U.S. Fish and Wildlife Service - Midwest Region

Fisheries & Aquatic Resources Program

Fish Lines

Lake Ontario
Bloater Reintroduction Efforts

Help with Thunder Bay
Reef Habitat Restoration Project

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Fish Lines

Fisheries & Aquatic Resources Program - Midwest Region

The Mission of the U.S. Fish & Wildlife Service: working with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.

The vision of the Service's Fisheries Program is working with partners to restore and maintain fish and other aquatic resources at self-sustaining levels and to support Federal mitigation programs for the benefit of the American public. Implementing this vision will help the Fisheries Program do more for aquatic resources and the people who value and depend on them through enhanced partnerships, scientific integrity, and a balanced approach to conservation.

Features

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The weather was cool but the fishing was hot for the first annual "Rainbows for Veterans Fishing Derby" at the Neosho National Fish Hatchery.

To view other issues of "Fish Lines," visit our website at:
http://www.fws.gov/midwest/Fisheries/library/fishlines.htm

Fish Lines
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A youngster enjoys fishing at Genoa National Fish Hatchery's fishing derby.

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Lake Ontario Bloater Reintroduction Efforts

BY DALE HANSON, GREEN BAY FWCO

The US Fish & Wildlife Service Region 3 fisheries program now serves a key role in Lake Ontario's deep-water cisco restoration efforts! For the last three years the Green Bay FWCO, Jordan River NFH, and La Crosse FHC have been instrumental in providing fertilized eggs from wild-caught bloater, a native species of deep-water cisco, to be used in ongoing restoration efforts led by the New York State Department of Environmental Conservation (NY DEC), Ontario Ministry of Natural Resources (OMNR), and Great Lakes Fishery Commission. The restoration strategy depends on the Service's "egg-take" surveys during the winter spawning season as a source of fertilized eggs. These eggs are then reared in a hatchery for several months and most will be stocked into Lake Ontario as juveniles while up to a few thousand may be reared to maturity to develop a genetically diverse hatchery broodstock. Bloaters, and more generally ciscoes, have an important ecological role and their restoration is quickly gaining traction throughout the Great Lakes.

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As pictured, this Lake Michigan deep-water cisco inhabits depths > 40m. When caught in a gillnet, the fish's swim bladder expands as it is lifted to the surface, lending to the common name "bloater" for this species of cisco.

Great Lakes prey fish populations were historically comprised of a diverse community of native ciscoes. Since the 1950's non-native alewives have become the dominant preyfish, or planktivore, in Lakes Michigan, Huron, and Ontario, and in fact deep-water cisco were extirpated from Lake Ontario. More recently, invasive quagga mussels have spread throughout the Great Lakes and, as efficient filter feeders, they have drastically reduced food availability in pelagic or open waters. Great Lakes alewife populations have plummeted in response to lower pelagic productivity and lake managers are now very concerned with high volatility in predator-prey relationships. Reestablishing a diverse prey fish community, one that may be more adaptable to oligotrophic conditions, is quickly becoming a top priority in the Great Lakes to reduce the potential threat of collapse among top trout and salmon predators.

Lake Ontario has recently developed a Strategic Plan for the Reestablishment of Native Deep-water Ciscoes. The strategic plan calls for annual stocking of 500,000 deep-water cisco juveniles into Lake Ontario by 2015, in hopes they will inhabit deep-water areas of the lake (bottom depths greater than 45 meters). Is this a Mission

-USFWS

The *Jolene*, and other similar boats were used in "egg-take" surveys in Lake Michigan for the bloater donor source to be used for reintroduction of bloaters in Lake Ontario.

Impossible? A reintroduction program of this magnitude requires a suitable "donor" source population and the best fit is Lake Michigan, which supports populations of bloaters which are genetically similar to Lake Ontario's existing shallow-water cisco population. But how do you collect large numbers of viable eggs from a fish which spawns in 300' water in the middle of the winter?

Service staff including Roger Gordon and Paul Haver (Jordan River NFH), Ted Eggebraaten, Ted Treska, and Dale Hanson (Green Bay FWCO) accompanied commercial fishers on nine separate occasions (January 21st – February 24th, 2012) for these "egg-take" surveys. Each trip involved the commercial tugboats breaking through several inches of ice at the dock and venturing 10 to 15 miles off the northern Door Peninsula of Lake Michigan where commercial gillnets were set to catch spawning bloater. Once bloaters were removed from the nets, eggs were removed from the ripe females and placed in a container where they were fertilized with milt from males. Fertilized eggs were then disinfected with an iodine solution to minimize the transfer of viral and bacterial disease, and stored at temperatures near 4 degrees Celsius until they were delivered to the OMNR White Lake Fish Culture Station for rearing.

Genetic samples from each parent were collected and their subsequent progeny will also be analyzed to assess the origin of future Lake Ontario caught bloater and to ensure sufficient genetic diversity is retained within the juveniles retained for hatchery broodstock purposes. Additionally, bloater were sent to the La Crosse Fish Health Center for disease screening as these Lake Michigan origin fish can not be stocked in Lake Ontario waters without a clean bill of health, i.e. not a vector of new disease into Lake Ontario. Finally, fertilized bloater eggs were also sent to the U.S. Geological Survey Tunison Lab for rearing experiments aimed at increasing bloater survival within hatchery environments; low juvenile survival has limited the success of restoration efforts in previous years.

-USFWS

Roger Gordon of the Jordan River National Fish Hatchery spawns a ripe female bloater chub. Milt from male fish will be added to the eggs to complete egg fertilization.

The Service's 2012 contribution to Lake Ontario bloater restoration was a huge success! While it is still too early to know how many bloater juveniles will be stocked out in Lake Ontario later this year, preliminary results look promising with the Service providing the restoration effort more than 300,000 fertilized eggs. The Strategic Plan objective of annually stocking 500,000 juvenile bloater now appears achievable by 2015. These are exciting times as state, provincial and federal agencies all work together to rehabilitate native cisco populations for the health of the Great Lakes.

