

U.S. Fish & Wildlife Service - Midwest Region

Fisheries & Aquatic Resources Program

Fish Lines

**The Hunt is Underway
in the Chicago Area
Waterway System**

**Outreach Education Happens in
the Darndest Places!**

**Walking in a Winter
Wonderland**



CONSERVING
**AMERICA'S
fisheries**
U.S. Fish & Wildlife Service

Vol. 8 No. 4
January 2010

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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-USGS/DuaneChapman

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To view other issues of "Fish Lines," visit our website at:
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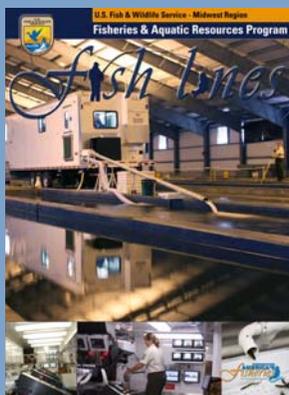
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2010 Vol. 8 No. 4

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A new mass marking trailer is being tested at the Iron River National Fish Hatchery.

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The Hunt is Underway in the Chicago Area Waterway System

BY SAM FINNEY, CARTERVILLE FWCO

The hunt for Asian carp above the electrical barrier has begun! Asian carp DNA was detected upstream of the electrical fish barrier in Joliet, Ill. earlier this year and has spurred numerous actions to capture a live specimen and to implement other management actions to keep Asian carp below the barrier and stop the spread and growth of potential invasive Asian carp above the barrier.

positive DNA samples. They also gathered logistical information such as contact numbers, maps, pictures and access points for future sampling trips. They set nets where they could; although they did not net an Asian carp, they did “net” an aerial reconnaissance trip on a U.S. Coast Guard helicopter.

After analyzing the information that Rob and Brad gathered, a short-term plan was hatched for sampling the Chicago Area Waterways over the next two weeks.

Sampling crews from the Illinois Department of Natural Resources and Fish and

Wildlife Service, and contracted commercial fishermen spent the next few weeks taking advantage of the cold weather by sampling ice-free warm water areas identified near power plants, sewage plants, a corn starch plant and other industrial outflows. In the efforts that happened over the next two weeks, a total of approximately 16,000 feet of trammel net was set and about 20 hours of electrofishing occurred.



-USFWS

Brad Rogers of the Carterville Fish and Wildlife Conservation Office (FWCO) (left) and Josh Schloesser of the Columbia FWCO prepare to sample the Chicago Area Waterways for Asian carp.

The fun started with a half reconnaissance, half sampling trip the week of February 1. Brad Rogers and Rob Simmonds of the Carterville Fish and Wildlife Conservation Office (FWCO) traveled to Chicago to sample the Chicago Area Waterways. The areas they looked for were free of ice (near warm water effluents) and near known locations of Asian carp

than a dozen species were collected including large-mouth bass, channel catfish, goldfish, bluegill, rainbow trout, round goby and an oriental weatherfish. No Asian carp were captured but techniques and strategies have been refined to provide input into a larger long-term strategy that will be implemented in the near future.

Catches consisted mainly of common carp and gizzard shad but more

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

Outreach Education happens in the Darndest Places!

BY ANDY STAROSTKA AND BRIAN ELKINGTON, COLUMBIA FWCO

We are all passionate about natural resources and what we do to protect them. Though it may or may not be part of our job duties, we like others to know what we do and want to

what they can see as they cross over the Missouri River on one of the many bridges. We still have a lot of work to do to show the inter beauty of the “Big Muddy.” Many have talked about the [disconnection of today’s youth with nature](#) and the environment. We here at Columbia Fish and Wildlife Conservation Office (FWCO) are doing something about it.



-USFWS

A biologist from the Columbia Fish and Wildlife Conservation Office talks to an excited local school group from Paxton Keeley about Missouri River fish.

answer their questions. Many times, this takes the form of providing someone the facts on a local natural resource hot topic or showing a [school group](#) the [uniqueness of the ecosystem](#) in their own backyard. Biological gems are all around us, even in plain sight, but many people are unaware they exist. These biological gems are often tightly interwoven with the [local communities](#) and are part of some of the most important events in history. The Missouri River is a perfect example of this. Whether a history buff or a naturalist, everyone should know the importance of this river. It is related to the Louisiana Purchase, Lewis and Clark’s Corps of Discovery, and it is the longest river in the United States. But how many of the residents that live within even 10 miles of this great river have actually been on it? I think the numbers are surprisingly low. Most people only know

Outreach and education can happen any time or anywhere from the expected to the unexpected. These opportunities can be as easy as answering a single question at the local gas station, dinner out or bait shop to the more intensive day or even weekend long classes for [Wonders of Wildlife \(WOW\)](#), a [fish and wildlife techniques class](#) for the local university, the Scouts (be it the Girl, [Cub, Boy](#) or [Adventures](#)), or assisting with disabled deer hunts. Sometimes outreach opportunities happen when least expected or sometimes when you are not even at work. They can happen while you are on vacation, far from your home and not even in the ecosystem where you work. It may happen when



-USFWS/ColbyWrasse

Colby Wrasse holds a handful of aquatic critters while students at the “Wonders of Wildlife” event investigate.

