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Connecting Kids to Nature through Fishing





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

Conserving America's Fisheries



Aug 27, 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](#)" 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.



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

Conserving America's Fisheries

Catherine Wolter Wilderness Area Hydrologic Restoration

BY TED KOEHLER, ASHLAND FWCO



Lake outlet restoration at the Catherine Wolter TNC Wilderness. Credit: The Nature Conservancy

significant because it protects more than 36,000 feet of undeveloped shoreline on 15 wild lakes and ponds in northern Wisconsin. According to a 1996 report by the Wisconsin Department of Natural Resources, two-thirds of northern Wisconsin's undeveloped lakes ten acres or larger have been developed since 1960.

The Catherine Wolter Wilderness Area lakes and wetlands host a rich diversity of fish and other aquatic species, and the surrounding forests provide habitat for many native plants and wildlife species. Fish that inhabit the lakes and streams in the project area include smallmouth bass and brook trout. Wildlife that uses the area includes Neotropical migrant songbirds like the Golden-winged warbler, Canada warbler, Pine warbler, Magnolia warbler and Mourning warbler. Waterfowl that use the preserve include mallard, wood duck and blue-winged teal. In addition you can see Common Loons, Osprey, and occasionally a Bald Eagle. Also, white-tailed deer are abundant, and otter, fisher, black bear and timber wolves are known to frequent the preserve.

Overall the project has improved conditions on a multistate landscape scale within northern Wisconsin and Michigan's Upper Peninsula. The preserve serves as a link between the one-million-acre Ottawa National Forest, located to the north in Michigan, and the 220,000-acre Northern Highland-American Legion State Forest, located to the south in Wisconsin. Working together through this project, the Service and TNC have made a significant positive difference on-the-ground for multiple priority fish and wildlife species.

The Nature Conservancy (TNC) of Wisconsin and the U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program recently completed a project at the Catherine Wolter Wilderness Area in Vilas County. The project consisted of replacing five failing cement culverts located at lake outlets. These failing structures were altering the natural hydrology of a large area of interconnected lakes and wetlands. In some instances these culverts also blocked passage for fish and other aquatic life. Historic water levels were estimated through a series of surveys. The old culverts were then removed, and new culverts with beaver guards installed. Three trail crossings were also improved through removal of blockages and planning for future enhancement. Work from the overall project restored and enhanced approximately 1084 acres of lakes, wetlands and adjacent uplands.

The entire preserve totals 2,329 acres and is located in the Border Lakes region of northwest Wisconsin between Presque Isle and Boulder Junction in Vilas County. This TNC preserve is



Border lakes area. Credit: The Nature Conservancy



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

Conserving America's Fisheries

Recruiting Help to Find Elusive Cisco in Green Bay

BY TED TRESKA, GREEN BAY FWCO



Cisco collected from Green Bay, Lake Michigan. Fins are pinned to allow for morphological measurements. Credit: Ted Treska, USFWS

Following up on an idea formulated in a coordination meeting of all agencies working on Green Bay, Green Bay Fish and Wildlife Conservation Office (FWCO) fisheries biologist Ted Treska worked to expand the network of participants to collect genetic samples of cisco (lake herring) from the bay for an ongoing study to determine the genetic make-up of remaining cisco stocks in Lake Michigan. In recent years, commercial fishers had been reporting the occasional encounter with cisco in their whitefish nets from various locations in the bay. Working with the area Wisconsin Department of Natural Resources biologist and conservation warden supervisor, Treska developed a protocol that asked commercial fishers to collect basic location information along with a fin clip for a genetic sample, while still keeping them within the regulations enforced by the department. The protocol provides a simple set of instructions along with cisco identification tips, and was provided with sample envelopes store the fin clip and record locational data.

Treska then contacted commercial fishers in the lake whitefish fishery of Green Bay that have cooperated with efforts in the past and asked them to participate in the effort and most were more than willing to help. Green Bay was historically the largest producer of commercial catches of cisco in the Great Lakes and a number of the current fishers come from families that grew up fishing cisco in generations past. Currently, nine fishers are participating in the collection effort and with whitefish season set to ramp up as fall and the whitefish spawning season approaches, we are hoping for more samples to be collected. To date, we have collected six samples for testing with a goal of 25 samples for genetic analysis. In addition to the genetic samples, any fish that are collected whole by government agencies are being photographed for morphological analysis, which compares lengths between different parts of the body to separate groups of fish out by body shape.

