



U.S. Fish & Wildlife Service

Fish Lines

Region 3 - Great Lakes/Big Rivers

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Leadership in Conserving, Enhancing, and Restoring Aquatic Ecosystems

Native Peoples and Native Fish Intertwined in the Upper Midwest

(See the “Feature Story on Page 5)



-USFWS
A member of the Menominee Nation helps to release a large adult lake sturgeon, relocated to Reservation waters.

The “Perfect Pallid Storm”

(See the “Feature Story on Page 7)





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.

Inside this Issue

Great Lakes - Big Rivers Region Fisheries Field Offices (Page 4)



- National Fish Hatcheries
- Sea Lamprey Control Stations
- Fishery Resources Offices
- Fish Health Center

Great Lakes - Big Rivers Regional Fisheries Program

Feature Stories:

Native Peoples and Native Fish Intertwined in the Upper Midwest
(Page 5)

The "Perfect Pallid Storm"
(Page 7)

Partnerships and Accountability (Page 9)



Partnership Effort Strives for
Year-Round Medication Turn-
In Program

Aquatic Species Conservation and Management (Page 14)



Columbia FRO studies Fish
Populations in the Osage River

Aquatic Invasive Species (Page 19)



Ashland FRO, Northland
College Cooperate on
Ruffe Study

Public Use (Page 20)



Michigan Hosts 2007 Earth Day
Celebration

Cooperation with Native Americans (Page 24)



Ashland FRO Assists with
Spring Walleye Surveys

Leadership in Science and Technology (Page 25)



Biologists Add Another
Piece to the Sturgeon
Reproductive Puzzle

Aquatic Habitat Conservation and Management (Page 26)



Monitoring Fish Passage at
the Potagannissing Dam
Project

Workforce Management (Page 29)



Animal Caretaker at
Jordan River NFH is
Real Life "007"

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 evaluate aquatic habitats to identify restoration/rehabilitation opportu-

nities; 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



List of Acronyms

DNR- Department of Natural Resources
 FHC- Fish Health Center
 FRO- Fishery Resources Office
 NFH- National Fish Hatchery
 NWR- National Wildlife Refuge

Native Peoples and Native Fish Intertwined in the Upper Midwest

The lake sturgeon is a unique fish that historically inhabited many of the Upper Midwest's large rivers and their associated lakes. Native American cultures were partly dependent on the availability of lake sturgeon and Indian villages were often located near waters where sturgeon spawned. Two projects in the Fish and Wildlife Service's Midwest Region are helping to return this mystical fish to the tribes that revere it.



-Menominee Indian Tribe of Wisconsin

The last sturgeon harvested from the Wolf River reservation waters, May 1959.

Population restoration efforts in Wisconsin by the Fish and Wildlife Service's La Crosse, Wis., Fishery Resources Office (FRO) over the past 14 years have reunited native Menominee people with the ancient lake sturgeon.

The Menominee inhabited Wisconsin longer than any other living peoples; the lake sturgeon is one of the oldest inhabitants among Wisconsin's fishes, and holds a prominent place in Menominee history and culture.

The creation story of the Menominee people tells that the Great Spirit gave the sturgeon the responsibility of being tribal historian and keeper of the wild rice, another important Menominee food. Sturgeon meat was a critical source of protein and readily available in early spring when other food stores were depleted. The Menominee also used the sturgeon's oil and body parts as medicine.

Each spring, the Menominee celebrated the return of lake sturgeon to the spawning grounds with a fish dance that emulated spawning behavior. A sturgeon feast was held to celebrate the renewed life and fresh source of food.

After a series of treaties that ceded most of their lands, many Menominee settled on the reservation formed for them in 1852. The Menominee reservation centered on Keshena Falls, a prominent sturgeon spawning site on the Wolf River in Northeastern Wisconsin, and the people continued to rely heavily on lake sturgeon.

Dams built in the early 1900s blocked upstream sturgeon migration and the last sturgeon harvested from the reservation was in 1959. For the next three decades, Menominee elders continued to practice the fish dance each spring—without the sturgeon.



-USFWS

Spawning lake sturgeon congregate below the Shawano Paper Mill dam near Shawano, Wisconsin. This dam blocks upstream migration of fish to the Menominee reservation.

The La Crosse FRO worked with the Menominee tribe, Wisconsin Department of Natural Resources (DNR) and Genoa National Fish Hatchery (NFH) to restore lake sturgeon to waters of the Menominee reservation, and since 1993, small numbers of the ancient fish have once again been part of tribal sturgeon celebrations.

The Wisconsin DNR provides adult lake sturgeon each spring for the sturgeon feast. Each fall, the agencies work together to transfer about 20 adult and sub-adult lake sturgeon to reservation waters above the dams that block their natural migrations. These fish generally remain in reservation waters for up to three years before passing back downstream through the dams.



-Wisconsin DNR

Elders honor lake sturgeon in their "renewed" ceremony with lake sturgeon for the traditional feast provided, by the Wisconsin Department of Natural Resources.