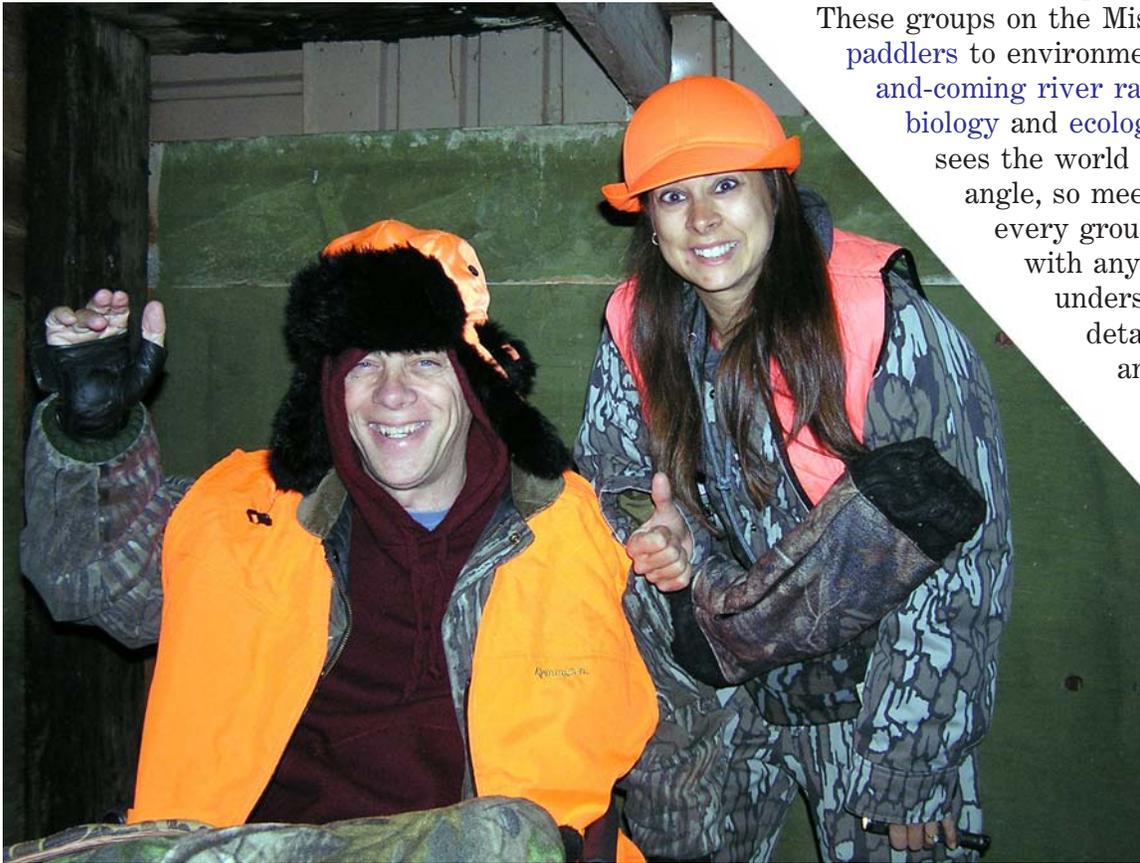
such subjects should be the last thing on your mind but the conversation gravitates that way and you feel obliged to answer those questions. Think it is a bit odd to be having such discussion in the [maternity ward or lying on the operating table at the local hospital](#) (Page 11 of this link)? Well maybe it is, but we do it anyway.

I have found it very rewarding to discuss and explain to people the “why’s” and “how’s” of some local hot topic. In this age of information, where everything can be had instantly, we continue to get bombarded with a lot of partial and miss-information. Name a natural resource related issue and I can assure you that it will have [multiple users](#) and stakeholders.

These groups on the Missouri River range from [paddlers](#) to environmental [cleanup groups](#) to [up-and-coming river rats](#) that are interested in [biology](#) and [ecology](#). Each of these groups sees the world from a slightly different angle, so meeting the needs of each and every group is difficult. We all know with any complex issue, that real understanding is rooted in the details. Explain the details and most find it understandable (though they may still not agree with us completely) as to why we do the things we do.

Education has been a noble occupation through the ages. One can understand the deep satisfaction of teaching when you see the dull glimmer change to a [bright spark of understanding](#) in the eyes of a student, be it a young child in a grade school

science class or the old weather hardened fisherman on the local boat ramp. For others to [appreciate the natural world](#) around them in its fullest, be it their back yard or half way around the world, they must understand why it is worth conserving and protecting for the generations that are to come. That is what we do and why we do it. Plans are in the works for 2010 to [continue this legacy of education and outreach](#); it is part of our mission statement.



-USFWS/ClaytonRidenour
Hunters from this year's disabled deer hunt bubble with anticipation before the day's activities begin.



-USFWS/PattyHerman
River Relief is hard at work with the help of many dedicated volunteers, cleaning up one of Missouri's beautiful waterways.

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

Walking in a Winter Wonderland

BY JENNY BAILEY, GENOA NFH

Fifth grade students from Southern Bluffs Elementary got their winter booster of nature experience on Groundhog Day, 2010. This experience in nature is part of Genoa National Fish Hatchery's (NFH) Outdoor Classroom Program to get children in touch with nature. We provide South-

ern Bluffs fifth graders with a place to learn about nature, wildlife and conservation principles while exploring, romping, touching, feeling and becoming part of nature. The all-day experience is repeated several times throughout the year in Genoa NFH's Sense of Wonder Discovery Wetland. The outdoor classroom experience is special in that it provides children with time for unstructured exploration and the experience is shared with professionals in

nature to help guide children in creating emotional connections with nature as well as making physical, intellectual and cognitive connections.

Besides walking, talking, stomping and romping in the wetland (good for the heart and soul), the highlights of this winter visit to the Outdoor Classroom included special presentations by Dan Kumlin and Jeff Lockington, both from the Genoa NFH. Trapping, fur bearing animal ecology and the history of trapping in Wisconsin were presented by maintenance mechanic Dan Kumlin, a lifetime fur trapper and naturalist. Rewarding Careers in Nature was presented by maintenance worker Jeff Lockington, who described career paths in nature, talked about his connections with nature, and described how working with nature is a wonderful and exciting way of life.

Animal tracking, hiking, sliding, climbing trees and exploring in the brush are some of the other outdoor activities that students experienced. The results are healthy kids that want to return again and again. The staff at Genoa hopes that these children return to nature with their families as they continue to grow and make outdoor experiences precious moments to remember.



-USFWS

Trapper Dan Kumlin (maintainance mechanic at the Genoa National Fish Hatchery) poses with students who have just learned about trapping, fur bearing animal ecology and the history of trapping in Wisconsin.



-USFWS

Experiencing nature in Genoa National Fish Hatchery's Sense of Wonder Discovery Wetland.

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

Boardman River Implementation Team Meetings

BY RICK WESTERHOF, GREEN BAY FWCO

The Boardman River Implementation Team (IT) in Michigan has been meeting monthly since the City of Traverse City (Brown Bridge and Union Street dams) and the Grand Traverse County (Boardman and Sabin dams) decided to remove their respective dams last year. Since then, the IT and project manager of the Conservation Resource Alliance (CRA) have been busy developing plans, writing a grant proposal, discussing involvement of the U.S. Army Corps of Engineers (Corps), and organizing working groups to address specific issues.

Some of the plans being developed include a communication plan, fundraising plan and dam removal/modification plan. These plans are in various states of development and contingent upon funding. Numerous proposals have been submitted for funding to the following programs: National Oceanic and Atmospheric Administration Great Lakes Habitat, Environmental Protection Agency Great Lakes Restoration Initiative second request for proposals, Michigan Department of Natural Resources (DNR) and Environment Coastal Management, National Fish Passage, Circle of Flight, Partners for Fish and Wildlife, Great Lakes Fish and Wildlife Restoration Act, and Great Lakes Fish Habitat Partnership. As funding is received, certain activities will be developed further. For example, the Bottomland Working Group has formed and is in the process of addressing several issues related to the exposed land from the drawdown of Boardman Pond. In this case, funding

was received from the Fish and Wildlife Service Partners Program out of the Alpena Fish and Wildlife Conservation Office (FWCO).

