U.S. Fish & Wildlife Service - Midwest Region

Fisheries Program

# Fish Lines

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Conserving America's Fisheries
U.S. Fish & Wildlife Service

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Fisheries, Midwest Region
Conserving America's Fisheries

# Fish Lines

March 5, 2015

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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"

## Genoa National Fish Hatchery

# Mussel Biologist Wins Prestigious Science Award

*BY KATIE STEIGER-MEISTER, EXTERNAL AFFAIRS REGIONAL OFFICE*

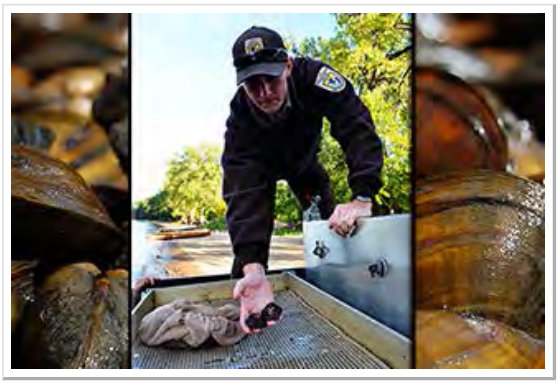

Nathan receiving congratulations from USFWS Midwest Regional Director, Tom Melius and Deputy Regional Director, Charlie Wooley. Credit: Katie Steiger-Meister, USFWS

Nathan Eckert, Mussel Propagation Biologist at the Genoa National Fish Hatchery (NFH) was awarded the 2014 Rachel Carson Award for Scientific Excellence from Service Director Dan Ashe. Considered one of the highest honorary awards in the U.S. Fish and Wildlife Service, the award recognized Nathan for pursuit of applied conservation science methods that has led to extraordinary results in fish and wildlife conservation.

Nathan has dedicated his professional career to the conservation of freshwater mussels. The extraordinary results of his work include mussel culture techniques that allow for the mass production of young mussels. With Nathan's help, Genoa NFH has produced 14.7 million mussels spanning 17 species. He has also successfully grown fawnsfoot and pistolgrip mussels, previously never cultured by the Service. Additionally, Nathan has published a host study for the cylindrical papershell, an Iowa state listed species, which identifies new hosts for future propagation efforts. His expertise is also being used by researchers at the Upper Midwest Environmental Science Center who are looking for ways to kill invasive zebra mussels and Asian carp without harming native mussel populations. “The fact that I've been selected for an award named after Rachel Carson, a pioneer in this field, is very humbling,” said Eckert in response to receiving the award. “If anything, I feel like this recognition means that now I need to do exceptional work and prove that the accolades were deserved.”

From left to right: USFWS Director Dan Ashe, Science Leadership Award Recipient, Julian Fischer, Rachel Carson Award for Scientific Excellence (Group) representative, Lisa Heki, Rachel Carson Award for Scientific Excellence (Individual), Nathan Eckert and USFWS Assistant Director for Science Applications, Paul Souza. Credit: USFWS

A champion for mussel research and recovery, Nathan’s work focuses on a commonly overlooked group of animals. Well hidden in rivers and streambeds, mussels are silently falling prey to pollution and invasive animals. More than half of the Midwest Region’s 78 mussel species are in danger of extinction. An example of the profound impact an individual can have on conservation efforts, his work has directly resulted in the release of more than 50,000 threatened or endangered mussels into waterways in the Upper Mississippi River Basin.



2015 Rachel Carson Award Winner: Nathan Eckert, Biologist, Genoa National Fish Hatchery. Credit: Katie Steiger-Meister, USFWS

Nathan's enthusiasm for mussel research is matched by his commitment to working with partners. He commonly coordinates recovery efforts with federal, state and local partners. Considered an expert in his field when it comes to mussel identification, propagation biology and freshwater mussel life history, he serves as a valuable resource for his colleagues.

Genoa NFH congratulates all of this year's award recipients and we look forward to their continued scientific contributions and future achievements.

## Deep Waters:
# The Search for Lake Michigan's Elusive Cisco

*BY KATIE STEIGER-MEISTER, EXTERNAL AFFAIRS REGIONAL OFFICE*

In the early morning hours of a chilly winter day, all is quiet in Two Rivers, Wisconsin save for a flurry of activity at the Susie Q Fish Market dock. Two commercial fishing vessels, the *Peter Paul* and the *Susie Q*, are being readied by crew and U.S. Fish and Wildlife Service fish biologists from the Midwest Region for a full day of trawling on Lake Michigan.