For further info about the Green Bay FWCO: http://www.fws.gov/midwest/Fisheries/library/StationFactSheets/greenbay.pdf

Help with Thunder Bay Reef Habitat Restoration Project

BY ADAM KOWALSKI, ALPENA FWCO

Alpena Fish and Wildlife Conservation Office (FWCO) is assisting with a reef restoration project in Thunder Bay, which is in Lake Huron on the eastern shore of Alpena, Michigan. Over the years, cement kiln dust has leached into Lake Huron, degrading a near shore reef. This leaching caused a loss of spawning and rearing habitat for lake trout, lake whitefish and other reef spawning fishes. In 2002, the cement kiln dust pile was capped and a retaining wall was constructed to prevent further leaching. Pre-construction monitoring of egg and fry survival on existing spawning habitat was completed in 2009.

-USFWS/JosephGerbyshak

The Alpena Fish and Wildlife Conservation Office and Michigan Department of Natural Resources prepare egg traps for deployment, to collect eggs on newly constructed and existing spawning reefs in Thunder Bay, Lake Huron.

The goal of this project is to mitigate degraded spawning habitat by using limestone cobble (donated by Lafarge North America) to build several new spawning reefs, creating approximately two acres of new spawning habitat to increase reproduction of reef-spawning fishes in Thunder Bay. Although the project is focused on lake trout, other reef-associated fishes (e.g., lake whitefish, walleye, smallmouth bass) should also benefit.

Twenty four new reefs were constructed from limestone cobble in the summer of 2011. During the fall of 2011, Alpena FWCO assisted the Michigan Department of Natural Resources (DNR) with collecting eggs on the newly constructed and existing reefs using egg traps provided by the University of Vermont. Alpena FWCO also provided assistance by electrofishing on the newly constructed and existing reefs, looking for adult lake trout. Electrofishing was only successful for adult lake trout on the existing reefs. During the spring of 2012, Alpena FWCO assisted in deploying 120 fry traps. Traps will be checked and plankton tows completed weekly by the Michigan DNR and Alpena FWCO. All fry will be collected at both new and old reef locations and identified.

The potential outcomes for this project are to improve habitat and reproduction of lake trout and move toward rehabilitation of self-sustaining lake trout populations. This project should also enhance spawning habitat for walleye, lake whitefish, smallmouth bass and other native benthic species. Increased fishing opportunities for all user groups and increased tourism should also be a benefit of this project.

For further info about the Alpena FWCO: http://www.fws.gov/midwest/alpena/index.htm

Partnerships are essential for effective fisheries conservation. Many agencies, organizations, and private individuals are involved in fisheries conservation and management, but no one can do it alone. Together, these stakeholders combine efforts and expertise to tackle challenges facing fisheries conservation. The success of these partnerships will depend on strong, two-way communications and accountability.

Fabulous Friends Group

BY JANICE EATON, NEOSHO NFH

The *Friends of the Neosho National Fish Hatchery* members never tire or lack for creativity and generosity. This amazing support group has been particularly busy and productive during 2012. Along with the "Rainbows for Veterans Fishing Derby", one of the group's many projects was hosting the largest Neosho Chamber of Commerce "First Friday Coffee" here at the hatchery in February. Seventy or so chamber members enjoyed the new visitors center and an array of breakfast treats prepared by volunteers.

-USFWS

***Friends of the Neosho National Fish Hatchery* President Russell Hively discusses Friends projects at the Neosho National Fish Hatchery.**

Our gift shop/book store is open six days a week and is operated solely by our Friends group, under the management of volunteer Betty Wright. Other volunteers run the shop on a daily rotation. Our varied arts and crafts items from local artists and our wonderful selection of conservation and nature books have been a big hit with the public. All proceeds help to fund our fishing derbies and outreach projects through our support group.

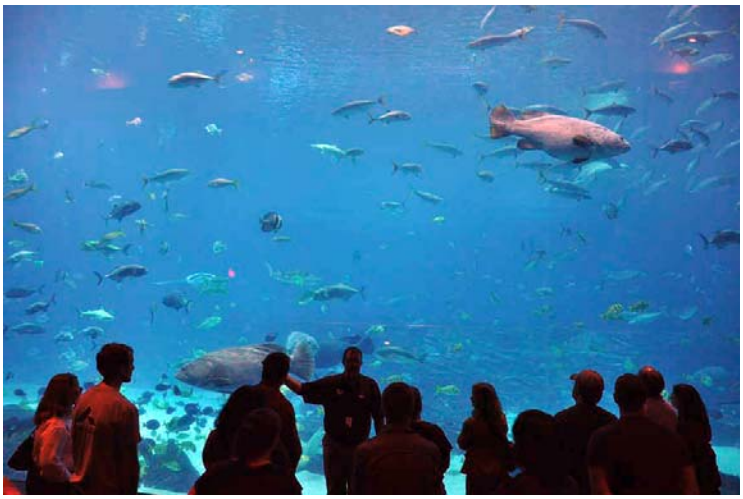
For further info about the Neosho NFH: http://www.fws.gov/midwest/neosho/

Biologists Attend Annual Fish Health Meeting

BY SARAH LEIS, LA CROSSE FHC

The week of March 12th, Ken Phillips, Eric Leis and Sarah Leis of the La Crosse Fish Health Center (FHC) attended the annual fish health biologist meeting in Pine Mountain, Georgia. The meeting was designed for fish health biologists from the nine Fish and Wildlife Service fish health centers to get together and exchange ideas and current research. The meeting lasted two days and a third day was devoted to team building.

On the first day of the meeting, National Fish Health Coordinator Joel Bader attended. There was dialogue between Joel, fish health project leaders and biologists about fish health policies, Title 50, the National Aquatic Animal Health Plan and the National Aquatic Animal Health Pathogen Testing Network. The following day, the discussions focused on the wild fish health survey database, ring-testing and viral sensitivity between different fish health centers, current scientific research at several fish health centers, and a tour of the Warm Springs Fish Technology Center. The meeting provided excellent opportunities for veteran and new biologists to get together and discuss ideas and concepts.



-USFWS/SarahLeis

Fish health biologists marvel at the 6.3 million gallon exhibit at the Georgia Aquarium.

For further info about the La Crosse FHC: http://www.fws.gov/midwest/LaCrosseFishHealthCenter/

Fish Nets in the River!

BY ANGELA BARAN, GENOA NFH

The 2012 walleye spawning season sprang upon the staff at Genoa National Fish Hatchery (NFH) a full two weeks early this year! Dan Kumlin and Jeff Lockington set 50 hoop nets on March 21st and hatchery staff started collecting fish on March 22nd. The warm weather and lack of snow melt tricked the walleye into spawning sooner than usual, but is creating a staggered spawning season.

