



U.S. Fish & Wildlife Service



Fiscal Year 2005  
Vol. 3 No.3

# Fish Lines

## Region 3 - Great Lakes/Big Rivers

*Leadership in Conserving, Enhancing, and Restoring Aquatic Ecosystems*

-A Partnership in Action-

### Endangered Mussel Recovery Underway in the Upper Mississippi River



Photo credits- all USFWS (Lt. to Rt.)(Top Row) Second and third photos by Gary Wege; (Middle Row) all photos by Gary Wege; (Bottom Row) Third photo by Gary Wege

Series of photos depicting Fisheries involvement in endangered mussel recovery: (Lt. to Rt.)(Top Row) These two cages are specially designed for propagation of Federally endangered Higgins' eye pearlymussels; Minnesota Department of Natural Resources (DNR) biologists place cages of mussel infested fish into Lake Pepin; An estimated 250,000 juvenile Higgins' eye pearlymussels are produced in the cages annually; (Middle Row) After two years of growing in cages, the sub-adult Higgins' eye pearlymussels are tagged for release; Two types of tags are being tested; Divers from the Genoa National Fish Hatchery (NFH) and the Minnesota DNR release sub-adult Higgins' eye pearlymussels into their new homes; (Bottom Row) Out of the depths of the Mississippi River, a Genoa NFH diver returns from collecting egg bearing (gravid) female mussels to be used to infest host fish; This juvenile Higgins' eye pearlymussel is only a few days old; Smallmouth bass are just one type of host fish species used to culture Higgins' eye pearlymussels.

(See the "Feature Article" on Page 5)

To view other issues of "Fish Lines", see our Regional website at: (<http://midwest.fws.gov/Fisheries/>)



## Region 3 - Great Lakes/Big Rivers 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

### *Region 3 Focus Areas*

#### **1. Partnerships and Accountability**

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.

#### **2. Aquatic Species Conservation and Management**

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.

#### **3. 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.

#### **4. Public Use**

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.

#### **5. Cooperation with Native Americans**

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.

#### **6. Leadership in Science and Technology**

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.

#### **7. Aquatic Habitat Conservation and Management**

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.

#### **8. Workforce Management**

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 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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*Click here to visit our Fisheries Web Site*

# Great Lakes - Big Rivers Region Fisheries Field Offices

## 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.

## Sea Lamprey Control Stations

Sea Lamprey Control Stations assess and control sea lamprey populations throughout the Great Lakes. The U.S. Department of State and Canadian Department of Fisheries and Oceans fund this program through the Great Lakes Fishery Commission.

## Fishery Resources Offices

Fishery Resources Offices conduct assessments of fish populations to guide management decisions, perform key monitoring and control activities related to invasive, aquatic species; survey and evalu-

ate 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 re-licensing; evaluate and manage fisheries on Service lands; and, provide technical support to 38 Native American tribal governments and treaty authorities. In other Regions of the Service, FRO's are also referred to as Fish and Wildlife Management Assistance Offices.

## Fish Health Center

The Fish Health Center provides specialized fish health evaluation and diagnostic services to federal, state, tribal and private hatcheries in the region; conducts extensive monitoring and evaluation of wild fish health throughout the region; 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.

Great Lakes - Big Rivers Region Fisheries Field Offices





## Feature Article - Endangered Mussel Recovery Underway in the Upper Mississippi River



-USFWS photo

**Higgins' Eye Pearlymussel**

Beneath the murky, rolling waters of the Mississippi River lies the world of the Federally endangered Higgins' eye pearlymussel. During the "spawning" season, the mussels act as armored anglers, using expertly crafted lures to attract fish to bite their lures. The bite releases mussel larvae that attach to fish gills. The gills serve as nurseries, providing nutrients needed for development that will allow the mussels to survive on their own.

Higgins' eye mussels and other native freshwater mussels struggle to survive in the face of mussel eating fish and muskrats, loss of habitat, and poor water quality. In recent years, the foreign zebra mussel invaded the Mississippi River. Uncontrolled by predators, the zebra mussel population exploded. Zebra mussels starve and choke native mussels by attaching to their shells and removing food and oxygen from the surrounding water before it can be used by the mussels.



-USFWS

**This image shows invasive zebra mussels attached to a tagged, native mussel. The zebra mussels attach to hard surfaces including the shells of native mussels and will eventually kill the mussel.**

The zebra mussel destroyed many Higgins' eye mussel beds in the Upper Mississippi River basin, sending this species spiraling towards extinction. A multi-agency mussel team was formed to preserve and protect the mussels. A mussel culture program was initiated at the Genoa National Fish Hatchery. The hatchery is located inside the boundaries of the Upper Mississippi River National Wildlife and Fish Refuge in Genoa, Wisconsin. The goal of this mussel program is to raise Higgins' eye mussels until they are large enough to avoid predation when released to start new Higgins' eye mussel beds.



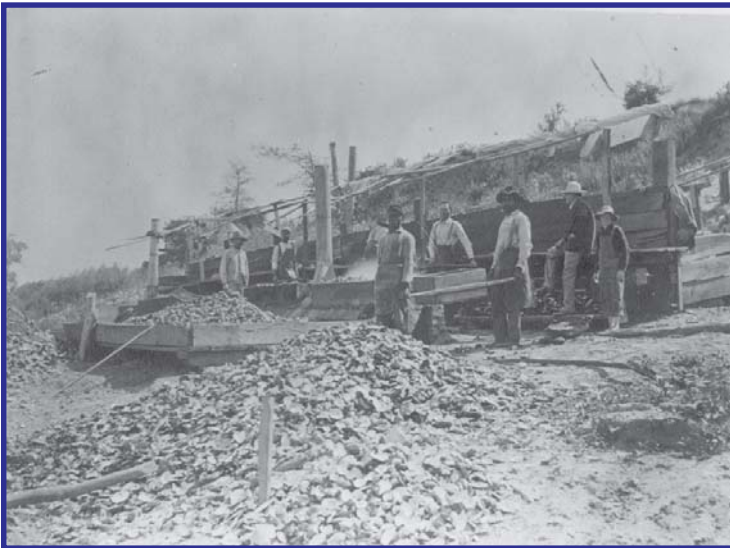
-USFWS

**Biologists collect mussel larvae (glochidia) by gently holding the shell open with a rubber stopper and rinsing the larvae into a dish.**

### Partners in Recovery of the Endangered Higgins' Eye Pearlymussel

La Crosse Fishery Resources Office (USFWS)  
Twin Cities Field Office (USFWS)  
U.S. Army Corps of Engineers  
Illinois Department of Natural Resources  
Iowa Department of Natural Resources  
Minnesota Department of Natural Resources  
Wisconsin Department of Natural Resources

The U.S. Fish and Wildlife Service has a long history of mussel culture. The U.S. Bureau of Fisheries opened a biological station in Fairport, Iowa in 1914 to develop techniques to replenish dwindling mussel populations that were over-harvested for the pearl button industry. These biologists were on the cutting edge of a new frontier. Their success in this groundbreaking work laid the foundation of the program to recover Higgins' eye pearlymussels.



-USFWS

**"Clam Diggers" harvested tons of native mussels from the Upper Mississippi River for the pearl button industry. The mussels were boiled and the shells sent to button factories.**

Biologists from this multi-agency mussel team are following in the footsteps of those early mussel pioneers. Biologists are replicating what used to happen in the river. Now, many of the fish containing baby mussels are set free in tributaries of the Mississippi River. We hope that the mussels will drop from the fish gills in areas suitable for their growth and survival. Other mussel bearing fish are placed in cages to protect these baby mussels while they grow throughout the warm summer months. After one summer in the cages, these mussels have grown to a size so that biologists can handle and count them. They are not yet large enough to survive predation and are allowed to grow in the safety of these protective cages for at least a second year.



-USFWS

**Scott Yess, La Crosse Fishery Resources Office, prepares for a dive to look for native mussel beds. Egg bearing (gravid) female Higgins' eye pearlymussels are collected for propagation programs.**

Since 2000, an estimated 2 million juvenile mussels have been produced by the propagation efforts of this program. More than 10,000 mussels have been recovered from the cages in the past five years.





-USFWS

Host fish are put into a bucket which contains mussel larvae. The larvae attach to the gills of the fish and rely on nutrients provided by the host fish during this "parasitic phase."