Winter swells and bitterly cold air temperatures on the water cannot deter Service personnel from their mission. Eight miles out from shore and hundreds of feet below the surface of the water a small silver fish, commonly known as the bloater, is reproducing.

A Great Lakes bloater. Credit: Katie Steiger-Meister, USFWS

"Most people only see bloaters in deli counters labeled as 'smoked chub,'" said Mark Holey, Project Leader of the Green Bay Fish and Wildlife Conservation Office. "They have no idea of the importance this fish holds in tying the Great Lakes food web together."

A type of deepwater cisco, the bloater is an important part of the Great Lakes food web providing important nutrients to native predator fish such as lake trout. Yet their populations are low, if not completely extinguished, in much of the Great Lakes due to over-fishing, invasive species and habitat degradation. An effort by the U.S. Fish and Wildlife Service at the request of the state of New York and the province of Ontario aims to restore bloater populations in Lake Ontario, which will help to support growing populations of lake trout and Atlantic salmon. The lessons learned as part of this effort will help to guide cisco restoration efforts in other parts of the Great Lakes.

"Species recovery in the Great Lakes is a priority for us," said Todd Turner, Assistant Regional Director of the U.S. Fish and Wildlife Service's Midwest Fisheries Program. "With invasive alewife populations in significant decline, we now have a great opportunity to restore the native bloater back into its historic niche."

Green Bay FWCO Fish Biologist Dale Hanson sorts bloaters during the spawning project.

An hour after leaving the dock, the rear doors on the *Peter Paul* and *Susie Q* are opened in the predawn light and machinery begins to hum as the bottom trawl nets are readied and deployed in the water. For one hour the nets will be in the water, slowly pulled across the bottom of the lake to collect spawning bloaters.

Ongoing bloater restoration efforts require the Service to chart new ground in deepwater fish propagation techniques and necessitates both muscle and expertise from numerous National Fish Hatcheries and Fish and Wildlife Conservation Offices located across the Midwest Region. In 2015, the goal is to collect two million fertilized bloater eggs. The goal is ambitious in light of previous efforts never yielding more than half a million eggs in a season.

The challenge is that bloaters only reproduce for a month in the heart of the winter in more than 300 feet of frigid water. A narrow time window for peak collection is complicated by winter weather and ice conditions on Lake Michigan, and the many unknowns surrounding the life cycle and behaviors of bloaters.

"Another distinct challenge to this restoration project is the lack of knowledge we have in the culture requirements for this species," explained Roger Gordon, project leader at Jordan River National Fish Hatchery in Elmira, Michigan. Every week for a month or more, Gordon and members of his team make the drive to Two Rivers to assist with egg collection efforts. "Up to this point," Gordon continued, "no significant studies have been done on the large scale propagation of this small fish."

Credit: Katie Steiger-Meister, USFWS

The Service and its partners, including the Ontario Ministry of Natural Resources and the U.S. Geological Survey, are currently carrying out multiple early life rearing trials to fill in the gaps in information.

Back on the boats, the sun finally rises over mercifully calm winter waters as the trawl nets are hauled from the deep. Aboard the *Peter Paul* and *Susie Q* the trawl nets are opened, depositing piles of bloaters across enclosed decks. The bloated appearance of the fish, and the inspiration for their name, is the result of air rapidly expanding in their bodies when they are quickly pulled from the bottom of the lake to the surface. In females, the expanded air in their swim bladders will push many of the ripe eggs out of the fish and into the lake before fish biologists have an opportunity to collect them. This poses yet another complication on the road to bloater propagation and recovery.

After the fish are removed from the trawl net, commercial fishermen and Service fish biologists kneel side-by-side as they sort the fish into bins. At a makeshift work table next to the sorters, fish biologists begin examining each bloater. Eggs are taken from ripe females and testes are removed from males. Every set of harvested eggs is fertilized with sperm from one or two male bloaters. Spawned fish are then packaged and labeled for later work in the lab, which will include genetic sampling and ageing. The process is repeated over and over again until all the fish are gone from the bins. The trawl nets are placed back in the water and the cycle is repeated three more times before the *Peter Paul* and *Susie Q* return to the dock later in the afternoon.