Without the spring snow melt flows, the river has very low current and the fish are not forced towards shore for spawning. The local fishermen out on the river are reporting catching fish all over the channel and especially in the deeper parts of the river, making it a challenge for us to capture the fish! For the month of March, 181 fish have been spawned and over 11 million eggs collected, starting the season off well. We are hoping this trend will continue, allowing us to fill our requests for over 15 million eyed eggs. These eggs will be sent to various state and tribal partners, with a portion remaining to be stocked in our ponds to fulfill our fish requests and to become mussel hosts.

In addition to the walleye spawning, Genoa NFH assists the La Crosse Fish Health Center with collection of various species of fish for the Wild Fish Health Survey. This survey is conducted every year to monitor wild populations of fish for new and emerging fish health concerns.

The Fisheries Program maintains and implements a comprehensive set of tools and activities to conserve and manage self-sustaining populations of native fish and other aquatic resources. These tools and activities are linked to management and recovery plans that help achieve restoration and recovery goals, provide recreational benefits, and address Federal trust responsibilities. Sound science, effective partnerships, and careful planning and evaluation are integral to conservation and management efforts.

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Staff from the Genoa National Fish Hatchery pull to shore to spawn and quickly release Mississippi River walleyes.

For further info about the Genoa NFH: http://www.fws.gov/midwest/genoa/

Great Lakes Mass Marking: 2012 Season Begins

BY JAMES WEBSTER, GREEN BAY FWCO

The Great Lakes mass marking team began the 2012 tagging and marking season at two state fish hatcheries in Illinois and Indiana that rear Chinook salmon for release into Lake Michigan.

The mass marking team utilizes the AutoFish™ tagging and marking system to tag and fin clip all hatchery reared Chinook salmon released into Lakes Michigan and Huron. The AutoFish™ system is a self-contained mobile fish marking and tagging system that has the ability to apply coded-wire tags and adipose fin clips to trout and salmon at high speeds with minimal handling stresses. The tagging trailer fleet of the Great Lakes Mass Marking Program, headquartered at the Green Bay Fish and Wildlife Conservation Office (FWCO), consists of four AutoFish™ trailers and one manual trailer.

The tagging season began on March 6th at the Illinois Department of Natural Resources (DNR) Jake Wolf hatchery near Pekin. By March 10th, 270,541 Chinook salmon were tagged and clipped at an average throughput of 7,789 fish/hour. Upon completion of the Jake Wolf project, the trailer was disinfected and then moved to the Indiana DNR Mixsawbah hatchery. At Mixsawbah 227,314 fish were tagged and clipped at an average throughput of 8,452 fish/hour during March 12th -14th.

-GreatLakesMass-MarkingTeam

An AutoFish fish marking/tagging trailer is set up at Illinois Department of Natural Resource's Jake Wolf Memorial Fish Hatchery.

At the end of the spring tagging season, about four million hatchery reared Chinook salmon from eight hatcheries in four states will be tagged and clipped. An additional 375,000 Chinook destined for Lake Superior will receive an adipose fin clip only. This will be the second year that all Chinook salmon stocked into Lakes Michigan and Huron are tagged in this manner. This tagging effort, when coupled with an expanded tag recovery effort, will benefit the management of this valuable fishery in the years to come.

For further info about the Green Bay FWCO: http://www.fws.gov/midwest/Fisheries/library/StationFactSheets/greenbay.pdf

Annual Spring Health Inspections

BY SARAH LEIS, LA CROSSE FHC

Every spring, staff from the La Crosse Fish Health Center (FHC) travel to the six National Fish Hatcheries (NFH) in Region 3. This past February and March, La Crosse FHC staff members traveled to Iron River NFH, Jordan River NFH, Genoa NFH, Pendills Creek NFH and Sullivan Creek NFH for their annual spring inspections. The inspections occur twice a year, once in the spring and once again in the fall. These inspections are an important component of hatchery production and management programs that ensure the fish are free of disease pathogens prior to transportation and stocking into the wild.

At each hatchery, all species and year classes of fish were examined for certifiable pathogens. These pathogens are: *Yersinia ruckeri*, *Edwardsii ictaluri*, *Renibacterium salmoninarum*, *Aeromonas salmonicida*, Infectious Pancreatic Necrosis Virus (IPNV), Infectious Hematopoietic Necrosis Virus (IHNV), Viral Hemorrhagic Septicemia Virus (VHSV), Spring Viremia of Carp Virus (SVCV), Largemouth Bass Virus (LMBV) and *Myxobolus cerebralis*. These bacterial, viral and parasitic pathogens are a concern to fish health biologists and hatchery managers due to their economic and environmental impacts, as well as their ability to cause high mortality events in hatchery settings.

For further info about the La Crosse FHC: http://www.fws.gov/midwest/LaCrosseFishHealthCenter/

Love is in the Water at Genoa NFH

BY JENNIFER BAILEY, GENOA NFH

Genoa National Fish Hatchery's (NFH) staff and volunteers prepared for spring by harvesting captive brood fish from overwintering ponds and stocking them into spring brooding ponds to spawn. Six species (largemouth bass, smallmouth bass, yellow perch, black crappie, bluegill and channel catfish) were paired up and stocked into brooding ponds to meet station production goals.

Largemouth and smallmouth bass along with channel catfish are an integral part of the station's efforts to produce freshwater mussels for recovery and restoration programs in the upper Mississippi watershed. They act as hosts for larval freshwater mussels during the larval stage of the mussel life cycle. Bass and catfish as well as crappie, bluegill and perch also help in providing sport and recreational fishing opportuities for American families at U.S. Army installations, National Wildlife Refuges, and in other state and other federal waters. These species are also important in providing fishing opportunities at Tomah Veteran's Hospital, Camp Decorah Boy Scout Pond, and in Native American waters. Several species are also provided to universities, the U. S. Geological Survey, and other research entities each year.

Managing nine separate brood stocks to produce quality fingerlings for many different programs is no easy undertaking. Fish must receive the best food, care and handling throughout their life cycle to ensure the best quality eggs, fry and fingerlings. Wild fish are captured from disease-free waters every five years to supplement existing brood stocks and introduce new genetics to stocks. After many years of hard work as a brood fish, fish must be retired from the stock. This year, largemouth and smallmouth bass were retired to the Tomah Veteran's Hospital Pond to provide great fishing experiences for veterans and their families.

