



U.S. Fish & Wildlife Service - Midwest Region

Fisheries & Aquatic Resources Program

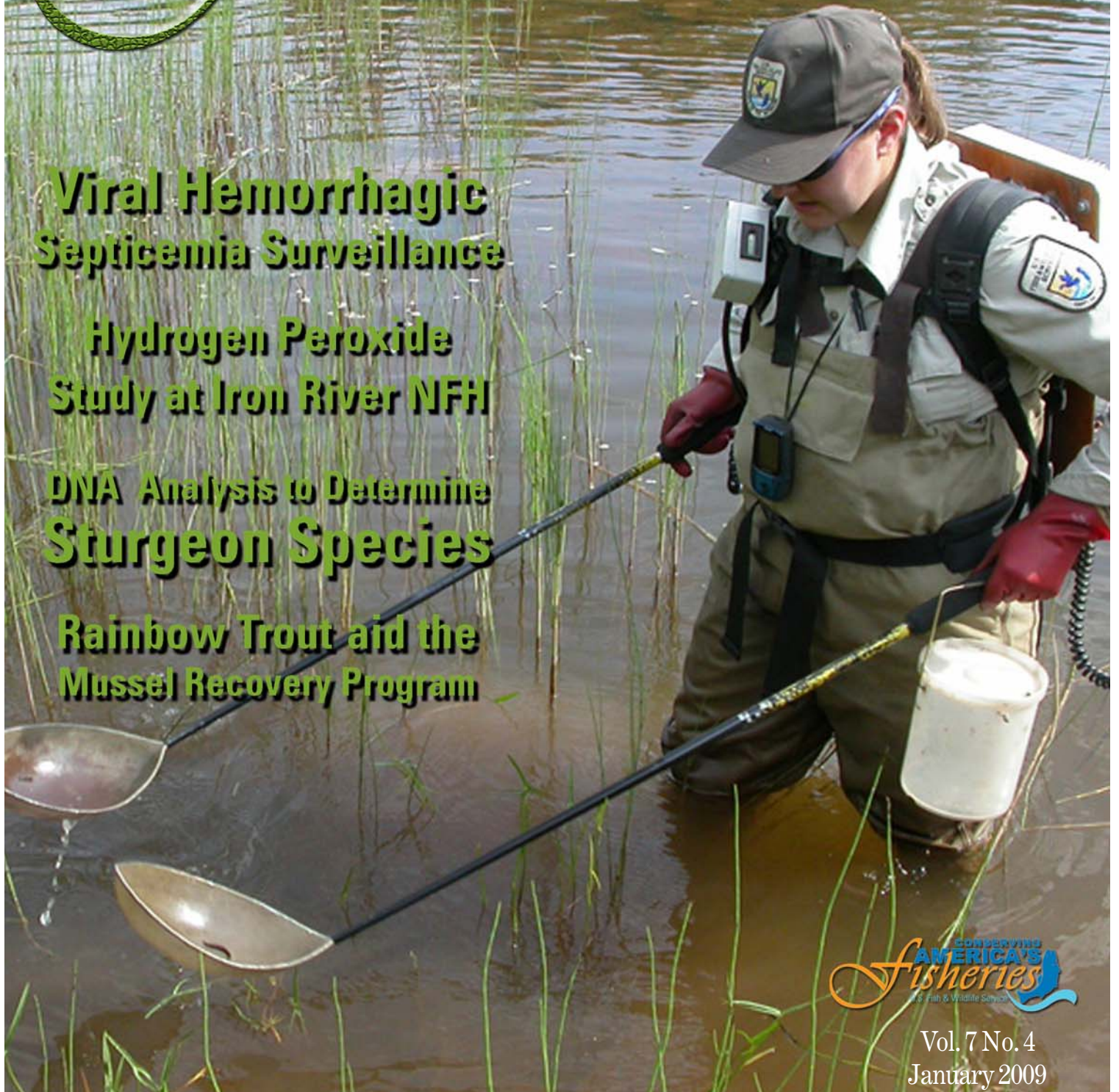
Fish Lines

**Viral Hemorrhagic
Septicemia Surveillance**

**Hydrogen Peroxide
Study at Iron River NFH**

**DNA Analysis to Determine
Sturgeon Species**

**Rainbow Trout aid the
Mussel Recovery Program**



Vol. 7 No. 4
January 2009

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.

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BY JAMES LUOMA, GENOA NFH



-USFWS

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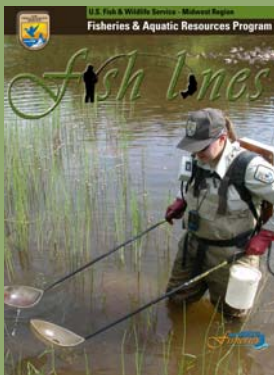
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2009 Vol. 7 No. 4

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-GLFC

Biologist Lisa Corradin electrofishes for larval sea lamprey.

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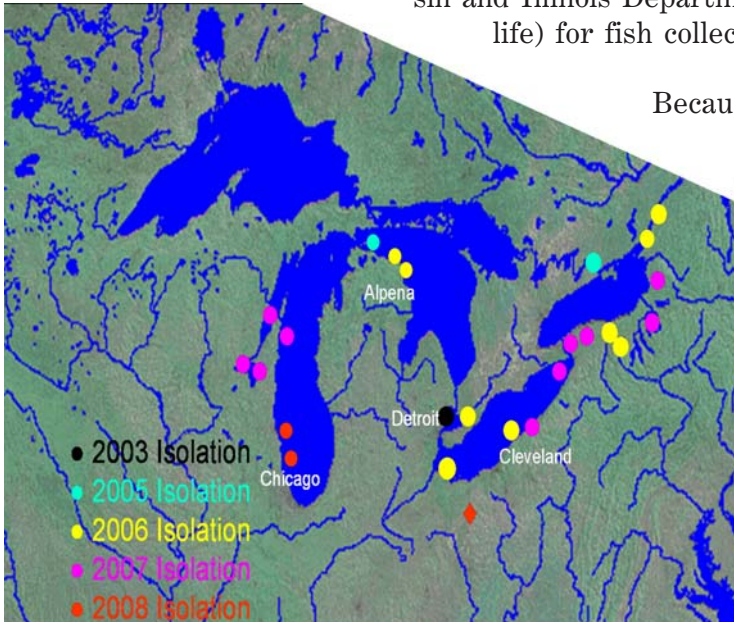
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Viral Hemorrhagic Septicemia Surveillance

BY BECKY LASEE, LA CROSSE FHC

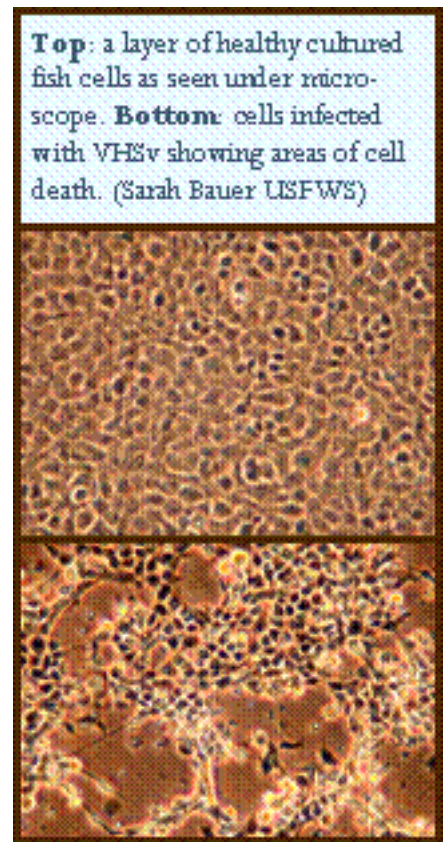
The La Crosse Fish Health Center (FHC) has completed their annual testing of wild fish for Viral Hemorrhagic Septicemia (VHS) in the Midwest Region. Genotype IVb of VHS is a strain specific to freshwater fish and was first detected in the Great Lakes in 2005. To date, more than 28 different fish species in the Great Lakes have been affected, with large kills reported in populations of yellow perch, drum, muskies and round gobies. VHS IVb is an extremely virulent and highly infectious disease that requires constant monitoring in order to slow its spread. The La Crosse FHC has relied on assistance from numerous federal (La Crosse and Columbia National Fish and Wildlife Conservation Offices) and state agencies (Wisconsin and Illinois Departments of Natural Resources, and Ohio Division of Wildlife) for fish collections.



-USFWS/KenPhillips

In 2005, Viral Hemorrhagic Septicemia virus (VHSv) was first reported in the Great Lakes, but may have been responsible for fish kills since 2003. VHSv has been responsible for numerous fish kills in lakes Erie, Huron, Michigan and Ontario. The virus has also caused fish mortality in several inland lakes in the states of Michigan, New York and Wisconsin, all within the Great Lakes basin. As a result, the Animal and Plant Health Inspection Service (APHIS) issued an emergency order in 2006 restricting the interstate movement of live fish of susceptible species from the states and provinces of the Great Lakes. Many states around the Great Lakes, including Ohio, developed their own emergency orders restricting intrastate movement to protect other watersheds within their states. For a list of susceptible species, visit APHIS's website at <http://www.aphis.usda.gov/>.