The mussel team is hopeful that the goals of this program are within sight. Two and three year old mussels are ready to venture out on their own. To date, over 3,500 mussels up to four years in age have been planted as seeds for new Higgins' eye mussel beds. In the coming years, biologists, like nervous parents checking up on their children, will monitor the new mussel beds. They want to ensure the mussels' safety while continuing to add mussels to increase the viability of the population.



-USFWS

**Success! Mussels are produced for recovery efforts in special cages which protect the young mussels from predators.**



-USFWS

For large host fish, mussel larvae are placed directly onto the gills of fish where they will be nurtured by the host fish until they drop off and live on their own.

The drama of the Higgins' eye pearl mussel continues to play out in the murky depths of the Mississippi River. Its recovery story may not be as familiar as that of the peregrine falcon or the American alligator; however, it is just as important. As parents, we long to see our children grow up, be successful, and one day have children of their own (making us grandparents). The biologists involved in this program are excited and hopeful that these mussels will grow up and one day, in the near future, make mussel babies of their own. This will mark a turning point and lead to true success of this program.

For additional information, contact Tony Brady at the Genoa National Fish Hatchery.

Phone 608-689-2605

e-mail [tony\\_brady@fws.gov](mailto:tony_brady@fws.gov)

## Partnerships and Accountability

### Lake Huron Commercial Fishers volunteer for a Lake Sturgeon Project

Biologist Adam Kowalski from the Alpena Fishery Resources Office (FRO) sent out a request for data from the commercial fishers in Lake Huron in preparation for updating the Alpena FRO Commercial Fishery Sturgeon Project annual report with data through 2004. Participating commercial fishers tag incidentally caught lake sturgeon and record data such as tag number, total length, fork length, girth, water depth, water temperature, bottom type, and capture location from lake sturgeon caught in trap nets that target lake whitefish and yellow perch. Fishers also remove the first pectoral fin ray for ageing purposes. Previously tagged sturgeon are released upon recapture, and all above listed data are noted.

Since the project started in 1995, commercial fishers in United States waters have tagged 301 lake sturgeon in the main basin of Lake Huron. Forty-nine tagged lake sturgeon have been recaptured, and an additional 31 sturgeon have been captured, measured, and released untagged. All project data are stored at the Alpena FRO and are used to help track lake sturgeon movement in the Great Lakes and to monitor lake sturgeon rehabilitation. This project will continue in 2005, and copies of the current year's report will be available on the Alpena FRO website located at: <http://midwest.fws.gov/alpena>. In addition, this year all commercial tag information will be entered into the "Great Lakes Basin Lake Sturgeon Tagging Database" that

is currently being developed by Kowalski. This database will help biologists track the movement of lake sturgeon throughout Lake Huron and the Great Lakes basin over the course of the project by providing agency contact information for each tagged lake sturgeon currently at large in the Great Lakes.

All commercial fishers in this program are volunteers working toward a common goal of rebuilding this native population to avoid listing under the Endangered Species Act. This outcome is consistent with the Fish and Wildlife Service's goal of building and maintaining self-sustaining populations of native fish species under the "Aquatic Species Conservation and Management" priority of the Fisheries Program Vision for the Future. The multi-partner nature of this work is also consistent with the Fish and Wildlife Service's goal of establishing and maintaining open, interactive communication with its partner agencies under the "Partnerships and Accountability" priority of the Fisheries Program Vision for the Future.

*Adam Kowalski, Alpena FRO*



-USFWS

**A commercial fisherman in Saginaw Bay holds a lake sturgeon incidentally captured in a trap net. Fishermen are assisting the Alpena Fishery Resources Office by collecting data from incidentally captured sturgeon and tagging them. The fishermen also report any previously tagged fish.**

### Annual Fisheries Coordination Meetings with Iowa and Missouri

Project leaders Rick Nelson from the La Crosse Fish Health Center (FHC) and Tracy Hill from the Columbia Fishery Resources Office (FRO) along with Regional Fisheries program staff attended state fisheries coordination meetings in Iowa and Missouri. The purpose of the meetings was to improve communication and accountability to the Fish and Wildlife Service's state partners regarding plans, accomplishments, and commitments. The meetings were convened to allow the state fishery management agencies and the Fish and Wildlife Service's Fisheries program to discuss areas of mutual concern, improve communication, discuss problems (if any) and maintain effective working relationships. The meetings provided an excellent opportunity to identify challenges facing the state and Federal fisheries programs, develop common commitment to achieve mutual goals and agree upon recommendations for future activities. Partnerships in aquatic resource protection and management are an important component of the "Partnership and Accountability" priority of the Fisheries Program's Vision for the Future.

*Rick Nelson, La Crosse FHC  
Tracy Hill, Columbia FRO*



## The “Stork” delivers to Iron River National Fish Hatchery

Iron River National Fish Hatchery (NFH) received shipments of Superior Isle Royal Wild strain of lake trout eggs from Crystal Springs State Fish Hatchery in Minnesota. These eggs will provide adult fish (brood stock) to replace and/or supplement the mature brood stock on site as a source of eggs for rehabilitation programs. This strain of lake trout is used in Lake Michigan and along the Minnesota shoreline of Lake Superior. Of the Great Lakes, Lake Superior is considered one of the success stories for the lake trout program. Small portions of the lake are still stocked by Federal, state, tribal, and Canadian hatcheries, but the majority of the lake trout populations are considered to be rehabilitated.

*Angela Baran, Iron River NFH*

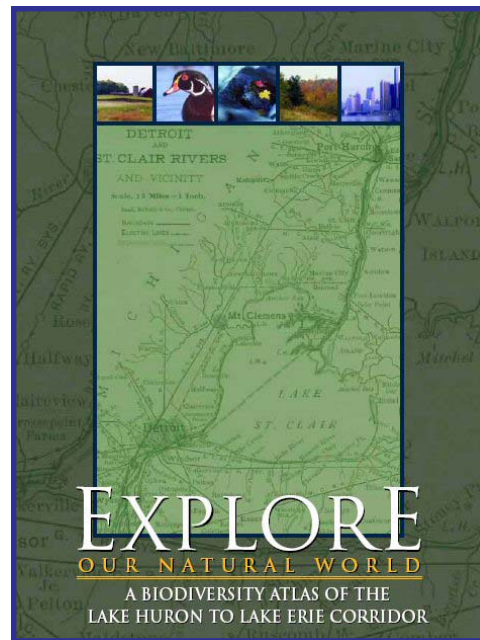
## New Book about the Huron Erie Corridor

Biologist James Boase from the Alpena Fishery Resources Office (FRO) attended the release of the first publication of the book titled “*Explore Our Natural World: A Biodiversity Atlas of the Lake Huron to Lake Erie Corridor*” (currently available online at the U.S. Environmental Protection Agency (EPA) website: <http://www.epa.gov/glnpo/ecopage/stclairbiodiv/>). The open house was sponsored by DTE Energy and the EPA. Approximately 100 people attended the open house including local officials from the United States, Canada, and Walpole Island First Nation along with local media organizations.

Some of the most sensitive areas highlighted in the atlas are areas now found within the

boundaries of the Detroit River International Wildlife Refuge. The forum was an excellent opportunity to explain the Fish and Wildlife Service’s role in managing the diverse natural resources found within the Lake Erie Corridor and the importance of this area to the Great Lakes ecosystem. Specifically, information was provided about the efforts of the Fish and Wildlife Service and its partners to rehabilitate lake sturgeon populations in the Great Lakes and the role that the Fishery Resources Offices have in this endeavor. This outreach event supports the “Partnerships and Accountability” and “Aquatic Species Conservation and Management” priorities of the Fisheries Program Vision for the Future.

*James Boase, Alpena FRO*



*-U.S. EPA*

**Alpena Fishery Resources Office Biologist James Boase attended an open house for the release of “A Biodiversity Atlas of the Lake Huron to Lake Erie Corridor.” The book was funded by the U.S. Environmental Protection Agency and DTE Energy with other partners.**

## Fish and Wildlife Service Offices coordinate with the U.S. Army Corps of Engineers

Rob Simmonds attended coordination meetings with U.S. Army Corps of Engineers (USACE) staff from the St. Louis and Rock Island districts. These meetings provided a great opportunity to learn more about habitat restoration efforts on the Mississippi and Illinois rivers, share Carterville Fishery Resources Office’s (FRO) interests and expertise, and to discuss possible opportunities for collaboration on future projects. Staff from the Mark Twain National Wildlife Refuge and Rock Island Ecological Services Field Office also attended, providing a great opportunity to hear about habitat restoration and other issues from a variety of perspectives.

