could be used in maintaining our broodlines.



Red elastomer jaw tag. Credit: USFWS



Green elastomer jaw tag. Credit: USFWS

One alternative method is the use of elastomer tags. This is essentially injecting a very colorful plastic into the fish's skin. Based on the elastomer color and location the fish can be identified. The hatchery is planning to test both green and pink elastomer colors in both the fishes jaw and along the dorsal fin. This test will allow us to determine which color and location persist in the fish the longest as well as determine if it is a viable option for marking our broodlines.



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Fisheries Folks Become Family at NCTC

BY TIM SMIGIELSKI, REGIONAL OFFICE

It just seems that when Fisheries folks meet up anywhere, there is usually a welcoming atmosphere and some bond that is perhaps unique to those in our field of work. And at our National Conservation Training Center (NCTC) in Shepherdstown, West Virginia this observation was more apparent than ever during the 2014 Fisheries Academy Course, completed in early March of this year.

And they came from all over the country, from Alaska to Vermont and, Wisconsin down to Texas. The participants, US Fish and Wildlife Service staff, were selected by their region through nomination. It's a big commitment, because the course lasts for two weeks. So, temporarily leaving families and work duties behind, the participants became fully engaged in the "work of others" all across the country and the resulting experiences...were truly amazing.

The overarching objective of the Fisheries Academy course is to inspire future leaders to continue to develop themselves and more importantly, to help develop others, with the intent of leading the way into the future of fisheries and aquatic species conservation in this country.

So daily during the entire two weeks, the class worked in teams. Each team was assigned a unique problem or issue to analyze. The class was asked to consider the course material while generating possible options or solutions. These were "real world" issues that the Service, a region or individual station may encounter.

The final team presentations and briefings were creative, insightful and entertaining. This was the first time that this technique (a Capstone project as it was called) had been employed during the course. And since it was March Madness time when this was written, the result was "Nothing but Net!"

It was during team time when the real learning occurred and the friendships and unique ties that may last a career or lifetime were made. In addition, outside in hall, on break, at dinner and on weekend site seeing adventures, staff solidified the relationships that will help shape the future and keep safe the heritage of fisheries conservation.

Nearly 30 new graduates of the academy are out and about at stations across the country and if you happen to run into one of them, they will be glad share their experience and perhaps they will inspire another to lead within the Service.



Fisheries Academy class members bond at Gettysburg during a weekend break.
Credit: USFWS



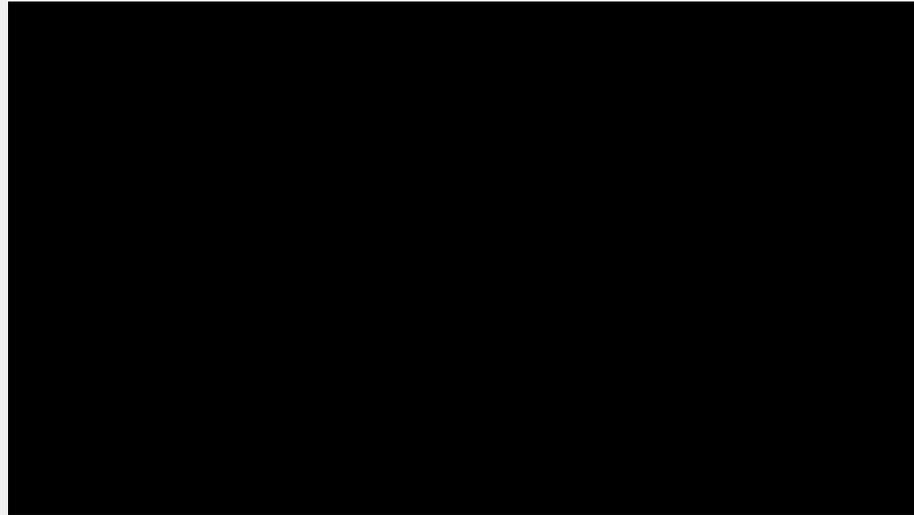
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Great Lakes Restoration Initiative

BY KATIE STEIGER-MEISTER, EXTERNAL AFFAIRS



2013 marks the fourth year that the U.S. Fish and Wildlife Service has been a proud federal partner with the U.S. Environmental Protection Agency in the implementation the Great Lakes Restoration Initiative (GLRI).