Once fin clips are collected, they are sent to the U.S. Geological Survey's Great Lakes Science Center in Ann Arbor, Michigan. Geneticist Wendy Stott tests them against other samples from the lake as part of a study initialized by Kevin Donner, a biologist with the Little Traverse Bay Band of Odawa Indians. The tests are used to determine if there are genetic differences between remnant populations in Green Bay and other small populations on the eastern shore of Lake Michigan, including those in Grand Traverse Bay and near Ludington. The samples will also be tested against a number of other samples from around the Great Lakes basin to define which existing stock they are most similar to. This information will likely play a significant role in efforts that are underway to examine the

Treska then contacted commercial fishers in the

Lake Herring (Cisco) Sampling Protocols

Very recently lake herring were rarely thought to be extant in Lake Michigan but in recent years, small numbers of herring have been caught by recreational and commercial fishers, and occasional by netgers. We are asking for your help to obtain genetic samples (a fin clip) to assess the origin of lake herring recaptured around Green Bay and surrounding waters. Please use the following protocols to collect data on any lake herring encountered. Please record as much information as you are able. Commercial fishers are required to return the live fish to the water as handling time should be minimized. If you are authorized to retain the fish, please keep the fish and Trekska in a ziplock bag 1/2 of water.

Basic Instructions

Genetic Sample - please remove 1 square centimeter (1/4 inch by 1/2 inch) of the pelvic fin (see below), wrap off (see 4) it with clean other genetic material from either fish and place it in the envelope to air dry. **DO NOT freeze sample or seal envelope!**

Date & Location - Record the date, location (grid number or latitude/longitude if possible) and collector name or agency.

Additional data (if possible)

Length - measure the total length of the fish, and record units (inches or cm)

Weight - weigh the fish, record weight (lb, kg, oz)

Photos - photos of the herring are very useful. Take multiple clear photos of a clear specimen if possible. If you have a scale to include the sample number and length reference in the picture, please do so. This can be done by writing the sample number in large numbers on the back of the sample envelope and setting the envelope near the fish. If the fish is dead, pinning the fin in the upward position would be helpful for photos that are comparing morphometric information (see photo at right).

Sample Submission: Once you have collected samples, please contact one of the people below to facilitate pick-up your samples. The lab doing the genetic testing is able to process samples as they come in so we would like to get them from you as soon as possible.

Ted Treska (ted_treska@fwco.gov or 920-866-1764)
Scott Hansen (scott.hansen@dnr.gov or 920-748-2884)

Thanks for your cooperation! Results of the study will be shared once they are finalized.

-Ted Treska and Scott Hansen

These Samples collected by commercial fishers for this study will be collected under the WENR Scientific Collector's permit held by the USFWS - Green Bay office (ICP AWR 055). **Authorized commercial fishers must carry a copy of this letter on board vessels that will collect samples!**

Lake Whitefish Identification Characteristics

Down turned overhanging mouth, lower jaw under snout Pelvic fin end far from anus, dark pigmentation

Lake Herring Identification Characteristics

Lower jaw not overhanging by snout Pelvic fin ending further from anus than on bloater

Bloater Identification Characteristics

Lower jaw generally extending forward of upper jaw Pelvic fin ending closer to anus

Protocol supplied to commercial fishers outlining fin clip and data recording steps. Also provides identification tips for similar species in Green Bay. Credit: Ted Treska, USFWS

possibility of restoring this species as part of the native forage base in Lake Michigan, as ciscoes once played a very large part in the fish community of the lake. As consumers of plankton in the open water areas of the lake, they play a large role in transferring energy from the open lake environs to the predators, and at the same time, their high energy eggs that they deposit on shallow water reefs play a large part in bolstering energy reserves for a number of species that consume the eggs in preparation for the harsh times of winter.

Regardless of the outcome of the testing, many around the lake are hoping for a continued recovery of this species in the lake.