*Rob Simmonds, Carterville FRO*

## Pallid Sturgeon Stocking Plan Meeting

Project Leader Tracy Hill from the Columbia Fishery Resources Office (FRO) participated in the development of a draft stocking plan for pallid sturgeon in the Missouri River basin. Goals of the plan include establishment of a pallid sturgeon population capable of natural reproduction and preservation of the sturgeon’s genetic diversity throughout the Missouri River basin. Pallid sturgeon were listed as Federally endangered in 1990. The primary cause for the decline in population abundance is attributed to habitat loss. Partners involved in development of the draft plan include the U.S. Army Corps of Engineers, Nebraska Game and Parks Commission, and U.S. Geological Survey Columbia

Environmental Research Center. The Fish and Wildlife Service hopes to have the plan in final form by early Spring 2005. Developing a stocking plan for pallid sturgeon will aid managers in their efforts to restore this critically endangered aquatic species.  
*Tracy Hill, Columbia FRO*

### Lake Trout Coded Wire Tags processed for our Partners

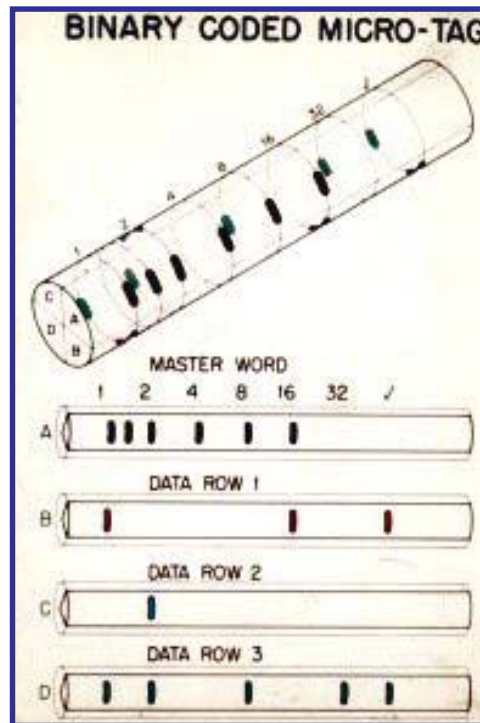
During the month of December, Biologist Adam Kowalski extracted and read coded wire tags (CWT's) from lake trout. CWT's are microscopic metal tags placed in the snouts of hatchery reared, juvenile lake trout prior to stocking. The Chippewa Ottawa Resource Authority (CORA) collected lake trout during its spring fishery independent lake whitefish survey and fall lake trout assessments. Kowalski extracted and read CWT's from these lake trout, as well as lake trout collected from the sport fishery by Michigan Department of Natural Resource's creel clerks in Lake Huron.

CWT's are extracted by cutting lake trout snouts into smaller and smaller pieces until the tag can be seen and removed. The tag number, when compared to stocking records, yields information such as stocking location, stocking date, fish age, fish strain, and hatchery of origin.

Kowalski removed and read 300 tags from approximately 350 samples. Not all adipose clipped lake trout contain CWT's, because some lake trout shed their tag or multiple clips are undetectable because of fin regeneration or incomplete fin clips. This concludes CWT extraction for the 2004 field season. All CWT's extracted and read at the Alpena Fishery Resources Office (FRO) will be

entered in the Lake Huron Technical Committee common CWT database, which is shared among all contributing resource agencies. Data collected from lake trout CWT's are used to determine harvest limits, stocking locations, movement patterns, and post stocking survival rates of various hatchery practices.

*Adam Kowalski, Alpena FRO*



-USFWS

**Coded wire tags (CWT's) are placed into the snouts of juvenile lake trout prior to stocking. Alpena Fishery Resources Office Biologist Adam Kowalski extracted and read CWT's from lake trout that were collected by the Michigan Department of Natural Resources and the Chippewa Ottawa Resource Authority.**

### Missouri Comprehensive Wildlife Strategy Meeting

Project Leader Tracy Hill from the Columbia Fishery Resources Office (FRO) along with representatives from the Partners for Fish and Wildlife program and Ecological Services attended the Missouri Comprehensive Wildlife Strategy (CWS) meeting. The CWS program is the result of tireless efforts on the part of local and state governments, and non-governmental organizations to secure Federal funding for fish and wildlife conservation. CWS is designed to benefit non game species, especially those species in decline. Funding is appropriated by Congress annually with each state allocated funding based on land area and population.

Missouri uses a global information system (GIS) based approach to list areas of concern which they identify as Conservation Opportunity Areas. Approximately 15 groups attended the meeting to discuss and identify the areas. States must have an acceptable Comprehensive Wildlife Strategy developed by October 2005 to continue to receive this funding from Congress.

Partnerships between Federal and state resource management agencies within the Great Lakes/Big Rivers Region are necessary for protecting and managing the fishery resources of that region.  
*Tracy Hill, Columbia FRO*



# Aquatic Species Conservation and Management

## Shocking Events at Iron River National Fish Hatchery

Shocking and picking of lake trout and brook trout eggs has begun again at Iron River National Fish Hatchery (NFH). The eggs reach the “eyed” stage (the eyes of the developing fry are visible through the egg shell) about 30 days after spawning. At this point they are strong enough to be handled and are “shocked” by being dropped from a distance of about two feet into a bucket with water. This process breaks the inner protein sacs of already dead or weak eggs, turning the entire egg white and ensures that stronger eggs are able to handle the stress of handling and picking. The day after shocking, eggs can be sorted good from bad by using an egg picker. This machine “candles” the eggs by shining a light on them. The good eggs will allow the light to pass through and will be sorted into one bucket, while the bad, white eggs will reflect the light back and be sorted into another bucket. Healthy eggs are counted using a water displacement method and placed into egg jars that use up-welling spring water to keep them moving, preventing the growth of any fungus until they hatch. If not removed, dead eggs would begin to decay rapidly, growing a fungus that would spread to healthy eggs and could result in large losses of eggs and fry. All of the lake trout eggs and most of the brook trout eggs are now in jars. Pretty soon they will all be hatching!

*Angela Baran, Iron River NFH*



-USFWS

The wheel of the egg picker shown in this picture picks up the eggs from the bottom of the small trough and carries them past a light to sort the good eggs from the bad.

## 2005 Year Class of Lake Trout find a Home at Jordan River National Fish Hatchery

Jordan River National Fish Hatchery (NFH) received its first eyed egg shipment from Saratoga NFH, in Wyoming, in November and the last egg shipment will arrive from Sullivan Creek NFH in January. The 2005 year class consists of five strains of lake trout. A total of 4,586,382 eggs from all sources have been incubated at the hatchery to date. Hatching was in full swing by the end of December. At this point, hatching is complete in all but two incubation jars and the fry are acclimating to their new conditions in the tanks. Older fry in two of the thirty rearing tanks are swimming to the surface and beginning to feed. The Jordan River Class of 2005 is off to a great start.

*Tim Smigielski, Jordan River NFH*

## Winter Pallid Sturgeon Monitoring on the Missouri River

Technician Corey Lee and Biologists Wyatt Doyle and Colby Wrasse from the Columbia Fishery Resources Office (FRO) gillnetted on the Missouri River in St. Charles, Missouri during the week of December 13.

Experimental gillnets are a standard gear type for the Pallid Sturgeon and Associated Fish Community Assessment Project. A hatchery reared, Federally endangered pallid sturgeon was captured in one of the gillnets. This pallid sturgeon had a recorded length of 22.5 inches and was tagged with a coded wire tag. The Missouri Department of Conservation released 2,400 and 1,600 pallid sturgeon with coded wire tags respectively in 1994 and 1997 in Missouri's section of the Missouri River (River Mile 0.0 to 552.7). During the last year, Columbia FRO has captured four tagged pallid sturgeon ranging in size from 22.5 inches to 26.0 inches. These fish have the potential to be at or near sexual maturity. Male pallid sturgeon reach sexual maturity between the ages of five to seven years or approximately 21.0 inches to 23.0 inches. Female pallid sturgeon reach sexual maturity between the ages of 13 to 15 years or approximately 33.5 inches. Work on this project allows Columbia FRO to assist the Fish and Wildlife Service's Fishery program to achieve its goal of identifying priority actions to eliminate the threats causing declines of native fish species.