In addition, the Menominee tribe has been able to open a limited sturgeon fishery as a result of stocking efforts, restoring harvest opportunities for a people who once relied on lake sturgeon as a primary source of protein and sustenance.

In Northwestern Minnesota, the Fish and Wildlife Service is working with United States and Canadian tribes to restore lake sturgeon on the White Earth reservation.

Sturgeon once inhabited the Red River of the North—the border between Minnesota and North Dakota—and its tributaries. Since the turn of the twentieth century, lake sturgeon in this area declined precipitously because of over harvest, pollution and water development. The last lake sturgeon was recorded in the area in 1957.

In 1998, the White Earth Department of Natural Resources, La Crosse FRO, Rainy River First Nations of Canada and the Minnesota DNR approved a management plan for restoring lake sturgeon in White Earth Lake and Round Lake on the White Earth reservation.

The management plan calls for 8,000 fingerlings to be stocked in White Earth Lake and 5,000 fingerlings in Round Lake annually for ten years, after which survival and growth will be evaluated and the stocking rate will be adjusted if necessary.

A significant team effort takes place prior to stocking the sturgeon fingerlings. The La Crosse Fish Health Center tests the sturgeon for viral infections prior to egg shipping; after the brood stock are shown to be disease-free, approximately 12 female and 30 male lake sturgeon are spawned at the Rainy River First Nations Hatchery.

Once fertilized, eggs are shipped from the Rainy River hatchery to Genoa National Fish Hatchery to hatch and grow for approximately 15 weeks. Just prior to stocking, staff and volunteers mark the fingerlings with a metal coded-wire tag. Since 2001, White Earth Lake has received 44,075 lake sturgeon fingerlings, and Round Lake has been stocked with 28,225 fingerlings.



-USFWS

Lake sturgeon are reared at the Genoa National Fish Hatchery for restoration programs on Tribal land throughout the Upper Midwest.

In addition to the stocking efforts, several dam removals or fish passage projects are allowing lake sturgeon to move greater distances within the Red River watershed. This will improve the habitat conditions for lake sturgeon and other fish species. In 2007, staff from the White Earth DNR, La Crosse FRO and Minnesota DNR will team up to try to document lake sturgeon survival and growth in White Earth and Round lakes.

Scott Yess, La Crosse FRO

For additional information about Tribal lake sturgeon restoration programs, contact the La Crosse FRO at: 608/783-8434 or visit their website at:
<http://www.fws.gov/midwest/lacrossefisheries/>

The "Perfect Pallid Storm"

It is often said in fishing circles, "You should have been here last week when the fish were really biting," and it may be what a team of biologists is saying next year after the incredible success of our 2007 pallid sturgeon brood stock collection efforts on the Missouri River.

Six years into the Corps of Engineers' recovery efforts for this endangered fish, more than \$5 million has been invested in renovating and expanding three hatcheries to meet pallid sturgeon production needs in the Lower Missouri River.

Millions more have been invested in the biggest telemetry program ever attempted in a large river system. This year 13 telemetry tracking crews and 27 stationary sonic buoys are monitoring movement throughout 800 miles of the nation's longest river.



Sampling for the endangered pallid sturgeon began on the lower Missouri River in 1999. Despite success in collecting wild pallid sturgeons, crews from state and Federal agencies never caught reproductively active pallid sturgeons from the Lower Missouri to serve as the parents of hatchery-reared fish.

Prior to 2004, the Lower Missouri River was stocked with progeny from the upper basin. Advances in sturgeon genetics led the pallid sturgeon recovery team to decide that only local fish should be used for stocking the Lower Missouri River.



-USFWS

Wyatt Doyle of the Columbia Fishery Resources Office holds a large pallid sturgeon collected in the Missouri River. Biologists are collecting adult fish to serve as brood stock as specified in the recovery plan.



-USFWS photo by Wyatt Doyle

Columbia Fishery Resources Office staff remove a female pallid sturgeon from a gillnet during the 2007 Missouri River brood stock collection efforts.

Fish have not been stocked in recent years in the Lower Missouri River, since crews were unable to capture reproductively active adults through 2006 with standard monitoring gears.

The biologists wanted to document pallid sturgeon migrations and fill the newly expanded hatcheries. Crews from five state and Federal agencies made a concerted effort this spring to collect local stocks of fish. They had to forego traditional sampling techniques used to monitor range-wide pallid sturgeon populations.

Innovative nets and trot-line gears were developed to target the large fish in their pre-spawn habitats. As if on cue, the Missouri River created perfect conditions for a migration run, and with crews in place, the team collected an astounding 210 pallid sturgeon in just a few months.

The new trot lines were a key contribution to this success. They proved to be the most successful gear used by all crews throughout the river, particularly for smaller hatchery pallids stocked as early as 2001. Many of these fish have not been recaptured with standard gears, making their reappearance this spring on trot lines an encouragement to the team.



-USFWS photo by Andy Plauck

Branch Chief Wyatt Doyle demonstrates set line catch of sturgeon.

Crews from U.S. Geological Survey's (USGS) Columbia Environmental Research Center and Nebraska Game and Parks Commission collected 152 pallids from the middle Missouri River. In one phenomenal day below the Little Sioux River, USGS captured 62 pallid sturgeons on trot lines with one in five hooks snaring a fish.

