



**U.S. Fish & Wildlife Service - Midwest Region**

## **Fisheries Program**

# **fish lines**

**Pallid Sturgeon Sampling**

**Chinese Delegation  
Visit**

**Fragile Papershell  
Mussels**

**Clamping Down on  
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# U.S. Fish & Wildlife Service Fisheries, Midwest Region

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## Field Focus

### [La Crosse Fish and Wildlife Conservation Office](#)

Growing up in central Illinois, Evan Boone's personal and academic experiences largely focused on rivers and impoundments. However, that changed after he.... [Read More](#)

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May 18, 2017  
*In this Issue*



### Pallid Sturgeon Sampling

Perhaps the only thing more challenging than sampling the most heavily modified river in the world, is trying to live...[Read More](#)



Pallid Sturgeon Sampling



Chinese Delegation Visit



Fragile Papershell Mussels



Clamping Down on Illegal Grass Carp Sales



Sweet Success

## 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: May 18, 2017



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

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### Final Wrap-up Pallid Sturgeon Sampling in the Middle Mississippi River

BY PRESTON FELTROP, CARTERVILLE FISH AND WILDLIFE CONSERVATION OFFICE



Missouri Department of Conservation crew members prepare to set a trotline at Cottonwood Island in our collective Pallid Sturgeon sampling effort. This is one of the many projects in which we collaborate with the U.S. Army Corps of Engineers and Missouri Department of Conservation. Credit: Jack Killgore, USACE

Perhaps the only thing more challenging than sampling the most heavily modified river in the world, is trying to live in it. For Pallid Sturgeon, that has been a daunting endeavor and one they appeared to be losing...or at least we thought. The Pallid Sturgeon is an endangered fish species that exists in the Missouri and Mississippi rivers. They are large river obligates with long slender bodies and bony plates giving them the appearance of prehistoric dinosaurs (or even fabled aquatic dragons).

Six months of the year, for the last three years, you could find the U.S. Fish and Wildlife Service, Missouri Department of Conservation, and U.S. Army Corps of Engineers employees on the Mississippi River sampling for endangered Pallid Sturgeon. Our sampling area encompassed 120 out of the 200 miles of the Middle Mississippi River between the confluences of the Ohio and Missouri rivers. With this enormous amount of effort (more than 130,000 hooks over the course of 358 days), we caught a total of 32,828 fish on trotlines. Of the total catch, 23,941 were Shovelnose Sturgeon while only 38 were Pallid Sturgeon. Recent analysis suggests there are approximately 2,000 Shovelnose Sturgeon

per river mile in the Middle Mississippi River and there are 630 Shovelnose Sturgeon for every Pallid Sturgeon. Therefore, there are approximately three times more Shovelnose Sturgeon in one river mile as there are Pallid Sturgeon in the entire 200 miles of the Middle Mississippi River.

Of the 38 genetically identified Pallid Sturgeon, 20 are considered to have originated from the wild and 18 were stocked as juveniles in the Missouri River. Their population is supplemented by hatchery programs each year due to their scarcity but remnant wild fish remain in the river and continue to spawn. In fact, based on sampling conducted from 2002-2005, our catch of wild Pallid Sturgeon in the Middle Mississippi River has not noticeably changed in the last 15 years. Therefore, regardless of the continuing impacts of river navigation and increasing rate of hybridization, pure Pallid Sturgeon appear to be finding each other and producing maturing offspring. The samples we analyzed using microchemistry (stable isotope analysis using sections of the fin to determine movement) have confirmed the importance of the Mississippi River to Pallid Sturgeon and the need for basin-wide collaboration for restoration. I consider these conclusions gratifying and I'm enthusiastic about the opportunity to enhance aquatic habitats to help the recovery effort.