Comprised of more than 10,000 miles of coastline and 30,000 islands, the Great Lakes provide drinking water, transportation, power and recreational opportunities to the 30 million citizens who call the Great Lakes basin "home." As the largest group of fresh water lakes on Earth, the Great Lakes hold 95 percent of the United States' surface fresh water. An important economic resource, the Great Lakes also provide over [1.5 million jobs and \\$62 billion](#) (1.9 MB PDF) in wages to American citizens.

Years of environmental degradation has left the Great Lakes in need of immediate on-the-ground action to save this precious resource for generations to come. GLRI is a driver for environmental action in the Great Lakes and represents a collaborative effort on behalf of the U.S. EPA and 15 other federal agencies to address the most significant environmental problems in the Great Lakes.

The GLRI Action Plan identifies five major focus areas to serve as a guide for collaborative restoration work. The U.S. Fish and Wildlife Service has current projects in the following three focus areas:

Toxic Substances and Areas of Concern, including pollution prevention and cleanup of the most polluted areas in the Great Lakes.

Invasive Species, including efforts to institute a "zero tolerance policy" toward new invasions, including the establishment of self-sustaining populations of invasive species, such as Asian Carp.

Habitat and Wildlife Protection and Restoration, including bringing wetlands and other habitat back to life, and the first-ever comprehensive assessment of the entire 530,000 acres of Great Lakes coastal



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Brule River Bank Restoration – A Presidential Fish Fix

BY TED KOEHLER, ASHLAND FWCO



Brule River project area before restoration.
Credit: Ted Koehler, USFWS

The usual culprit blocking sweeping presidential Brule River views is mature forest, which also serve to stabilize the river's highly erodible banks. When the 100 plus year old trees go, so goes the river bank, as was the case dealt with last summer by a group of restoration partners in northern Wisconsin.

It all started with a conservation minded private landowner who had just purchased some land and cabin on the Brule. The previous landowner had cut the trees on a 50 foot high river bank and created an eroding eyesore on the landscape. The soil eroding from this site was contributing to sedimentation of downstream fish spawning areas. The new landowner contacted Douglas County about the problem and from there a restoration partnership was born. A group consisting of the landowner, Douglas County Land and Water Conservation Department, Wisconsin Department of Trade and Consumer Protection, Wisconsin Department of Natural Resources, U.S. Forest Service and the U.S. Fish and Wildlife Service (Service) worked together to survey, plan, design and implement an environmentally conscious riverbank restoration.



Installing the earth lift geogrid on the Brule River restoration. Credit: Douglas County LWCD

Working through the Partners for Fish and Wildlife Program the Service's Ashland Fish and Wildlife Conservation Office provided funding and professional assistance to the project. The site was restored by stabilizing the toe of the bank with large rock. A geogrid of earthen lifts were then installed all the way up the 50 foot bank. Native shrub and tree species were then planted in the earth lifts. Some of the planted species included dogwood, black willow, hazelnut, white cedar and white pine. Much of this work had to be done by hand labor and small equipment because of precarious access to the steep and unstable bank. When everything was said and done, 300 feet of riverbank was positively impacted for fish and wildlife. Downstream spawning and instream habitat will also benefit from reduced sediment loads.

Beauty is in the eye of the beholder. Flashes of water through towering pines have its own appeal, which both common fisherman and presidents can appreciate. Though we will never see towering pines grace our restoration site, our grandkids will. As will many generations of brook, trout with eyes toward flies.



Installing the earth lift geogrid on the Brule River restoration. Credit: Douglas County LWCD



Placing rock at toe of bank on Brule River restoration. Credit: Douglas County LWCD

If you had a cabin on "The River of Presidents", would you not want a presidential view? The Brule River meanders its way through northern Wisconsin and eventually empties into Lake Superior. Presidents Grant, Hoover, Eisenhower, Cleveland and Coolidge all stayed and fished on the Brule. The river also hosts the most spectacular spawning runs of Lake Superior game-fish in Wisconsin. Lake-run steelhead trout and brown trout of tremendous size make their way up the Brule in various seasons. The river is also home to native brook trout and has been identified by the Great Lakes Fishery Commission as a priority water for brook trout habitat restoration and protection. In certain locations the Brule can provide excellent fishing for this beautiful native species.

The usual culprit blocking sweeping presidential Brule River views is mature forest, which also serve to stabilize the



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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.

Biologist in the Classroom

BY STEPHEN GAMBICKI, ALPENA FWCO

For five years staff from the Alpena Fish and Wildlife Conservation Office (FWCO) has been involved in teaching students about environmental topics that meet their current science curriculum. This school year, Alpena FWCO staff adopted two third grade classes and two fourth grade classes of students at Wilson Elementary School located in Wilson Township Michigan (Alpena public schools).