For further info about the Genoa NFH: http://www.fws.gov/midwest/genoa/

Carterville FWCO Films Asian Carp Identification Video

BY JENNIFER L. JOHNSON, CARTERVILLE FWCO

It's no big secret that Asian carps (i.e. silver, big head, black, and grass) are an issue throughout much of the Mississippi River watershed, and the Carterville Fish and Wildlife Conservation Office (FWCO) has been working to stop these invasive species. But did you know that some people are still transporting these fishes across state and country lines? Under the Lacey Act it is illegal to import, export, or transport live species which are deemed to be injurious. Asian carps (except grass carp), like many other invasive species, fall into this injurious category.

In March, the Carterville FWCO assisted the External Affairs office in shooting an Asian carp identification video in hopes of preventing future illegal transportation. The idea is that law enforcement officers and wildlife inspectors will use this video as a training tool to learn how to distinguish the different types of Asian carps from other fish.

Carterville FWCO crew members collected the various Asian carp species, via electrofishing, around the confluence of the Kaskaskia and Mississippi Rivers. Then Katie Steiger-Meister with External Affairs filmed and photographed each species while Carterville assistant project leader Sam Finney and biologist Jeff Stewart pointed out each carp's identifying characteristics. They also explained some ways to identify a live fish from a dead fish and how these fish can survive so long on ice. If individuals can properly identify Asian carps and whether or not the fish are alive, the spread of these invasive species could be minimized.

Aquatic Invasive Species

Aquatic invasive species are one of the most significant threats to fish and wildlife and their habitats. Local and regional economies are severely affected with control costs exceeding $123 billion annually. The Fisheries Program has focused its efforts on preventing introductions of new aquatic invasive species, detecting and monitoring new and established invasives, controlling established invasives, providing coordination and technical assistance to organizations that respond to invasive species problems, and developing comprehensive, integrated plans to fight aquatic invasive species.

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Carterville Fish and Wildlife Conservatin Office biologist Jeff Stewart points out identifying characteristics of silver and bighead carp, while Katie Steiger-Meister of External Affairs films for an Asian carp identification video.

For further info about the Carterville FWCO: http://www.fws.gov/midwest/Fisheries/library/StationFactSheets/carterville.pdf

Supporting Scientific Curriculums at Wilson Elementary School

BY JOSEPH GERBYSHAK, ALPENA FWCO

As part of the Connecting People with Nature (CPWN) initiative, staff from the Alpena Fish and Wildlife Conservation Office (FWCO) has been educating students at Wilson Elementary School about environmental topics that meet their current science curriculum. For the past four years, we have provided hands-on learning, both in the classroom and during outdoor field trips, for the same cohort of students that are now in fifth grade. The involvement of the Alpena FWCO at Wilson Elementary School provides a change of pace for the students and unique insight from conservation professionals.

On March 28th, biologist Joseph Gerbyshak went into the classroom and taught two classes about the life history of the peppered moth. Gerbyshak taught a hands-on activity that mimicked the coloration change of this type of moth during the Industrial Revolution. This interactive activity simulated natural selection. Students quickly grasped the concept of how environmental change can drive natural selection for a certain color phase. Students enjoyed the activity while learning about the fundamental principles behind natural selection. Educational sessions like this help connect children with the natural world by providing supportive hand-on scientific activities.

As the population in the United States continues to grow, the potential for adverse impacts on aquatic resources, including habitat will increase. At the same time, demands for responsible, quality recreational fishing experiences will also increase. The Service has a long tradition of providing opportunities for public enjoyment of aquatic resources through recreational fishing, habitat restoration, and education programs and through mitigating impacts of Federal water projects. The Service also recognizes that some aquatic habitats have been irreversibly altered by human activity (i.e. - dam building). To compensate for these significant changes in habitat and lost fishing opportunities, managers often introduce non-native species when native species can no longer survive in the altered habitat.

For further info about the Alpena FWCO: http://www.fws.gov/midwest/alpena/index.htm

Rainbows for Veterans Day Fishing Derby at Neosho NFH

BY JANICE EATON, NEOSHO NFH

Approximately 300 veterans and active military personnel caught their trout limits during the "Rainbows for Veterans Fishing Derby" on March 3rd. There were an estimated 1,000 attendees. The event was sponsored by the Sugar Creek Gobblers of McDonald County (a chapter of the National Wild Turkey Federation), Missouri Department of Conservation and our wonderful support group *Friends of the Neosho National Fish Hatchery*. It was a grand day with lots of smiles, grilled hamburgers and hotdogs, music provided by the military jazz band of Fort Leonard Wood, the National Anthem sung by American Idol winner Ashley McCready, and many dignitaries including State Representative Bill Reiboldt and our own Assistant Director for Fisheries and Habitat Conservation, Bryan Arroyo. Many exhibitors were on hand including the Columbia Fish and Wildlife Conservation Office. Volunteers even cleaned, bagged and iced the fish for veterans to take home. We appreciate the service of all the men and women of our armed forces. Plans are underway to make next year's event even bigger and better.

-USFWS

Veterans and active military attend opening ceremonies at Neosho National Fish Hatchery's "Rainbows for Veterans Fishing Derby."

For further info about the Neosho NFH: http://www.fws.gov/midwest/neosho/

Trout Unlimited EXPO

BY CAREY EDWARDS, IRON RIVER NFH

On March 24, biologist Nikolas Grueneis of the Iron River National Fish Hatchery (NFH) attended the Trout Unlimited Fishing Expo in Ashland, Wisconsin. This is the tenth year in a row that the hatchery has participated in the annual event. The Wild Rivers Chapter of Trout Unlimited holds this yearly event to raise awareness about local and national fisheries and environmental issues. The auction raises funds to support projects such as stream habitat restoration and environmental education programs.

-USFWS

A girl is captivated by the live coaster brook trout in an aquarium at the "Trout Unlimited Expo", which was held in Ashland, Wisconsin.

This year's auction was held at the Northern Great Lakes Visitor Center. The Iron River NFH along with other state, federal, non-profit, and private agencies and groups provide information, entertainment, and educational materials to all attendees. The hatchery set up a booth with information about the federal hatchery system, national fisheries issues, stocking information, and employment opportunities with the Fish and Wildlife Service.