Discussion continues with the Corps to develop the Feasibility Report and NEPA document for the removal/modification of the dams via the Section 506–Great Lakes Fisheries and Ecosystem Restoration Program. Michigan’s Senator Levin has been very supportive of the Boardman River Dams Project and continues to provide information on the process and legislative updates. The Corps is currently interviewing candidates for the project manager position that will be responsible for the dam removal/modification project. Information from the past three years will be the foundation of the dam removal plan and will be extremely valuable as the plan takes shape.

The IT is made up of the following agencies: Grand Traverse County, City of Traverse City, Traverse City Light and Power, Grand Traverse Band of Ottawa and Chippewa Indians, Michigan Hydro Relicensing Coalition, Fish and Wildlife Service, Michigan Department of Environmental Quality and Michigan DNR. Ex officio members of the IT include CRA, Watershed Center Grand Traverse Bay, Traverse City Rotary and Grand Traverse Conservation District.

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.

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

Great Lakes Fish Health Committee Meeting

BY KEN PHILLIPS, LA CROSSE FHC

Eric Leis and Ken Phillips of the La Crosse Fish Health Center (FHC) attended the Great Lakes Fish Health Committee (GLFHC) meeting held January 20-21 in Toledo, Ohio. The GLFHC is a bi-national committee that develops fish health policy recommendations for the Great Lakes Fishery Commission and its member agencies. The GLFHC meets in January and August each year, allowing members to discuss fish health issues and research pertinent to the Great Lakes region. Ken Phillips serves as vice-chair of the committee.

Highlights of the meeting included a presentation by Eric Leis regarding detection methods for *Nucleospora salmonis* (a protozoan parasite that has recently been detected in the Great Lakes); an overview of the U.S. National Aquatic Animal Health Plan by Gary Egrie, Fred Bourgeois (USDA-Animal and Plant Health Inspection Service) and Ray Brunson (Olympia FHC); and research updates from Diane Elliot from the Western Fisheries Research Center (Seattle, Wash.) and Mohamed Faisal from Michigan State University regarding bacterial kidney disease and viral hemorrhagic septicemia, respectively.

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

Secretary Salazar Announces \$1.09 Million of Economic Recovery Funding for Jordan River National Fish Hatchery in Michigan

WASHINGTON, D.C. – Secretary of the Interior Ken Salazar announced today that the U.S. Fish and Wildlife Service has awarded a \$1.09 million contract to Nomad Construction, Inc., based in Saulte Sainte Marie, Mich. to construct buildings over raceways at the Jordan River National Fish Hatchery, under the American Recovery and Reinvestment Act of 2009 (ARRA).

The ARRA funds will be used to construct a building over Raceways 1-8 at the Jordan River National Fish Hatchery (NFH) located in Elmira. Jordan River NFH stocks lake trout into the Great Lakes, primarily Lakes Michigan and Huron, with a long-term goal of establishing a self-sustaining lake trout population.

"This project will increase efficiency at the Jordan River National Fish Hatchery, improve sport fishery opportunities in the Great Lakes, as well as create jobs in the community," said Secretary Salazar.

The American Recovery and Reinvestment Act passed earlier this year gave \$3 billion to the Department of the Interior.

The ARRA funds represent an important component of the President's plan to jumpstart the economy and put a down payment on addressing long-neglected challenges so the country can thrive in the 21st century. Under the ARRA, Interior is making an investment in conserving America's timeless treasures – our stunning natural landscapes, our monuments to liberty, the icons of our culture and heritage – while helping American families and their communities prosper again. Interior is also focusing on renewable energy projects, the needs of American Indians, employing youth and promoting community service.

"With its investments of Recovery Act funds, the Department of the Interior and its bureaus are putting people to work today to make improvements that will benefit the environment and the region for many years to come," Secretary of the Interior Ken Salazar said. Secretary Salazar has pledged unprecedented levels of transparency and accountability in the implementation of the Department's economic recovery projects. The public will be able to follow the progress of each project on www.recovery.gov and on www.interior.gov/recovery. Secretary Salazar has appointed a Senior Advisor for Economic Recovery, [Chris Henderson](#), and an Interior Economic Recovery Task Force to work closely with Interior's Inspector General and ensure the recovery program is meeting the high standards for accountability, responsibility, and transparency set by President Obama.

(REPRINTED FROM ORIGINAL DOI NEWS RELEASE)

Lemonade Anyone?

BY MARK STEINGRAEBER, LA CROSSE FWCO

Remember the old adage, “Patience is a virtue”? How about the Boy Scout motto, “Be Prepared”? These phrases are part of an all too familiar autumn mantra I have muttered at times over the past decade to comfort myself and colleagues while working to recover the St. Croix River population of endangered winged mapleleaf mussels.

Heck, we had to set up everything in the wet lab three years in a row (2001- 2003) before enough mussel larvae (glochidia) were available to finally identify blue catfish and confirm channel catfish as suitable host fish to propagate the winged mapleleaf.

So early last fall, after building a new flow through test system in the lab to identify the optimum size of catfish needed to maximize juvenile winged mapleleaf production, I was prepared for the cold, hard fact that



-USFWS

A wide range of water temperature settings are possible in this new flow-through test system designed for winged mapleleaf mussel research.

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

Quality Assurance/Quality Control at the La Crosse FHC

BY JOHN WHITNEY, LA CROSSE FHC

The La Crosse Fish Health Center (FHC) has implemented a Quality Assurance/Quality Control (QA/QC) program. The purpose of this program is to monitor laboratory activities and assure all the data generated is scientifically valid and of a known precision and accuracy. The La Crosse FHC has seven permanent and six temporary staff and two volunteers. With a staff of this size, at any given time,

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

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.

later came in an email stating “No glochidia are available for testing in 2009.”

Given this latest “lemon” in my winged mapleleaf saga, I was determined

not to waste the annual effort used to prepare the lab for this planned work. The new test system was designed to simulate typical St. Croix River water temperatures over the period from October to June. But the proper mix of available heat exchange equipment and flow rates needed to chill and maintain a dependable flow of fresh water at < 9°C, continuously for several months, remained uncertain. Therefore, the wet lab was subsequently transformed into a virtual test kitchen for preparing some well chilled “lemonade.”