Jordan River NFH Fish Biologist Paul Haver prepares to collect eggs from a female bloater. Credit: Katie Steiger-Meister, USFWS

At the dock the fertilized eggs from the two boats are measured to estimate total take for the day. The day was a success, with nearly 200,000 eggs collected. The eggs are packaged for the next leg of their voyage where they will be overnighted to New York Department of Environmental Conservation's Cape Vincent Fisheries Station or the U.S. Geological Survey's Tunison Laboratory. When sent to the Department of Environmental Conservation, state fish biologists transport the eggs to the Canadian border where the eggs are received by the Ontario Ministry of Natural Resources for transport to the White Lake Fish Culture Station.

Eggs being removed from a female bloater. Credit: Katie Steiger-Meister, USFWS

"This year we have already collected more than 1.2 million eggs for this reintroduction effort," said Dale Hanson, a fish biologist from the Green Bay Fish and Wildlife Conservation Office. "Most of the fish that hatch from these eggs will be stocked into Lake Ontario as yearlings, but several thousand will be retained at the White Lake Fish Culture Station and reared to maturity where they will be used as a future source of eggs to support large-scale stocking operations."

Thus far, the eggs harvested by the U.S. Fish and Wildlife Service on Lake Michigan have resulted in more than 92,000 bloater yearlings stocked into Lake Ontario.

Now in its sixth year of winter egg collection and bloater research, the U.S. Fish and Wildlife Service's Midwest Fisheries Program is at the forefront of bloater research and recovery in the Great Lakes. A return of bloaters and other ciscoes throughout the Great Lakes is an important step to restoring balance in the Great Lakes' food web, one that will support the growing populations of important predator species including lake trout and Atlantic salmon.

The sun is beginning to drop as gear is hauled off the *Peter Paul* and the *Susie Q*. After another grueling day on the winter water, one thing is clear. Commitment to the cause is high. It is only a matter of time before countless hours on the water and in the lab results in the return of bloaters to the Great Lakes.

Want to see more? Check out the complete photo set on **Flickr**. The only thing missing is the smell of fish and the sound of a diesel engine.

## Great Lakes Fish Tag and Recovery Laboratory

# 2014 Coded-Wire Tag Extractions Completed

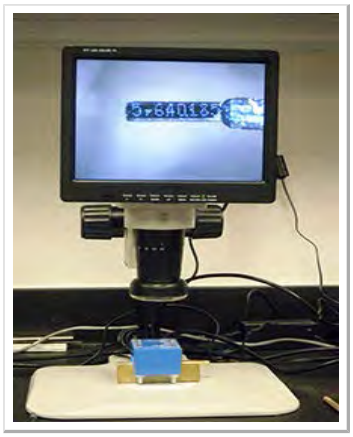
*BY KEVIN PANKOW, GREEN BAY FWCO*

Biological technician Shannon Cressman searches for a coded wire tag. Credit: Kevin Pankow, USFWS

The Great Lakes Fish Tag and Recovery Laboratory, headquartered at the Green Bay Fish and Wildlife Conservation Office, completed extraction of coded-wire tags (CWTs) from mass marked Chinook salmon and lake trout recovered in the Great Lakes for the fifth season.

The Council of Lake Committees, under direction of the Great Lakes Fishery Commission, in 2005 requested to establish a program to mass mark stocked salmonids in the Great Lakes; thus in 2010 the Great Lakes Fish Tag and Recovery Laboratory was created. The goals of the program are to aid fishery managers in determining the contribution of stocked versus wild fish to the fishery, evaluating the movement patterns and homing of stocked fish, and post-release survival of different strains or from different hatcheries or stocking locations.

To help answer these questions the lab receives snouts containing CWTs from cooperating agencies on lakes Michigan, Huron and Ontario. The snouts are collected by 13 Service funded biological technicians, state agency creel clerks, tribal agencies and anglers. The sources include fishing tournaments and derbies, fish cleaning stations, assessment and creel surveys, weir collections and voluntary returns by anglers. The lab operates four mobile automated tagging trailers that inject the CWT, a 1-mm long stainless steel piece of wire, and adipose fin clip stocked salmon and trout at hatcheries when the Chinook salmon and lake trout are three to five inches in length. The adipose fin clip indicates to collection agencies and anglers the stocked fish has a CWT injected into its snout, and should be collected to send to the lab for processing.