The biggest draw to the booth every year is the live fish display. An aquarium was set up with live adult coaster brook trout. The beautiful coloration of the lively fish always draws a crowd. The Wild Rivers Chapter has been a valuable partner to the Iron River NFH for many years. They have assisted us with fly tying demonstrations and fly casting lessons during our annual open house event as well as provided volunteers during our lake trout and brook trout spawning season.

For further info about the Iron River NFH: http://www.fws.gov/midwest/ironriver/

Middle School Kids enjoy Earth Day on the Kaskaskia and Mississippi Rivers

BY JOHN WEST, CARTERVILLE FWCO

On two beautiful early spring days, the Middle Mississippi River National Wildlife Refuge, U.S. Army Corp of Engineers, and the Carterville Fish and Wildlife Conservation Office (FWCO) teamed up to educate over 150 Murphysboro, Illinois, Middle School 7th graders at the Kaskaskia Lock and Dam area for their Earth Day celebration. The students were educated on the importance of large river and bottomland ecosystems. This was accomplished with the use of four stations that the students rotated between throughout the day. The four stations illustrated the importance and function of the Kaskaskia River Lock and Dam, gave the students a boat ride on the river, a nature trail hike through a bottomland forest, and a hands on demonstration on fisheries techniques and the various fish species captured from the river that day.

First, students had the opportunity to have a behind-the-scenes tour of the Kaskaskia River Lock and Dam. They were taught river hydrology con-

-USFWS

Middle School students observe the Fish and Wildlife Service Fisheries crew's electrofishing demonstration on the Kaskaskia River.

cepts, the functions of the dam lock controls, and also explained the navigation and flood control purposes of the Dam. Next, the river ride was taken on boats to the confluence of the Kaskaskia and Mississippi rivers. Carterville FWCO biologist Sam Finney and other instructors explained the importance of rivers and their function while giving the kids an opportunity to be out on the river on what turned out to be two beautiful days. After that, a hike through the bottomland forest of the Kaskaskia provided fun for the children as well. Here, they had the opportunity to identify trees and observe the unique wildlife that lives in river bottom ecosystems.

Finally, the fisheries group was taught about river fish ecosystems, invasive species, and techniques that biologists use in the field. Carterville biologists and technicians Jeff Stewart, John West and Jenny Johnson showed a variety of fish to the kids such as gar, catfish, suckers, shad, sunfish, drum as well as invasive species such as silver carp, bighead carp and grass carp. The fisheries instructors stressed the impact of invasive species on an ecosystem. The kids were given the opportunity to touch the fish and ask questions. Nets and electrofishing gear were demonstrated and safety issues were emphasized. The children watched from shore as the fisheries crew shocked jumping silver carp which was a huge hit!

Both days were a huge success especially with the warm March temperatures. Most importantly, the 7th graders really enjoyed themselves and learned a lot about the natural world around them. They were all very well behaved and asked really good questions. The level of river experience among the kids ranged from perhaps future biologists to kids who had never been on a boat. A quote from one 7th grade student, while riding on a boat for the first time in his life, sums up both days: "Man! I feel like a million bucks!"

For further info about the Carterville FWCO: http://www.fws.gov/midwest/Fisheries/library/StationFactSheets/carterville.pdf

Green Bay FWCO Assists UW-Green Bay Aquatic Ecology Class

BY STEWART COGSWELL, GREEN BAY FWCO

The Green Bay Fish and Wildlife Conservation Office (FWCO) assisted an aquatic ecology class from UW-Green Bay with a field trip and mentoring program. The field trip was designed to provide an overview of electrofishing equipment and how it is used as a management tool. Time was spent discussing the various electrofishing gear types and safety precautions at the Green Bay FWCO. The class then traveled to a local lake to assist with an electroshocking demonstration with an 18 foot long boom shocker boat.

The mentoring program involved having a student assist with a restoration/monitoring project and providing hands-on involvement. Habitat biologists provided an opportunity to learn about fish passage at the Meqon-Thiensville Dam on the Milwaukee River and to assist with a Fish Cam monitoring system. The students then had to write a paper and present their findings at a symposium on the UW-Green Bay campus.

For further info about the Green Bay FWCO: http://www.fws.gov/midwest/Fisheries/library/StationFactSheets/greenbay.pdf

Iron River NFH Lends a Helping Hand

BY CAREY EDWARDS, IRON RIVER NFH

The Eastern Band of Cherokee Indians operates a fish hatchery in Cherokee, North Carolina. Two years ago, the facility experienced a major flooding event and lost several thousand fish due to a clogged water intake, effectively shutting the water off to their hatchery. Program Manager Robert Blankenship contacted Iron River National Fish Hatchery (NFH) with the hopes of obtaining any surplus coaster brook trout eggs to supplement his losses. Iron River NFH was able to supply the Eastern Band of Cherokee Indians with 35,490 coaster brook trout eggs.

-USFWS

Biologist Nick Grueneis of the Iron River National Fish Hatchery packages brook trout eggs for shipment to the Eastern Band of Cherokee Indians, who operate a fish hatchery in Cherokee, North Carolina.

Conserving this Nation's fish and other aquatic resources cannot be successful without the partnership of Tribes; they manage or influence some of the most important aquatic habitats both on and off reservations. In addition, the Federal government and the Service have distinct and unique obligations toward Tribes based on trust responsibility, treaty provisions, and statutory mandates. The Fisheries Program plays an important role in providing help and support to Tribes as they exercise their sovereignty in the management of their fish and wildlife resources on more than 55 million acres of Federal Indian trust land and in treaty reserved areas.

Since then, the Tribe has requested all of the brook trout eggs that would normally be surplus. This year's excess coaster brook trout egg production was over 398,000 eggs. Generally, these eggs would be destroyed after all existing requests are met, but with the request coming from the Cherokee Tribe, all of the hatchery's brook trout eggs will be utilized.

Once the eggs were sufficiently developed (eyed-up), they could be disinfected and packaged for shipping. Eggs were counted by volumetric displacement, disinfected in an iodine bath and wrapped in moist cloth. Special coolers were used to ship eggs overnight from Iron River, Wisconsin, to Cherokee, North Carolina. The eggs arrived in great condition and the Tribe was very appreciative of the support that the Iron River NFH provided.