Crew members, Lucas Shea and Ian Kennedy, process one of the 23,941 Shovelnose Sturgeon caught throughout the duration of the project. Credit: USFWS

I do not want to dive too deep into the details of stable isotope analysis but I will include some context since I mentioned it. Basically, various waterbodies have unique chemical signatures and fish occupying that water take on those signatures, even throughout their bones. Those signatures can be analyzed through time because the fish bones (fin spines) have growth rings similar to tree growth rings. Examining the signature for each ring indicates what waterbody that fish occupied during those time frames. Based on this analysis, we have verified the broad movements of sturgeon between the Missouri and Mississippi rivers and determined Pallid Sturgeon recruitment is occurring in both rivers.

Even with the low Pallid Sturgeon catch, the U.S. Fish and Wildlife Service is doing everything we can to promote recovery of the species. We have implemented a stocking program throughout the Missouri River and we are working with the U.S. Army Corps

of Engineers to restore habitat and mitigate the negative effects of river navigation. With our great partnerships with the Missouri Department of Conservation, Illinois Department of Natural Resources, and U.S. Army Corps of Engineers, restoring the Pallid Sturgeon population might be just around the bend.

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

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### Chinese Delegation Visit: An Exchange of Expertise in Management of Asian Carp

ERIC J. BROSSMAN, CARTERVILLE FWCO, WILMINGTON, IL SUBSTATION

In April 2017, the Midwest Region of the U.S. Fish and Wildlife Service (USFWS) welcomed delegation members from the People's Republic of China (PRC). The delegation visit is an exchange program between USFWS and the PRC where biologists and managers have the opportunity to share information on the life history, ecology, and behavior of Asian carp (Bighead and Silver carp).

Federal and state biologists benefit by gaining valuable insight towards protecting the Great Lakes and rivers of the Midwest from Asian carp through early detection, rapid response, prevention, and control measures. In turn, the Chinese biologists and managers benefitted from information on biology, ecology, and reproductive behavior garnered through research and management by U.S. agencies in order to restore the species in its native range as Asian carp are both a commercial and subsistence source of food in China.

Other topics of interest to the delegation were the jurisdictional management models between federal and state agencies, support of fisheries through issuance of fishing licenses (commercial and sport), and how fisheries support both regional and national economies.

Delegation representatives from the Chinese Academy of Fishery Science and the East China Sea Fisheries Research Institute began their visit at the Shedd Aquarium in Chicago to hear presentations on Asian carp management by USFWS, United States Environmental Protection Agency, United States Army Corps of Engineers (USACE), and Illinois Department of Natural Resources (DNR).

The delegation toured the USACE electric fish dispersal barrier in Romeoville, Illinois (IL). This provided another opportunity for the delegation to provide any technical guidance based on their own experiences from managing Asian carp in large river systems. The delegation was given an on-the-water demonstration by the USFWS Carterville Fish and Wildlife Conservation Office at Wilmington, IL and the Illinois DNR on monitoring Asian carp by electrofishing, gill nets, and hydroacoustic SONAR in the upper Illinois River near Morris.

The next day they headed north to La Crosse, Wisconsin (WI) for a visit with the Midwest Fisheries Center and United States Geological Survey's (USGS) Upper Midwest Environmental Sciences Center (UMESC) where they learned about Asian carp management in the upper Midwest and toured the Whitney Genetics Lab. The staff demonstrated how eDNA analysis is used for detection of Asian carp. At the UMESC, USGS staff gave a presentation on various Asian carp control measures. The day was finished with a tour of the Genoa National Fish Hatchery in Genoa, WI.

The delegation also visited the USFWS Midwest Region Headquarters and the Minnesota Valley National Wildlife Refuge in Bloomington, Minnesota. Afterwards, staff from the Minnesota DNR met with the delegation at the upper boundary of Asian carp collection sites on the St. Croix River followed by a tour of the University of Minnesota Aquatic Invasive Species Center. On their last night in the US, employees from USFWS Midwest region joined the delegation for one final meal before their departure. It was an amazing experience for all involved.