After weeks of systematically altering compressor settings, flow rates, test chamber volumes and plumbing systems to document corresponding fluxes in water temperature throughout the test system, a “cookbook” of “recipes” was developed for producing reliable flows of water at temperatures that spanned an eleven degree range (8 - 19°C) in test chambers.

The new test system proved fully functional, dependable, and is now available for temperature dependent work with winged mapleleaf mussels. It’s too early to tell if winged mapleleaf glochidia will be available for testing in 2010, but we’ll be ready and patiently waiting for them, same time this year. In the mean time... how about some lemonade?

numerous projects are going on at the same time. Field activities, report writing and laboratory activities all have to be precise and accurate and the QA/QC program will perform internal audits to insure this. Fish and Wildlife Service and American Fisheries Society QA/QC guidelines will be used when conducting these audits.

Silver Carp Explored as Food for Zoo Animals

BY SAM FINNEY, CARTERVILLE FWCO

Do whatever it takes to get rid of Asian carp, right? That is pretty much the prevailing thought these days and that is what the Carterville Fish and Wildlife Conservation Office (FWCO), U.S. Geological Survey (USGS) and the St. Louis Zoo had in mind when they undertook looking at Asian carp as a potential source of protein for zoo animals. Taking their lead from the Asian carp management plan, Duane Chapman of the USGS, Dr. Ellen Dierenfeld (Saint Louis Zoo) and Dr. Andrew Clarke (University of Missouri – Columbia) thought up a product that would consist of ground silver carp formed into cakes. A few silver carp were captured out of the Missouri River, ground up with a meat grinder, and mashed into cakes. The product deemed “carp cakes” was tested for nutritional content, handling acceptability and for palatability to a variety of fish eating zoo animals. The product was a success from this angle with one exception.

Unfortunately, there is low thiamine (Vitamin B1) concentration in carp cakes. The low level of Vitamin B1 is thought to be caused by thiaminase that breaks down B1 in animal tissues. Therefore, a thiamin

supplement was added to the carp cakes and results are encouraging. Further studies of the supplement to carp cakes are needed. The next thing on this project is to make the new modified carp cakes and commence with a feeding study to see if the supplement in the carp cakes retains Vitamin B1 and determine if animals can digest it.

Carp cakes have price and diet benefits and public relations benefits for the zoos. Developing beneficial products from Asian carp, like carp cakes, have the potential to stimulate their harvest. This could be part of the larger harvest equation that would cause an increase in the price and desire for Asian carp and a reduction in their numbers in the river.

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

Pet Fish Turn-In Nets a Whopper

BY MARK STEINGRAEBER, LA CROSSE FWCO

Reports of large, exotic fish caught by anglers, commercial fishers and fishery resource managers in public waters have become all too common across the country in recent years. The causes for most of these unexpected and environmentally troubling landings are hobbyists (aquarium owners and water gardeners) who can no longer care for their large ornamental fish (e.g., pacu, koi) and purposely release them into nearby surface waters as a quick solution. Release of these fish can adversely impact native fishes. Faced with a dilemma like this, fish hobbyists need to learn of approved alternatives to the illegal abandonment of their aquatic pets in the wild. One such option is a government/business partnership that was established in 2006 by the La Crosse Fish and Wildlife Conservation Office (FWCO). Several pet retailers in this region have agreed to accept and quarantine large, unwanted pet fish from owners who can no longer care for them. Because there is virtually no market for these businesses to resell such large fish to other pet owners, the La

Crosse FWCO will accept custody of these unwanted fish and humanely euthanize them at no cost.

The Marineland Pet Center in Onalaska, Wis. is a local retail pet store that accepts large, unwanted hobby fish. On October 26, 2009, La Crosse FWCO biologist Mark Steingraeber took possession of a 5 pound 10 ounce pacu that measured 20 inches in total length. This whopper, the largest pet fish recovered by the program to date, was cryopreserved after it had been humanely euthanized with Finquel® (tricaine methanesulfonate), a U.S. Food and Drug Administration approved anesthetic for aquatic cold-blooded vertebrates. This fish has an upcoming appointment with a taxidermist who will prepare it for use at Fish and Wildlife Service outreach events to increase public awareness of potentially problematic pet fish and acceptable alternatives to the release of these animals in the wild. Since its inception in 2006, this unique partnership has now prevented the possible release of 29 large, unwanted pet fish.

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

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.

Service Offices take the Plunge at Sport Show

BY MARK STEINGRAEBER, LA CROSSE FWCO

After occupying the dim lit corner of a main entrance to the La Crosse Center for more than a decade, three local Fish and Wildlife Service offices recently took a midwinter plunge by relocating their display booth to the bright lights and well-trodden walkways on the main floor of the exhibition hall during the 33rd Annual La Crosse Boat, Travel and Sports Show. Located along a serpentine path amidst more than 80 other exhibitors, no one attending the show could miss what the Fish and Wildlife Service had to offer in 2010. As in past years, a large aquarium stocked with native fish and mussels from the Genoa National Fish Hatchery was prominently displayed to catch the attention of passers-by. While



-Owen Johnson

Fish and Wildlife Service staff and Friends group members greet visitors to the La Crosse Boat, Travel & Sports Show.

stopped here, staff from the La Crosse Fish and Wildlife Conservation Office (FWCO), Upper Mississippi River National Wildlife and Fish Refuge and members of Friends groups supporting these offices engaged more than 1,600

visitors in conversation during the four day event. Key topics of discussion this year included: local opportunities to connect children with nature and outdoor activities; aquatic habitat restoration efforts in Pool 8 of the Upper Mississippi River; invasive species; and the construction of a new La Crosse district office and visitor center for the refuge on Brice's Prairie. Coinciding with the celebration of Valentine's Day this year, sport show visitors were encouraged to select a Fish and Wildlife Service designed "Fall in Love with Nature" valentine to share with someone special. The opportunity to personally exchange natural resource information with the large, diverse audience that attends this annual event makes Fish and Wildlife Service participation here a valuable outreach tool for all La Crosse area offices.

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 La Crosse FWCO: <http://www.fws.gov/midwest/lacrossefisheries/>

Fishery Management at DeSoto NWR

BY BRIAN ELKINGTON, COLUMBIA FWCO

The Columbia Fish and Wildlife Conservation Office (FWCO), DeSoto National Wildlife Refuge (NWR), Iowa Department of Natural Resources and the Nebraska Game and Parks Commission met this month to discuss the results of our sampling efforts and the future stocking/assessment plans at DeSoto Lake. It was a great opportunity for us to provide fisheries management recommendations to DeSoto NWR based on multiple years of data collected from DeSoto Lake.