*Corey Lee, Columbia FRO*

## It's Over for Now!

Spawning at Iron River National Fish Hatchery (NFH) has finally come to an end! The beginning of the season, late September, always starts with the staff excited for the change of pace from cleaning tanks and feeding fish, but by the middle of November when gloves are freezing to screens and people are frozen in general, the excitement wears off quickly! The adult (brood stock) lake trout at Iron River NFH generally begin spawning around the end of September and will continue until the middle of November. This year a total of 5 million eggs were collected by using oxygen injection on 1,300 female lake trout. The oxygen injection process fills the body cavity with air, gently forcing out the eggs. This process is much less stressful on both the fish and staff and is easier on the fish than by stripping the eggs out by hand. Approximately 3.5 million eggs reached the eyed stage where the eye of the developing fish can be easily seen through the egg shell.

The brook trout brood stock began spawning in late October and continued into the middle of December. This year 500,000 eggs from 670 female brook trout were spawned of which 300,000 reached the eyed stage. All female brook trout are spawned by hand because of their small size.

*Angela Baran, Iron River NFH*



-USFWS

**A brook trout is being spawned at the Iron River National Fish Hatchery. Each brook trout can have between 1,000 to 3,000 eggs, depending on the size of the fish.**

## Rare Lake Sturgeon collected in the Missouri River

A large lake sturgeon was caught by Columbia Fishery Resources Office (FRO) during its mid-December pallid sturgeon sampling efforts. Biologists Wyatt Doyle and Colby Wrasse along with Technician Corey Lee encountered one lake sturgeon in over fifty 200 foot gillnet sets, confirming their rarity in the Missouri River. The state threatened lake sturgeon, which is endemic to the Missouri River, is suspected to have been extirpated for decades. The Missouri Department of Conservation began stocking lake sturgeon in 1992 in an effort to restore a population of these native fish to the Lower Missouri and Middle Mississippi rivers. Though most of the 150,000 fish stocked were small, many of these fish have reached impressive lengths of over four feet and are quickly becoming a source of fish-tales among local anglers. Information related to recaptures and the relative number of fish stocked can be applied to Federally endangered pallid sturgeon recovery efforts, giving biologists target goals for stocking pallid sturgeon.

Columbia FRO is the main source of recapture information

for the state of Missouri. Future cooperative efforts will expand our understanding of habitats used by lake sturgeon and their potential to establish a naturally reproducing population. Recapture information expands our knowledge about current stocking needs related to pallid and lake sturgeon.

*Wyatt Doyle, Columbia FRO*

## 2004 Coded Wire Tag Data Compiled

Biologist Aaron Woldt compiled coded wire tag (CWT) data on lake trout for submission to the common Lake Huron Technical Committee (LHTC) CWT database. The common database was created in 1999 and includes lake trout CWT return data from five partner agencies including the Michigan Department of Natural Resources (DNR), Chippewa Ottawa Resource Authority, Ontario Ministry of Natural Resources, U.S. Geological Survey Biological Resources Division (BRD), and the Fish and Wildlife Service. CWT's are microscopic tags placed in the snouts of hatchery lake trout prior to stocking. Tags are extracted from lake trout at the time of harvest and yield information such as hatchery of origin, year planted, fish age, and fish strain. The Alpena Fishery Resources Office (FRO) captures CWT lake trout in its fishery independent lake whitefish surveys and its lake trout surveys in mid-lake. Recreationally caught CWT lake trout sampled by Michigan DNR creel clerks are also processed.

Woldt formatted all data to conform to common database standards developed by the LHTC. The common database is used by members of the LHTC to evaluate lake trout movement, strain survival, effects of quality at



release on survival, and effectiveness of the Northern Refuge and Mid-lake Refuge.

The LHTC common database will be used to update analysis of Lake Huron lake trout movement for presentations at the 2005 Winter LHTC meeting and the 2005 Upper Lakes meeting. Movement results will also be used to update lake trout catch-at-age models used to set harvest limits in 1836 Treaty waters.

Capturing, processing, and analyzing lake trout CWT returns directly supports lake trout rehabilitation and influences setting of safe harvest levels by allowing agencies to assess lake trout movement patterns, differences in strain survival, effects of hatchery practices, and effectiveness of refuges.

*Aaron Woldt, Alpena FRO*

### **New Coaster Brook Trout arrive at Genoa National Fish Hatchery**

Genoa National Fish Hatchery (NFH) began its 2005 production year for coaster brook trout with the receipt of 60,000 Tobin Harbor strain eggs from the Iron River NFH in late November. This cooperative program with Iron River NFH and the Ashland Fishery Resources Office provides thousands of fingerlings, yearlings, and captive adults (brood stock) for restoration efforts in the Lake Superior watershed. This year's planned stocking of nearly 40,000 fish for restoration projects in Michigan, Wisconsin, and Minnesota represents Genoa NFH's largest commitment to date since becoming involved in coaster restoration efforts in the mid-1990s.

In addition to release of fish directly into waters designated for restoration, Genoa NFH provides grow out for brood stock for Iron River NFH. Genoa's constant 52

degrees F. well water temperatures allow for early maturation of brood fish and provides a genetic refugia for these high priority strains of fish in case of a catastrophic loss at the Iron River facility.

*Roger Gordon, Genoa NFH*



-USFWS

**Adult coaster brook trout are held in National Fish Hatcheries to provide fertilized eggs for various restoration programs in the Lake Superior watershed.**

### **The Lake Trout Stocking Vessel M/V Togue is ready to Set Sail in 2005**

In October, the haul out project on the M/V Togue began in Escanaba, Michigan by Basic Marine Inc. Repairs included work on the propellers and some touch up painting on the hull. The major repairs were: replacement of the shafts, bearings, and stuffing boxes. The most serious of the findings was that the alignment of the vessel has worsened. The infrastructure has shifted, resulting in the shaft flange having to be cut off because there wasn't enough room between the flange and the hull. Due to these findings, rough weather will again be an issue for the M/V Togue crew this distribution season. The total cost of the haul out was \$41,690. The vessel is being wintered at Basic Marine Inc. until April when it will return home. The 2005 season will be the last for the M/V Togue with a new replacement vessel, M/V

Spencer F. Baird, scheduled to set sail in 2006.

*Christopher Olds, Jordan River NFH*



-USFWS

**The Fish and Wildlife Service's offshore lake trout stocking vessel, M/V Togue, is shown in dry dock. Necessary repairs were performed; however, the overall shape of the aged vessel prevents use during rough weather as a safety precaution.**

# Aquatic Invasive Species

## Asian Carp Habitat Use on the Middle Mississippi River National Wildlife Refuge

Nate Caswell continued analysis of invasive Asian carp habitat use data on the Middle Mississippi River National Wildlife Refuge (NWR). The Wilkinson Island Division of the NWR contains several bodies of water that are connected to the Mississippi River during certain times of the year. Carterville Fishery Resources Office (FRO) staff collected seine and fyke-net samples from these backwater areas during the summer. Preliminary results show that nearly all water bodies on Wilkinson Island contained young-of-year Asian carp. Most of Wilkinson Island was inundated by the Mississippi River in spring 2004, opening these waters to invasion by young Asian carp.

*Nate Caswell, Carterville FRO*



-USFWS photo by Rob Simmonds

**Biologist Nate Caswell sorts invasive Asian carp and other fish from a sample taken at the Middle Mississippi River National Wildlife Refuge. Results will provide data for an analysis of Asian carp habitat use on the Refuge.**

## Diet of Invasive Round Goby examined for Eggs of Natives

Anjanette Bowen from the Alpena Fishery Resources Office (FRO) examined the stomachs of 137 invasive round goby captured from a near shore historical lake trout spawning reef in Northern Lake Huron. Round goby invaded Northern Lake Huron in the late 1990s and have become established and abundant in many areas of the lake. They are aggressive fish that compete with native species for food and habitat. They are also known to feed on fish eggs. This study is funded by the Great Lakes National Program Office of the U.S. Environmental Protection Agency. The study is designed to determine the relative abundance of round goby on a historical lake trout spawning reef through the seasons and identify whether they feed on lake trout eggs in the fall when the trout spawn. Examining potential impediments to lake trout rehabilitation in Lake Huron has been identified as a priority by the Lake Huron Committee.