Carterville FWCO-Wilmington Substation Biologist Jeremiah Davis discusses the use of hydroacoustic SONAR for monitoring Asian carp to members of the Chinese delegation aboard the vessel Carpe See Um. Credit: Mike Weimer, USFWS



U.S. Fish &amp; Wildlife Service

## Fisheries, Midwest Region

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### Fragile Papershell Mussels Act as Stand in for Butterfly Mussel

BY MEGAN BRADLEY, GENOA NFH



Fragile papershell (left) and butterfly mussel (right) broodstock at Genoa National Fish Hatchery. Credit: Megan Bradley

Freshwater mussels have unique relationships with their fish hosts. Some species' larvae attach to the gills of only a single species while others are more extravagant and use dozens of species. The species of mussels that depend on freshwater drum use only drum. If you've fished for drum they might seem pretty easy to find or keep; they'll bite most of the day and are plentiful in many lakes and rivers because they're not targeted by many fishermen. Unfortunately, not very many hatcheries are set up to raise freshwater drum, so often mussel biologists have to take them where they can be gotten.

For 2017 mussel production that meant picking them up from Nebraska in the fall of 2016. Freshwater drum are also fairly sensitive to handling and are picky eaters indoors, so holding them all winter is a challenge and some years Genoa National Fish Hatchery (NFH) mussel biologists have little to show for their efforts. The winter of 2016 to 2017 was different; lots of attention and a little luck means that the hatchery is holding around 1000 drum to act as hosts for a few of these mussel species.

One species of particular interest for propagation this year is the butterfly mussel because of a unique opportunity to get large numbers of broodstock from a relocation site on the Mississippi River. Back in the fall of 2016, biologists saved our female butterfly mussels as they removed mussels from the footprint of a bridge construction site and they spent the winter at Genoa NFH. This species is a state endangered species in Wisconsin and a state threatened species in Iowa and Minnesota. Because of the challenges of working with drum in March, our mussel biologists decided to use a stand in for the butterfly mussel, the fragile papershell, another species that uses the freshwater drum as its host to test infestation, holding and juvenile propagation methods. The methods were so effective that around 6,000 juvenile fragile papershell mussels are living in the mussel building and in April mussel biologists will move forward with infesting the rest of the drum with butterfly mussels.



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

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### Clamping Down on Illegal Grass Carp Sales in Indiana

BY TINA SHAW, REGIONAL OFFICE - EXTERNAL AFFAIRS



Grass carp. Credit USFWS

Thanks to the proactive work of state and federal law enforcement professionals, an Arkansas-based live fish distributor is no longer illegally transporting and selling nonnative grass carp in Indiana.

Following complaints from concerned parties, conservation officers within the investigation section of the Indiana Department of Natural Resources worked closely with special agents within the U.S. Fish and Wildlife Service Office of Law Enforcement to investigate and quickly close this case. On February 27, 2017, Arkansas Pondstockers paid two citations in federal court totaling \$12,060.

#### **Why stock grass carp?**

For two decades Indiana has been enforcing regulations that allow people to use grass carp as a [biological control method](#) for aquatic vegetation in man-made ponds. These regulations clearly outline how to use grass carp as an alternative to chemical treatments in a way that keeps these nonnative fish out of rivers and streams and away from Indiana's native fishery.

Even though sterile grass carp are a good alternative to chemical treatments, they can harm our native fishery by damaging spawning areas and other habitat. They can also outcompete native fish for food which further impacts both the greater ecosystem and recreational opportunities. To lessen the likelihood of these impacts, specific safeguards were written into law. Indiana state law requires two permits for the sale of grass carp, both a fish haulers' permit to transport the live fish and an aquaculture permit to sell grass carp. An important aspect of state law is that fish haulers must deliver live grass carp to the private ponds where the fish will live. The intent of this rule is to keep grass carp out of the public waterways, where they could cause problems for native fish.

Under state law, pond owners who wish to use this biological control method are required to use professional fish stocking businesses that only use certified sterile grass carp, known as [triploid grass carp](#). This ensures that these nonnative fish cannot reproduce if they are to escape man-made ponds. In addition to these safeguards, the state requires fish stocking businesses to report their activities so that biologists can closely monitor the use of grass carp.