One of the biggest pallid sturgeons ever seen on the lower river was also captured — weighing in at over 13 pounds (compared to an average of five pounds). Two females and three males were implanted with transponders for telemetry tracking.

These fish will provide information about the habitats and behaviors of wild adult fish during spawning season. This will be the first time a female pallid sturgeon will be tracked during the spawning migration...a great success for the team.

A crew led by Wyatt Doyle collected the only gravid female fish with mature black eggs ever captured in the Lower River. Three reproductive males were also collected by crews from the Missouri Department of Conservation (MDC) and Columbia FRO.

Columbia FRO's crews led by Nick Frohnauer, Andy Starostka, Andy Plauck, Patty Herman, Jeff Finley, Nick Utrup and Colby Wrasse collected 46 pallids in March and April — a considerable feat compared to Columbia FRO's prior record of 15 pallids in all of 2006 and 25 in 2005.

Many others from the Missouri River team including Gary Heidrich from MDC's Blind Pony Hatchery and David Hendrix from Neosho National Fish Hatchery, and crews from Missouri, Nebraska, South Dakota and USGS, teamed with Columbia FRO to ensure recovery goals were met this year.

The incredible luck of this year's optimal river conditions may mean it will be just another fish story next year; for now, the Missouri River team can hold their heads high. This achievement is a great step forward in the recovery of this prehistoric creature.

Wyatt Doyle, Columbia FRO

For additional information about pallid sturgeon recovery, contact the Columbia FRO at: 573/234-2132 or visit their website at: <http://www.fws.gov/midwest/columbiafisheries/>

Partnerships and Accountability

Partnership Effort Strives for Year-Round Medication Turn-In Program

Recent surveys of surface water quality in public waters around the United States have frequently detected the presence of a variety of potent chemicals that can disrupt the normal physiology of certain aquatic animals.

These chemicals have varying, but often alarming, effects on aquatic species. Some chemicals can cause a fish to simultaneously express intersex—both male and female—characteristics, while another chemical can cause female mussels to prematurely release larvae.

The Smarxt Disposal campaign is a cooperative effort of the American Pharmacists Association (APhA) and the Fish and Wildlife Service to educate corporations and individuals about the appropriate disposal of unused and unwanted pharmaceuticals and personal care products that may otherwise be flushed into our waters. The campaign aims to unite many Federal, state, private and local organizations and industries in a cohesive effort to take responsibility for collective actions to reduce the adverse impacts of unwanted medicines.

The Pharmacy Manufacturers Association and pharmaceutical companies join the Fish and Wildlife Service in this effort, targeted for a national roll-out during National Pharmacists' Month this October.

In southwestern Wisconsin, the La Crosse Fishery Resources Office (FRO), Mayo Health System (Franciscan Skemp Healthcare, La Crosse Campus), Gundersen Lutheran Health System, and La Crosse County's Household Haz-

ardous Materials Program began meeting early this year to discuss the feasibility of establishing a safe and effective turn-in program for the disposal of unused or expired medications that would meet the needs of the county's 109,000 residents.

Members of this diverse team developed a concept for a year-round medicine turn-in program that would use the infrastructure and complement the services of an existing county-operated facility. The establishment of a medication turn-in program in La Crosse, and perhaps in other communities that discharge treated municipal wastewater into the Upper Mississippi River, could benefit fish, mussels and other aquatic life that inhabit the 261-mile long Upper Mississippi River National Wildlife and Fish Refuge.

If established, the proposed La Crosse County program would be one of the few year-round turn-in programs for unused medications in the country and a model for like-minded communities.

Though it was long considered "safe" to flush unused or expired prescription medications to help prevent accidental human poisonings, the cumulative impacts on environmental quality were not readily apparent until recent studies, many conducted near wastewater treatment plant outfalls, found unexpectedly high numbers of intersex fish.

Many waterways receiving discharge from municipal wastewater treatment plants are the same ones that provide drinking water to millions of Americans daily. Because current wastewater treatment technologies cannot filter these chemicals or inhibit their biological activity, there are few options for disposing unused or

expired prescription medicines that contain these or other harmful compounds.

On March 5, La Crosse team members convened a meeting to introduce their conceptual plan to about 20 invited guests representing several municipalities, health care providers and retail pharmacies in the county.

The response from this group was overwhelmingly supportive, spurring team members to draft a more detailed plan that will be formally introduced for consideration by elected representatives and officials of county government.

Program partners and potential cooperators would commit to ongoing outreach efforts in a variety of locations (retail pharmacies, nursing homes, clinics, schools, festivals) and formats (print, television, radio, Internet) to inform the public about the benefits this service will provide their community.

Mark Steingraeber, La Crosse FRO



-USFWS

A new partnership effort promotes the safe disposal of unused prescription medications.