Major food groups were identified in the diet of round goby examined, as well as the presence/absence and number of lake trout eggs. Invasive zebra mussels were a major dietary component of the goby examined. A final report on the three year study will be released in early 2005. The restoration of lake trout and other native species relies on the control, management, and study of invasive species within the system.

*Anjanette Bowen, Alpena FRO*



-USFWS photo by Anjanette Bowen

**Alpena Fishery Resources Office staff examined the diet of invasive round goby captured from a near shore historically significant lake trout spawning reef in Lake Huron. Diets were examined for the presence of lake trout eggs.**

## Asian Carp Management and Control Plan

At the request of the National Aquatic Nuisance Species Task Force (Task Force), Carterville Fishery Resources Office (FRO) has organized an Asian Carp Work Group (Work Group) and is leading the development of a national management and control plan for four species of invasive Asian carp (bighead carp, black carp, grass carp, and silver carp). Implementation of this plan is important to minimize the geographic scope, as well as ecological and economic impacts of these species that are rapidly invading public waters of the Midwest. Carterville FRO biologist and Work Group chair, Greg Conover, provided the Task Force an update on the Asian Carp Management and Control Plan at their annual fall meeting in Arlington, Virginia. Accomplishments included May and August Work Group meetings and a presentation at the annual meeting of the American Fisheries Society. During the August meeting, Work Group participants



reviewed Task Force expectations and the draft framework of the management and control plan, provided an overview of the May Work Group breakout sessions, and identified components and writing teams to develop the plan. The draft goals and objectives of the plan were critically reviewed including in-depth conversations regarding the wording and intent of the plan. Drafting of the plan is expected to begin immediately following this review with a draft Management and Control Plan completed prior to the spring meeting of the Task Force.

*Greg Conover, Carterville FRO*

### Students learn Impacts of Invasive Species

Fish and Wildlife Service personnel from the Marquette Biological Station presented information on the negative impacts of invasive species in Great Lakes waters to 60 students at the Kingsford High School, Kingsford, Michigan. Live sea lampreys gave students a hands-on experience of an alien parasitic fish. Students also learned the importance of biodiversity in the aquatic community and how sea lampreys and other invasive species affect the health of the aquatic ecosystem as well as economic impacts to the Great Lakes. The Fish and Wildlife Service delivers a program of integrated sea lamprey control in the United States waters of the Great Lakes as a contracted agent of the Great Lakes Fishery Commission.

*John Weisser, Marquette Biological Station*



*-GLFC*

**Gregg Baldwin presents information on the negative impacts of invasive species in Great Lakes waters to students at Kingsford High School. Gregg is holding a model of a sea lamprey.**

### Partners Collaborate on Rusty Crayfish Reduction Experiment

The Ashland Fishery Resources Office (FRO) is planning to conduct a one-day experiment to test the effectiveness of bottom trawling in reducing a population of invasive rusty crayfish. The project is being conducted in cooperation with the Michigan Department of Natural Resources, the University of Notre Dame (UND), and the U.S. Forest Service (FS)-Ottawa National Forest. The experiment will be conducted in Lake Ottawa on the Ottawa National Forest. Technician John Pagel from the FS stated that the abundance of rusty crayfish in Lake Ottawa is so high that almost all of the aquatic vegetation has been removed. The FS desires to use tools other than chemical treatment to remove the crayfish. Bottom trawling gained attention as a possible rusty crayfish removal tool during invasive Eurasian ruffe surveillance conducted by the Ashland and Green Bay FRO's in 2003.

One 5-minute tow in Lake Michigan near Traverse City, Michigan captured in excess of 150 rusty crayfish. Although bottom trawling can degrade fish habitat, in this lake the negative effects of

bottom trawling should be minimal since most of the native vegetation has already been removed by the crayfish. A Minnesota Sea Grant publication states that there are no environmentally safe methods known to reduce or control rusty crayfish making this effort a pioneer experiment. UND currently monitors crayfish densities on Lake Ottawa using permanent underwater plots. The effectiveness of the bottom trawl experiment will be assessed with a post-experiment crayfish density survey taken on the plots by UND divers. This density will be compared to pre-experiment crayfish densities. The experiment is planned to take place during the summer of 2005.

*Gary Czipynski, Ashland FRO*



**Rusty Crayfish**

### Indianapolis is the Last Appearance for the Sea Lamprey Display in 2004

The Sea Lamprey Program display made its final appearance of the year at the 67th Annual Fish and Wildlife Conference in Indianapolis, Indiana during December. The conference theme was "Fish and Wildlife at the Crossroads: Preparing for Future Challenges." Approximately 600 people attended the conference and had the opportunity to view the display. Educating the public about the impacts of invasive species on aquatic ecosystems is critical to a successful control program.

*Joe Genovese, Marquette Biological Station*

## Public Use

### Sport Fish Management Reports provided to Military Bases

Sport fishing on military bases provides recreational opportunities for military and Department of Defense personnel. To help provide quality angling, Nate Caswell completed and submitted the "2004 Fisheries Management Report for Scott Air Force Base." The Base, near O'Fallon, Illinois has two small lakes that are cooperatively managed by Scott AFB and Carterville Fishery Resources Office (FRO). Caswell also completed and submitted the 2004 Fisheries Management Report for Crane Naval Weapons Support Center (NWSC) in Crane, Indiana. The Base is home to 800 acre Lake Greenwood and many small ponds that are cooperatively managed by Crane NWSC Natural Resources, Carterville FRO, and the Indiana Department of Natural Resources.

*Nate Caswell, Carterville FRO*



-USFWS

Biotechnician Cory Hilliard empties his net into a livewell while electrofishing. Electrofishing is used to sample fish in a lake. The process temporarily stuns the fish.

### Jordan River NFH hosts Program for High School Natural Resources Class

On a beautiful fall day in Northern Michigan, 45 students from Alpena High School in Northeastern, Lower Michigan toured the Jordan River National Fish Hatchery (NFH). Along with the tour, they received in-depth presentations of several programs. Technician John Johnston introduced the students to hatchery operations and cold water fish culture. The student groups calculated density indices utilizing a data set to determine the pounds of fish that should be held per unit of rearing space. Project Leader Rick Westerhof discussed careers with the Fish and Wildlife Service and the NFH system. In addition, Rick presented information on stocking and distribution of lake trout for the Great Lakes rehabilitation program including information about the new stocking vessel, the M/V Spencer F. Baird. Biologist Tim Smigielski provided a presentation titled "An Introduction to Lake Trout Restoration - It's A Whole New World Out There." Tim presented a historical overview of lake trout restoration focusing on the changes in the Great Lakes ecosystem and some of the possible impediments and solutions for the lake trout rehabilitation effort. This was an excellent introduction to the fisheries sciences and resource conservation for these 9th and 10th graders. Mark McKay, the Alpena High School teacher who chaperoned the students, hopes to return to the hatchery annually with his classes. *Rick Westerhof, Jordan River NFH*

### Columbia Fishery Resources Office highlights 2004 Activities on Refuge Lands

An annual narrative report is produced by the Big Muddy National Fish and Wildlife Refuge (NF&WR) outlining the activities and highlights from each fiscal year. Big Muddy NF&WR was established in 1994 for the development, advancement, management, conservation, and protection of the Missouri River fish and wildlife resources. The NF&WR manages eight units along a 300-mile stretch of river from just east of Kansas City to Chesterfield, Missouri. The Columbia Fishery Resources Office (FRO) monitors changes in local fish communities and changes in habitat use on six of the eight units. Each year, Biologist Louise Mauldin provides a summary to the Big Muddy NF&WR to include in their "Monitoring and Studies" section of the report. Columbia FRO is working with Big Muddy NF&WR to identify and implement opportunities for increasing the quantity and improving the quality of aquatic and riparian habitats on Fish and Wildlife Service lands. *Louise Mauldin, Columbia FRO*



## Iowa Army Ammunition Plant Fisheries Management Plans Completed

Columbia Fishery Resources Office (FRO) has a long standing relationship with the Iowa Army Ammunition Plant by assisting with fisheries management objectives. The most recent management plans have been completed for Mathis Lake, a well developed fishery, and the newly renovated Stump Lake. Mathis Lake is very popular with local sport anglers for its crappie and largemouth bass fisheries. Both species are doing well in the lake, though over harvest may be an issue.