These state regulations don't just benefit Indiana's fishery, they're good for business. Using grass carp to control aquatic vegetation is popular in Indiana and business can be competitive. With between 25 to 30 dealers selling thousands of triploid grass carp annually, dealers are motivated to keep each other operating within the law. This ensures fair pricing and open competition.

#### **What makes this a federal case?**

We work collaboratively with state and tribal partners across the country to support legal wildlife commerce and hunting opportunities for American hunters, anglers and wildlife-related businesses. In this case, Arkansas Pondstockers was out of compliance with both Indiana state law and an overarching federal law that supports state-level wildlife conservation. [The Lacey Act](#), a federal conservation law which dates back to 1900, protects fish, wildlife and plants both domestically and internationally. Under the Lacey Act, it is unlawful to import, export, sell, acquire, or purchase fish, wildlife or plants that are taken, possessed, transported, or sold: 1) in violation of federal, state, foreign or tribal law, or 2) in interstate or foreign commerce involving any fish, wildlife, or plants taken possessed or sold in violation of State or foreign law.

In this case, employees sold grass carp directly from their truck, without transporting to a private pond. During the joint investigation, we discovered that even though the business had obtained the required permits in the past, they failed to have

them at the time the violations occurred and records show that they were out of compliance for several months during 2016.

In addition to paying the federal citations, Arkansas Pondstockers' most recent aquaculture permit application has been denied by Indiana Department of Natural Resources. This means that the fish hauler will be unable to legally sell triploid grass carp in Indiana for 2017.

Fighting against Asian carp is a collaborative effort. We work with provincial, state, and other federal partners to monitor and control the spread of bighead, silver, grass and black carps in our country's waters.

Learn more about Asian carp control and management: [www.AsianCarp.us](http://www.AsianCarp.us)

Learn how to identify the four species of Asian carp: <http://bit.ly/2onlwxD>

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

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## Sweet Success...with a Little Help from our Friends

BY CAREY EDWARDS, IRON RIVER NFH



On Maple Syrup Day students helped carry buckets that had been collecting sap for several days. Credit: USFWS

Friends and staff of the Iron River National Fish Hatchery (NFH) hosted its first Maple Syrup Making event this spring. Around two dozen event goers braved the brisk "spring" morning to learn the ins and outs of maple syrup making. Visitors kicked off the event in the hatchery lobby by watching an informational five minute video on proper tools and procedures before heading out onto hatchery property to view the process in person. Several stations were set up ahead of time to streamline the process. Maple syrup enthusiasts Dale Bast and Brandon Keesler led the demonstrations. Guests could try their hand at tapping a tree and carrying buckets of sap from pre-tapped trees. After sap was collected, viewers moved to the next station to watch a kettle of almost table-ready syrup "finish" over an open flame while listening to the steps in the cooking process.

Several people were interested in making syrup themselves next spring and took notes along the way. There's no arguing that the best part of the morning was coming back into the hatchery to eat



Friends member Jess Zacovek makes pancakes for event goers during the first annual Maple Syrup Making Day. Credit: Friends of Iron River NFH

hot-off-the-griddle homemade pancakes drizzled with fresh maple syrup. What a fun, informative and delicious way to spend a morning. Thanks Friends.



Wrapping it all up - Sweet! In this demonstration, participants learned about finishing maple syrup to enjoy a delicious product. Credit: USFWS