U.S. Fish & Wildlife Service

Fisheries, Midwest Region

Conserving America's Fisheries

Grass Carp:

The Management of a Frustrating and Fascinating Invasive Fish

BY KJETIL HENDERSON, CARTERVILLE FWCO

Grass carp were introduced into the United States (U.S.) in 1963. The species is native to parts of China and Russia, and was introduced into the U.S. for limiting vegetation in aquaculture ponds. In most water bodies, an intermediate amount of vegetation is ideal. Too much or too little can be problematic, and fisheries professionals sometimes try to influence plant biomass towards a happy medium. This influence is exerted to reduce plant growth via drawdowns, mechanical removal of plants or spraying herbicides. Occasionally, another control method used to reduce plant growth which can have substantial negative ramifications is grass carp. This fish can grow large eating vegetation but this characteristic is as concerning as it is exceptional.

There are very few plant-eating fish in North America. These primary consumers (or plant eaters) include stonerollers and grass carp. Stonerollers consume algae and serve a vital role processing nutrients in stream ecosystems. Given their unique diets, both stonerollers and grass carp play substantial roles in the environments they thrive in. Unfortunately, grass carp often bring unwelcomed change when introduced. This species has caused reduced plant abundance and diversity, lowered water clarity, and substantially altered nutrient dynamics in some systems.



Grass Carp. Credit: Creative Commons Attribution 3.0 Unported

For these concerning reasons, the federal government passed 2008 legislation to avoid the spread of fertile grass carp. The Lacey Act makes it illegal to transport species deemed injurious into the country or across state lines without an exemption. Individuals can't legally spread grass carp across state lines. The only way commercial fish farms can transport these fish across borders is with the documented approval of U.S. Fish and Wildlife Service (USFWS) personnel. This service is provided to states that do not allow diploid grass carp within their boundaries. With this program, only "triploid" grass carp can be transported between the states.

Triploid refers to the number of sets of chromosomes found in the nucleus of grass carp red blood cells. Diploid fish are fertile (2 sets of chromosomes in RBCs) and triploid carp are sterile. The inspection process starts several days prior to a shipment of grass carp from a fish farm. USFWS personnel are contacted by hatchery employees and an appointment is made. A large number of grass carp are selected for inspection from the pool of fish to be shipped. Blood is drawn from these fish and a Coulter Counter is used to measure chromosome diameter. If the test is passed, these grass carp can be shipped only with the proper documentation and after the appropriate states have been notified.

Triploid grass carp inspections represent one component of the role of USFWS in preventing the spread of this species in the United States. Most grass carp aquaculture is performed in the USFWS's Southeast or Midwest Regions. This interesting species is valuable; over three million tons of grass carp is consumed worldwide each year. However, the potential for grass carp to cause environmental damage is very real, and has this been documented in many cases. Often, stocking grass carp is inappropriate or damaging to the pond or lake being managed. USFWS inspections help prevent the spread of this invasive fish.



U.S. Fish & Wildlife Service

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The Great Sturgeon Migration Begins!

BY DOUG ALOISI, GENOA NFH

Lake sturgeon fingerlings reared for two months at the Genoa National Fish Hatchery (NFH) were returned to their native land of upper New York State (NY) this past month. Genoa NFH has participated in a cooperative restoration effort with the U.S. Fish and Wildlife Service New York Field Office (NYFO), and the New York Department of Environmental Conservation restoring sturgeon since 2012. Restoration efforts have been refined and the modest numbers of the first year have increased from 900 fall fingerlings returned to NY in 2012 to an estimated 20,000 scheduled for a return trip home in 2015.

The summer shipment of 10,000 four inch lake sturgeon fingerlings returned this past week was the first installment of fish to waters in the St. Lawrence River basin and Lake Ontario. Lake sturgeon are currently estimated to be at less than five percent of their historic numbers in the Great Lakes basin, and with their unique life history sturgeon populations are very slow to recover. Stocking for restoration reduces the amount of time when egg and fry predation is high, allowing for maximum juvenile recruitment. Sturgeon fry grow fast in their first year of life in order to avoid predation. In one growing season, an average lake sturgeon can approach eight to ten inches in length.

Sturgeon restoration is a long term proposition, in order to not only ensure there is enough genetic contribution in the stocked population to sustain itself, and to create many strong year classes to ensure mating success. A healthy lake sturgeon population may consist of 20 separate year classes with adults ranging from 20 to 75 years of age. Even though we are in the beginning stages of the project, it is encouraging to be able to see the fruits of another successful year class swimming back into the wild. The hatchery owes many thanks to Scott Schlueter of the Service's NYFO, for his assistance in stocking this summer's lot of lake sturgeon.