Stump Lake had silted in over time, and was drained in 2002 and sediments were removed. The contractor left most of the large wood during the excavation and dug many pits and mounds to increase habitat diversity in the lake. A new water control structure was installed that increased the lake depth by an additional two feet. After filling, several recreational fish species were stocked including bass, walleye, bluegill, and catfish. Stump Lake should provide a tranquil location and excellent fishing in the near future.

Quality opportunities for recreational fishing enjoyment on military lands help meet a recreational fishing goal of the Fish and Wildlife Service.  
*Andy Starostka, Columbia FRO*



-USFWS

**Mathis Lake is on the Iowa Army Ammunition Plant. The lake is very popular with anglers for its crappie and largemouth bass fisheries. Columbia Fishery Resources Office assists the Department of Defense by developing management plans for their aquatic resources.**

## Winter Visitors at the Jordan River National Fish Hatchery

The visitor center at the Jordan River National Fish Hatchery (NFH) has been open to the public 24 hours a day since 2001. This change has been successful and will continue as long as the public supports and respects the opportunity. A local snowmobile group from East Jordan, Michigan sponsors refreshments and promotes visitor center attendance. They have been instrumental in the success of this effort. The visitor center is a popular stop for families and groups snowmobiling or otherwise enjoying the Jordan River Valley. The visitor log at the center includes many positive comments regarding the friendly staff, clean bathrooms, and educational displays. The hatchery hopes to expand and improve the visitor center to meet the growing demands on the facility.  
*Tim Smigielski, Jordan River NFH*

## Spawning Spectators

Approximately 50 fifth graders from Cedarville Elementary School stopped at Sullivan Creek National Fish Hatchery (NFH) to check out the lake trout spawning program. All of the students seemed very interested and had many questions and comments for Technician James Anderson and Manager Curt Friez, who acted as tour guides for the morning. After their tour, the students had a picnic lunch on the hatchery's lawn before going on a short hike through the forest. The hatchery was one stop in their day of outdoor education. Spawning season usually brings a few classes out on field trips and the hatchery staff is happy to accommodate them.

*Curt Friez and Tracy Roessner, Pendills Creek NFH*



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**Technician James Anderson shows students the female spawning station where eggs from female lake trout are gently removed. Enough adult fish are held at the Sullivan Creek National Fish Hatchery to provide millions of fertilized eggs for high priority rehabilitation programs in the Great Lakes.**

# Cooperation with Native Americans

## Technical Fisheries Committee finalizes Lake Whitefish Harvest

The Technical Fisheries Committee (TFC) met in Roscommon, Michigan in December to finalize lake whitefish harvest limits for 2005. Model generated harvest limits, based on the most current biological and harvest data, are produced annually by the TFC's Modeling Subcommittee (MSC) for management units where fisheries are shared between the five Chippewa Ottawa Resource Authority (CORA) tribes and the State of Michigan in 1836 Treaty waters of lakes Superior, Michigan, and Huron. The Consent Decree requires the TFC to provide these final harvest limits to the Parties by December 1 each year. In management units where the whitefish fishery is reserved for the CORA tribes, harvest regulation guidelines (HRG) are established by the tribes according to terms of a Tribal Management Plan. Final HRG's will be provided to the Parties once CORA has established them. Alpena Fishery Resources Office (FRO) Project Leader Jerry McClain (TFC Chair) and Treaty Fisheries Unit Leader Aaron Woldt (MSC co-Chair) attended the meeting. McClain mailed the final harvest limit recommendations to the Parties on December 10.

*Jerry McClain, Alpena FRO*



*-USFWS photo by Aaron Woldt*

**Alpena Fishery Resources Office conducts whitefish assessments as part of a data set which is used to determine safe lake whitefish harvest levels in management units where fisheries are shared between the five Chippewa Ottawa Resource Authority tribes and the State of Michigan.**

## Lake Superior Angler's Creel Lake Trout Scales Read

The Ashland Fishery Resources Office (FRO) has completed ageing a set of lake trout scales collected from anglers at various creel check points on Lake Superior. The creel is run by the Marquette Fisheries Station, Michigan Department of Natural Resources (DNR). Scales were collected in both 1836 and 1842 treaty waters of Lake Superior. The information is used in conjunction with the biological data in models regulating harvest of lake trout. About 1,000 lake trout scales from the 2004 creel were read. This was the fourth year the Ashland FRO has assisted with scale reading for the Michigan DNR. Data collected from the creels and surveys will ensure that biological information is available for restoration programs in Lake Superior.

*Glenn Miller, Ashland FRO*

## Red Lake Walleye Restoration Effort

The Ashland Fishery Resources Office (FRO) continues to work with the Red Lake Band of Chippewa, Minnesota Department of Natural Resources (DNR), Bureau of Indian Affairs, and the University of Minnesota to restore a naturally spawning population of walleye in Red Lake in Northern Minnesota. During a December meeting, Frank Stone met with the Red Lake Task Force Committee to discuss the walleye restoration program and performance indicators of this long term restoration effort.

Frank also presented additional information for an internet web page that he developed for the Red Lake Recovery program. The web page will highlight the history, decline, and recovery of this important resource. The proposed web page will contain several links; Resource Fact Sheet, Progress Reports, Recovery and Fishery Assessment Data, Media and Agency Links, Image Library, and a Tribal Profile.

Several additional topics were also discussed at this meeting: The Minnesota DNR and the Red Lake Nation are focusing on selecting one of several different harvest models to be used for the Red Lake walleye fishery; The Red Lake DNR is reviewing a questionnaire that will attempt to define preferred harvest options/methods by the Tribe; The Minnesota DNR and the Red Lake Band will continue with an experimental walleye fry stocking next spring (10 million) to study fry survival rates.

*Frank Stone, Ashland FRO*



## Leadership in Science and Technology

### Lake Sturgeon Research presented to DOW Chemical

Biologist James Boase presented information on upcoming lake sturgeon research that will be taking place in the Saginaw River Watershed to DOW Chemical Facility staff in Midland, Michigan. Research is scheduled to begin in Spring 2005 and continue through Summer 2007. The primary goal of the research project is to determine if a remnant population of lake sturgeon exists in the Saginaw River Watershed and determine what habitats are being used for spawning. Two sites will be surveyed in 2005, one on the Tittabawassee River below the DOW Dam and the other on the Cass River below the Frankenmuth Dam.

Approximately 25 biologists and interested employees from DOW attended the presentation. The informal presentation provided an overview of the scheduled work and an opportunity for the audience to ask questions and provide comments about the research. Questions focused on how efforts to rehabilitate lake sturgeon integrates with the Fish Community Objectives for Lake Huron, how the research would benefit other game species, and what other lake sturgeon habitat would be available if the DOW Dam was removed. The forum was an excellent opportunity for Boase to explain how Alpena Fishery Resources Office (FRO) is working with biologists from state and Federal agencies along with non-governmental organizations in an effort to better understand and enhance sturgeon populations throughout the Great Lakes.  
*James Boase, Alpena FRO*



-USFWS

**Alpena Fishery Resources Office Biologist James Boase presented information to staff at the DOW Chemical Facility in Midland, Michigan on upcoming lake sturgeon research that will be taking place in the Saginaw River Watershed in 2005.**

### Coded Wire Tags entered into the Stock Assessment Database

Technician Jennifer Johnson entered sequence codes from coded wire tags for thousands of paddlefish into the Mississippi Interstate Cooperative Resource Association's stock assessment database. The database is the largest fishery coded wire tagging database for inland waters in the world and is jointly managed by the Columbia and Carterville Fishery Resources Offices (FRO).