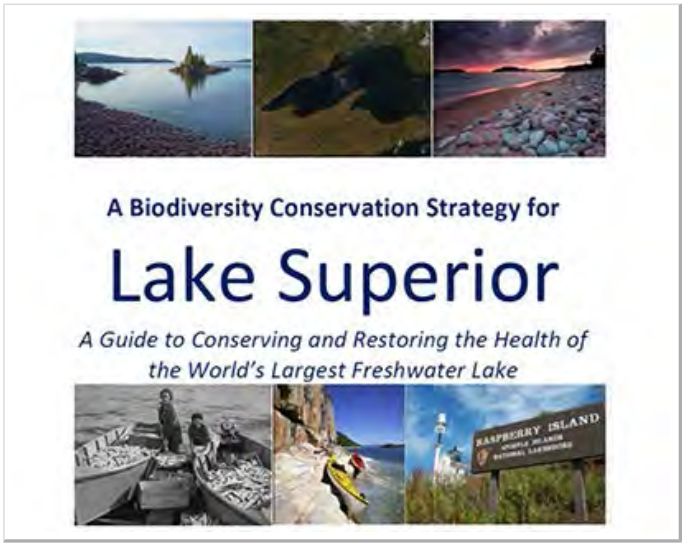
A coded wire tag to be deciphered on an LCD monitor. Credit: Kevin Pankow, USFWS

In 2014, the lab processed 18,782 samples, which has been a steady increase from the previous years. This is due to an increase of CWT fish that are tagged and recruiting into the catchable population and an increase in recovery effort. To complete the tag extractions in less than three months, the lab utilized a team of four biologists, four intermittent employees and eleven seasonal bio-technicians. The snouts are dissected to extract the CWT, which is then examined under a microscope to read a 6-digit code that reveals the year class, hatchery of origin and, at times, the stocking site of the individual fish. This information is compiled with biological data collected about the fish and used to help state and federal fishery agencies with stocking decisions and evaluations of the effectiveness of their programs. Since the program's inception in 2010, the lab has processed over 50,000 samples and extracted 46,000 CWTs.

# Lake Superior Biodiversity Conservation Strategy Released

*BY HENRY QUINLAN, ASHLAND FWCO*

Lake Superior is the least environmentally impacted of all the Great Lakes, and many of its aquatic habitats, watersheds and coast remain healthy and intact. It is a lake of extraordinary biodiversity, supporting endemic and disjunct fish, unique deepwater forms of Lake trout and multiple life history forms of Brook trout, artic-alpine plants, and Woodland Caribou. The diverse and unadulterated coastal wetlands and rocky shorelines, extensive sandy beaches, crystal clear water, and free-flowing tributaries provide an unparalleled global opportunity for binational conservation and maintenance of biological reference sites in the world's largest freshwater ecosystem.




L.S. Biodiversity Conservation Strategy. Credit: L. S. Binational Program

The Lake Superior Biodiversity Conservation Strategy was developed by the Nature Conservancy of Canada and the Lake Superior Binational Program Superior Work Group. Henry Quinlan, Assistant Project Leader at the Ashland Fish and Wildlife Conservation Office (FWCO) in Ashland, Wisconsin, serves as a member of the Steering Committee that developed the Biodiversity Conservation Strategy. Over the past 15 months, he has coordinated input and review of fishery and aquatic habitat information from the Binational Program Aquatic Community Committee and Great Lakes Fishery Commission Lake Superior Technical Committee for this effort. This Biodiversity Conservation Strategy provides a summary of the health and threats to the biodiversity of Lake Superior, and presents a guide to implementation of effective lakewide and regional conservation strategies. The Steering Committee continues to work on twenty detailed corresponding Regional Plans.

The completion of the Lake Superior Biodiversity Conservation Strategy satisfies a commitment in the Habitat and Species Annex of the 2012 Great Lakes Water Quality Agreement. It can be found at **http://binational.net**.

Other documents completed wholly or in part by the Superior Work Group include; the Lake Superior Aquatic Invasive Species Complete Prevention Plan (2010), currently being used by USFWS Great Lakes FWCOs for development of lake specific implementation plans for the early detection of non-native fishes and benthic macroinvertebrates, the Lake Superior Climate Change Impacts and Adaptation Plan (2014) and, an angler's guide for identification of aquatic invasive species (2014).