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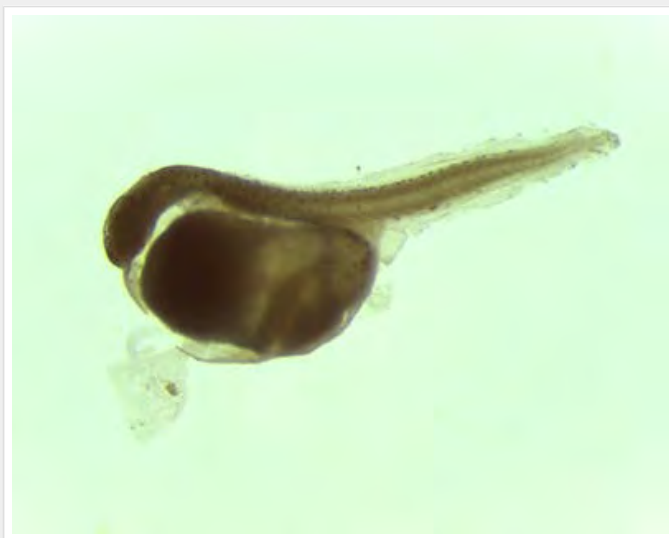
## Finding Little Fish in a Big River: Collaborative Larval Fish Surveys in the Upper Mississippi River

BY MARK FRITTS, LA CROSSE FWCO

Any of our colleagues working in the hatchery system can tell you just how small a fish is when it is newly hatched. They're hard enough to see in the rearing troughs and very delicate and difficult to maintain through this critical period of their life history. Now, apply this understanding to monitoring larval fishes and eggs in large river ecosystems characterized by fast currents and an immense, complex variety of aquatic habitats. This is the challenge of collaborative efforts between US Fish and Wildlife Service (USFWS) La Crosse Fish and Wildlife Conservation Office (FWCO), US Geological Survey (USGS) Upper Midwest Environmental Science Center, and Iowa State University working in Pools 8-20 of the Upper Mississippi River (UMR).

Monitoring larval fish and eggs in the currents of large rivers can provide important information about the reproductive performance of species of concern and non-native species attempting to establish populations in new regions. Understanding why production and recruitment may be limited in some years and in some locations may help managers to

1) recognize bottlenecks in the life history of specific fishes; 2) identify environmental variations or management actions that contribute to these bottlenecks; and 3) spur the development of new and effective conservation or control strategies. In the UMR, one of the most pressing management concerns is the containment of emerging reproductive populations of Asian carps (Bighead Carp Silver Carp, Black Carp, and Grass Carp). It is essential to evaluate population characteristics and reproductive dynamics of Asian carps in the UMR along the edges of advancing populations in order to provide timely detection of new spawning events and to formulate effective management strategies. State and Federal natural resource managers, as well as many academic researchers, have expressed concern that the arrival of Asian carps in the UMR Watershed will damage the current ecosystem structure and functions.



Larval freshwater drum (48-72 hours old) collected in Pool 13 during June 2016. 40X magnification. Credit Mark Fritts, USFWS



Juvenile Bighead Carp (6 weeks old) produced in captivity by USGS Columbia Environmental Science Center. 10 X magnification.

Credit Mark Fritts, USFWS

Asian carps were introduced to the United States from their native ranges in Eastern Asia during the 1960s and 1970s. Since these initial introductions, fishes have escaped confinement and have established populations in many reaches of the Mississippi River Watershed. Asian carps have ascended into the impounded reaches of the UMR above the Ohio River confluence and have established reproductive populations in some areas. Studies conducted in the fishes' native ranges in China suggest that all four species employ similar reproductive behaviors where adults migrate to habitats characterized by turbulent, swift flowing water for spawning during the late spring and early summer. Semi-buoyant, fertilized eggs then require lengthy reaches (15-62 miles) of flowing water to allow time for eggs to hatch and larva to form jaws for feeding and fins for swimming. Previous researchers have suggested that Asian carps' reproduction may be limited in the Mississippi River upstream of Lock and Dam 19 because of the reservoir-like, lentic conditions produced by the riverine impoundments in this region.

So, how does a researcher document reproduction by finding these tiny fish in a big river like the UMR? Starting in April each year, we tow conical nets with very fine mesh in main channel, channel border, and backwater habitats scattered throughout our monitoring area. Tows in the main channel target drifting eggs and larvae. Tows along channel borders and in backwater habitats where water velocity is reduced, target mobile larvae. At this point, you can't differentiate the fishes and eggs from the weeds and other debris that you typically catch so the contents of the net are rinsed toward the cod end, placed in sample jars, preserved in 95% non-denatured ethanol, and returned to the laboratory for processing. In the laboratory, eggs and larvae are separated from detritus (lots and lots of detritus!), counted, and

preserved for morphometric and, if necessary, genetic, identification. Fishes are differentiated as larval or juveniles based on fin development. Fish recognized as having a full complement of fins are categorized as juvenile fish.