Delta Systems Group, Inc. created computer programming which made data entry more efficient. The tag codes allow fish to be linked to the specific time and place where they were tagged. The database will improve the sharing of information between partner agencies which will lead to a better understanding of population trends and paddlefish movement in the Mississippi River Basin.

*Jennifer Johnson, Columbia FRO*

### Columbia Fishery Resources Office works with Computer Programmers to enhance Understanding of Paddlefish Stocks

Assistant Project Leader Joanne Grady worked with Tom Slavens and Debin Benish of the Delta Systems Group, Inc. on the national paddlefish stock assessment database. The database contains the collective efforts of 22 state fish and game agencies in the Mississippi River basin to stock, tag, collect, and recapture paddlefish. Unlike anadromous salmon stocks which were the basis for this tag study design, paddlefish do not routinely travel from their natal river to an offshore site and then return. Paddlefish have been documented to travel from South Dakota to Tennessee. Fish have been recaptured and assigned new tag codes at multiple locations and dates. The computer programmers' new code simplifies the linking of capture information which allows Columbia Fishery Resources Office (FRO) to serve the database to the state agencies in user friendly Microsoft Access format. In return, Tom and Debin learned a lot about paddlefish, starting with what the fish actually look like! This project allows the Fish and Wildlife Service to work with state partners to develop regional paddlefish management plans.  
*Joanne Grady, Columbia FRO*

## Great Lakes Basin Ecosystem Team's Sturgeon Committee Projects

Ashland Fishery Resources Office (FRO) biologists contributed data on Lake Superior sturgeon and information for further development of several key Great Lakes Basin Ecosystem Team Sturgeon Committee projects during December. Staff spent time testing and providing input to develop the Great Lakes Lake Sturgeon Tributary Database and GIS Website which will be a one-stop shop for information on research and management activities throughout the Great Lakes. Ashland FRO provided passive integrated transponder (PIT) tag numbers and sent them to Alpena FRO for inclusion in a basin-wide tag database. PIT tags are small internal tags that are injected into the fish and will remain in place for the life of the fish. Each tag has a unique alphanumeric code. Upon capture of a fish, it is checked for a PIT tag and if one is present, the code is recorded. Since the tag code does not include agency or contact information, there is no way to determine who originally tagged the fish. The database is being developed to allow biologists to locate the individual or agency that injected the PIT tag to facilitate data exchange.

*Henry Quinlan, Ashland FRO*



*-USFWS photo by Rob Elliott*

**This is a native lake sturgeon. Staff at the Ashland Fishery Resources Office tested and provided input to develop the Great Lakes Lake Sturgeon Tributary Database and GIS Website which will be a one-stop site for information on research and management activities throughout the Great Lakes.**

## Age and Growth Analysis begun for Missouri River Fish Species

Biologist Colby Wrasse from the Columbia Fishery Resources Office (FRO) began age and growth analysis for selected native Missouri River fish species as part of a long term population assessment project for pallid sturgeon. Due to extremely low abundances of Federally endangered pallid sturgeon, targeting this native species exclusively would most likely provide inadequate data to evaluate recovery efforts. A long-term population assessment approach was adopted to address this concern and evaluate the benthic fish community in the Missouri River. The native fish selected for study include shovelnose sturgeon, sauger, sand shiner, sicklefin chub, plains minnow, western silvery minnow, speckled chub, sturgeon chub, blue sucker, and bigmouth buffalo.

Columbia FRO staff is preparing fin spines from shovelnose sturgeon and sauger and scales from minnow and sucker species for age and growth analysis. Evaluation of the growth of these native fishes will provide

information on the fish community's response to changes in habitat or flow modifications. Other studies have found low agreement among readers when ageing spines from large shovelnose sturgeon. By examining shovelnose less than 22 inches, it is hoped that Columbia FRO can effectively evaluate spawning success and recruitment of shovelnose sturgeon.

*Colby Wrasse, Columbia FRO*



*-USFWS*

**This is a close up view of an endangered pallid sturgeon raised at the Neosho National Fish Hatchery. The Columbia Fishery Resources Office has begun age and growth analysis for selective native Missouri River fish species as part of a long term pallid sturgeon population assessment project. Other native fish species were selected for the study that represent a natural benthic fish community since data on rare pallid sturgeon is inadequate.**



# Aquatic Habitat Conservation and Management

## Ashland Fishery Resources Office's Private Lands Program Accomplishments

The 2004 fiscal year was another highly successful one for the Ashland Fishery Resources Office's (FRO) Private Lands program. Three stream, three upland, and a dozen wetland restoration projects were completed in the eight county region of responsibility. While the number of wetland restoration programs remained relatively constant, there was a three-fold increase in stream and upland restoration projects.

Fish and wildlife were the biggest winners with 41 acres of wetland habitat restored, 316 upland acres restored or enhanced and over 4 miles of stream restored or enhanced. Upland acres and stream miles restored far exceed last year's totals due to the hard work of numerous agency partners, private organization partners, and Fish and Wildlife Service staff, but most of all because of the generosity of many landowners and their commitment to fish and wildlife.

Working with the Brickyard Creek Development Association, the Ashland FRO improved brook trout and migratory bird habitat on Brickyard Creek through barrier removal, and stream bank and riparian forest restoration. Our upland projects were very diverse in nature. We helped restore 80 acres of native prairie in cooperation with the Prairie Island Indian Community and the Bureau of Indian Affairs – Circle of Flight Program, and in working with Brilla Dairy Farms of Mason, Wisconsin we helped restore 120 acres of native forest. Wetland projects ranged from one to twelve

acres and included many acres of upland nesting habitat within the 10 year agreements. These restorations and habitat protection projects not only benefit migratory waterfowl such as wood ducks, but also scores of other species from leopard frogs to gray wolves.

*Ted Koehler, Ashland FRO*



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**This restoration was one of many completed by the Ashland Fishery Resources Office through the Private Lands program. Three stream, three upland, and a dozen wetland restoration projects were completed with 41 acres of wetland habitat restored, 316 upland acres restored or enhanced, and over four miles of stream restored or enhanced.**

## Shallow Water Habitat Initiative

The fourth collaborative effort between multiple state and Federal agencies on the U.S. Army Corps of Engineers (USACE) efforts to develop a monitoring plan for the Shallow Water Habitat Initiative took place in Columbia, Missouri in November. Wyatt Doyle represented the Columbia Fishery Resources Office (FRO) in discussions with the USACE on how they will implement a fisheries monitoring plan for shallow water habitat creation on the Lower Missouri River. Modifications of dike structures on the Lower Missouri River are being made to increase the availability of shallow water habitat. Understanding the extent to which fish use these

structures before and after modification is imperative to determining whether water flow changes will need to occur to further increase availability of habitat. Creating a scientifically sound monitoring and evaluation project is essential for peer scrutiny and continued enhancement of shallow water habitat.

*Wyatt Doyle, Columbia FRO*

## Fish and Wildlife Interagency Committee - Mississippi River Projects/Issues

Rob Simmonds attended a meeting of the Fish and Wildlife Interagency Committee whose charter is "to provide coordination regarding fish and wildlife matters associated with main channel dredging, dredged material disposal, physical river modifications, backwater modifications, and river management studies and investigations." The committee is composed of fish and wildlife biologists from Wisconsin, Iowa, Illinois, Missouri, Fish and Wildlife Service, and U.S. Army Corps of Engineers. A number of topics were discussed but of particular interest were: 1) pool plans for the restoration and management of Mississippi River pools, and 2) "404 studies" investigating the effects of dredged material disposal on fish and other aquatic resources (contact Nate Caswell for a copy of our draft manuscript on the fish component in Pool 20 and the La Grange Pool and Scott Yess [608-783-8431] for Pool 12).

*Rob Simmonds, Carterville FRO*

## Lovells Road Bridge on the AuSable River scheduled for Replacement

Biologist Enterline from the Alpena Fishery Resources Office (FRO) met with the Otsego County Road Commission, Huron Pines Resource, Conservation & Development and the Headwaters Chapter of Trout Unlimited. The Fish and Wildlife Service and partners have been raising funds for the past year to replace the ageing bridge that is currently in place at the Lovells Road/Crapo Creek crossing. Crapo Creek is a tributary of the North Branch of the AuSable River, and at the Lovells Road crossing the creek has been severely impacted by sediment loading. The deteriorated bridge will be replaced by an aluminum bottomless culvert, and road approaches to the bridge will be re-graded, paved, and proper ditches and sediment basins will be installed. Construction is scheduled to take place in the fall 2005 or early summer 2006. These actions will virtually eliminate sediment loading at the road crossing site. Repairs at this crossing will, over time, dramatically improve coldwater fisheries habitat for three river-miles of Crapo Creek.