Alpena FRO Partners with University of Toledo to Collect Tissues for Genetic Studies

The Alpena FRO collected tissues from spawning populations of native yellow perch and walleye encountered as by-catch during regular surveillance of invasive Eurasian ruffe in Thunder Bay in Lake Huron. Sampling consisted of overnight sets with small mesh (1.3 cm) gill nets (33 x 1.8 m) and was conducted biweekly during April. Tissues samples — a 1 cm fin clip — were collected from approximately 50 yellow perch and 20 walleye. Tissues were kept on ice and fresh-frozen in water, then shipped to the University of Toledo Great Lakes Genetic Laboratory. Tissues will aid in development of genetic markers to distinguish unique spawning populations of these native species.

Anjanette Bowen, Alpena FRO

Benefit Dinner Held for Detroit River Refuge Alliance

On April 28, the Second Annual Detroit River International Wildlife Refuge Alliance Benefit Dinner was held at the Immaculate Heart of Mary Motherhouse in Monroe, Mich. The Alliance is a non-profit group of organizations building the capacity of the Fish and Wildlife Service to deliver its mission through the Detroit River International Wildlife Refuge (IWR). More than 400 people attended the benefit, which included a strolling dinner and drinks as guests bid on silent and live auction items. Highlights of the evening were presentations and speeches given by U.S. Congressmen John D. Dingell and John Conyers, Canadian Member of Parliament Jeff Watson, Canadian Consul General Robert Noble, Sister Mary Fran the leader of

Mary Motherhouse, Refuge Manager John Hartig, and speeches by a number of other local dignitaries. More than \$200,000 has been raised through this event in 2006 and 2007.

Biologist James Boase of the Alpena FRO was an invited guest because of his fisheries work on the Refuge and related work on the Detroit River over the past five years. Since Boase began working with the Fish and Wildlife Service in 2002, he has worked with Refuge Manager John Hartig to identify fishery assessment needs on refuge, which stretches along 48 miles of the Detroit River and Western Lake Erie shoreline, an area that forms a unique link between the Upper and Lower Great Lakes and encompasses islands, coastal wetland, shoal and upland habitats. As part of the Fish and Wildlife Service's Challenge Cost Share Grant Program and the Science Support Program, biologists from Alpena FRO, Detroit River IWR, Michigan Department of Natural Resources (DNR) Lake Erie Management Unit, and Lake St. Clair Research Station, and U.S. Geological Survey Great Lakes Science Center have been working to identify important near-shore nursery areas and fish spawning locations in the Detroit River and western Lake Erie.

During the 2005 near-shore fish survey along Western Lake Erie, crews collected 46 fish species. In 2006, efforts focused in the lower Detroit River, where 55 fish species were collected. Results from both years demonstrated that some state listed species, as well as many economically valuable sport fish species used the near shore areas, located within the refuge boundaries, as nursery areas. Other research over the past two years has determined

that lake whitefish have returned to the Detroit River and are reproducing within the refuge, a first in almost a century. The refuge manager has used these findings as leverage when setting up some of the management and cooperative agreements with private and corporate land owners within the refuge boundaries, and as a result the refuge has grown from 304 acres in 2001 to almost 5,000 acres in 2007.

James Boase, Alpena FRO



Biologist Presents Assessment Results

The 2000 Consent Decree requires that harvest quotas for lake trout and lake whitefish be established through a multi-agency scientifically objective process. The Modeling Subcommittee of the Technical Fisheries Committee comprises biologists and analysts from the state of Michigan, the tribes with treaty fishing rights in these waters, and the Fish and Wildlife Service. As co-chair of the Modeling Subcommittee, John Netto from the Green Bay FRO presented the preliminary harvest limits to the Technical Fisheries Committee. Representatives from each party had the opportunity to ask questions and seek clarification on the results of the assessments and resulting harvest limits.

John Netto, Green Bay FRO

Updates Made to Great Lake's Stocking Database

Green Bay FRO biologist Dale Hanson updated the Great Lakes Fishery Commission's stocking database with all available 2006 fish stocking data. The database contains a complete listing of fish stocked in the Great Lakes and their tributaries (below the first barrier). Online access to the database (<http://www.glfco.org/fishstocking/>) enables managers to retrieve stocking data. The project requires annual data submissions from seven states, one province, tribal management commissions and Federal agencies.

Dale Hanson, Green Bay FRO

Biologists Provide Expertise during Naturalists' Field Trip

Columbia FRO assisted the Big Muddy National Fish and Wildlife Refuge (NF&WR) and the Refuge's Friends Group with the large river component of the Master Naturalist Program. Andy Starostka and Lee Erickson provided big river ecology expertise to the 30 trainees. The program began with a short discussion of the projects that Columbia FRO is involved with on the Missouri River and also covered general river ecology and Missouri River use issues. The field trip continued with a boat tour of the Overton Bottoms unit of the Big Muddy NF&WR. Participants viewed and discussed ongoing habitat projects including Overton Chute, a pilot chute constructed by the U.S. Army Corps of Engineers and monitored by Columbia FRO, and visited shallow water habitat projects.