Because of these partnerships, more than 17,209 fish have been tested since 2005. In 2008, more than 8,000 fish were tested. Most sampling occurred in three states: Ohio (2,571); Wisconsin (3,560); and Illinois (1,006). Significant findings by the FHC in 2008 include: detection of the virus in ovarian fluids of spawning muskie from Clear Fork Reservoir in Ohio, which is the first isolation outside the Great Lakes basin; the first report in ovarian fluids (a nonlethal sample); and the first detection of the virus in sea lamprey, which is a new host record for the virus.



Top: a layer of healthy cultured fish cells as seen under microscope. **Bottom:** cells infected with VHSv showing areas of cell death. (Sarah Bauer USFWS)

Because of partnerships with other agencies, over 17,209 fish have been tested since 2005 for Viral Hemorrhagic Septicemia. In 2008, over 8,000 fish were tested, with most sampling in Ohio (2,571), Wisconsin (3,560) and Illinois (1,006). Significant findings by the La Crosse Fish Health Center in 2008 include: detection of the virus in ovarian fluids of spawning muskie from Clear Fork Reservoir in Ohio - the first isolation outside the Great Lake's basin; the first report in ovarian fluids (a nonlethal sample); and the first detection of the virus in sea lamprey - a new host record for the virus.

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

Hydrogen Peroxide Study at Iron River NFH

BY CAREY EDWARDS, IRON RIVER NFH

G*yroductylus spp.* are a naturally occurring parasite found in Schacte Creek, which supplies the Iron River National Fish Hatchery (NFH) with 4,000 gallons of spring water per minute. Under normal circumstances, this parasite poses little to no problems for near 2 million fish produced or 6,000 adult fish reared and maintained at the hatchery. However, adult post-spawn coaster brook trout historically suffer from heavy *Gyrodactylus spp.* infestations. Treatment options have been limited to formalin which is approved by the Federal Drug Administration (FDA) for use with fish. Hydrogen peroxide, if proven effective, would be preferred because it readily breaks down in water to form oxygen and water and is less harmful to humans and the environment than formalin.



-USFWS

Coaster brook trout undergo a hydrogen peroxide treatment study at the Iron River National Fish Hatchery. Staff hope to use hydrogen peroxide as an alternative treatment for *Gyrodactylus* infestations.

Each raceway compartment was randomly assigned five treatment regimens: a control; a 15 minute salt bath followed by a 30 minute 100 parts per million (ppm) hydrogen peroxide bath; a 15 minute salt bath followed by a 15 minute 150 ppm hydrogen peroxide bath; a 30 minute 100 ppm hydrogen peroxide bath; and a 15 minute 150 ppm hydrogen peroxide bath. The

A study was proposed by the Upper Midwest Environmental Science Center (UMESC) to test and confirm the efficacy of 35 percent hydrogen peroxide to reduce the infestation density of *Gyrodactylus spp.* on coaster brook trout. Prior to the beginning of the study, Iron River staff set up fifteen equally sized compartments with 50 gallons per minute water flow in each, and a treatment area with two round tanks marked for 100 gallons. The 21-day study began on December 2, 2009 with three treatment days occurring every other day and samples taken on the seventh and 21st day. Iron River NFH and UMESC staff randomly assigned 20 female and 20 male coaster brook trout to each compartment. An additional 10 fish were collected for transfer to the La Crosse Fish Health Center for a thorough disease work-up. Length, weight and skin scrapes were taken from 60 random fish from the study group before placement into compartments. Skin scrapes were analyzed and parasites were counted.

study was intended to be blinded so that personnel enumerating parasites and verifying treatment concentrations would not know the assignment of treatment concentrations for each compartment. The treatment regimen was known only by staff carrying out the treatments. All chemicals were pre-measured the day before the study by UMESC staff.

Fish were transported on a cart in a container of water to the treatment area and then transported back to the original compartment when the treatment was complete. Dissolved oxygen, temperature and salinity were monitored and recorded during the treatments. A sample of the hydrogen peroxide bath was taken five minutes prior to the end of treatment and given to NFH personnel for titration to confirm the concentration of the bath.



-USFWS
Biologist Carey Edwards uses a refractometer to check the salinity of a salt bath for brook trout as part of a study to determine alternate treatment methods for the parasite *Gyrodactylus* at the Iron River National Fish Hatchery.

Length, weight and skin scrapes were taken from each fish. Skin scrapes were analyzed for *Gyrodactylus spp.* and counted. On the 21st day, the unclipped fish were analysed and the fish were transported back to their original rearing space. Preliminary results look promising for the effectiveness of hydrogen peroxide for treatment of *Gyrodactylus spp.* on salmonid species. Initial analysis of post-treatment samples showed little to no parasites.

The Iron River NFH staff enjoyed working with UMESC staff, and we eagerly await Food and Drug Administration approval of hydrogen peroxide for treatment of *Gyrodactylus spp.*

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



-USFWS
Biologist Nick Grueneis titrates a sample of treatment water to check its concentration as part of a study to determine the effectiveness of hydrogen peroxide to control *Gyrodactylus* on cultured brook trout.

Water quality was measured each day at the outlet of each raceway and each compartment was monitored for mortalities and moribund fish. Ten female and 10 male brook trout were randomly sampled from each compartment on the seventh day and given a fin clip.

DNA Analysis to Determine Sturgeon Species

BY PATTY HERMAN, COLUMBIA NFWCO; JILL JENKINS, USGS NATIONAL WETLANDS RESEARCH CENTER

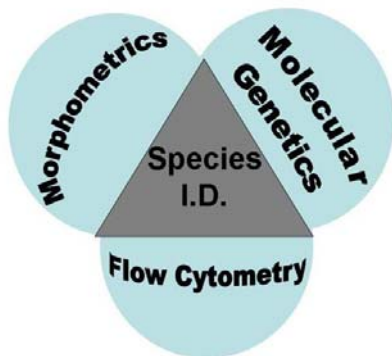
It all started with a simple request to our facility. Would you send blood from any sturgeon you catch? The answer was equally simple for our Columbia National Fish and Wildlife Conservation Office (NFWCO) crew – of course! Now for the complicated part...Why?

Dr. Jill Jenkins, with the U.S. Geological Survey (USGS) in Lafayette, La., is testing a methodology that can determine if a sturgeon belongs to a single species (i.e. shovelnose or pallid) or if it is some combination of the two (hybrid). Biologists, particularly in the Middle and Lower Mississippi River basins, could use a quick, definitive way to distinguish these fish due to their similarity of appearance, especially when they are juveniles. Dr. Jenkins is conducting high resolution DNA analysis of sturgeon blood to determine if these species really do have differences in their genomic content. Simply put - how much DNA is in their cells. Because fish, bird, amphibian and reptilian red blood cells have a nucleus, the DNA is easily stained and measurable with a flow cytometer – the type of instrument used in hospitals for assessing human blood. So now, for the next logical question: What is this instrumentation and how does it work?



-USFWS/JeffFinley

Patty Herman and Jeremiah Smith of the Columbia National Fish and Wildlife Conservation Office draw blood from a suspected hybrid sturgeon (pallid sturgeon x shovelnose sturgeon cross) to test a methodology to determine whether an individual sturgeon is of a single species or is a hybrid.



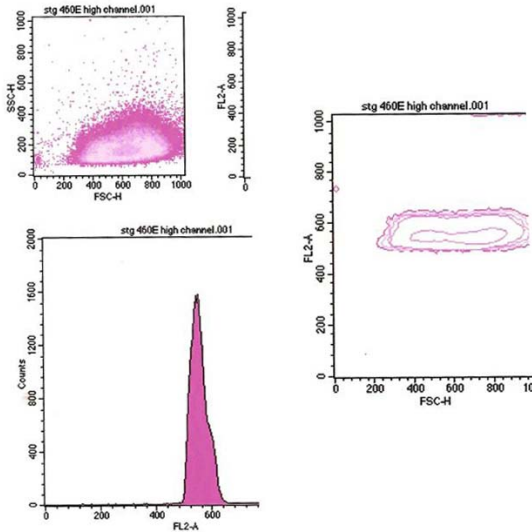
-USGS/JillJenkins

Coupled with morphometrics and molecular genetics, flow cytometry may make sturgeon species identification more accurate.

Flow cytometry is analogous to a scanner checkout at a store, where items are placed on the conveyor belt, passed singly over the scanner, and their relative dollar amounts recorded. With flow cytometry, where cells are passed one-at-a-time in front of an interrogating laser beam, the tiny amounts of light scattered generate information that is sensitively assessed and recorded. So, when nuclear DNA stained with fluorescent dyes (fluorochromes) intercepts the laser light, the dye particles are excited proportional to the amount of DNA present, and this is measured by optical detectors responsible for converting the emitted light into amplified electrical pulses. A pinpoint of blood will provide tens of thousands of subsamples from one animal, attesting to the statistical power of the data collected with this instrument.