Scott Schlueter with USFWS New York Field Office, offloads fingerling lake sturgeon from a Genoa NFH stocking truck. Credit: Eric Maxwell, NYDEC



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

Conserving America's Fisheries

Connecting Kids to Nature through Fishing...for 42 Years

BY KJETIL HENDERSON AND ALLISON LENAERTS, CARTERVILLE FWCO



Fishing FUN: Nyema Atkins, (left- age 2), and Clayton Bartos, (right-age 4), "fishing" in the toddler pool at the Crab Orchard kids fishing derby. Credit: Allison Lenaerts, USFWS

The 2015 derby had 147 participants who caught and released a total of 610 fish. Prizes were awarded to children in certain age classes for biggest fish, smallest fish and most fish caught by a single angler. Age classes were: under 5, 5-6, 7-8, 9-10, and 11-12. The biggest fish of the derby (26") was caught by Ella Horn, and Andrew Sheely caught the smallest fish (2 1/2"). Dylan Taylor caught a total of 27 fish!



This lucky young angler was able to rescue a largemouth bass that jumped out to greet her at the toddler tank! Credit: Allison Lenaerts, USFWS

Carterville FWCO personnel entertained kids with a tank of live fish caught that morning. Young kids were provided fishing poles and "magnetic fish" to catch. The "cheetah print" fish (aka spotted gar), was a big hit with the kids; parents were impressed with size of a 9+ inch redear sunfish. A grilled lunch was provided for participants after the derby.



Now that's a dandy! This redear sunfish was caught during the electrofishing demonstration at the Crab Orchard event. Credit: Kjetil Henderson, USFWS

The Carterville Fish and Wildlife Conservation Office partnered with the Illinois Department of Natural Resources and Crab Orchard National Wildlife Refuge to host the 42nd annual Kids Fishing Derby at Crab Orchard National Wildlife Refuge. The June 13th event, which coincides with Illinois Free Fishing Days, annually provides community outreach, educational opportunities, and fun for young anglers.

Crab Orchard Lake is a popular Southern Illinois fishery known for bluegill, crappie, and bass fishing. The 6,965 acre Williamson County reservoir has 125 miles of shoreline. Each year, over 180,000 fishing visits are made to Crab Orchard National Wildlife Refuge. Carterville FWCO personnel started the morning off with some electrofishing, catching many fish species including largemouth bass, redear sunfish, gizzard shad, crappie, freshwater drum, brook silverside, spotted gar, and bluegill.

This event was created to give children an opportunity to get outdoors and enjoy some fishing. Angling gear was provided for children as needed.

This annual event provides a great avenue for community outreach and involvement. The kids were all smiles, and certainly enjoyed fishing success. We want to thank Crab Orchard National Wildlife Refuge and the Illinois Department of Natural Resources for making the 42nd annual Kids Fishing Derby an incredible success!



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

Conserving America's Fisheries

Whitney Genetics Lab the Evolution Continues

BY NICHOLAS BERNDT, WHITNEY GENETICS LABORATORY

From the first days of Spencer Baird and the United States Fish Commission, the science of fisheries management has evolved greatly over the years. Here at the Whitney Genetics Laboratory, we are constantly evolving as well. Genetic tools for fish management and conservation are rapidly advancing and more people are looking at ways the science of genetics fits into the fish management equation. It is an exciting challenge to be able to tackle these problems head on.

Invasions of non-native species are one of the biggest ecological threats we face today. In recognition of this, federal and state agencies have begun cracking down on illegal movement of fish and water to a degree never seen before, citing violators with ever increasing fines. This is with good reason, as the harm these invasive species inflict is high and persists for years. Tools to combat these invaders are limited for aquatic species. Unlike a terrestrial ecosystem where monitoring cameras can be set up, or an area can be swept over and examined as often and as closely as needed, aquatic organisms can be right in front of our faces, but remain out of sight under a murky veil of water undetected for years. So the question that remains is how do you peel away the veil? Traditional fish capture gear like netting and electrofishing is rather inefficient if you want to find those first pioneering individuals moving into a system. A new tool was needed. Something that could find fish "tracks" we could follow and then lead to the capture of that fish. Enter environmental DNA (eDNA) and the Whitney Genetics Laboratory.



eDNA samples are unboxed, logged in, and prepped for extraction in our receiving room. Here Mai Yang is centrifuging 50ml sample tubes, and decanting excess isopropanol on a particularly busy day. Credit: USFWS



The newly established Midwest Fisheries Center in Onalaska, Wisconsin. Credit: USFWS

So what is all the excitement over this eDNA tool? Well to put it simply it's like when a crime lab compares DNA from suspects to the crime scene. Our suspects are the invasive species we are looking for like silver and bighead carp, and the crime scene is the waterbody of interest. We are now able to lift that veil of secrecy water provides, and find genetic evidence these fish are present.