On February 13th 2014, biologist Steven Gambicki instructed the fourth grade classes about animal adaptations. The fourth graders were shown a PowerPoint presentation explaining different animal adaptations. They were also given a worksheet with pictures of a skunk, whitetail deer, camel, polar bear, elephant and northern pike, and asked to identify adaptations these animals had undergone. The worksheets were then openly discussed in class. Students were asked to name a fictitious animal that Gambicki could draw on the chalkboard. The two names selected by the different classes were blob and dragon. Students were then asked to pick ears, tails, and legs for the fictitious animal. Students laughed at Gambicki's lack of artistic skill. "By letting the students design the fictitious animal, and by encouraging them to laugh at my drawing, they were very focused in on what I was trying to teach them. I was really able to drive home the point how animals can adapt to a change in their environment," noted Gambicki.

Alpena's FWCO staff gives students unique hands on experience, and insights from professionals in the conservation field. Students enjoy the presentations and change of pace from their daily routine. The biologists also enjoy giving the presentations. "It's great to see the excitement in their eyes when you walk into the classroom. It's also a great feeling to be told, "You are awesome", by several students when leaving the classroom" said Gambicki.

Coded Wire Tag Retention Study

BY TIMOTHY FALCONER, PENDILLS CREEK NFH

During August 2013, a group of workers descended upon the Pendills Creek National Fish Hatchery (NFH) in order to begin using automated tagging trailers to clip the adipose fins and insert a tiny metallic tag into the snout of our juvenile Lake trout. These Lake trout are destined for locations within Lake Michigan and have codes unique for each area of fish stocking. Later, when the fish is caught, the code can be examined and interesting facts can be determined about where the fish came from, not only which hatchery, but also when and where it was stocked, and the strain of fish.

On February 17, 2014, Tim Falconer of Pendills Creek NFH was checking the fingerling fish in our raceway building for the purpose of verifying the effectiveness of the automated tagging trailers. When the use of these automated trailers was in its infancy, the efficiency was not the greatest, either the tag was not being placed in the fish or the fin was not getting clipped, which signifies to fisherman at a later date that there is something special about that fish, or the fish was not being clipped or tagged at all. Through constant improvements, the percentage of fish that received both the tag and the fin clip has improved and as of this sampling the total percentage of fish that were both tagged and clipped was almost 96%.

The process of checking the fish for Coded Wire Tag retention consists of collecting 100 fish per tag code, anesthetizing the fish, checking visually for the adipose fin to determine if it was clipped or not, and swiping the fish through a machine that detects small changes in the magnetic field. A tagged fish will beep and a red LED will light up on the detector, which is shaped like a box with a wedge cut out of it, allowing the sensors in the sides or wings to detect the magnetic changes due to the tag in the fish's snout. The fish are then released back into the raceway they came from where they revive from the anesthetic within a few minutes time.

Roger Gordon, Dale Hanson, and Todd Kinn (left to right) look for viable eggs from the bloater catch. Credit: USFWS

better fish condition. These changes have more than doubled the survival from egg to fry stages compared to that observed in 2010 – 2012. Despite these

This plastic container contains roughly 7,500 fertilized eggs. On average only 1,250 eggs are obtained from a single ripe female as most of the ripe eggs (roughly 75%) are expelled by the female as the trawl is being lifted from the depths. Spawning of captive and conventional broodstock is expected to yield roughly 5,000 eggs per female. Credit: USFWS

improvements we are still far short of meeting annual stocking target goals, but the future looks bright! Next year, collection methods will also include a captive broodstock program whereby pre-spawn wild caught bloater will be retained in a lab and spawned once the eggs become fully developed. Also, conventional bloater broodstock lines are beginning to mature.

Since 2011, a small proportion of bloater fry from each year-class, currently 15,000 in total, have been retained at the White Lake Fish Culture Station and raised as broodstock. The 2011 year-class of broodstock is just starting to mature and managers are hopeful that these broodstock fish will supplement the wild egg collections next year. With each year enthusiasm grows for bloater restoration and the growing success is a tribute to the hard work that the Service, Ontario Ministry of Natural Resources, New York Department of Environmental Conservation, Great Lakes Fishery Commission, and the USGS Tunison Laboratory have put forth to pave the way for deepwater cisco restoration.

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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.



U.S. Fish & Wildlife Service

Fisheries, Midwest Region

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