The results are graphed to aid in the interpretation of the data, where DNA fluorescence can be plotted in a histogram. All experimental blood samples are run alongside a control or standard that has a known genomic size and specific amount of

DNA fluorescence. Because each animal species has a specific amount of nuclear DNA, or genomic content, this will appear as a single, distinct “peak” on the histogram; therefore, a double peak could indicate a mosaic, or hybrid fish.



-USGS/Jill Jenkins

These are examples of histograms, scatter plots and contour plots used to analyze high resolution genetic content of sturgeon blood cells.

Who is involved? Dr. Jenkins, supported by the USGS Science Support Partnership Program, has partnered with Fish and Wildlife Service offices in the Great Plains, Interior Highlands and Coastal Plain Management Units of the Pallid Sturgeon Recovery Plan. She is asking us, as well as partners in the Upper and Lower Mississippi River basins, to provide arterial blood samples from 10 each of pallid, shovel-nose and hybrid sturgeon. Typically done by our crew, morphometric and meristic characters are measured for each fish, a Character Index value is calculated, pictures are taken of the ventral side of the head, and a caudal fin tissue is taken for future molecular genetic analysis by Dr. Ed Heist, Southern Illinois University – Carbondale. For Dr. Jenkins, a thimbleful of blood is collected into anticoagulant and shipped overnight for processing within 48 hours. The utility of three preservatives is being researched, with the hope that blood could be stored before shipping for flow cytometric analysis. This would alleviate logistics for field collections, reduce shipping costs by shipping samples collected over a

season, and allow the long-term storage of blood for future flow cytometric analysis. These laboratory data are being compared with the available photographs and data on morphometrics by Dr. Jan Dean, Natchitoches National Fish Hatchery.

What have we learned? Currently, this technique, the very best to use for DNA content analyses, is working fine. Can the species be distinguished yet? Not yet, as this is the time for acquiring the data. Thus far, Dr. Jenkins has detected differences among fish, and has discovered unique DNA profiles that will provide discussion topics for geneticists. If distinct DNA content exists between pallid and shovel-nose sturgeon, this technology will find it. Along with professional field crew determinations, Dr. Jenkins envisions the intersection of current technologies as the best way to diagnose species. Ultimately, the intention is to add these additional data per fish to compare and contrast species identification by the methods, then in the future, compare these results with available molecular genetics data.

What does this mean for pallid sturgeon? Implications for the pallid sturgeon may be far ranging. Distinguishing between pallid sturgeon and hybrid sturgeon can often be difficult to even the most seasoned field biologist. Although we use morphometric and meristic characters to differentiate in the field, these measures can be problematic. Molecular methods currently employed to genetically distinguish between species is slow, expensive and is not indisputable. Using high resolution DNA analysis by flow cytometry, in comparison, is inexpensive and fast and would be a great additional layer of data to incorporate into the suite of tests already being utilized. Accurate species identification is imperative for endangered species long-term recovery and management. Coupled with spatial data, the flow cytometric technology would be useful in determining distinct geographical regions for wild pallid sturgeon and hybrids throughout their ranges. Because hybrid sturgeons are found only in the Middle and Lower Mississippi River basins, genetic data is of particular importance. Additionally, high resolution DNA analysis by flow cytometry would also be important for spawning and propagation of pallid sturgeon. This technique could be implemented to insure that broodstock pallid sturgeons are of unquestionable heritage and the resulting progeny will not dilute the gene pool when stocked into the Missouri River.

Just halfway through the project, these results are proving to be intriguing. Such data have never been generated before with sturgeon, and the profiles are unique in the animal kingdom. This project is building lasting partnerships, using state-of-the-art management techniques in an effort to manage and conserve an interjurisdictional species.

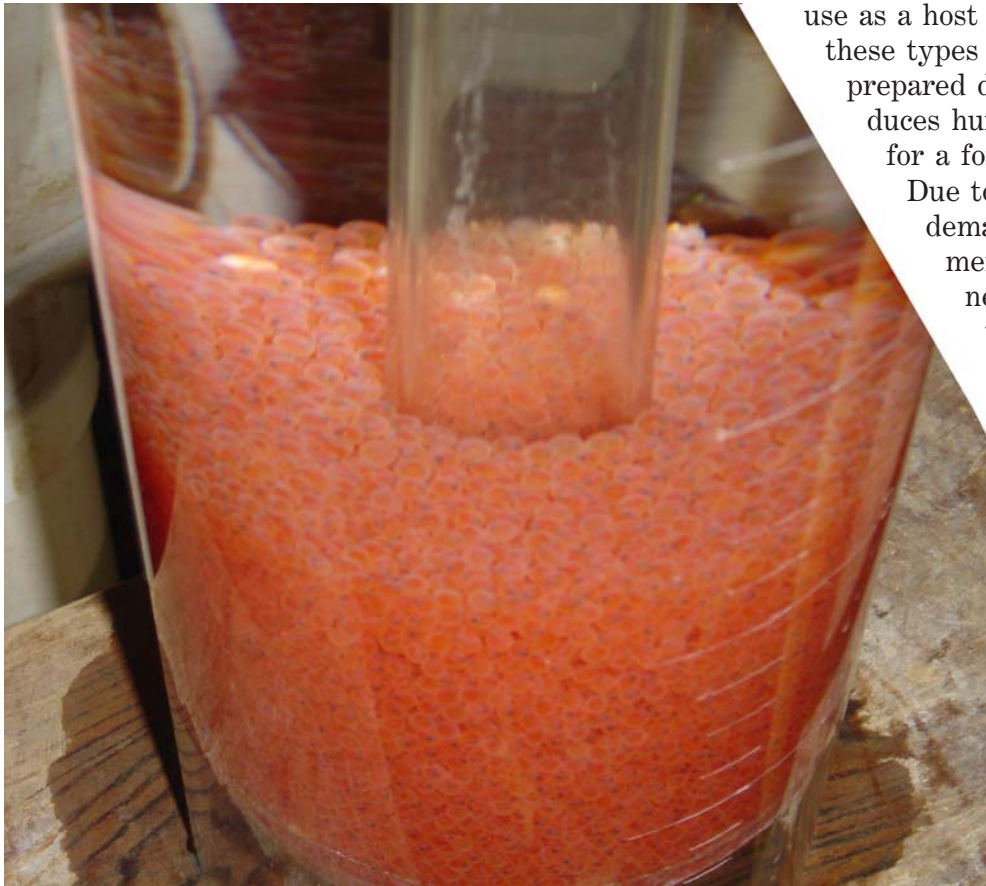
For further info about the Columbia NFWCO: <http://www.fws.gov/midwest/columbiafisheries/>

Rainbow Trout aid the Mussel Recovery Program

BY JAMES LUOMA, GENOA NFH

The Genoa National Fish Hatchery (NFH) is currently holding thousands of four to six inch fish consisting of five different coolwater and warmwater species for use in the hatchery mussel propagation program. Some of the fish are hosts to the federally endangered winged mapleleaf larvae, or glochidia, and other native mussels. The remaining host fish will be infected with mussel glochidia during the 2009 production year or they will be used in host trials for species for which the host fish has not been previously identified. Rearing

some cool- and warmwater fish to suitable size for use as a host fish requires the use of live forage as these types of fish will not accept a commercially prepared diet. The Genoa NFH annually produces hundreds of gallons of fathead minnows for a forage source for the growing host fish. Due to limited pond rearing space, the high demand for forage, and the timing requirements for small forage availability, the need for forage cannot be met solely by the hatchery's fathead minnow production.



-USFWS

Rainbow trout eggs from the Ennis National Fish Hatchery (NFH) are cultured at the Genoa NFH, and the resultant fish used as valuable forage for native mussel host fish.

received 300,000 rainbow trout eggs from the Ennis NFH throughout the winter of 2008/09. Approximately 270,000 of these fish will be raised up to 2-3 inches in length, at which time they will be used as food for the host or brood fish. Using rainbow trout derived from a certified disease free facility also reduces the chances of disease exposure to the host fish. This is extremely critical to fish already infested with mussel glochidia, as therapeutic treatments for diseases may have negative impacts on mussel survival, and disease outbreaks can be detrimental to mussel propagation efforts.

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

The Ennis NFH plays a critical role in Genoa NFH's ability to rear large numbers of quality host fish by supplying the hatchery with rainbow trout eggs from which suitable size forage can be cultured during the critical winter and spring months. The Genoa NFH



-USFWS

Culture of this endangered winged mapleleaf mussel is dependant on a supply of healthy host fish.