The Whitney Genetics Laboratory officially took over eDNA monitoring responsibilities from the US Army Corps of Engineers in August of 2013 following a transition plan developed by the Service and the Corps. Though this was only 3 years ago, our eDNA workflow and techniques have advanced at a pace that is quite unbelievable. Advancements like centrifugation collection of samples, development of new quantitative PCR genetic markers, and extraction efficiencies are all helping us process thousands more samples than before, and with a sensitivity that was not possible just 2 years ago.

So what's new for this sampling season? New for the 2015 sampling season is the use of centrifugation for samples instead of the filtering that has been done since 2009. One sample now consists of five 50-ml centrifuge tubes taken together at a unique location. This is opposed to the old technique of one 2-L sample put through many filters. This is an improvement over the old technique in a few ways. First and foremost, the DNA signal we pick up is just as strong or stronger than when we were filtering. Second, the time savings and logistics are much more streamlined. It is far easier to handle 50-ml tubes than a 2-L bottle in the field, and the elimination of the filtering process greatly reduces the chance for involuntary contamination from one sample to the next. The samples also can be stored on ethanol or isopropanol, eliminating the need to ship samples on dry ice within a certain timeframe. Also new are the addition of a quicker and more efficient DNA extraction kit, and the first full use



Our newly redesigned PCR room can really fly through the samples!

of our automated liquid handling robots for loading PCR plates. Previous to this year every sample had to be loaded by hand into a 96-well PCR plate. When you take 6600 eDNA samples like last year, and run each sample in octet, that adds up to over 52,800 individual plate wells that had to be loaded by hand with liquid amounts as small as 1µl! It was very precise work that needed extreme focus. The robots now handle this, and we can load several 384 well plates each day. The bottom line is that we are now able to process more samples at a quicker pace with more accuracy than last year.

Complete with 12 thermal cyclers, two Eppendorf 5075 robots, ultra-cold freezers, hand-loading PCR station, and a data analysis bench.
Credit: USFWS

The actual processing of a sample begins in our receiving room where we unpack and check in a box of samples. Once every sample is accounted for, the samples are re-spun in a centrifuge to concentrate any of the sample that may have broken up during shipping. We are looking for a nice dense pellet from our water sample. After centrifugation the sample is decanted of ethanol and set in a sterilized laminar flow hood with it's cap off to evaporate any remaining ethanol. Ethanol and isopropanol are a strong PCR inhibitors and every last drop must be evaporated in order for the DNA to amplify down the line. After the sample is dried it can now be extracted. DNA extraction is the process by which we purify all of the DNA contained in our 50-ml tube to be ready for PCR and other applications. Ideally, a sample would be taken from a crystal clear body of water free of PCR inhibitors like tannins, humic acid, among others. As you can imagine, some of the water samples we are taking come from sites known for high productivity and lots of organic material. Recent rains can make the problem worse by flushing more sediment into the system. All this other "stuff" can interfere with our downstream eDNA applications. After extraction we now have a purified DNA sample. Next is PCR (Polymerase Chain Reaction). The extract has DNA from all kinds of organisms that live in the water from where the sample was taken. To see if any of that DNA is from an invasive species like a silver or bighead carp, we must use a short chain of species-specific DNA called a primer to "look for" it's match in our extract, and then copy it many times so our instruments can detect it. The primer is required to serve as a starting point for DNA synthesis. We use a silver carp primer to look for silver carp DNA, bighead carp primer for big head carp, or even a primer that looks for both.