The Missouri Master Naturalist program is a community-based natural resource education and volunteer program. Its purpose is

to develop a corps of well-informed volunteers to provide education, outreach and service to benefit management of natural resources and natural areas within their communities for the State of Missouri. The Missouri Master Naturalist program is a partnership of the Missouri Department of Conservation and University of Missouri Extension and local partners in each community. Both the Big Muddy NF&WR and their Friends Group are partners for the local Master Naturalist Chapter in Columbia, Missouri. Previous classes have volunteered many hours for the refuge.

Andy Starostka and Lee Erickson, Columbia FRO

Biologists Attend Habitat and Monitoring Meeting

Begun in 2005, the Habitat Assessment and Monitoring Project (HAMP) assesses shallow water habitats created by the U.S. Army Corps of Engineers on the Missouri River to provide predictive understanding to guide future restoration actions. Columbia FRO and Nebraska Game and Parks Commission acquired equipment, hired personnel and experimented with gears and sampling regimes in 2005 and 2006. With the infrastructure in place, teams are developing a standard operating procedure for the project.

Biologists Nick Frohnauer, Andy Starostka and Wyatt Doyle, and Project Leader Tracy Hill, attended a HAMP planning meeting on March 21 in St. Joseph, Mo., to further refine project goals and standardize sampling between agencies. Attendees determined the goal of HAMP is to "effectively assess the physical and biological responses to mechanical habitat alteration intended to create functional habitat to benefit the

pallid sturgeon and other native fishes in the Lower Missouri River System." This will be accomplished by including both physical and biological components in the monitoring program.

While engineers attended the meeting, biological sampling was the group's focus. The hypothesis is that shallow water habitat serves as nursery habitat for young of the year, juvenile and smaller bodied fish. The group decided to focus on this part of the fish community. In keeping with the Sustainable Ecosystems Institute's project review recommendations, HAMP members reduced the number of gear types. Gears that will be used in the 2007 field season are the small mesh stern trawl, the newly developed push trawl and the standard stern trawl. The first two target smaller bodied fish, and the standard stern trawl was kept as a gear because it samples sturgeon well and gives the project a connection to the Pallid Monitoring Project.

Nick Frohnauer, Columbia FRO



-USFWS
Columbia Fishery Resources Office crew samples the Missouri River fish community with a stern trawling boat.

Meramec River Basin Summit Being Planned

A River in Renaissance” is the proposed theme for the first annual Meramec River Basin Summit scheduled for September 2007. Planning has been underway for several months for the summit, which will bring together public and private individuals and organizations that have played a role in the past and will continue to contribute to restoration, conservation, agricultural and outdoor recreation benefits in the Meramec basin in Eastern Missouri. The hope of the numerous groups organizing the summit is that dialogue from the event will further inspire people to appreciate and embrace the cultural and natural benefits of the Meramec. The summit will be preceded by an eight-day media float trip scheduled for the end of July to entice the media to cover the Meramec watershed in various outlets. Joanne Grady, branch chief for fish conservation at the Columbia FRO, joined the planning committee at the April meeting and was assigned to the Marketing and Promotion Committee.

Joanne Grady, Columbia FRO

Corps of Engineers Public Meeting Held

Columbia FRO Project Leader Tracy Hill and biologist Jeff Finley attended a public meeting hosted by the U.S. Army Corps of Engineers (Corps) to educate those interested in the Jameson Chute project and to address public concerns. The Corps design calls for dumping the excavated soil at the construction site directly into the Missouri River to address the decline of silt in the river. Local landowners were worried about the potential im-

pacts the dirt would have on their levees and farms. This issue is being addressed.

Columbia FRO has been assisting the Corps with fisheries monitoring of chutes created in the Missouri River and attended the meeting to address questions related to the benefits that the Jameson Chute project has for native Missouri River fishes. Ecological Services personnel attended, as well as state and local representatives from a number of interest groups. Public information meetings such as this are critically important for effective natural resource management and partnership development.

Tracy Hill, Columbia FRO

National Conference on Ecosystem Restoration

Columbia FRO Project Leader Tracy Hill attended the National Conference on Ecosystem Restoration meeting in Kansas City, Mo., along with about 1,000 resource professionals from state, Federal, university and non-governmental organizations. The theme of this year's conference was *The Spirit of Cooperation: Integrating partnerships between science and management for sustainable ecosystem restoration*. National Conferences on Ecosystem Restoration grew out of a need for better integration and sharing of scientific information and communication of that information for use in resource management decisions.

Hill gave two presentations during the conference: “Sturgeon response to Gavins Point Dam Flow Modifications, Lower Missouri River” and “Fish community evaluation of habitat mitigation sites in the Lower Missouri River.” Both presentations highlighted work of the Columbia FRO on the

Missouri River to aid in recovery of the endangered pallid sturgeon. Fish and Wildlife Service involvement in this conference provided an opportunity to ensure that species conservation and management is an integral component of management actions.

Tracy Hill, Columbia FRO

Lake Superior Work Group Holds 2007 Spring Meeting

Henry Quinlan and Ted Koehler from the Ashland FRO attended the Binational Program's Lake Superior Work Group and committees meeting in Thunder Bay, Ont., in April. Lake Superior basin-wide natural resource coordination took place in the areas of aquatics, chemical, habitat, wildlife, sustainability and communications. Work plans for 2007-2008 were discussed and updated. Updates and discussion took place on recent work on the status of Areas of Concern, U.S. Great Lakes Regional Collaboration and binational cooperative monitoring. Preparations were made for upcoming meetings and the State of Lake Superior Conference 2007.