The Iron River NFH maintains approximately 6,000 adult lake trout and coaster brook trout. These fish are spawned each fall and eggs are collected for restoration programs in the Upper Great Lakes. Eggs are shipped annually to other entities, including federal, state and tribal agencies, throughout the Midwest Region.

For further info about the Iron River NFH: http://www.fws.gov/midwest/ironriver/

Zebra Mussel Control Research Marches On

BY NATHAN ECKERT, GENOA NFH

Science and technology form the foundation of successful fish and aquatic resource conservation and are used to structure and implement monitoring and evaluation programs that are critical to determine the success of management actions. The Service is committed to following established principles of sound science.

For over a year now, Genoa National Fish Hatchery (NFH) has been providing fish and freshwater mussels for a research project at the U.S. Geological Survey lab in La Crosse, Wisconsin. A bacteria, *Pseudomonas flourescens*, has been found to be an effective agent to kill invasive zebra mussels. Current research aims to determine if the application of this bacteria has a negative effect on native fish and mussels. Several species of fish and mussels will be exposed to the bacteria at levels at and above normal treatment rates. If it can be shown that the compound does not have a negative effect on the natural environment, we may gain another tool in the fight against zebra mussels.

Our largest obligation for the project is to provide several species of freshwater mussels at various life stages. We agreed to provide glochidia (mussel larvae), newly metamorphosed juveniles and sub-adult (about one inch) mussels of seven different species. Target species for the project include the fatmucket, plain pocketbook, black sandshell, hickorynut, Higgins' eye, mucket and washboard.

To date, we've been able to provide glochidia from each target species and our shipment of fatmucket juveniles this month means we've only got two species left before we've provided all seven of those as well.

Last summer we placed mussel cages out hoping to produce enough sub-adult mussels to cover project needs. Our initial cage counts tell us that two of the species (fatmucket and hickorynut) are in the bag, with cages placed for two others. Plans for this spring include stocking mussel cages with the remaining species on our list. With over another year remaining on the project, we are in good shape to meet all of the project requirements.

-USFWS

Research on these juvenile mussels aims to determine if the application of a bacteria called "Pseudomonas flourescens" has a negative effect on native mussels. This bacteria is an effective agent to kill invasive zebra mussels.

For further info about the Genoa NFH: http://www.fws.gov/midwest/genoa/

Confusion (Among Sturgeon) Continues in the Big Muddy

BY ANNA CLARK, HEATHER CALKINS AND HILARY MEYER;
COLUMBIA FWCO

In March, the Columbia Fish and Wildlife Conservation Office (FWCO) continued to assist on a multi-office project occurring on the Missouri River. Researchers from the U.S. Geological Survey Columbia Environmental Research Center (CERC), biologists from the Columbia and Nebraska Ecological Services Field Offices and field crews from Columbia FWCO are working together to investigate occurrences of intersex (male and female reproductive tissues) in shovelnose sturgeon from the Missouri River.

-USFWS/HeatherCalkins

Jennifer Gorman (Fish and Wildlife Service), Mandy Annis (Columbia Environmental Research Center) and Hilary Meyer (Fish and Wildlife Service) examine the intersex gonads of a shovelnose sturgeon.

Dr. Diana Papoulias of the CERC has been working to find the cause of intersex in sturgeon for over 10 years. This current two-year study focuses on what effect hormonally active agents (HAAs - endocrine disruptors that interfere with important hormonal processes) and thermal influences may have on the incidence of reproductive abnormalities within the native shovelnose sturgeon populations in the Missouri River.

Shovelnose sturgeon are often used as surrogates for the endangered pallid sturgeon because of overlapping ranges, similar morphologic features and similar life histories. Fish collection sites were selected in proximity to facilities and outfalls that may contribute HAAs or have thermal effects on the system (waste water treatment plant effluent, wastewater treatment wetland, combined sewer system outfalls and facilities that discharge "cooling waters"). Some HAAs can accumulate in river and lake sediments, where bottom feeding fish (i.e. shovelnose and pallid sturgeon) may consume them directly or indirectly.

Columbia FWCO field crews collected shovelnose sturgeon and biological technicians Heather Calkins, Anna Clark, Hilary Meyer, Jordan Fox, Lloyd Dugan and Jennifer Gorman performed necropsies. Both male and female shovelnose sturgeon from three different sites across Missouri were processed. Performing each necropsy required detailed precision and a steady hand. Blood was drawn from each fish and processed, then placed on ice to be examined later. Researchers at the CERC lab will examine the plasma (the clear fluid portion of the blood) from blood samples for traces of hormones. Each sturgeon was then externally and internally examined for abnormalities and sex determination. Tissue samples were taken from the reproductive organs and liver for later cellular and molecular examination. When an intersex fish was found, the brain tissue was snap frozen. During each step, photographs were taken to record abnormalities and confirm visual examination. To date, two intersex shovelnose sturgeon have been found during visual dissections.

We appreciate and enjoy the opportunity to collaborate within and among agencies for the good of natural resources.

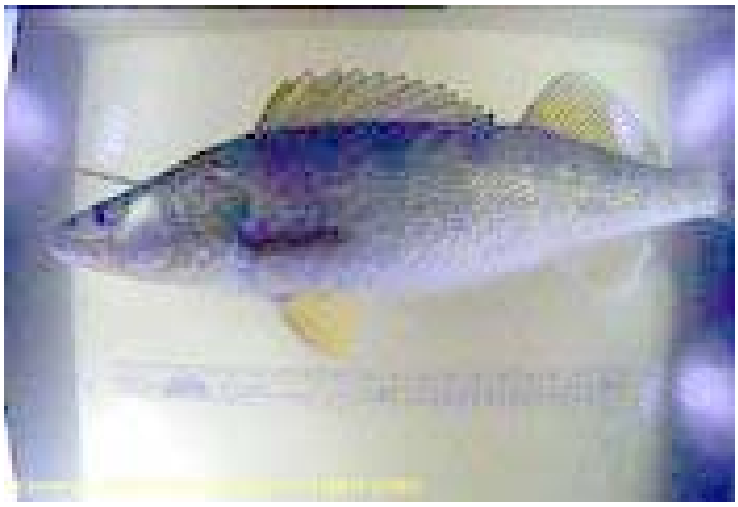
For further info about the Columbia FWCO: http://www.fws.gov/midwest/columbiafisheries/

Loss and alteration of aquatic habitats are principal factors in the decline of native fish and other aquatic resources and the loss of biodiversity. Seventy percent of the Nation's rivers have altered flows, and 50 percent of waterways fail to meet minimum biological criteria.