Sampling information gathered from each of the agencies in 2009 was compiled by Columbia FWCO

biologist Brian Elkington and used to assess and discuss our data collection and fish stocking strategy for 2010. In the case of both sampling and stocking, minor changes will be made in 2010 to adjust our efforts. We also discussed habitat projects that have been completed such as large rock reefs constructed in the fall of 2007 and the prospect of future pine tree placements or rock reef construction in the lake. We are also developing a research study to promote the reintroduction of many aquatic vegetation species back into DeSoto Lake. Recreational fishing is an important part of DeSoto NWR.

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

A New Year brings forth a New Trout Production Season

BY TONY BRADY, GENOA NFH

As the rest of the world rings in the New Year, the staff at Genoa National Fish Hatchery (NFH) rings in the start of another production season. January is the month when Genoa NFH receives both coaster brook trout eggs from Iron River NFH and rainbow trout eggs from Ennis NFH for production requests that will be met later this year and in 2011. Don't be misled; raising trout is not a seasonal thing at Genoa but rather a year-round affair. Eggs normally come in as eyed eggs, meaning the fish are developed to where their eyes are visible through the egg shell. The eggs are then disinfected according to hatchery protocol, before being placed into troughs where they are cared for to ensure a high hatch percentage.



-USFWS

Rainbow trout eggs are placed in rearing troughs at the Genoa National Fish Hatchery where they are cared for to ensure a high hatch rate.

After the eggs are hatched, the fry are pampered for maximize survival. One area of difficulty Genoa NFH has had to deal with in rearing trout fry is the high concentrations of iron that naturally occurs in the ground water used by the station. Due to a high iron concentration recently discovered in a new production well, the survival percentage of this year's brook trout fry was lowered. Iron was confirmed as the source for the mortalities after La Crosse Fish Health Center ruled out any possible biological vectors that could have caused the loss of the fish. In order to prevent any additional fish loss, the staff at

Genoa NFH began using low head oxygen units supplied with pure oxygen to supersaturate the water. The supersaturated oxygen in the water then binds with the iron causing the iron to precipitate out making the water safer for the newly hatched fry. Thanks goes to Dale Bast and staff for providing additional coaster brook trout eggs. The resulting fish from these eggs as well as those remaining from the first batch will be released into waters on six different Native American lands.

Another benefit from the low head oxygen unit is the increased dissolved oxygen available to the fish. This increased dissolved oxygen has aided the rearing of rainbow trout by allowing the hatchery to hold greater numbers of fish in the limited amount of cold water rearing space. Annually, Genoa NFH raises 20,000 rainbow trout for a number of different requests. One of the largest requests received is from Fort McCoy in Sparta, Wisconsin. Fort McCoy has several fishing ponds located just outside of their main fence, and they make these ponds available to the public. Hundreds of anglers converge on Fort McCoy at the start of the inland fishing season in Wisconsin seeking the 10 inch trout. In addition to Fort McCoy, Genoa NFH also provides rainbow trout to six Native American Tribes throughout the Upper Midwest. Rainbow trout from Genoa also goes to provide fishing opportunities for veterans at the Tomah VA hospital and Camp Decorah Boy Scout Camp as well as the two kids fishing derbies held at the hatchery, one in the spring and one in the winter through the ice. The two kids fishing derbies attracted nearly 600 participants which were held in May 2009 and February 2010.



-USFWS

Nearly 300 children enjoyed a day of ice fishing for rainbow trout at the Genoa National Fish Hatchery.

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

Ash Creek Brook Trout Eggs Arrive at Genoa NFH

BY DOUG ALOISI AND JORGE BUENING, GENOA NFH

Thanks to the Wisconsin Department of Natural Resources (DNR) and the Nevin State Fish Hatchery (SFH) in Madison, Wis. the Genoa National Fish Hatchery (NFH) received a special shipment of brook trout eggs this January. These eggs originated from established brook trout populations living in Ash Creek, located near Richland Center, Wis. The eggs were collected by the Wisconsin DNR this fall and have been housed at the Nevin SFH in Madison while the parents awaited fish health clearance. Once fish health certification was assured, the eggs were transferred to Genoa NFH for grow out to small fingerling size of 2.5 inches.

This strain of brook trout is unique because of its wildness, being only one generation removed from the



-USFWS

Project leader Doug Aloisi places Ash Creek strain brook trout eggs into their new temporary home until they hatch and grow to about 2.5 inches for stocking into Trout Creek on the Oneida Indian Reservation.

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

existing population in Ash Creek. Its habitat and water chemistry also closely resembles that of Trout Creek, a small watershed on the Oneida Indian Reservation.

Upon reaching small fingerling size, the brook trout will be stocked into Trout Creek on the Oneida Indian Reservation as the stocking requirement for year two of a three year restoration plan.

This restoration effort is the product of many years of collaboration between the Wisconsin DNR, Green Bay Fish and Wildlife Conservation Office (FWCO) and the Oneida tribe and is the culmination of efforts that restored water quality and habitat to Trout Creek after years of point source pollution extirpated local brook trout populations. Through improved land use management practices, livestock manure containment facilities and habitat improvements, Trout Creek is now healthy enough to maintain the native fish that gave it its namesake. The reintroduction stocking plan of Trout Creek follows a management plan that the Green Bay FWCO, Wisconsin DNR and tribal biologists established. Through this effort, we hope to bring native brook trout back to Trout Creek for many generations of tribal members and Wisconsin residents to enjoy.

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.

Iodophor Disinfectant Prevents Transmission of VHSv in Fish Eggs

BY KEN PHILLIPS AND BECKY LASEE, LA CROSSE FHC

U.S. Geological Survey (USGS) researchers Mark Gaikowski and Maren Tuttle and La Crosse Fish Health Center (FHC) microbiologist Ken Phillips released a fact sheet on “Fish Egg Disinfectant Treatments to Prevent Transmission of Viral Hemorrhagic Septicemia Virus (VHSv).” VHSv is responsible for large kills in wild populations of fish in the Great Lakes region. It has been reported from more than 25 species and is considered a serious threat to wild and propagated species of fish. Joint research by the USGS and the La Crosse FHC showed that iodophor disinfection effectively eliminated VHSv from fertilized walleye and northern pike eggs. More information on this research can be found in the USGS fact sheet at <http://pubs.usgs.gov/fs/2009/3107/>. This study will be repeated in the spring using northern pike and yellow perch eggs.

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

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.