This year the lab is enrolled in the Right Cycle

Right now invasive carp monitoring is the bulk of our workload, and this season we are projected to process over 7000 samples. However, as we speak other aquatic invasive species are marching their way across the US hoping to get a foothold somewhere. Monitoring of invasive species is extremely important and helps us get ahead of the front. After primers are developed we can expand our search radius to include many other species. This is only the tip of the ice berg so to speak for eDNA applications. As the only dedicated genetics lab in the Region, the Whitney Genetics Laboratory will also be expanding it's applications to provide species information in the realm of conservation genetics. Conservation genetics is a broad term, but mostly deals with conserving and restoring biodiversity. There is a lot of interest in using our tools for working with threatened and endangered species. Aquatics managers are now looking into genetic considerations when it comes to matters such as stocking fish for example among many other applications. Our lab also acquired a super high throughput next generation sequencer (NGS). This will allow us to sequence genes at a speed and depth unattainable before. Our lab is also expanding by hiring new personnel. More staff means more flexibility and efficiency in the projects we take on.

program and we now recycle 100% of our nitrile gloves! So far this year we have kept almost 400 pounds of gloves out of the landfill!
Credit: USFWS

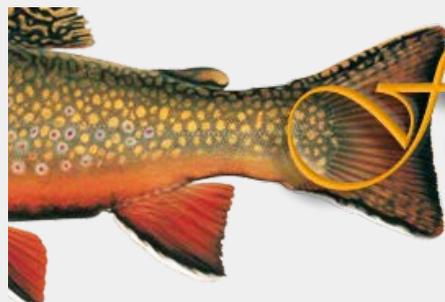
2015 is shaping up to be a great year for the lab. We will process a record number of invasive carp samples and get to explore many new ideas and projects not possible before.



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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.

Retired Broodstock Find New Home

BY BRANDON KEESLER, IRON RIVER NFH

This spring, the Iron River National Fish Hatchery (NFH) stocked 332 retired broodstock lake trout into Green Lake near Red Lake, Minnesota. The stocking was a cooperative effort with the Red Lake Band of Chippewa Indians. The Red Lake Band of Chippewa Indians wanted these fish for sport and to control the large forage population in Green Lake. The fish ranged in size of 2.5 to 7 pounds each. The Red Lake Reservation is located on 840,000 acres in northern Minnesota and is part of the 1889 Treaty.

The Iron River NFH uses brood lake trout to supply our eggs every year. The hatchery produces 1.3 million lake trout annually that go to Lake Huron and Lake Michigan. As mature lake trout grow they produce more eggs. With this increase in egg production we don't need as many adults and can release some into the wild. We work with Wisconsin, Michigan, Minnesota, along with different tribal contacts to find good homes for these fish.

Everyone Loves a Parade!

BY CAREY EDWARDS, IRON RIVER NFH

The Lion's Club Blueberry Festival, marking its 51th anniversary, is an annual event that both local residents and out of town visitors eagerly await every year. Events range from a flea market, live music, and carnival to a wide variety of good eats. The finishing touch to the two day celebration is the Blueberry Festival Parade. The mile long route is typically packed with spectators young and old; awaiting their chance to view a friend or loved one in the parade or scoop up any treats tossed their way. This year's 2015 parade found hatchery manager Nick Starzl from the Iron River National Fish Hatchery (NFH) driving the 3,000 gallon tanker truck used to assist in a portion of the distribution of over 4.4 million lake trout in the Upper Great lakes this past spring. This was a great opportunity to increase public awareness and promote the Hatchery's Open House on September 26, 2015. One thing is for sure...Everyone loves a parade!

Learning on the Fly!

BY AARON VON ESCHEN, GENOA NFH

"Thanks to our instructors and to the hatchery for the outstanding fly fishing class! That was a great day! And, it was exactly what I need to get started back into a hobby that I left 50 some years ago. I'm pretty excited!" friends group member Lloyd Lorenz stated following the fly fishing clinic that was held in concordance with the 12th annual kids fishing day on May 9th. Members of the Friends of the Upper Mississippi (FUMS) participated in the event and were taught by instructors and fly fishing aficionados from within the group. The clinic taught fly tying, which flies were best to use in different situations and locations, how to properly land fish with fly fishing equipment, and most importantly how to properly cast a fly fishing rod. Each member was given a tutorial and overview and allowed to practice their newly found knowledge on the Genoa National Fish Hatchery's trout pond. Rainbow trout were available for catch and release and each member had success and caught and released multiple fish. The staff at the Genoa National Fish Hatchery (NFH) is thrilled to be a part of such events and take pride in assisting people continue their passion for the outdoors and reestablish their kinship for the sport of fishing and the outdoors!



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