The federal governments of Canada and the United States as well as the Province of Ontario, and the states of Michigan, Minnesota and Wisconsin formed the Binational Program to restore and protect Lake Superior. The program works to support a diverse, healthy and sustainable natural community in the Lake Superior basin and plays a key role in integrating land use planning efforts across jurisdictions such as the Lake Nipigon Basin Signature Site in Ontario, and Whittlesey Creek NWR in Wisconsin.

Ted Koehler, Ashland FRO

Getting By with a Little Help from Our Friends

Several years ago the Jordan River National Fish Hatchery (NFH) adopted a two-mile section of highway U.S. 131 near the hatchery in Northern Michigan. This program, through the Michigan Department of Transportation, requests that three clean-ups be made annually in April, July and September. Normally it is an activity the entire crew gets involved with, but the April clean-up can be a challenge because this is when the Hatchery begins its annual distribution of lake trout. This involves hauling fish to various ports around lakes Michigan and Huron. Most staff are involved in distribution; therefore, we must look to alternative sources for participants to be involved in the spring clean-up effort. On April 25, ten high school students and the director of the Concord Academy Antrim Kathy Schanski, as well as four members from the East Jordan Snowmobile Club, and one member of the Jordan River NFH Friends Group came to the rescue. Kathy Schanski has added the Adopt-a-Highway Program into the school's curriculum, and allowed students in good standing to participate in the clean-up. Volunteers removed 26 large bags of debris from the roadside area. The group was treated to a hot dog roast for their efforts. Everyone understands the program's importance and has pledged ongoing support.

Clarice Beckner, Jordan River NFH



-USFWS photo by Clarice Beckner
Thanks to the East Jordan Snowmobile Club, Concord Academy Antrim and the Friends of the Jordan River National Fish Hatchery for their help with this year's Adopt-a-Highway project.

Jordan River NFH Staff attend Upper Lakes Meeting

Rick Westerhof and Tim Smigielski of the Jordan River NFH attended the 2007 Upper/Lower Lakes meetings in March. Hatchery staff were particularly interested in the State of the Lake reports for lakes Huron and Michigan. The reports were very informative and well done. The conference is coordinated by the Great Lakes Fisheries Commission. While there, Tim also participated in the Lake Michigan Technical Committee lake trout task group meeting.

Tim Smigielski, Jordan River NFH

Earth Day 2007 Trail Cleanup Held

On Earth Day weekend in April, East Jordan Cub Scout Pack 17 joined the Friends of the Jordan River NFH for the second year in a row to do a good deed in the Jordan Valley. Scouts and Friends cleaned up litter and cleared downed trees and branches from the Friends Group's adopted 2.5-mile section of the Jordan River Pathway/North Country Trail. Through this act of stewardship, the Scouts earned achievements in both hiking and trail clearing. Back at the hatchery, the Scouts enjoyed a lunch of hot dogs, Cub Scout Master Jon Sumner's famous beans and stew, and ice cream sundaes. The event ended with biologist John Johnston leading a tour of the hatchery and watch staff sample count yearling lake trout.

Peg Myers, Friends of the Jordan River NFH



-photo by Peg Myers

The East Jordan Cub Scout Pack 17 joined the Friends of the Jordan River National Fish Hatchery on Earth Day and cleaned up litter and cleared downed trees and branches from the Friends Group's adopted 2.5-mile section of the Jordan River Pathway/North Country Trail.

Aquatic Species Conservation and Management

Columbia FRO studies Fish Populations in the Osage River

During the week of April 28th, crews from Columbia FRO spent several days intensively sampling the Osage River near Jefferson City, Mo. Biologists Wyatt Doyle and Jeff Finley, along with technicians Lee Erickson, Chris McLeland, and Adam McDaniel, and volunteer Chris Clemens, sampled the river four consecutive days. We sampled three locations within a seven-mile stretch of the Osage River beginning at its confluence with the Missouri River up to the low-head dam. We used trot lines, monofilament gill nets and drifted trammel nets to catch fish. The purpose of the trip was to determine fish use of the Lower Osage River relative to the Missouri River main stem, and to collect pallid sturgeon for use as brood stock for ongoing recovery efforts.

We were surprised by the total number of lake sturgeon and blue suckers collected. These are species of special concern in Missouri. Excluding the fish caught at the confluence of the Osage and Missouri rivers, we collected 74 blue suckers and 24 lake sturgeons. This is interesting and surprising because only 205 blue suckers and 21 lake sturgeon were captured in the lower 130 miles of the Missouri River throughout the entire 2006 sampling year. Work on projects like these will allow the Columbia FRO to be on the forefront of native species protection and restoration in the Missouri River.