Evaluation of the Efficacy of Iodophor Disinfection of Walleye and Northern Pike Eggs to Eliminate Viral Hemorrhagic Septicemia Virus

<http://pubs.usgs.gov/fs/2009/3107/>

Lake Sturgeon Research Results Presented at the Coolwater Fish Culture Workshop

BY JAMES LUOMA, GENOA NFH

The Genoa National Fish Hatchery (NFH) has been rearing three different strains of lake sturgeon for restoration efforts in federal, state and tribal waters in three states for approximately 15 years. Due to diet acceptance issues, lake sturgeon culture has relied on live or frozen foods such as live brine shrimp nauplii, and frozen chironomid larvae and pacific krill.

Due to rising product costs, decreasing availability, intensive labor, and potential pathogen exposure, there has been interest in using commercially prepared diets to rear lake sturgeon. Genoa NFH staff has performed numerous feeding trials on several diets and has been able to successfully rear lake sturgeon using commercially prepared diets.

In 2009, the Genoa NFH performed a research study to determine if lake sturgeon from different parents accepted the commercially prepared diets at the same rates. This information is crucial in restoration and conservation efforts because the aim of these programs is to maintain as much of the genetic diversity as possible. Due to a lower acceptance rate of commercially prepared diets (+/- 70%) compared to traditional live frozen diets (>90%), it was previously unknown if offspring from different parents accepted the commercially prepared diets at the same lower rate or if there was significant differences in the acceptance rates (e.g. 50% & 90%). The 2009 study performed at the Genoa NFH used lake sturgeon of different parents and evaluated their acceptance of

commercially prepared diets in a statistically defensible study.

The results of this study, indicating that parentage does significantly affect commercially prepared diet acceptance, were recently presented by Genoa NFH's biologist Jim Luoma at the 2010 Coolwater Fish Culture Workshop held in January at the Rend Lake Resort and Conference Center in Whittington, Illinois.

The results of this study indicate that managers involved in restoration and conservation efforts need to evaluate their programs very carefully to assure that genetic diversity is not inadvertently lost by propagation techniques and that genetic diversity is maximized whenever possible.

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

A Trivial Pursuit?

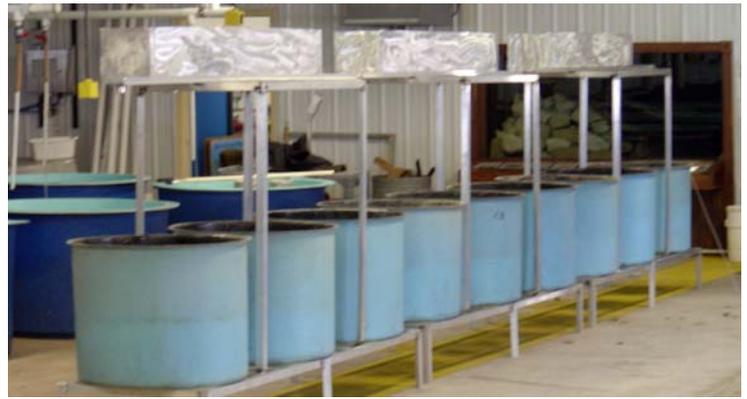
BY MARK STEINGRAEBER, LA CROSSE FWCO

What's the lipid content of a mayfly? Sounds like an esoteric question for an environmental version of *Trivial Pursuit*. But that was the query I responded to recently from Joe DeCant, an ecologist with the U.S. Environmental Protection Agency's (EPA) Office of Pesticide Programs, who prodded me to play the role of a history detective.

While working on a project to estimate the potential bioaccumulation of hydrophobic organic pesticides in freshwater aquatic food webs, and subsequent risks to mammals and birds via consumption of contaminated aquatic prey, he came across an article I coauthored early in my Fish and Wildlife Service career that quantified the polychlorinated biphenyl content of emergent female mayflies collected throughout the Upper Mississippi River. Due to publication policies however, supplemental data, including information on mayfly lipid content, was no longer available from the publisher of the journal.

With my research career long behind me, but being the type of 'packrat' only my wife could love, I fortunately was able to locate a copy of the original Fish and Wildlife Service analytical laboratory report, including the requested lipid data, buried deep within files I brought to the La Crosse Fish and Wildlife Conservation Office (FWCO) nearly 15 years ago. After slowly reacquainting myself with SAS data matrices that I produced when my beard was black pepper in color rather than its present hue of sea salt, I was pleased to make sense of these long forgotten

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

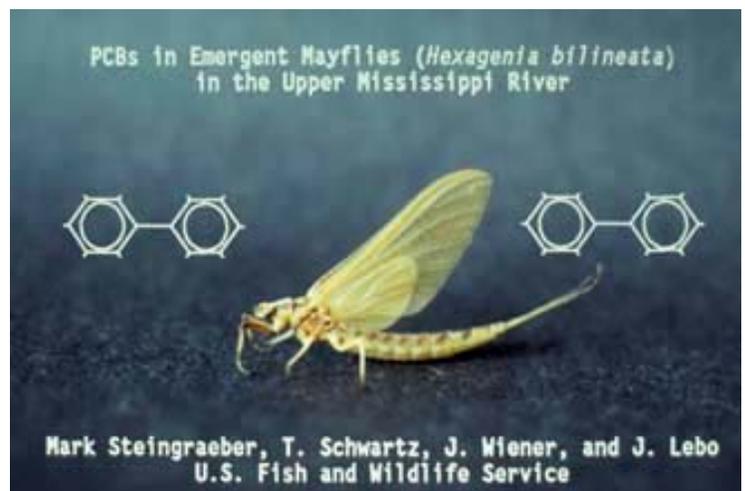


-USFWS

This setup of tanks was built for feeding trials on several diets for lake sturgeon culture at the Genoa National Fish Hatchery.

numbers and perform the calculations needed to verify that the lipid values were reported on a wet weight basis.

For information on the octanol/water partition coefficient-based model used by the EPA to estimate bioaccumulation of hydrophobic organic pesticides in aquatic food webs, visit http://www.epa.gov/pesticides/science/models_db.htm. Meanwhile, if you enjoy trivia, remember that lipids may comprise 5 to 11% of the wet weight of emergent female mayflies from the Upper Mississippi River.



Archived data collected two decades ago for a Fish and Wildlife Service research investigation is now being used by the U. S. Environmental Protection Agency to estimate potential bioaccumulation of hydrophobic organic pesticides in aquatic food webs.