Showing the Ropes

BY JAIME PACHECO, NEOSHO NFH

Biologists Rod May and Jaime Pacheco gave a demonstration on truck disinfection at the Missouri Aquaculture Bio-security Workshop in Jefferson City, Mo. The 85 attendees to the workshop included staff from the Missouri Department of Conservation, U.S. Department of Agriculture, Lincoln



-USFWS

Biologist Jaime Pacheco of the Neosho National Fish Hatchery explains how to disinfect a fish distribution unit to participants of the Missouri Aquaculture Bio-security Workshop.

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

MICRA Committee Arrives in Memphis

BY BRIAN ELKINGTON, COLUMBIA NFWCO

The Mississippi Interstate Cooperative Research Association (MICRA) met for their annual sturgeon and paddlefish meeting in January. Jeff Finley and I, from Columbia National Fish and Wildlife Conservation Office (NFWCO), traveled to Memphis, Tenn., to participate in open discussions and learn about current issues affecting these fisheries. State biologists came from as far away as North Dakota and West Virginia to attend this two day meeting and talk about the status of paddlefish and sturgeon. Over the course of the meeting, presentations were given to the group that dealt with topics ranging from paddlefish and sturgeon biology to law enforcement of commercial regulations in the Midwest.

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

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.

University and private fish farms. The event covered the basics of fish health, farm inspections and certifications, invasive species prevention and intrastate fish shipping policies.

Neosho National Fish Hatchery (NFH) staff had the opportunity to demonstrate the “how” and “why” of our fish health prevention protocol and Hazard Analysis and Critical Control Points (HACCP) plans. Staff showed how to maintain a disease-free environment by disinfecting stocking equipment and distribution units. Details on the disinfection equipment and materials needed, and how to obtain them were also shared.

The workshop allowed us to rub elbows with members of the aquaculture field in Missouri. It also reiterated the importance of doing everything we can to prevent the introduction and spread of invasive species.

Columbia NFWCO provided the committee with a review and summary of the paddlefish stock assessment database accomplishments from 2008. This included new advancements in data entry, quality control and data analysis tools. We also discussed future directions and projects to help biologists determine the pressures affecting these paddlefish populations. Along with that, the bonds we created with biologists from across the country will provide a base for our communications into the future. We look forward to our continued work with MICRA and next year’s meeting!

Friends Group Leader Receives Award

BY TIM SMIGIELSKI, JORDAN RIVER NFH

The Tittabawassee chapter of the North Country Trail Association (NCTA) recognized Peg Myers, Treasurer of the *Friends of the Jordan River National Fish Hatchery* for her extraordinary dedication in fostering the partnership with the Friends Group, the Jordan River National Fish Hatchery (NFH) and NCTA. She was also instrumental in developing the new trail map, which adorns the visitor center at the Jordan River NFH and is available free to hikers and tourists who visit the Jordan River valley. Peg is dedicated, reliable and oh so energetic. Peg is a former school teacher and true supporter of the hatchery and an advocate for resource conservation and management in northwest Michigan.



-USFWS

Friends of the Jordan River National Fish Hatchery treasurer Peg Myers and her son Dan (Friends Group student representative) pose on the deck of the *M/V Spencer F. Baird*.



For further info about the Jordan River NFH: <http://www.fws.gov/midwest/JordanRiver/>

The Nature Conservancy Presque Isle Conservation Area Planning Workshop

BY ANJANETTE BOWEN, ALPENA NFWCO

Alpena National Fish and Wildlife Conservation Office (NFWCO) biologists Heather Rawlings and Anjanette Bowen participated in The Nature Conservancy's workshop to assess and address threats to the Presque Isle shoreline of northeastern Lake Huron. The workshop was held January 29 at the National Oceanic and Atmospheric Administration (NOAA) Great Lakes Maritime Heritage Center in

Alpena, Mich. A number of partners participated in the workshop, including Michigan Department of Natural Resources, Michigan Sea Grant, NOAA and many others. The Nature Conservancy is planning to use information gathered at this meeting to develop a Conservation Action Plan for the Presque Isle shoreline.

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

Fry Babies Hatch at Pendills Creek NFH

BY JAIME MASTERSON, PENDILLS CREEK NFH

Pendills Creek National Fish Hatchery (NFH) welcomed their new arrivals - Seneca Lake strain of lake trout fry that started to hatch from their eggs on January 12. On January 14, the enthusiastic sac fry were moved to indoor culture tanks, where they will remain until June before being moved to newly constructed outdoor raceways.

This year the production fish, hatched from eggs from the spawning program at nearby Sullivan Creek NFH, are being raised a little differently from past years. Eggs were divided up between biologists Robert Deems and Jaime Masterson to take sole care of. Also, instead of using creek water to raise the sac fry, well water is being used. Well water at the facility is significantly warmer than the creek water, running at a constant 43°, whereas the creek fluctuates in the 30° range throughout January and February. We are hoping this warmer and cleaner water supply will help boost the growth of the sac fry and get them on a healthy track to become next year's production fish.

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

Inshore Fish Survey Completed in Apostle Islands, Lake Superior

BY GARY CZYPINSKI, ASHLAND NFWCO

In cooperation with the National Park Service, the Ashland National Fish and Wildlife Conservation Office (NFWCO) assisted the U.S. Geological Survey (USGS) Lake Superior Biological Station in assessing diversity and relative abundance of fish species along inshore habitat in the Apostle Islands National Lakeshore. Part of the objective of this USGS study is to compare distributions of fishes in inshore, nearshore and offshore waters on a diel, seasonal and life stage basis. The Ashland NFWCO supplied an electrofishing boat and personnel to assist with one phase of the inshore surveys. A total of eight 2-kilometer transects were electrofished along the shorelines of Stockton, Michigan, and Madeline Is-

lands over two nights in July and September, 2008. The three most abundant species observed included lake chub, slimy sculpin and longnose dace. The three most common predators observed included brown trout, smallmouth bass and burbot. Some other species observed included ninespine stickleback, longnose and white sucker, yellow perch, trout-perch and shiners. These surveys contribute to the data that will be used to assess the relative importance of inshore habitats to the Lake Superior fish community, and evaluate the relative contribution of inshore habitat to productivity and energy flow in the Lake Superior food web.

For further info about the Ashland NFWCO: <http://www.fws.gov/midwest/ashland/>

Making Us Proud

BY MELISSA CHEUNG, NEOSHO NFH

Despite fluctuating temperatures typical of our winters here in Neosho, Mo., we have tried to maintain stable conditions for our endangered pallid sturgeon. The building in which our youngest sturgeon are held only receives spring water, which can drop to freezing temperatures without heat. To boost growth and trigger active feeding, we heat all nine tanks holding our young-of-the-year fish. These 2,227 pallid sturgeon currently average 7.5 inches in length and

enjoy an average temperature of 69°F regardless of the ice, rain and wind outside.

The 1,100 pallid sturgeon on station from the 2007 spawning season are also experiencing relatively consistent growth. These larger juveniles are 12.5 inches in length on average. Supplied only with well water, the tanks holding these older fish remain unheated since our well water temperatures remain mild throughout the year, occasionally dropping to 49°F at the coldest.

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

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.

Viral Hemorrhagic Septicemia found in Ohio

BY KEN PHILLIPS AND BECKY LASEE, LA CROSSE FHC

The Ohio Department of Natural Resources (DNR) has confirmed that Viral Hemorrhagic Septicemia virus (VHSv) was present in Clear Fork Reservoir muskellunge sampled during a routine egg collection in late April, 2008. The virus was found in ovarian fluid samples collected from the muskellunge, but has not resulted in a fish kill.



-USFWS

Ken Phillips of the La Crosse Fish Health Center and personnel from the Ohio Division of Wildlife sample Lake Erie walleye for fish diseases.

the population will die,” said Ray Petering, chief of the DNR Fisheries Division. “Those remaining will survive and will develop immunity to the viruses or bacteria that cause a disease. Since there are no large-scale treatments for VHS that can be applied to fish in the wild, the presence of this new virus may result in spring fish mortalities that are abnormally high for a few years as more fish encounter the virus. These mortalities may abate as fish begin to build immunity to the virus.”

Anglers and boaters can help prevent the spread of VHS and other viruses or bacteria that cause disease in fish by not transferring fish between water bodies, and thoroughly cleaning boats, trailers, nets and other equipment when traveling between different lakes and streams. The use of a contact disinfectant such as a solution of 200 parts per million (ppm) chlorine bleach (5.1 ounces per 10 gallons of water), to clean vessels and live wells is very effective against VHS and other viruses and bacteria that cause disease in fish. Soaking exposed items such as live wells, nets, anchors and bait buckets in a light disinfectant of 20 ppm chlorine solution (5.1 of liquid household bleach per 100 gallons of water) for 30 minutes is also an effective method to prevent the spread of a wide range of aquatic invasive species.

Routine surveillance, disinfection of eggs used in fish production, public education and additional VHS research will continue by the Ohio DNR, Ohio Department of Agriculture and Fish and Wildlife Service in an effort to minimize the spread of VHS and protect fish hatcheries.

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

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.