Lee Erickson and Chris McLeland, Columbia FRO



-USFWS photo by Lee Erickson

Chris McLeland (left) and Jeff Finley work up a net full of blue suckers captured below the railroad bridge on the Osage River near Jefferson, Missouri, as part of an intensive sampling effort.

Paddlefish in the Osage River

Columbia FRO technician Brian Elkington and Branch Chief for Fish Conservation Joanne Grady met with state and university partners to coordinate Osage River activities in Missouri. Joshua Lallaman, graduate student at University of Missouri-Columbia, is working with Dr. David Galat to determine whether paddlefish can pass over or through Lock and Dam #1 on the Osage River.

Trish Yasger of the Missouri Department of Conservation coordinates Missouri's paddlefish marking, stocking and recreational harvest programs. Columbia FRO coordinates the National Paddlefish Stock Assessment Program database, which houses paddlefish sampling data and unique tag codes for paddlefish throughout the United States. All parties came to the table with their data requirements and agreed to share data, supplies or staff as needed. The Missouri Department of Conservation is responsible for funding the paddlefish telemetry project and is providing weekly helicopter surveys to locate paddlefish during the snagging season. Lallaman's data will provide valuable informa-

tion to the State of Missouri and the Mississippi Interstate Cooperative Resource Association to better understand paddlefish populations in the Lower Osage River. We look forward to working with him over the next few years.
Joanne Grady, Columbia FRO

Columbia FRO Assists in Enforcement Sweep of Middle Mississippi River

Biologist Andy Starostka of the Columbia FRO traveled to Cape Girardeau, Mo., to provide sturgeon identification expertise to state and Federal law enforcement officers from four states and multiple Fish and Wildlife Service offices, along with biologists from Columbia FRO and Missouri Department of Conservation, in a sweep of commercial fishing on the Middle Mississippi River. The lucrative domestic caviar market has put substantial pressure on sturgeon stocks where commercial fishing is still allowed. The suspected take of endangered pallid sturgeon by commercial fishing is a major hurdle in the recovery of the species in the Mississippi River. This sweep was intended to check commercial sturgeon fishermen and equipment to ensure compliance with regulations.

Andy Starostka, Columbia FRO

Columbia FRO Outfits New Push Trawl Boat

The newest addition to Columbia FRO's fleet of boats arrived on April 15. It is a Clark-built boat with a 140 hp Johnson outboard jet engine. The boat is fresh off the factory floor in Bellevue, Iowa, and it still has a long way to go before it is ready to assist in the recovery of pallid sturgeon. Biologists Andy Starostka and Jeff Finley will outfit the new boat with a push trawl by installing new gear they developed to sample shallow habitats in the Missouri River. A set of thirteen-foot booms, winches and associated equipment will complete the makeover.

Columbia FRO has produced push trawl boats for the Habitat Assessment and Monitoring Program and Mitigation Program. The new boat will be assigned to the Pallid Sturgeon Population Assessment Program. Its maiden voyage is scheduled for June. The next step will be finding an appropriate name for this recent addition to the Columbia FRO.

Tammy Knecht, Columbia FRO



-USFWS photo by Tammy Knecht

This new boat will be outfitted with a push trawl for the pallid sturgeon assessment crew at the Columbia Fishery Resources Office.

Endangered Mussel Work for 2007

In Wisconsin, April brings the uncertainty of weather and one never knows what to expect as the clouds begin to build. But at the Genoa NFH one thing is certain in April, the Clam Palace comes alive with endangered Higgins' eye pearlymussel work. At the beginning of April, hatchery staff drained the pond that held yearling largemouth bass, smallmouth bass and walleye cultured for use as host fish. These fish were then sorted by species with the help of the hatcheries Friends Group and placed in holding tanks.

Next, members of the Region 3 SCUBA dive team stationed at Genoa NFH donned dry suits and entered the murky waters of the Mississippi River to collect egg-bearing (gravid) female Higgins' eye pearlymussels. On April 23 and 24, volunteers from Iowa DNR, La Crosse FRO, Twin Cities Field Office, and the U.S. Geological Survey's Upper Midwest Science Center descended on the Clam Palace to help hatchery staff inoculate more than 3,100 host fish with larval Higgins' eye pearlymussels. These fish will be held for a couple of weeks at the hatchery before being stocked out to recovery sites across the Upper Mississippi River watershed.

Tony Brady, Genoa NFH



-USFWS

Divers place host fish inoculated with larval Higgins' eye pearlymussels into a mussel culture cage.

Region 3 Hatchery Sets Production Record

The National Fish Hatchery System produces a wide range of fish, amphibian, and freshwater mussel species in support of multiple fishery management goals. Whether producing animals for endangered species recovery, restoration of imperiled populations, supporting cooperative management initiatives with tribal, Federal and state cooperators, or providing and enhancing recreational fishing opportunities on National Wildlife Refuges or other Federal lands, the system faces many challenges. One challenge is producing adequate numbers of disease-free, genetically sound gametes—both eggs and sperm—to meet production goals.