Henry Quinlan has served as the U.S. Co-chair of the Binational Program Superior Work Group Aquatic Community Committee since 2002.

# New Minnows in Town

*BY RUSSELL HIVELY, FRIENDS OF NEOSHO NFH*

Topeka shiners have arrived! Credit: Kay Hively, Friends of the Neosho NFH

There is a new minnow at the Neosho National Fish Hatchery (NFH). Two hundred tiny Topeka shiners now swim at the bottom of an outdoor raceway on the hatchery grounds. These tiny fish are an endangered species that primarily lives in the creeks, ponds, and sloughs in northwest Missouri. Changes of habitat and other circumstances have put this minnow on the Endangered Species List.

Rod May, assistant manager of the Neosho NFH, explained that the shiners are "non-essential," which means they are endangered, but are not completely extinct in the wild.

Lost Valley State Fish Hatchery, near Warsaw, Missouri, has been raising the shiners in a pond. Neosho NFH staff is trying something different. "This is experimental, as they have never been raised in a raceway before," May said. When spawning time arrives in a couple months, a group of yellow spot sunfish will be placed in the raceway with the shiners. The male yellow spot sunfish will make nests in the nesting boxes that the staff already has in place. The male yellow spots will lure the female yellow spots into the nests where they will lay their eggs to be fertilized. And like a cow bird that lays its eggs in another bird's nest, the Topeka shiners will sneak into the yellow spot's nests and deposit their eggs, too. The yellow spots will then protect all the eggs like a good parent.

After the eggs hatch, they will be siphoned off the nest to be separated by species later. These tiny fish and eggs will require gentle care because of their small size. May said he enjoys the experimental aspect of his job and would like to eventually install underwater cameras to record the habits of these fish.

Those who have visited the raceways always notice the rapid flow of water where the rainbow trout are growing. The raceway filled with Topeka shiners will be noticeably quiet and appear empty, with only a seep of water used to control the temperature. But upon close examination, a visitor will see a cloudy school of shiners swimming on the bottom of the raceway. These Topeka shiner minnows are a part of an experiment to help preserve this endangered species. They are one more of the over 130 species that have been raised at Neosho NFH over the last 125 plus years.

Rod May, Assistant Project Leader with a Topeka shiner nesting box in a raceway at the Neosho National Fish Hatchery. Credit: Kay Hively, Friends of the Neosho NFH

## Iron River National Fish Hatchery

# The West Wing: A New Era for Brook Trout Production

*BY CAREY EDWARDS, IRON RIVER NFH*

Coaster brook trout production at the Iron River National Fish Hatchery (NFH), where 220,000 fingerlings are produced annually, has been…tricky.

Coaster brook trout sac fry. Credit: USFWS

Two glaring difficulties have been water temperature and rearing conditions. The hatchery's cold spring water isn't conducive to speedy brook trout growth in late winter and early spring. And the long, deep, rectangular raceways don't provide the "personal attention" that brook trout need for a sustained healthy growing environment. Trial experiments were run last year to address these issues. The experiments included the use of small circular tanks and the addition of well water from the hatchery's domestic well. The results were phenomenal! Springs fingerlings left the hatchery healthy and nearly twice their normal size. So…What began as a "What if we tried this?" turned into a "Let's go full scale!" and thus the West Wing was created.

Construction began with two goals in mind: To provide healthy, larger fish for our partners and to make brook trout rearing easier. So a total of six each small, medium and big circular tanks were installed in the western part of the nursery building. These tanks were fitted with new plumbing that would take advantage of the warmer water from the domestic well, while our spring water is not at the optimal temperature. The tanks are stacked and adjacent to one another to make for easy fish handling and the process goes something like this:


Warm well water, captured from the hatchery's domestic well, is plumbed to the new circular tank system to help get the coaster brook trout off to a good start. Credit: USFWS

- *Hatch small quantities of eggs in specially made jars located in small circular tanks*
- *Release fry directly into small circular tanks*
- *Rear fry-fingerlings to the rearing capacity of small tanks*
- *Release fingerlings directly into medium tanks and grow to rearing capacity*
- *Inventory and move fish into adjacent large circular tanks and grow until stock out*

That's it! Full scale production is currently underway in the New West Wing and the results to date are noteworthy. Our little fry are close to swim-up and will be feeding soon. Last year's experiment is still ongoing with a small portion of yearling brook trout brood stock performing well. If the proof of the pudding is in the eating, then Iron River NFH is in for a real treat.