The virus was initially isolated at the La Crosse Fish Health Center (FHC)

and then sent to the U.S. Department of Agriculture National Veterinary Services Laboratory (Animal Plant Health Inspection Service) in Ames, IA, for confirmation of the results. These results marked the first isolation of VHSv outside the Great Lakes basin.

Fisheries officials believe VHSv has been a factor in recent fish kills of several species of fish in the Great Lakes that correspond with the end of spring spawning.

“One likely possibility is that VHS will act like many other viruses in the environment. Typically, viruses or bacteria infect fish, which may lead to disease in the fish if they are susceptible. Once the disease is expressed in these fish, some percentage of

Viral Hemorrhagic Septicemia virus (VHSv) was first isolated as a virus in 1963, and is presumed responsible for European fish kills as far back as 1938. In 1988, the virus was first detected in marine fishes in the Pacific Northwest. VHSv is a pathogen of international concern and is reportable to the World Organization for Animal Health (OIE).

Northeast Michigan Invasive Species Program Meeting

BY ANJANETTE BOWEN, ALPENA NFWCO

Alpena National Fish and Wildlife Conservation Office (NFWCO) biologists Heather Rawlings and Anjanette Bowen participated in an invasive species meeting hosted and led by Huron Pines at the National Oceanic and Atmospheric Administration (NOAA) Great Lakes Maritime Heritage Center in Alpena, Mich., on December 12, 2008. The meeting was held to coordinate efforts to combat invasive species in northeastern Michigan. Three invasive species were selected for control efforts: phragmites (*Phragmites australis*), purple loosestrife (*Lythrum*

salicaria), and buckthorn (*Rhamnus cathartica* and *Rhamnus frangula*). The goal of this project is to reduce the distribution of invasive species through public awareness and control methods. The group discussed volunteer reporting programs to document the current distribution of invasive species and strategies to initiate public involvement. Other agencies that participated in the meeting include The Nature Conservancy and NOAA. Another meeting will be held this spring to move efforts forward.

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

Spring Viremia of Carp Surveillance

BY COREY PUZACH, LA CROSSE FHC

The La Crosse Fish health Center (FHC) ended its seasonal surveillance program for Spring Viremia of Carp virus (SVCv). SVCv is an exotic viral disease commonly found in Europe, Asia and the Middle East. In 2002, SVCv was discovered in the United States when it was isolated from a Koi farm in North Carolina, and found in a wild carp population in Cedar Lake, Wisconsin. Since 2002, the La Crosse FHC has also isolated the virus from the Calumet Sag Channel (2003), and Pool 8 on the Mississippi River (2007). SVCv is caused by the virus Rhabdovirus carpio,

which is a bullet shaped RNA virus. Signs of SVCv are darkening of the skin, pop-eye, excess fluid in the body cavity and/or organs (called ascites fluid), hemorrhages in the gills, skin, and eyes, tiny hemorrhages in the swim bladder, swollen spleen and protruding vent. The virus enters fish through the gills and is spread through the feces and mucus of infected fish. The virus is active when water temperatures range between 12 to 22 degrees Centigrade. SVCv affects fish in both the spring and fall when waters are at the optimal temperature range.

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

1st Annual "Youth Outdoor Fest"

BY HEIDI KEULER, LA CROSSE NFWCO

Friends of the Upper Mississippi Fishery Services (FUMFS), La Crosse National Fish and Wildlife Conservation Office (NFWCO), La Crosse Fish Health Center, Genoa National Fish Hatchery and the City

of La Crosse Park and Recreation Department will be hosting a Youth Outdoor Fest from 9:00 am to 8:00 pm on July 18, 2009 at Pettibone Lagoon in La Crosse, Wis.

Local agencies, businesses and non-profit organizations will provide information, demonstrations, entertainment and hands-on activities relating to fishing and boating to children of all abilities and their families. Although the focus will be on boating and fishing, information on recreational activities such as hiking, camping and hunting will be available. Vendors or sponsors will be on hand to provide food, beverages, demonstration equipment, handouts and demonstrations. Speakers will provide tips on casting, fly fishing, pole and reel fishing, bow

fishing, cleaning fish, fish identification and canoeing. Conservation, boating and fishing ethics and recreational safety are a few other topics that will be presented.

The Youth Outdoor Fest will also kick off the FUMFS Boating and Mentorship Program for Kids. Mentors will be at stations for children and their families to interview, hook-up and become fishing or boating buddies, similar to Big Brothers/Sisters Program. Throughout the year, the child may contact their mentor to get out on the water. Loaner gear will be provided by La Crosse Park and Recreation Department.

This event is free to anyone who would like to participate; however, fees will be collected from participating vendors, businesses and organizations to offset the cost of the program. Please contact Heidi Keuler at La Crosse NFWCO for more information about this exciting new program (608/783-8434).

For further info about the La Crosse NFWCO: <http://www.fws.gov/midwest/lacrossefisheries/>

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.

Youth Outdoor Fest
 July 18, 2009 · 9:00 – 8:00
 Pettibone Lagoon

In a collaborative effort between area businesses and non-profit groups, we have created a goal to provide an informational fun-filled day of spending time in the outdoors. It will be the 1st annual Youth Outdoor Fest!

Transportation will also be provided for individuals in need. There will be free admission to the events for participants; therefore, monetary donations are vital to a successful first year. If you are avidly involved in the outdoors, passionate about area youth, or just want to improve the quality of life all while getting great publicity please consider one of our sponsorship opportunities.

Activities:
 Hiking
 Camping
 Fishing
 Canoe/Kayak
 Hunting

The fest will be held at Pettibone Lagoon on July 18, 2009. It will be an activity-filled day designated for families and individuals interested in learning more about the activities we are so fortunate to have here in the Seven Rivers region. There will be demonstrations, entertainment, hand-outs, food and more!

Contact Us
 Jay Odegard
 (608) 789-7593
 odegardj@cityoflacrosse.org
 www.cityoflacrosse.org/yof

City of La Crosse
 Parks & Recreation

FUMFS Boating & Fishing Mentorship Program
For Kids!!
 Free of charge!
 Sign up at the Youth Outdoor Fest July 18, 2009 Pettibone Lagoon

"Boating Buddies" or "Fishing Buddies" will take young boaters or anglers and their guardian out on the water!

A Late Summer Boat Safety Course will be available for kids 12-17

Open to kids of all ages and abilities!

Help give local youth opportunities to go boating or fishing!

Gear will be provided!

Become a Mentor

Kids learn how to fish and boat!

The future of boating and fishing is in your hands!

Contact us to learn more!

A Partnership between the U.S. Fish and Wildlife Service & Friends of the Upper Mississippi Fishery Services
 555 Lester Avenue Oshkosh, WI 54601
 Phone: 608-783-8417 E-mail: kids_leader@fws.gov

Teaming up for WOW to Attack Nature Deficit Disorder

BY CHRIS MCLELAND, COLUMBIA NFWCO

Recently, Columbia National Fish and Wildlife Conservation Office (NFWCO) teamed up with faculty from the University of Missouri - School of Natural Resources with the goal of providing new educational outdoor experiences to Missouri residents. Dr. Sonja Stanis recently volunteered to assist technician Chris McLeland in the development of new programs, strategies and ideas that would encourage people to become involved in the outdoors as well as learn new skills associated with natural resource conservation. Stanis has utilized her expertise to assist in the development of the 2009 Wonders of Wildlife (W.O.W.) outdoor school in Columbia, Mo. W.O.W. is an outdoor recreation school that offers a wide range of outdoor related courses with varying degrees of difficulty. W.O.W. provides a foundation for a novice outdoor enthusiast to learn a new skill, as well as offer new challenges for those more advanced.

Dr. Stanis has assisted in the development of new advertising approaches as well as offering her expert advice in the area of nature deficit disorder. She has

provided guidance in creating a scholarship program that will provide school groups and families the ability to attend W.O.W., despite financial burdens. Dr. Stanis joined the University of Missouri's School of Natural Resources in August 2008 as a faculty member in the department of Parks, Recreation and Tourism. Her primary work is in the human dimensions of natural resource management with an emphasis in the social psychological aspects of outdoor recreation and recreation resource management. Specifically, her research examines motivations for and benefits of outdoor recreation, constraints to outdoor recreation, the role of parks and other public lands in promoting physical activity and public health, and issues in outdoor recreation relating to diversity and youth. Originally from Madison, Wis., Stanis came to Missouri from the University of Minnesota where she completed her M.S. and Ph.D. in Natural Resources Science and Management as well as a minor in program evaluation.

For further info about the Columbia NFWCO: <http://www.fws.gov/midwest/columbiafisheries/>

Newest Members of the Baby Brookies Program visit Jordan River NFH

BY TIM SMIGIELSKI, JORDAN RIVER NFH

The year started out with much excitement at the Jordan River National Fish Hatchery (NFH). Bellaire Conservation Club members in partnership with Pack #15 Tiger Cubs from Bellaire, Mich., toured the hatchery. Fifteen tiger cubs and their parents, along with representatives from the conservation club received an orientation to the Baby Brookies program. The group was led through the hatchery by biologist Tim Smigielski.