Improved Fish Cam begins 2012 Season

BY STEWART COGSWELL, GREEN BAY FWCO

The early spring caused the Fish Cam crew to scramble to get the system in place in order to capture early fish migrations. The Fish Cam went in on March 7th, at the Mequon-Thiensville Fishway and will be in place until ice up this winter. The system was modified over the winter and now has many upgrades including: a permanent sealed camera box, gate modification, camera box filling/venting system, light attachment tabs, fish chute modifications, and camera box handles. These improvements will allow installation and maintenance to be performed in a more efficient manner. Preliminary data from last fall's trial run showed over 100 salmon passing through the Fish Cam from September 27th 2011 through October 2nd 2011. Informal counts from this spring show several hundred steelhead, and well as many other fish species and several mammals passing through the Fish Cam. A dedicated Fish Cam website with a live 24/7 picture will be completed in the next several weeks. Stay tuned!



-Luke Roffler

A walleye passes through the Mequon-Thiensville Fishway on the Milwaukee River during the early morning hours on March 8th, 2012.

For further info about the Green Bay FWCO: http://www.fws.gov/midwest/Fisheries/library/StationFactSheets/greenbay.pdf

Ohio River Basin Alliance Talks Everything from Watershed Groups to Ingram Barge Company

BY ROB SIMMONDS, CARTERVILLE FWCO

The Ohio River Basin Alliance strives to bring together a diverse mix of interests and expertise to foster cooperation and collaboration on water-related issues in the basin. Judging by the attendees at the spring 2012 meeting, they are doing a pretty good job of doing just that. We heard brief thoughts from representatives of ten different watershed groups. They each brought unique perspectives and insights into the challenges they face and how they have been successful. We heard from industry representatives, like Ingram Barge Company, on their efforts toward environmental sustainability. We heard from local governments like the City of Nashville which is still recovering from the major flood in 2010. The flood tested the City of Nashville in many ways, but it also served to bring the community together and has resulted in Nashville becoming a leader in emergency response. And as always, the meeting was an opportunity for working groups to continue forwarding goals of the partnership and for the partners to reconnect.

For further info about the Carterville FWCO: http://www.fws.gov/midwest/Fisheries/library/StationFactSheets/carterville.pdf

Coldwater Fish Culture Revised

BY DALE BAST AND SHAWN SANDERS, IRON RIVER NFH

The Coldwater Fish Culture Course has been around for over 40 years. Once upon a time, this now two week course was six months in duration. To start each day, classmates would spend half a day in intense course work and the remainder in hands-on fish culture training…an old school method of honing and polishing fish culturists. Upon successful completion of the course, students were promoted and reassigned to a new facility. This course has trained fish biologists both the art and science of fish culture. Since its inception, advancements have been made in aquaculture, new technologies have been developed and the course has been modified along the way.

-USFWS

2012 Coldwater Fish Culture Class

Coldwater Fish Culture is a core course that National Conservation Training Center (NCTC) wanted to revise again and continue into the future. After several years of work, all the notes, presentation materials, and instructor training were complete and ready to be delivered from March 19th to 30th 2012. In this new digital age of networking and technology, the course has incorporated new methods of information delivery as well as holding on to the tried and true methods of hands on training….a new/old school blending.

The two week class had five state and two federal instructors teaching 27 students from Maine to Missouri; Arizona to Washington. There were state, tribal, private and federal employees studying, conducting hands-on exercises, and touring local hatchery facilities in order to learn the latest science and technologies in fish culture. In the group were Shawn Sanders (student) and Dale Bast (instructor) from the Iron River National Fish Hatchery (NFH).

With the careful guidance of Matthew Patterson of NCTC, the class moved smoothly and successfully through the course. Daily feedback and class adjustments were made that helped keep the class productive and complete.

The Fisheries Program relies on a broad range of professionals to accomplish its mission: biologists, managers, administrators, clerks, animal caretakers, and maintenance workers. Without their skills and dedication, the Fisheries Program cannot succeed. Employees must be trained, equipped and supported in order to perform their jobs safely, often under demanding environmental conditions, and to keep current with the constantly expanding science of fish and aquatic resource management and conservation.

For further info about the Iron River NFH: http://www.fws.gov/midwest/ironriver/

Hatchery Life

BY RANDY OBERMILLER, PENDILLS CREEK NFH

Pendills Creek National Fish Hatchery's (NFH) technician Randy Obermiller recently completed painting the interior of government quarters #24. Pendills Creek NFH has three residential houses on site which staff members occupy. The houses are occupied by Project Leader Curt Friez, technician Tech Randy Obermiller, and the station's new biologist will occupy the third.

During the winter months when fish culture activities are relatively slow, it is an excellent time to take on projects which require a longer time period commitment. With the recent vacancy in quarters #24, it was an excellent opportunity to give the interior a fresh coat of paint along with some additional cosmetic improvements.

Living on station comes with an added responsibility for staff members. Staff members must respond to any additional incidents that may occur after hours at the hatchery. Incidents typically can occur during wind and storm events, electrical bumps, and power outages. A Sensaphone, a remote monitoring system installed at the main hatchery building, automatically calls staff members at their homes and alerts them to any unexpected events that may affect the cultured fish. Staff members can then respond quickly to address the situation and resolve issues according to protocol.

The fall season, when foliage is at its peak, presents a special challenge to the facility. The combination of wind and heavy leaf accumulation can adversely affect and impede the hatchery's water flow. The water intake at Videans Creek, which is the hatchery's main water source, can become clogged with leaves, twigs and branches. This constricting of the water flow can severely impact the health of the fish in the hatchery's raceways. Staff members living on station monitor and clean off the intake screens of any debris which may have accumulated each night during this period.

During the winter and early spring, the facility rears lake trout fry in as many as four tanks housed inside the main hatchery building, prior to being moved to the outside raceways. This year, the fry being raised numbers over 200,000. The fry are currently being cultured on well water. An after-hours power outage or bump in electricity, shutting down or interrupting the well could threaten and result in a catastrophic event for the fish. Fortunately, if such an after-hours event did occur, staff members would be alerted by the alarm system and respond immediately with a backup plan in place to insure the safety of the fish.