Jordan River Electrical Barrier Removal Project

BY RICK WESTERHOF GREEN BAY FWCO & KIM BALKE, CRA

Conservation Resource Alliance (CRA) completed the removal of the Jordan River electrical barrier on November 2, 2009. CRA hired Pete's Contracting to do the removal of the electrical barrier, fencing along the river, retention walls, small concrete building, associated equipment and restore the area to a more natural condition. The benefits from the project included: 1) full fish passage for brook and brown trout, suckers, and other native fish species to 21 miles of the Jordan River and tributaries; 2) unobstructed passage for canoeists, kayakers and other recreational users of the river; 3) restoration of the stream bank (placed fieldstone and sloped the embankments and planted 50 red osier and 50 silky gray dogwood shrubs) to prevent erosion; and 4) restored natural flow regimes for all aquatic organisms. CRA will do site monitoring and evaluation at the site for the next two years, along with Michigan Department of Natural Resources (DNR) Parks and Recreation Division who is responsible for managing the recreational access site.

The project was a collaborative effort with state, federal, tribal, local and non-profit organizations all working together. Partners included the Michigan DNR (Fisheries; Forest, Fire and Minerals; and Parks and Recreation divisions), Michigan Department of Environmental Quality, Conservation Resource Alliance, Charlevoix County, Grand Traverse Band of Ottawa and Chippewa Indians, Lake Charlevoix Watershed Restoration Committee, *Friends of the Jordan River*, City of East Jordan, Charlevoix County Community Foundation, and Fish and Wildlife Service (Sea Lamprey Program and Green Bay Fish and Wildlife Conservation Office). Major funding was received from the Great Lakes Fisheries Trust (\$25,000), Michigan DNR Inland Fisheries Program (\$10,000), Charlevoix County Community Foundation (\$10,000), and the Sea Lamprey Program (\$10,000).

The Jordan River was the first state-designated Wild Scenic River in Michigan and now is one step closer to being totally barrier free.

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

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.



(Above) The last section of a wooden electrical barrier is removed from the Jordan River which is a designated wild scenic river in Michigan. (Below) The site is restored to allow uninhibited fish passage.



-USFWS photos

Lake Superior State University Career Day Presentation

BY RICK WESTERHOF, GREEN BAY FWCO

Rick Westerhof from the Green Bay Fish and Wildlife Conservation Office (FWCO) gave a presentation to Dr. Kristi Arend's Natural Resource Management and Conservation class in October. As part of the course, the students work on various aspects of career preparation, which includes learning about different careers via guest speakers. Typically, the speakers discuss their educational and career paths, their responsibilities and qualifications of their current position, and provide advice (for example finding a mentor or someone with the knowledge that

the student is looking for) to the students pursuing a career in natural resources. The class provides students with

various perspectives and insights on a career in fish and wildlife that you don't learn from reading a text book. Keep up the good work Kristi!!

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 Green Bay FWCO: <http://www.fws.gov/midwest/Fisheries/library/StationFactSheets/greenbay.pdf>

Lumberjacks for a Day

BY COLBY WRASSE, WYATT DOYLE & ANDY PLAUCK,
COLUMBIA FWCO

Not many things keep us off the Missouri River; however, when it is chocked full of ice we are forced to put a halt to our sampling. After a couple cold weeks this January, the main channel of the Missouri River became an ice-sheet superhighway and the wing dike pools were frozen solid. Fish sampling was simply impossible. Since river work wasn't an option, Wyatt Doyle gave Big Muddy National Fish and Wildlife Refuge (NF&WR) a call to see if they needed any help. It turns out that they had plenty of invasive cedar trees on the refuge that they wanted removed. This invitation provided Columbia Fish and Wildlife Conservation Office (FWCO) the opportunity to repay Big Muddy for all the help they have given us with field sampling over the years.

Wyatt, Andy Plauck, Joe McMullen and Colby Wrasse loaded up the trucks and made the short drive to the Overton Bottoms Unit of Big Muddy NF&WR. Since none of us had the necessary chainsaw training, we would be using hand saws, our muscles and the sweat off our brows to take down the cedars. These invasive trees were not hard to find, being the only green plant on the brown winter landscape. They were plentiful, sprouting up like unwanted weeds in a vegetable garden. Removing trees from a wildlife refuge may seem strange to some people, but cedar

trees can become quite invasive and will outcompete native grasses.

We worked at a feverous pace, attacking these trees with all we had, determined to show them who is boss. Some of the smaller trees were felled within seconds, while the larger trees put up an exhaustive fight. After three days, we had removed nearly all the cedar trees that we were asked to take out. We estimated that we cut down over 1,000 of these invasive trees. At the end of the day we were tired, but also proud of the work we had accomplished. With the removal of these invasive trees, desirable vegetation will stand a better chance of becoming established on the Overton Bottoms unit of big Muddy NF&WR. We also learned some valuable lessons along the way; for example, you can still get a bad case of poison ivy in January.

Working cooperatively is nothing new for Columbia FWCO and the Big Muddy NF&WR. In fact, Big Muddy refuge was an idea shared and fought for by founding project leader of Columbia FWCO (Jim Milligan) over 15 years ago, and although our offices are separate, our vision has always been to conserve the terrestrial and aquatic communities of the Missouri River valley.

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

Congressional Actions

[111th CONGRESS House Bills]
[From the U.S. Government Printing Office via GPO Access]
[DOCID: h2807ih.txt]
[Introduced in House]

111th CONGRESS
1st Session

H. R. 2807

To sustain fish, plants, and wildlife on America's public lands.

IN THE HOUSE OF REPRESENTATIVES

June 10, 2009

Mr. Kind (for himself and Mr. Jones) introduced the following bill; which was referred to the Committee on Natural Resources, and in addition to the Committee on Agriculture, for a period to be subsequently determined by the Speaker, in each case for consideration

of such provisions as fall within the jurisdiction of the committee concerned

A BILL

To sustain fish, plants, and wildlife on America's public lands.

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 "America's Wildlife Heritage Act".

SEC. 2. FINDINGS.

Congress finds the following:

(1) Fish and wildlife are fundamental parts of America's history and character, and fish and wildlife conservation is a core value shared by all Americans. All future generations deserve the opportunity to benefit from and enjoy a diverse array of fish and wildlife species.

(2) Fish and wildlife conservation provides economic, social, educational, recreational, emotional, and spiritual benefits. The economic value of hunting, fishing, and wildlife-associated recreation alone is estimated to contribute \$122,000,000,000 annually to the American economy. Fish and wildlife habitats, including forests, grasslands, riparian lands, wetlands, rivers, and other bodies of water are an essential component of the American landscape, and are protected and valued by Federal, State, and local governments, tribes, private landowners, conservation organizations, and millions of American sportsmen and outdoor recreationists.

(3) States possess broad trustee and police powers over fish and wildlife within their borders.

(4) The States and the Federal Government both have management responsibilities affecting fish and wildlife, and should work cooperatively in fulfilling these responsibilities.