Tim acquainted everyone with the fish that they will help to raise over the next couple of years. Since the hatchery just received about 7,000 brook trout eggs, the group was able to view them in a hatching jar. You could tell the kids were pondering the idea of

these eggs becoming the large brook trout that they will be so happy to donate and fish for in the upcoming years. There were lots of questions about the hatchery and the brook trout but the most asked question was, "When do we get to come back?" That was just the response we wanted! These scouts join with Mancelona and Concord schools Imaginature program students and pack #17 Cub Scouts from East Jordan, Mich., as current participants in the Baby Brookies program.



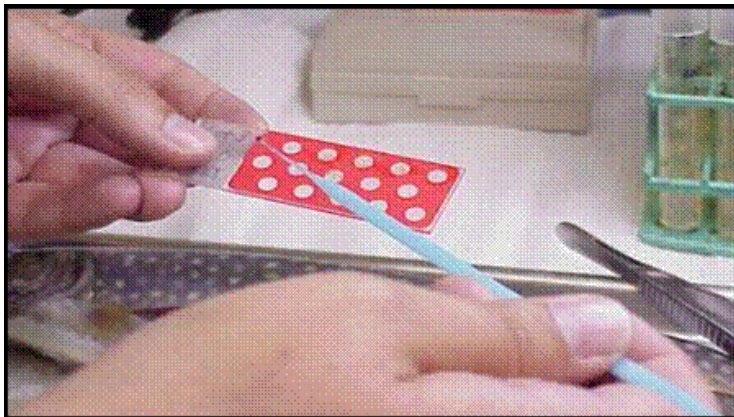
For further info about the Jordan River NFH: <http://www.fws.gov/midwest/JordanRiver/>

Fish Health Inspection on the Shores of Lake Gichigami

BY TERRY OTT, LA CROSSE FHC

It was a cold, clear morning last September. I was on my way to do a fish health inspection at the Keweenaw Bay Tribal Fish Hatchery near L'Anse, Mich. For those of you who don't know where L'Anse is located, it is found in the western half of the Upper Peninsula, about an hour south of Copper Harbor.

I found myself driving north along beautiful Pequaming Bay on the shores of Lake Superior. In the Ojibwe language the lake is called Gichigami, which means "Big Water." It is also written "Gitche Gumeew" as recorded by Henry Wadsworth Longfellow in his poem *The Song of Hiawatha*.



-USFWS

Kidney tissue samples are placed on a special slide for Bacterial Kidney Disease screening.

importance of Great Lakes and inland fisheries to tribes is evident by the growth of tribal hatcheries throughout the Great Lakes region.

The Keweenaw Bay Tribal Hatchery is a tribal hatchery that was established in 1989 and is located on ten acres of tribal land on Pequaming Bay. It is funded through the Keweenaw Bay Indian Community. The main objective of the Keweenaw Bay hatchery is to rear native stocks of fish for stocking into the bays of Lake Superior and adjacent streams. The hatchery uses approximately 900 gallons of artesian water from two deep wells to raise over 95,000 fish annually. Eighty vertical incubation trays with the potential of 10,000 eggs per tray are used for incubating lake and brook trout eggs received from Iron River National Fish Hatchery in Iron River, Wisconsin. The lake trout eggs are from a captive lot of brood fish collected as eggs from the Traverse Island area. The brook trout eggs originated from a Lake Superior strain collected as eggs from adult fish from Isle Royale National Park.

The hatchery also has its own captive brood stock of native brook trout collected from the Jumbo River in Baraga County. The goal is to increase brook trout production and extend stocking efforts in the western Upper Peninsula. This will be done by producing over 40,000 brook trout fingerlings each year to stock back into the Jumbo River and other streams in Baraga County which flow into Lake Superior.

The hatchery has maintained a "Class A" classification since April 2005. This classification represents a disease-free hatchery where all lots of fish have been inspected annually and have received negative findings for at least a two year period. The classification system is an important communications tool used to summarize the results of regular monitoring of hatcheries by fish health biologists. The federal fish health inspection report contains a list of nine certifiable fish pathogens that are screened for during an inspection. If these pathogens are not detected for a period of two years, the hatchery will attain a "Class A" designation.

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.

During the seventeenth century, the French called the lake "Le Lac Superieur" or "Upper Lake," because it was located above Lake Huron. By the time the English arrived and began colonizing the region, the lake was already well known as Lake Superior, so called on account of its magnitude to any of the other lakes on the vast continent.

Indian communities have traditionally depended on a healthy and abundant fishery in the Great Lakes for their subsistence. Lake Superior fisheries have always been critical to the survival of the Ojibewa. Fish (giigoonh) are still an important part of the Native American diet and they are also used in ceremonies, cultural stories and tribal feasts. Today, the

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

Winged Mapleleaf Propagation

BY MARK STEINGRAEBER, LA CROSSE NFWCO

Annual propagation efforts to help recover the St. Croix River population of winged mapleleaf mussels were initiated in 2004 after the channel catfish was confirmed as a host for this federally endangered mollusk. By 2008, these interagency efforts were known to have produced only 21 surviving winged mapleleaf juveniles. To evaluate steps in the current propagation program that could be limiting winged mapleleaf production and survival, La Crosse National Fish and Wildlife Conservation Office (NFWCO) biologist Mark Steingraeber recently monitored juvenile mussel transformation on a group of 16 small channel catfish (83-98



This juvenile winged mapleleaf mussel, exhibiting recent valve growth and external foot movement, was one of five individuals found living after an experimental diet of *Nanochloropsis* was continuously offered for five weeks. The green color of some internal organs suggested active feeding on this algal diet.

mm total length) kept at the U.S. Geological Survey's Upper Midwest Environmental Sciences Center (UMESC) in La Crosse, Wis. These fish had earlier been exposed to apparently viable winged mapleleaf mussel larvae (glochidia) at the Genoa National Fish Hatchery (NFH). A total of 63 live juvenile mussels were recovered from these fish following 5 weeks of development in 18C water. Gills of host fish were examined during this period to detect encysted glochidia. The results of this monitoring trial indicated that one channel catfish may have accounted for up to 95 percent of juvenile mussel production. The small number of mussels produced by most of these fish suggests that conventional methods to assess the viability of recently released winged mapleleaf glochidia are not sensitive enough to determine whether or not they are likely to encyst on a host and successfully transform into juveniles.

Based on reports of success by UMESC colleagues who propagated juveniles of other mussel species by continuously offering them an algal-based larviculture diet, Steingraeber subsequently cultured winged mapleleaf juveniles in similar controlled conditions at the UMESC. Winged mapleleaf from the UMESC trial were combined with 863 similarly aged juveniles recovered from co-exposed host fish that had simultaneously been maintained in similar trial conditions at the Genoa NFH. Juveniles were placed in a 38-L aquarium containing a thin (3-5 mm) layer of fine silica sand (< 202 μm) and supplied with a continuous flow (60-84 mL/min) of 18C aerated water. A dilute solution of a marine algal diet (*Nanochloropsis*) was prepared several times each week and continuously offered to the mussels at a rate that made water in the aquarium somewhat green and turbid. Based on limited sampling, juvenile mussel survival after five weeks of this feeding regime was estimated at 5 percent, suggesting about 50 of the 926 mussels remained alive. Surviving mussels exhibited external foot movement, internal movements, and/or valve movement, as well as internal organs with a green-colored hue (suggesting recent feeding on the algal diet) and enlarged valves. Seven weeks later however, a complete examination of the aquarium contents failed to recover any surviving mussels.

High rates of early life mortality are not uncommon during juvenile mussel development. In this case, it appears that the algal diet offered was inadequate to meet the nutritional needs of the juveniles at a time when their stored energy reserves were likely decreasing and reliance upon modes of exogenous feeding (pedal or filter) was increasing. These findings provide winged mapleleaf recovery team members with additional information to consider when evaluating how to proceed with annual propagation efforts in 2009.

For further info about the La Crosse NFWCO: <http://www.fws.gov/midwest/lacrossefisheries/>

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.

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Presentations at the National Coolwater Workshop

BY NICK STARZL, GENOA NFH

Nick Starzl of the Genoa National Fish Hatchery (NFH) presented at the 2009 Cool Water Fish Culture Workshop on January 12 and 13. The workshop was hosted by the Illinois Department of Natural Resources at the Rend Lake Resort near Whittington, Ill. The annual meeting brings fish culturists together from across the nation in order to exchange new and old ideas for the advancement of coolwater fish species such as walleye, perch, northern pike and sturgeon. Starzl presented on two topics including one on a lake sturgeon feed trial study which was conducted in June 2008.



-USFWS

These tanks were set up at the Genoa National Fish Hatchery to conduct feeding trials to test several commercial feeds for lake sturgeon culture.