For further info about the Pendills Creek NFH/Sullivan Creek NFH: http://www.fws.gov/midwest/Fisheries/library/StationFactSheets/pendills.pdf

Working for Our Future

BY COLBY WRASSE, COLUMBIA FWCO

In keeping with our efforts to promote workforce development, we have built a strong relationship with the C.A.R.E (Career Awareness Related Experience) program. This valuable program is administered through the City of Columbia, Missouri, and provides Columbia youth ages 14-18 the opportunity to develop job skills and learn about a career of interest. The Columbia Fish and Wildlife Conservation Office (FWCO) has hosted many C.A.R.E. students in past years and the relationship is mutually beneficial, as the students earn a paycheck while learning work and life skills; and we receive some extra help.

Brandon Schmidt worked for us through the care program from January through March of this year. Brandon's work ethic and mechanical aptitude made him a valuable asset in the shop, and he seemed to really enjoy fieldwork. Brandon is 17 years old and attended Hickman High school. After high school, he plans to go to college to become a conservation agent for the State of Missouri. Some of his hobbies include hunting, fishing, watching bull riding and playing basketball. We wish Brandon the best of luck as he pursues his career. The maturity and work ethic he displayed while working with us should serve him well in his future endeavors.

-USFWS

Brandon Schmidt hoists a healthy blue catfish, caught on his first day of field work for the Columbia Fish and Wildlife Conservation Office.

For further info about the Columbia FWCO: http://www.fws.gov/midwest/columbiafisheries/

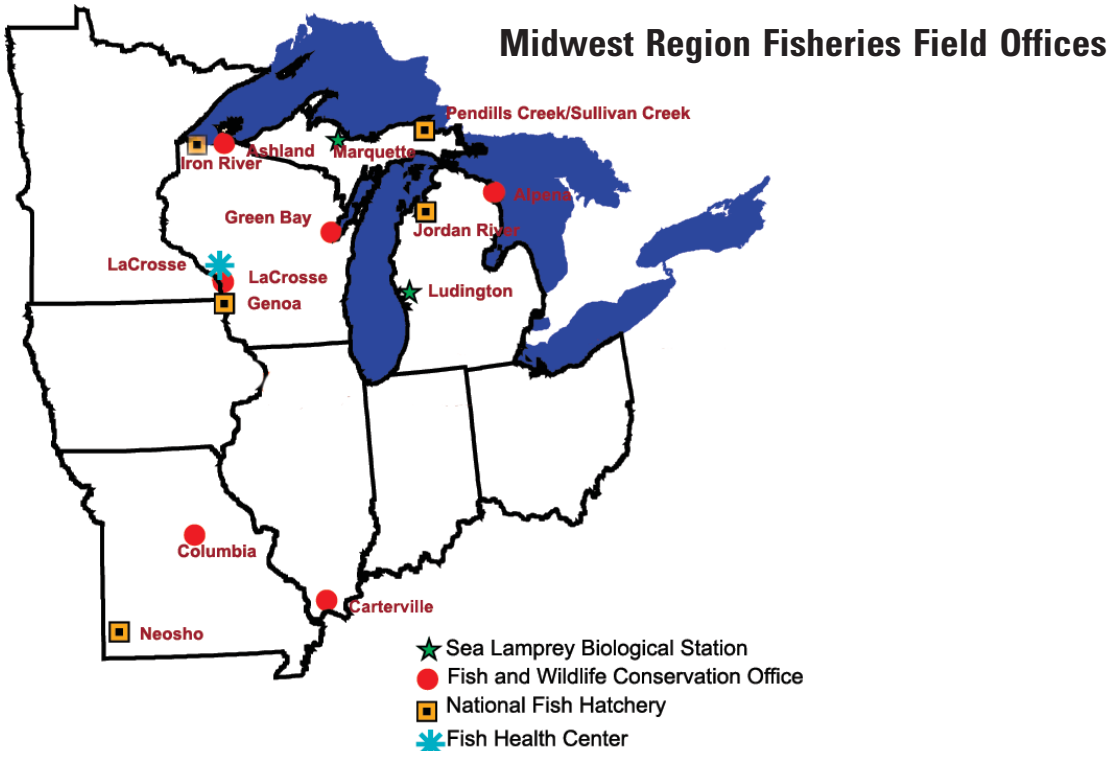
Midwest Region Fisheries Divisions

National Fish Hatcheries
The Region's National Fish Hatcheries primarily focus on native fish restoration/rehabilitation by stocking fish and eggs, such as pallid and lake sturgeon and by developing and maintaining brood stocks of selected fish strains, such as lake trout and brook trout. Hatcheries also provide technical assistance to other agencies, provide fish and eggs for research, stock rainbow trout in fulfillment of federal mitigation obligations and assist with recovery of native mussels and other native aquatic species.

Fish and Wildlife Conservation Offices
Fish and Wildlife Conservation Offices conduct assessments of fish populations to guide management decisions, perform key monitoring and control activities related to invasive, aquatic species; survey and evaluate aquatic habitats to identify restoration/rehabilitation opportunities; play a key role in targeting and implementing native fish and habitat restoration programs; work with private land owners, states, local governments and watershed organizations to complete aquatic habitat restoration projects under the Service's 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.



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Fish Tails

"Fish Tails" includes articles that are included in field station reports that are not published in the "Conservation Briefs." These articles are categorized by focus area and includes the article title, author and field station. The website link, where the full article can be viewed, is highlighted in blue type.

Partnerships and Accountability

- Spring Distribution Begins
  - Nick Starzl, Iron River NFH

Aquatic Species Conservation and Management

Aquatic Invasive Species

Public Use

- La Crosse Fish Health Center Assists with PCR Exercise at Western Technical College
  - Eric Leis, La Crosse FHC
- Heredity in the Classroom
  - Heather Rawlings, Alpena FWCO

Leadership in Science and Technology

Aquatic Habitat Conservation and Management

- Habitat Restoration Planned for Cheboygan County, Michigan
  - Heather Rawlings, Alpena FWCO

Workforce Management

-Wildlife Forever

Judges for the State Fish Art Contest included (Lt. to Rt.): Rick Dow – North American Media Group; Todd Turner – Fish and Wildlife Service; Dave Schad – Minnesota Department of Natural Resources; Trisha Blake – FLW Outdoors, and; Ted C. Hansen – Artist/Educator.