Through natural river processes the riffles and pools that had been previously covered by sediment will be uncovered as the sediment moves downstream, creating feeding and spawning habitat for brook trout. The AuSable River Watershed has been federally designated as a Natural and Scenic River and the headwaters designated as a Blue Ribbon Trout Stream by the state of Michigan.

*Heather Enterline, Alpena FRO*



*-USFWS photo by Heather Enterline*

**Alpena Fishery Resources Office staff and partners will replace an aging bridge at the Lovells Road/Crapo Creek crossing in Otsego County, Michigan with an aluminum bottomless culvert. Repairs will eliminate sediment loading and provide uninhibited fish passage for three river miles.**

## Alpena Fishery Resources Office Biologists visit Washington

Biologists Heather Enterline and Susan Wells along with Student Career Experience Program student Andrea Gray from the Alpena Fishery Resources Office (FRO) traveled to Seattle, Washington to meet with personnel from the Western Washington Fish and Wildlife Office (FWO). The purpose of the trip was to compare and contrast stream restoration techniques used by the two offices. The Fish Passage, Partners for Fish and Wildlife, and Coastal programs are three programs both offices utilize to implement restoration practices. The Western Washington FWO generously set aside the week to discuss their process for ranking projects and to conduct site visits to several of their projects. The schedule included field visits on all three days; however, Wednesday morning was spent in the office discussing ranking procedures and the various programs run out of their office. Materials on their projects and ranking system were provided to Alpena staff.

The majority of the field visits involved culvert replacements at road stream crossings. We visited sites in forested and urban settings. Each visit included a description of the problem and the design mechanisms involved in construction and placement of the new culvert or bridge. Geomorphologist Paul Baake addressed common mistakes in restoring fish passage to road stream crossings. One such concern he brought to our attention is the potential for stream bank incision to occur upstream of a new culvert if design and implementation are not done properly. Stream restoration sites involving the placement of large woody debris were highlighted during our trip. We traveled to a series of four sites along a mile stretch of river that were completed in a single season. Each site utilized natural material and had a different purpose such as bank stabilization or pool and bar formation.

The Alpena FRO would like to thank Mary Mahaffy and staff for sharing their time and expertise for this training exercise.

*Heather Enterline, Alpena FRO*



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**Biologists Heather Enterline, Susan Wells, and student employee Andrea Gray met with personnel from the Fish and Wildlife Service's Western Washington Fish and Wildlife Office. The purpose of the trip was to compare stream restoration techniques between the Regions.**



## Workforce Management

### Volunteers getting Hitched and Moving On

The first week of December was the last full work week for two of the most dedicated volunteers at Pendills Creek National Fish Hatchery (NFH). Over the past year and a half, Matt Rinkus and Rachel D'amico have combined to volunteer over 2,080 hours. Rachel began volunteering in the summer of 2003 to fulfill credits towards her associate degree in Fish and Wildlife Management from Hocking Technical College in Nelsonville, Ohio. She returned in January of 2004 after transferring to nearby Lake Superior State University, this time bringing her fiancé as well. Over the past year they have assisted the staff in every aspect of fish culture from cleaning raceways and feeding fish, to sample counts and helping with the fin clipping operation, to helping at the open house at Sullivan Creek NFH this past summer.

In early January, they will be taking a short vacation to Las Vegas where they will be married. While Matt will continue to help out one day a week, Rachel will be concentrating on her studies hoping to complete her bachelor's degree within a year. The staff at Pendills Creek and Sullivan Creek will miss having these two around. We couldn't have gotten through this past year without them.

*Tracy Roessner, Pendills Creek NFH*



-USFWS

**Matt Rinkus and Rachel D'amico have volunteered over 2,080 hours at the Pendills Creek/Sullivan Creek National Fish Hatchery Complex. Now they are off to Las Vegas to get married.**

### Columbia Fishery Resources Office welcomes a New Biologist to the Staff

Biologist Colby Wrasse joined the Columbia Fishery Resources Office (FRO) in November. Wrasse joins Columbia FRO after two and a half years of service with the Carterville FRO in Southern Illinois. Columbia FRO brought Wrasse aboard to assist with the ongoing monitoring project for pallid sturgeon on the Lower Missouri River. While at Carterville FRO, Wrasse worked mainly as a biologist on large rivers, examining habitat use of sturgeon on the Mississippi River and completing a three year project monitoring fisheries response to dredge spoil placement on the Illinois and Mississippi rivers. Wrasse is a graduate of Southern Illinois University Carbondale where he earned a Bachelor's of Science degree in Zoology.

*Colby Wrasse, Columbia FRO*

### Big Rivers Fishery Resources Office provides Education Specimens to the National Conservation Training Center

Nate Caswell from the Carterville Fishery Resources Office (FRO) located and organized fish specimens for the Fish and Wildlife Service's National Conservation and Training Center (NCTC) which is located in Shepherdstown, West Virginia. Carterville FRO collected and preserved many Mississippi River basin fish during the 404 Dredge Material Placement Study. These fish have now become available as ichthyologic educational tools. Alan Temple from NCTC requested a number of specimens, and several hundred fish are now ready to ship.

*Rob Simmonds, Carterville FRO*



-NCTC

**National Conservation Training Center**

## Columbia Fishery Resources Office hosts Regional Supervisors

The Columbia Fishery Resources Office (FRO) hosted Assistant Regional Director of Fisheries Gerry Jackson and Fish Hatchery Team Leader Todd Turner. Jackson and Turner spent the day pulling gill nets with Technician Corey Lee, Project Leader Tracy Hill, and Biologist Colby Wrasse on the Missouri River at Overton Bottoms in Rocheport, Missouri. Experimental gill nets are a standard gear type utilized in the protocol for the Pallid Sturgeon and Associated Fish Community Assessment Project which is funded by the U.S. Army Corps of Engineers. In four gill nets, two of five gill net-susceptible target species were captured, including 25 shovelnose sturgeon and two sauger. Also captured were several species of Catostomids, including a river red horse and a white sucker. Nine different species were captured in the gill nets.

Corey Lee, Columbia FRO



-USFWS

Assistant Regional Director Gerry Jackson and Biologist Colby Wrasse remove sturgeon from gill nets on the Missouri River. Regional office staff were put to work during a recent station visit.

## Columbia Fishery Resources Office increases Access to Scientific Information

Technician Jennifer Johnson has obtained fisheries related journals such as *“Regulated Rivers Research and Management”*, *“River Research and Applications”*, *“Journal of Fish Biology”*, and *“Ecology of Freshwater Fish.”* The journal articles will be entered into Columbia Fishery Resources Office’s (FRO) searchable article database to allow staff to quickly and effectively search for articles related to ongoing research at the station. These journals will not only provide easy access to articles related to our research but also to other research throughout the country.

Jennifer Johnson, Columbia FRO

## Columbia Fishery Resources Office welcomes a New Volunteer

Columbia Fishery Resources Office (FRO) welcomed a new volunteer, Cliff Wilson, to the winter sturgeon sampling crew. Cliff is assisting field crews with setting gill nets to collect the Federally endangered pallid sturgeon. He has also taken the initiative to learn about the basin-wide monitoring protocols and Missouri River navigation charts. Cliff had worked for Columbia FRO previously in an emergency hire position, so we have the added benefit of receiving the efforts of someone who’s already familiar with our boats and gear. Cliff, a recent college graduate, is expanding his experience to allow him to meet qualifications for upcoming Missouri River natural resource positions. We appreciate Cliff going “above and beyond” to assist us in our endangered pallid sturgeon monitoring efforts.

Joanne Grady, Columbia FRO



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**Fish Lines**  
**Region 3, Great Lakes/Big Rivers**  
**FY 2005 Vol. 3 No. 3**

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## Windows in time

*A Glimpse into our Proud Past*

*U.S. Fish Hatchery at Manchester, Iowa; 1907*

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