Researchers from USGS conducted these surveys during 2013 and 2014. Later, researchers at Iowa State University established a more robust monitoring program to monitor larval fish communities in Pools 14-20 of the Mississippi River and its tributaries: the Wapsipinicon, Rock, Iowa, Skunk, and Des Moines Rivers. The USFWS established a companion monitoring framework on Pools 8-13 of the Mississippi River and its largest tributaries: the Maquoketa, Turkey, Upper Iowa, and Wisconsin Rivers during 2016.

Current estimates suggest that populations above Lock and Dam 19 remain relatively low compared to those below this barrier. However, there are indications from data collected by both USGS and Iowa State University that silver, bighead, and grass carps have established limited reproductive populations in reaches of the UMR and its tributaries above Lock and Dam 19 at Keokuk, Iowa. It appears that the success of Asian carps' spawning events may be highly contingent on environmental factors such as sustained, high river discharge during late spring and early summer. This enhanced understanding of how environmental factors might restrict the success of Asian carps reproduction is noteworthy because it may offer some clues about potential management strategies that could be used to exploit this possible bottleneck in Asian carps reproductive success.



USFWS biological technician Ryan Long retrieving ichthyoplankton net in Pool 12 during August 2016. Credit Mark Fritts, USFWS

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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.

### **Fish Habitat Improvement on the Patoka River NWR**

BY LUCAS SHEA, CARTERVILLE FWCO

The Carterville Fish and Wildlife Conservation Office (FWCO) implements various projects ranging from the removal of invasive species like Asian carp, to monitoring of endangered species like Pallid sturgeon, to fish passage projects like dam removals. We also lend assistance to National Wildlife Refuges (NWR's) that are in need of fisheries assistance throughout our area of responsibility. We offer our services such as water quality testing, population surveys, lake mapping, and developing fish management plans. One NWR that reached out to us, was the Patoka River National Wildlife Refuge located in Indiana. We evaluated several lakes on some newly acquired refuge property to gain baseline information to guide management decisions. We performed electrofishing surveys and provided a management brief detailing the fish populations in each of the water bodies. We also performed sonar surveys and produced detailed bathymetric maps of each lake. The refuge then began restoring the acquired property to native prairie habitat. A year of restoration resulted in several large brush piles made up of invasive species, like black locust, that would have to be removed. Personnel from Patoka NWR then asked the Carterville FWCO for some advice on improving fish habitat in several of the nearby lakes. Together, a project was formed that utilized the existing brush piles by placing them in those very same lakes, resulting in fish habitat improvement. By working together, coordinating resources, and sharing ideas, the Patoka NWR has greatly improved not only its native prairie, but also its local fishery in a very cost effective manner and to the benefit of the general public.

### **Discarded Christmas Trees Equal Fish Habitat for Local Lakes**

BY LUCAS SHEA AND SHELBY KAIL, CARTERVILLE FWCO

As the holiday season ends and the public begins taking down their Christmas trees, sport fish in Southern Illinois (IL) rejoice because these discarded trees mean lots of new habitat, providing them with cover and feeding areas! Instead of tossing their Christmas trees, public in the area can bring their old trees to the Carterville Fish and Wildlife Conservation Office (FWCO) and donate them to be made into new fish habitat in three area lakes. Personnel from the Carterville Fish and Wildlife Conservation Office joined with the Illinois Department of Natural Resources and several volunteers from the public to create fish attractors from these donated trees. These fish attractors were then deployed in Crab Orchard Lake, Little Grassy Lake, and Rend Lake