Small quantities of eggs are hatched in specially made jars located inside small circulars. Fish will be raised to rearing capacity then released to medium circulars directly below. Credit: USFWS

# 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.

## Iron River National Fish Hatchery Hosts Trail Event

*BY CAREY EDWARDS, IRON RIVER NFH*

The Iron River National Fish Hatchery (NFH) held its Fifth Annual Candlelight Trek on February 21st, 2015. Guests could walk, ski or snowshoe the nearly mile long trail by the light of luminaries. Hot chocolate, hot cider and s'more fixings were provided and served by members of the Friends of the Iron River National Fish Hatchery for event goers to enjoy by the campfire. A last minute snowfall (which included a last minute grooming) left the trail in textbook condition for the event which was perfect for walking, skiing and snowshoeing. New LED tea lights set in small plastic buckets served as luminaries and wrapped the trail in a warm glow. The weather was perfect for an evening stroll and with the clear skies; trekkers were star gazing and counting shooting stars. Over 50 event goers gathered around the fire to roast marshmallows, drink cocoa and chat about the pleasant evening. Stay tuned for more information to come on future evening events at the Iron River NFH.

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## Pendills Creek NFH Attends 2015 Fly Fishing Film Tour at Lake Superior State University

*BY JULIE TIMMER, PENDILLS CREEK NFH*

Pendills Creek National Fish Hatchery (NFH) provided a booth at the 2015 Fly Fishing Film Tour (F3T) held at Lake Superior State University's (LSSU) Art Center on February 22, 2015. This event was brought to the area by Sault Area Foundation for Education, Sault Area Sportsmen's Club and Reel North LLC. The proceeds of the event will go to the Rotary Park Pond, Sault Area Sportsmen's Club and the LSSU Fisheries and Wildlife Club. Over 21 groups and businesses had display booths at the event, including Trout Unlimited, Little Traverse Conservancy, Sault Fly Anglers, St. Mary's Guiding Company, and the Friends of Pendills Creek Hatchery (FPCH), a non-profit organization in support of Pendills and Sullivan Creek NFH's. This was the first time the Fly Fishing Film Tour has reached the Upper Peninsula of Michigan, and it was a success. The event showcased numerous short films of fly fishing various species from all over the world, from Alaska to the Bahamas, to Iceland and Mongolia and many other places in between. The films not only included fly fishing various species around the world, but also environmental impacts to fisheries, fishery conservancy and the veteran program Project Healing Waters.

Pendills Creek NFH is located along Lake Superior, approximately 17 miles west from Brimley, Michigan. Pendills Creek NFH is a lake trout production facility and was established in 1951 to stock the Great Lakes. Lake trout are raised from eggs from Sullivan Creek NFH, and are reared for approximately 14 months, then are released into Lake Michigan. Currently, Pendills Creek is able to raise approximately 1 million lake trout each year.

Sullivan Creek NFH is 15 miles west of Brimley, located south of M-28, on US Forest Service Road 3134, which is branched off of US Forest Service Road 3131. Sullivan Creek NFH was established in 1934 by the Civilian Conservation Corps and is a lake trout brood stock facility. The brood stock at Sullivan Creek are from wild parents, and are maintained to provide approximately 5-7 million eggs each year for hatcheries to continue the restoration efforts. Sullivan Creek NFH has donated retired brood stock to the Rotary Park Pond for the Sault Sportsmen's Club's fishing event in the past.

Pendills and Sullivan Creek NFH complex is located in the Midwest Region of the U.S. Fish and Wildlife Service within the Department of Interior. There are six hatcheries within our Region that play a valuable role in restoration/rehabilitation of native fish, mussels and other aquatic species around the Great Lakes.