The other presentation given by Starzl summarized the process of renovating the hatchery pond bottoms from mud to gravel. Genoa's outdoor rearing ponds were constructed during the 1930s and 40s and range in size from a half-acre to 34 acres. Due to the high water table at the hatchery, the pond bottoms do not dry sufficiently to be able to maintain them with a tractor. This allowed silt to accumulate and cause a reduction in volume and fertility over time. Between 2000 and 2003, nine of the hatchery's 19 ponds were dredged and lined with a layer of gravel which allows proper drainage and a firm bottom on which to maintain. The changes made for more efficient use of the pond space at the hatchery. For example, fingerling walleye survivability and production per acre increased by 300 percent due to the enhanced manageability of the ponds. In the future, Genoa NFH hopes to rehabilitate its remaining ponds to boost its warm- and coolwater fish rearing capabilities.

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

The Genoa NFH propagates up to 60,000 lake sturgeon annually, and would benefit greatly from the ability to feed commercially produced diets. The traditional method of rearing lake sturgeon is by feeding brine shrimp, frozen bloodworms and krill which typically results in high survival, but has many drawbacks including high cost and moderate growth. Hatchery staff investigated the ability to convert post larval lake sturgeon to two commercially prepared diets including Rangen™ semi-moist and Otohime™. Significant increases occurred in weight and length for lake sturgeon fed both the Rangen and the Otohime diet but with a low habituation rate (behavioral response to a stimulus after repeated exposure to that stimulus over a duration of time) of 18 and 25 percent respectively. Lake sturgeon fed the traditional diet had a survival rate of 92 percent. Mean lengths for both diets at the end of the study were 81mm compared to the control with 61mm.



-USFWS

Several culture ponds have been renovated at the Genoa National Fish Hatchery to provide adequate drainage and a firm pond bottom, which will increase rearing capabilities at the facility.

Gilbaugh Wetland Restoration Project

BY TED KOEHLER, ASHLAND NFWCO

A Partners for Fish and Wildlife Program (PFWP) wetland restoration project was completed on the Gilbaugh Farm in October of 2008. The project is located in Bayfield County, Wis, within the Lake Superior Watershed Focus Area for Region 3's PFWP and consisted of one wetland restoration site totaling five acres. As part of the landowner's contribution to the project, they provided 1,600 feet of chain link fence to incorporate into the levees in order to prevent future muskrat damage. A PFWP Habitat Development Agreement was signed to protect the restored area for a period of 10 years. This newly restored and protected wetland will provide ideal resting and nesting conditions for many species of migratory songbirds and waterfowl. Species benefiting from the habitat restoration and protection project include migratory waterfowl such as wood duck and American black duck, as well as migratory songbirds such as sedge wren and Le Conte's sparrow.



-USFWS

The Gilbaugh Wetland Restoration Project restored a five acre site in Bayfield County, Wisconsin.

With global climate change issues growing to higher levels of concern, it is becoming more recognized that efforts such as this have an influence on carbon sequestration and greenhouse gas emissions. Through fish and wildlife habitat restoration projects, there are unique opportunities to sequester large amounts of atmospheric carbon in plant and soil matter over a sustained period. Estimates of atmospheric carbon sequestered per wetland acre restored range from approximately 200 pounds to over 3 tons per year. Grassland and forest restoration efforts also have long-term benefits by storing large amounts of atmospheric carbon. Through the positive action of this wetland restoration and land use changes, federal trust species, other fish and wildlife, the local watershed and global environmental health will all benefit.

For further info about the Ashland NFWCO: <http://www.fws.gov/midwest/ashland/>

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.

The restoration is on agricultural land adjacent to the White River and is within the Bad River watershed which is a focus for multiple local restoration efforts to restore watershed health in the Bad River/Chequamegon Bay area. This location was intensively farmed creating an unstable soil situation. The wetland will provide relief to this problem as well as provide a sediment trapping buffer for the surrounding unstable uplands which are part of its watershed. Presently, the restoration partners include the landowner, Bayfield County Land Conservation Department, Ducks Unlimited and the Ashland National Fish and Wildlife Conservation Office (NFWCO). Partners work to restore permanent cover on the uplands surrounding the wetland. Through the Conservation Reserve Enhancement Program and other programs, the partnership is working to restore and protect approximately 15 acres of upland habitat around the wetland through tree planting and grassland protection.

Ohio River Basin Fish Habitat Partnership – What is it and where do you fit in?

BY ROB SIMMONDS, CARTERVILLE NFWCO

That was the title of a recent presentation at a joint meeting of the Indiana Chapter of the American Fisheries Society and the Indiana Lakes Management Society. Project Leader Rob Simmonds of the Cartersville National Fish and Wildlife Conservation Office (NFWCO) gave the presentation as part of a plenary session on the National Fish Habitat Action Plan.

The Ohio River Basin Fish Habitat Partnership (ORBFHP) is one of several candidate Fish Habitat Partnerships (FHPs) across the country. These FHPs are the “primary work units of the National Fish Habitat Action Plan.” We are currently developing a strategic plan for the Ohio River basin and will follow up with an assessment of the aquatic resources in the basin. The goal of each partnership is to determine the best possible actions to take in the best possible places to achieve the greatest measurable improvements possible to our resources of interest. We are continuing to refine our resources of interest through our planning process but generally speaking, “We will focus our conservation, restoration and enhancement efforts on habitat for fish and mussels in the watersheds of the Ohio River basin where priority habitat can be protected and in watersheds where habitat restoration is feasible.”

The real strength to accomplish this will come from our collection of partners. In the case of the ORBFHP, we have more than 100 individuals on our distribution list from a variety of state and federal agencies, universities, NGOs and others who are all interested in maintaining and improving habitat in the basin. Regardless of an individual’s particular interest (e.g., sport fish, endangered species, clean drinking water), most of the issues and solutions are the same. Many people are involved in ongoing activities and there are numerous sources of funding in the basin; Our goal is to strategically focus those resources and to bring in additional resources so that collectively we can make a bigger difference than we would have done individually. We have groups working on strategic planning, science and monitoring, outreach and other areas, so there is room in the Ohio River Basin Fish Habitat Partnership for all.

Ohio River Basin Fish Habitat Partnership

Healthy habitats, healthy mussels, healthy fish...all good for the American public.



For further info about the Cartersville NFWCO: <http://www.fws.gov/midwest/Fisheries/library/StationFactSheets/cartersville.pdf>

College Students attend Class at the Iron River NFH

BY CAREY EDWARDS, IRON RIVER NFH

The Iron River National Fish Hatchery (NFH) spawns thousands of lake trout and coaster brook trout every fall. Each year, the hatchery solicits employees from within the Fish and Wildlife Service and volunteers from outside the agency to help complete this important task. This year, the hatchery was contacted by Professor Derek Ogle of Northland College to have students from his class participate in this process and make it a learning experience.



-USFWS

Northland College students sort adult lake trout for spawning at the Iron River National Fish Hatchery.

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

North Country Trail Association (NCTA) Presents Award to Jordan River NFH

BY TIM SMIGIELSKI, JORDAN RIVER NFH

On January 10th at the Tittabawassee Chapter meeting of the North Country Trail Association (NCTA) held in Houghton Lake Michigan, chapter president Gary Johnson awarded Jordan River National Fish Hatchery biologist Tim Smigielski with a Certificate of Appreciation for the hatchery. NCTA has become a partner and supporter of the hatchery through the hatchery Friends Group. Hatchery staff provides accommodations for meetings and a place to

stage gear, tools and equipment used to work on the trail, which runs adjacent to the hatchery grounds.

Tim attended the annual meeting to report progress on the Adirondack shelter project at the hatchery. He was pleasantly surprised with the award that recognizes the hatchery for providing storage for the NCTA tool trailer and assistance with equipment maintenance and winterization. The NCTA is a strong volunteer-based organization. The hatchery really values this partnership.

For further info about the Jordan River NFH: <http://www.fws.gov/midwest/JordanRiver/>

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.

The goals were to introduce students to hatchery practices both in the classroom and at the hatchery. Before they arrived at the hatchery, students were given math problems that included chemical treatments, flow index, density index, egg enumeration, feed conversions and other everyday calculations that occur at the hatchery. Once on-site, the students worked with biologists to apply what they had learned in the classroom.

Students donned rain gear and waders and assisted biologists with length/weight frequencies, sorting ripe and green lake and coaster brook trout for spawning, weight counts and egg enumerations. Groups were formed and rotated between activities so students could participate in each area.

This was a very successful project and Northland College has already requested to have its students work with the staff at Iron River in the fall of 2009. We appreciated all the help, and we look forward to next fall when the next group of students arrive.

Congressional Actions

[111th CONGRESS House Bills]
[From the U.S. Government Printing Office via GPO Access]
[DOCID: h51ih.txt]
[Introduced in House]

111th CONGRESS
1st Session

H. R. 51

To direct the Director of the United States Fish and Wildlife Service to conduct a study of the feasibility of a variety of approaches to eradicating Asian carp from the Great Lakes and their tributary and connecting waters.