On the mornings of February 25th, March 10th, and March 15th, agency personnel and public volunteers gathered to begin wiring together bundles of three to four trees. These bundles of trees were then anchored to concrete cinder blocks. Using modified pontoon boats, the bundles were then sunk in various fishing "hotspots" around the lake, in order to improve fish habitat and provide target areas for anglers. Most of these chosen locations are within casting distance for shore anglers and the remaining spots will provide boat anglers with prime locations to try and catch some of these lakes' exciting and abundant sport fish. After these events, Chris Bickers, Fish Biologist with the Illinois Department of Natural Resources utilizes collected GPS points of the fish attractor drop sites to create maps of these lakes. These maps are then made available to the public at the office shared by Carterville FWCO and Illinois Department of Natural Resources located on Route 148 in Marion, IL. This project continually proves to be a benefit for anglers and fish alike!



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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.



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

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### Midwest Region Fisheries Contacts

#### Regional Office

5600 American Blvd West  
Bloomington, MN 55437  
Todd Turner [todd\\_turner@fws.gov](mailto:todd_turner@fws.gov)  
**612-713-5111**

#### Iron River National Fish Hatchery

10325 Fairview Road  
Iron River, WI 54847  
Nick Starzl [nick\\_starzl@fws.gov](mailto:nick_starzl@fws.gov)  
**715-372-8510**

#### Genoa National Fish Hatchery

S 5689 State Road 35  
Genoa, WI 54632  
Doug Aloisi [doug\\_aloisi@fws.gov](mailto:doug_aloisi@fws.gov)  
**608-689-2605**

#### Jordan River National Fish Hatchery

6623 Turner Road  
Elmira, MI 49730  
Roger Gordon [roger\\_gordon@fws.gov](mailto:roger_gordon@fws.gov)  
**231-584-2461**

#### Neosho National Fish Hatchery

520 E Park Street  
Neosho, MO 64850  
Roderick May [roderick\\_may@fws.gov](mailto:roderick_may@fws.gov)  
**417-451-0554 ext: 102**

#### Pendills/Sullivan Creek National Fish Hatchery

21990 W. Trout Lane  
Brimley, MI 49715  
Curt Friez [curt\\_friez@fws.gov](mailto:curt_friez@fws.gov)  
**906-437-5231**

#### Midwest Fisheries Center

555 Lester Avenue  
Onalaska, WI 54650  
Teresa Lewis [teresa\\_lewis@fws.gov](mailto:teresa_lewis@fws.gov)  
**608-783-8420**

- **LaCrosse FWCO**  
Sam Finney [sam\\_finney@fws.gov](mailto:sam_finney@fws.gov)  
**608-783-8434**
- **LaCrosse Fish Health Center**  
Ken Phillips [kenneth\\_phillips@fws.gov](mailto:kenneth_phillips@fws.gov)  
**608-783-8447**
- **Whitney Genetics Lab**  
Emy Monroe [emy\\_monroe@fws.gov](mailto:emy_monroe@fws.gov)  
**608-783-8402**

#### Alpena Fish & Wildlife Conservation Office

480 W. Fletcher Street  
Alpena, MI 49707  
Scott Koproski [scott\\_koproski@fws.gov](mailto: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](mailto: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](mailto: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  
Jason Goeckler [jason\\_goeckler@fws.gov](mailto:jason_goeckler@fws.gov)  
**573-234-2132**  
*Area of Responsibility (IA, MO)*

#### Green Bay Fish & Wildlife Conservation Office

2661 Scott Tower Road  
New Franken, WI 54229  
Mark Holey [mark\\_holey@fws.gov](mailto:mark_holey@fws.gov)  
**920-866-1717**  
*Area of Responsibility (IL, IN, MI, WI)*

#### Ludington Biological Station

229 S. Jebavy Drive  
Ludington, MI 49431  
Scott Grunder [scott\\_grunder@fws.gov](mailto:scott_grunder@fws.gov)  
**231-845-6205**

#### Marquette Biological Station

3090 Wright Street  
Marquette, MI 49855  
Kasia Mullett [katherine\\_mullett@fws.gov](mailto:katherine_mullett@fws.gov)  
**906-226-6571**