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## Friends Volunteer to Help Prepare for another Season of Mussel Culture

*BY NATHAN ECKERT, GENOA NFH*

This winter it was once again time to give a face lift to the mussel culture operation by refurbishing used mussel cages. This time honored tradition has extended back over a decade. The cages spend a couple summers in the water and then we replace the wire screen and make any necessary repairs to the frames. This is work that the staff at the hatchery would be able to complete, but with the assistance of our friends and volunteers the work can be completed in a much more timely fashion. There were enough cages for repair this year that two cage work days were needed. In response to the need, Friends of Pool 9 and the Friends of the Upper Mississippi both stepped up with volunteers to aid in cage repair. Both repair days were well attended with at least 12 volunteers present. Over the two working days over 70 mussel cages were repaired and made ready for use this summer. The volunteers logged a total of 189 hours over the two days helping us get ready for the upcoming production season while allowing the Genoa National Fish Hatchery (NFH) staff to focus their time on other efforts as a whole. In exchange for their generous efforts the Genoa NFH staff treated the volunteers to a lunch of grilled hamburgers, hot dogs and all the fixings'. It is our sincere hope that these cages will be fruitful and produce many mussels for stocking in local waters. History says we'll have a strong group of volunteers ready to go next winter when the next set of cages needs repair.

# 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.

# Midwest Region Fisheries Contacts

### Regional Office
5600 American Blvd West
Bloomington, MN 55437
Todd Turner (todd_turner@fws.gov)
612-713-5111

### Alpena Fish & Wildlife Conservation Office
480 W. Fletcher Street
Alpena, MI 49707
Scott Koproski (scott_koproski@fws.gov)
989-356-5102
*Area of Responsibility (MI, OH)*

### Ashland Fish & Wildlife Conservation Office
2800 Lake Shore Drive East
Ashland, WI 54806
Mark Brouder (mark_brouder@fws.gov)
715-682-6185
*Area of Responsibility (MI, MN, WI)*

### Carterville Fish & Wildlife Conservation Office
9053 Route 148, Suite A
Marion, Illinois 62959
Rob Simmonds(rob_simmonds@fws.gov)
618-997-6869
*Area of Responsibility (IL, IN, OH)*

### Columbia Fish & Wildlife Conservation Office
101 Park Deville Drive, Suite A
Columbia, MO 65203
Acting Wyatt Doyle (wyatt_doyle@fws.gov)
573-234-2132
*Area of Responsibility (IA, MO)*

### Genoa National Fish Hatchery
S 5689 State Road 35
Genoa, WI 54632
Doug Aloisi (doug_aloisi@fws.gov)
608-689-2605

### Green Bay Fish & Wildlife Conservation Office
2661 Scott Tower Road
New Franken, WI 54229
Mark Holey (mark_holey@fws.gov)
920-866-1717
*Area of Responsibility (IL, IN, MI, WI)*

### Iron River National Fish Hatchery
10325 Fairview Road
Iron River, WI 54847
Nick Starzl (nick_starzl@fws.gov)
715-372-8510

### Jordan River National Fish Hatchery
6623 Turner Road
Elmira, MI 49730
Roger Gordon (roger_gordon@fws.gov)
231-584-2461

### LaCrosse Fish Health Center
555 Lester Avenue
Onalaska, WI 54650
Acting Terry Ott (terrance_ott@fws.gov)
608-783-8444

### LaCrosse Fish & Wildlife Conservation Office
555 Lester Avenue
Onalaska, WI 54650
Acting Scott Yess (scott_yess@fws.gov)
608-783-8434
*Area of Responsibility (IA, IL, MO, MN, WI)*

### Ludington Biological Station
229 S.Jebavy Drive
Ludington, MI 49431
Scott Grunder (scott_grunder@fws.gov)
231-845-6205

### Marquette Biological Station
3090 Wright Street
Marquette, MI 49855
Kasia Mullett (katherine_mullett@fws.gov)
906-226-6571

### Neosho National Fish Hatchery
520 E Park Street
Neosho, MO 64850
David Hendrix (david_hendrix@fws.gov)
417-451-0554

### Pendills Creek National Fish Hatchery
21990 W. Trout Lane
Brimley, MI 49715
Curt Friez (curt_friez@fws.gov)
906-437-5231

### Sullivan Creek National Fish Hatchery
21200 West Hatchery Road
Brimley, MI 49715
Curt Friez (curt_friez@fws.gov)
906-437-5231

### Whitney Genetics Lab
555 Lester Avenue
Onalaska, WI 54650
Acting Terry Ott (terrance_ott@fws.gov)
608-783-8444