(5) The American landscape is rapidly changing, particularly in the Western United States where the majority of the Federal public lands are found, increasing the importance of sustaining fish and wildlife and their habitats on our

public lands.

(6) Federal public lands are critical to the future of fish, plant, and wildlife species in America. Federal public lands help to protect endangered and threatened species from going extinct and help prevent species from becoming endangered in the first place. These lands complement the conservation of fish, plants, and wildlife on private lands by providing comparatively intact tracts of land that serve as refuges from human development and other pressures. Federal public lands also help keep common species common, including species valued for hunting and fishing.

(7) Federal public lands provide habitats for species impacted by the effects of global climate change and will play an important role in the ability of fish, plants, and wildlife to adapt to and survive global warming's mounting impacts.

(8) Consistent with long-standing principles of multiple use and sustained yield management, the goal of sustaining the diverse fish, wildlife, and plant communities that depend on our Federal public lands should guide the stewardship of America's public lands.

SEC. 4. SUSTAINABLE POPULATIONS.

(a) Management Direction.—Each Secretary shall plan for and manage planning areas under the Secretary's respective jurisdiction in order to maintain sustainable populations of native species and desired non-native species within each planning area, except that management for desired non-native species shall not interfere with the maintenance of sustainable populations of native species within a planning area.

(b) Management Coordination.—If a population of a species extends across more than one planning area, each Secretary shall coordinate the management of lands in the planning areas containing such population in order to maintain a sustainable population of such species.

(c) Extrinsic Conditions.—If a Secretary, using the best available science and after providing notice to the public by publication in the Federal Register and opportunity for public comment for a period of at least 60 days, determines that conditions beyond such Secretary's authority make it impossible for the Secretary to maintain a sustainable population of a native species or desired non-native species within a planning area, or, under the circumstances identified in paragraph (2), within two or more planning areas, such Secretary shall—

(1) manage lands within the planning area or areas in order to achieve to the maximum extent possible the survival and health of that population; and

(2) ensure that any activity authorized, funded, or carried out within the planning area does not increase the likelihood of extirpation of the population in such planning area or areas.

(d) Compliance.—Each Secretary shall ensure that land management plans for a planning area under the Secretary's respective jurisdiction, actions implementing or authorized under such plans, and other activities that may affect the maintenance of sustainable populations conducted under the Secretary's jurisdiction comply with this section.

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.

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

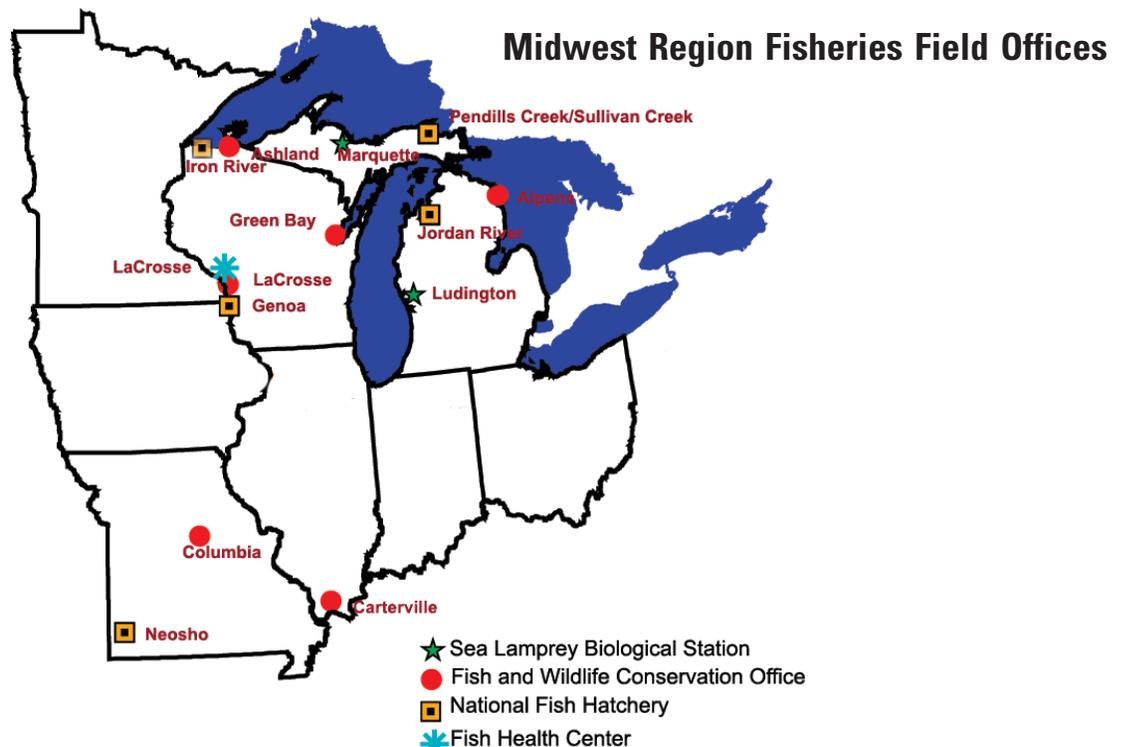
technical expertise to other Service programs addressing contaminants, endangered species, federal project review and hydro-power operation and relicensing; evaluate and manage fisheries on Service lands; and, provide technical support to 38 Native American tribal governments and treaty authorities.

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

- [MICRA Committee Arrives in Nashville](#)
 - Brian Elkington, Columbia FWCO
- [Middle Basin Pallid Sturgeon Workgroup Meeting](#)
 - Tracy Hill, Columbia FWCO
- [SOA Public Hearing](#)
 - Tracy Hill, Columbia FWCO

Aquatic Species Conservation and Management

- “Spring Cleaning” Comes Early at the La Crosse Fish Health Center
 - Beka McCann, La Crosse FHC

Aquatic Invasive Species

Public Use

- [Concord School Students get Fish Anatomy 101](#)
 - Wayne Talo, Jordan River NFH

Cooperation with Native Americans

Leadership in Science and Technology

Aquatic Habitat Conservation and Management

- [St. Joseph River Watershed Barrier Inventory Meeting](#)
 - Rick Westerhof, Green Bay FWCO

Workforce Management

- [“Mizzou Students Chillin” with Natural Resource Mentors](#)
 - Joanne Grady, Columbia FWCO
- [Winds of Change Blow through Genoa, Wisconsin](#)
 - Doug Aloisi, Genoa NFH

Jordan River NFH Outreach

For more information about Jordan River National Fish Hatchery (NFH) public use and outreach programs and Outdoor Classroom days, contact Tim Smigielski (fish biologist/outreach and public use) at the Jordan River NFH

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