IN THE HOUSE OF REPRESENTATIVES

January 6, 2009

Mr. Kirk introduced the following bill; which was referred to the Committee on Natural Resources

A BILL

To direct the Director of the United States Fish and Wildlife Service to conduct a study of the feasibility of a variety of approaches to eradicating Asian carp from the Great Lakes and their tributary and connecting waters.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Eradicating Asian Carp in the Great Lakes Study Act of 2009".

SEC. 2. ASIAN CARP ERADICATION STUDY AND REPORT.

- (a) In General.—The Director of the United States Fish and Wildlife Service shall conduct a study to—
- (1) identify methods to eradicate Asian carp from the Illinois Waterway System, including methods for harvesting Asian carp; and
 - (2) evaluate the feasibility and costs of each such method.
- (b) Consultation.—The Director shall conduct the study under subsection (a) in consultation with—
- (1) the Administrator of the National Oceanic and Atmospheric Administration; and
 - (2) at least two interstate bodies representing the Mississippi River and Great Lakes States.

(c) Contents.—The study shall include, at a minimum, an evaluation of the feasibility of temporarily harvesting Asian carp as a method for eradicating the carp from the Illinois River. Such evaluation shall include evaluations of—

- (1) species biomass and distribution for all fish species in the Illinois River, including a comparison with historical biomass and distribution data if such data is available;
- (2) possible harvesting methods for Asian carp;
- (3) possible products that could be generated from Asian carp;
- (4) available types of temporary processing locations for harvested Asian carp;
- (5) the environmental effects of constructing and operating temporary processing facilities at such locations;
- (6) methods to repopulate the Illinois River ecosystem with native species; and
- (7) the effect of Asian carp on the Illinois River ecosystem if temporary harvesting of Asian Carp is not conducted.

(d) Report.—

(1) In general.—The Director, in consultation with the Administrator, shall submit to Congress a report containing the findings, conclusions, and recommendations resulting from the study under subsection (a).

(2) Contents.—The report shall include recommendations concerning—

- (A) regulatory and other mechanisms to ensure—
 - (i) expeditious action to address the Asian carp problem;
 - (ii) effective eradication of such carp;
- and
- (iii) that an appropriate deadline is set for the completion of harvesting of such carp;
- (B) preferred harvesting methods for Asian carp;
- (C) the ideal quantity and distribution of—
 - (i) temporary processing locations for harvested Asian carp; and
 - (ii) temporary buying stations for harvested Asian carp; and
- (D) methods to repopulate the Illinois River ecosystem with native species.

(e) Deadlines.—The Director shall—

- (1) begin the study under subsection (a) not later than three months after the date of enactment of this Act;
- (2) complete the study not later than 15 months after the date of enactment of this Act; and
- (3) submit the report under subsection (d) not later than three months after the date of completion of the study.

<all>

Source is <http://www.gpoaccess.gov/bills/index.html>
Searched database by keyword = "fish"

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.

National Fish and Wildlife Conservation Offices

National 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 fisher-

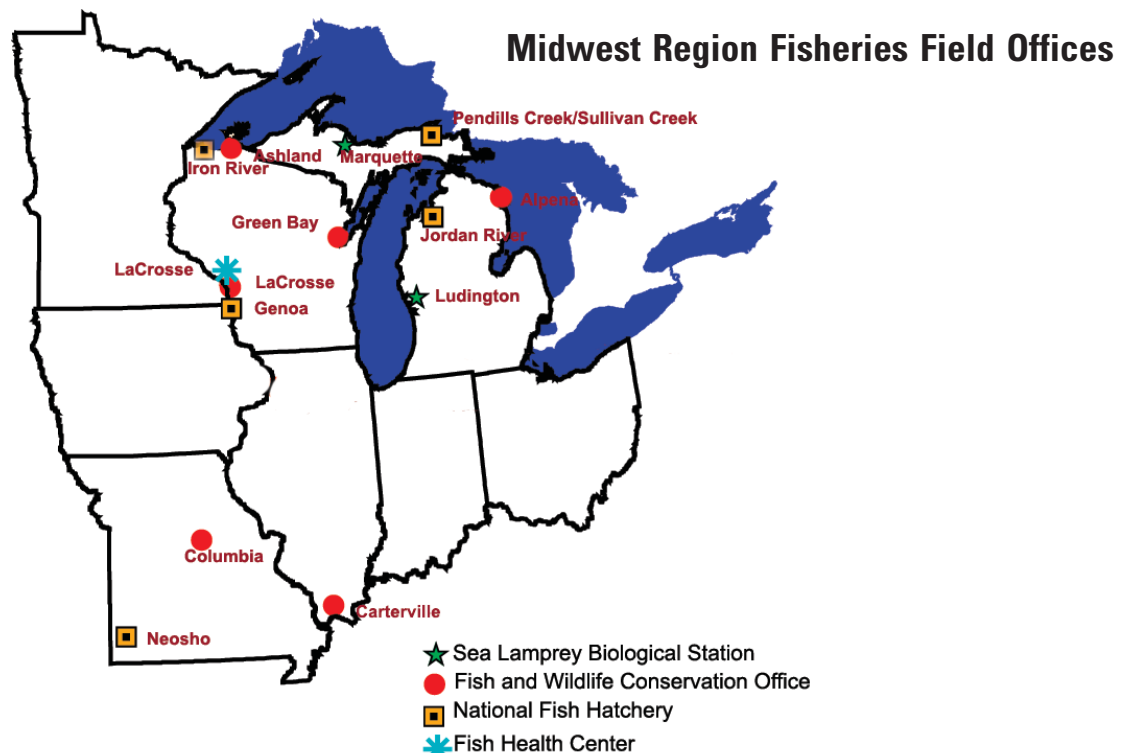
ies databases; provide technical expertise to other Service programs addressing contaminants, endangered species, federal project review and hydro-power operation and re-licensing; evaluate and manage fisheries on Service lands; and, provide technical support to 38 Native American tribal governments 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

- Alpena NFWCO Staff Attend Michigan Stream Team Meeting
 - Andrea Ania, Alpena NFWCO
- Genoa NFH STEP program helps meet Ohio River Aquatic Restoration Technical Committee’s Annual Goals
 - Tony Brady, Genoa NFH
- Middle Basin Pallid Sturgeon Workgroup Meeting
 - Tracy Hill, Columbia NFWCO
- Sharing the Wealth
 - Melissa Cheung, Neosho NFH
- The La Crosse Fish Health Center’s New Website
 - Julie Teskie, La Crosse FHC
- Two Internet Web Site Updates
 - Frank Stone, Ashland NFWCO

Aquatic Species Conservation and Management

- Fry Rearing Trough Project Undertaken at Jordan River NFH
 - Tim Smigielski, Jordan River NFH
- Giants of the Missouri River
 - Colby Wrasse, Columbia NFWCO
- Just in Case
 - Jeff Messens, Neosho NFH
- Sturgeon Work Continues...
 - David Hendrix, Neosho NFH
- The Missouri River Spa
 - Patricia Herman, Columbia NFWCO

Aquatic Invasive Species

Public Use

- Biologists Teach Wilson School 2nd Graders
 - Andrea Ania, Alpena NFWCO
- Emergency Assistance!
 - Rod May, Neosho NFH

- Outreach Highlights
 - Kristen Dzuibinski, La Crosse FHC
- Winter Wetlands bring Wonder to Southern Bluffs Students
 - Jenny Walker Bailey, Genoa NFH

Cooperation with Native Americans

Leadership in Science and Technology

Aquatic Habitat Conservation and Management

Workforce Management

- Keeping Our Books in Order
 - Heather Williams, Neosho NFH
- New Administrative Assistant for the Ashland NFWCO

Pathogen Spotlight

Bacterial Kidney Disease (BKD) is also known as corynebacterial disease, salmonid kidney disease, white boil disease and Dee disease. It produces a chronic systemic infection in salmonid fish. The disease is characterized by lesions in the kidney and other organs of infected fish. Signs of the disease include swollen kidneys with white, pus-forming lesions (lesions may also appear in the liver, heart and spleen), exophthalmia (“pop-eye”), hemorrhaging in the musculature, hemorrhaging and deep abscesses on the body, and swelling of the abdomen. In severe cases, the kidneys can be immensely swollen, decaying, and grayish-white in appearance. The bacterium that causes BKD is *Renibacterium salmoninarum*. BKD has been detected in both free-ranging and hatchery-raised salmonids. All species of salmonids are susceptible to BKD in varying degrees. Pacific salmon are the least resistant; whereas, rainbow trout are the most resistant. The disease can be transmitted both through the ingestion of feces from infected fish and from parental fish to their young. Currently, there are no effective treatments for BKD infections. The disease can be controlled through the use of anti-microbial compounds but cannot be eradicated this way. Some researchers propose that all fish are carriers of *R. salmoninarum* and the disease occurs only when the conditions are favorable to the bacterium; therefore, a stressful environment plays a role in the development of the disease.



USFWS

A young Chinook salmon with a swollen abdomen due to Bacterial Kidney Disease.