This challenge is exacerbated when hatcheries use wild- or free-ranging fish populations. Genoa NFH faces this challenge annually to meet its goals for egg, fry, fingerling and yearling production for several species of cool water fish. The hatchery produces wall-eye, sauger and northern pike to meet management objectives in endangered mussel recovery, cooperative management programs and tribal trust responsibilities across much of the United States. The egg source for these programs are wild stocks of fish in the Upper Mississippi River within the Upper Mississippi River NW&FR. Collecting wild fish in a system as large and dynamic as the Mississippi River offers special challenges to hatchery crews. The migratory nature of riverine fishes, highly fluctuating river levels, and natural population variability all affect the annual success of this operation. Despite these and other challenges the Hatchery was able to collect in excess of 50 million eggs this

spring to support fishery management programs. The resulting eggs and fish from these operations will be transferred to other cooperators in eight states over the coming year to meet a wide range of fishery needs. This year's harvest represents a record in production for the hatchery and bodes well for America's fisheries both at the regional and national levels.

Roger Gordon, Genoa NFH



-USFWS
Milt from a male walleye is added to a pan of eggs. Water will be added shortly to "activate" the milt and fertilize the eggs. Genoa National Fish Hatchery conduct spawning operations annually on the Upper Mississippi River National Wildlife and Fish Refuge.

Genoa NFH Assists Warm Springs NFH with Lake Sturgeon Spawning

On April 21, the staff of Genoa NFH assisted the crew of Warm Springs NFH with spawning lake sturgeon near Shawano, Wis. Each spring, personnel from both hatcheries travel to the Wolf River during the annual spawning run of the lake sturgeon in central Wisconsin. Eggs and milt were collected from six female sturgeon and 30 males. The fertilized sturgeon eggs were taken to the Warm Springs NFH to fill requests for lake sturgeon restoration programs in Tennessee and Georgia.

Nick Starzl, Genoa NFH



-USFWS
Lake sturgeon congregate along the shore of the Wolf River near Shawano, Wisconsin, during the annual spawn.

Biologist Uses Structured Decision Analysis to Determine Species Listing Potential

Chuck Bronte of the Green Bay FRO attended a workshop on structured decision making as a first step in determining whether the short-jaw cisco should be protected under the Endangered Species Act. Bronte served as one of a group of experts to begin the process of capturing an expert opinion on the status of the species using a Bayesian Belief Network, a tool to determine the probability of stated outcomes based on little quantitative information.

In addition to this analysis, a simple population model was constructed and a time series technique called Count-based Population Viability Analysis was used to estimate the probability of extinction of the species within the next 80 years. These techniques will be refined and further developed to make a recommendation on whether to list the short-jaw cisco on the Endangered Species List.

The short jaw cisco was historically part of an assemblage of deep-water ciscos that inhabited most of the Great Lakes, but has since disappeared completely from lakes Erie and Michigan, and is now rare in lakes Huron and Superior.

Charles Bronte, Green Bay FRO

Biologists Process over 1,500 Tagged Trout

Green Bay FRO biologists Ted Eggebraaten, Stacy Gilmore and Dale Hanson processed more than 1,500 coded-wire tagged lake trout from Lake Michigan in 2006. The lake trout were marked with tiny wire tags and an adipose clip prior to being stocked. Assessment surveys and commercial/creel monitoring efforts on Lake Michigan are used to recapture some of these marked fish.

Lake trout samples containing the coded-wire tags are retained from the adipose clipped fish to enable biologists to extract the tag from the fish's snout. Tags contain codes that allow biologists to determine stocking location, stocking year and strain information. This data can be useful in evaluating lake trout growth, movement and survival.

Dale Hanson, Green Bay FRO

Shape Differences Suggest Stock Structure of Lake Superior Trout

Historically, Lake Superior contained many morphologically distinct forms of lake trout—or morphotypes—that occupied specific depths and locations, and spawned at specific times of the year. Today, as was likely the case historically, the Siskiwit morphotype is the most abundant. Recent interest in harvesting siscowits to extract omega-3 oil will require additional knowledge of the biology and stock structure of these lightly exploited populations.

The objective of a recently published study in the Transactions of the American Fisheries Society was to determine whether shape differences exist among populations of Siskiwit across Lake Superior and whether these shape

differences can be used to imply stock structure. Morphometric, or shape, analysis was used to differentiate among Siskiwit sampled from 23 locations in Lake Superior.

In the study, 31 distance measurements among 14 anatomical landmarks taken from digital images of fish recorded in the field were analyzed. Cluster analysis separated fish into three geographic groups: Isle Royale, Eastern Michigan and Western Michigan, but finer scales of stock structure were also suggested.

Further analysis showed that head measurements contributed to most of the observed variation, and that about 70 percent were correctly classified to their region of capture based on the shape differences. This is the first study to present shape differences associated with location within a lake trout morphotype in Lake Superior.

These results suggest stock structure on a small geographic scale, which should be reflected in managing harvest at similar spatial scales to prevent sequential overfishing of stocks that has plagued other species in Lake Superior in the past.

Charles Bronte, Green Bay FRO

Ice, Weather Hamper Sturgeon Work

Biologist Scott Koproski and partners from Lake Superior State University tracked lake sturgeons that were implanted with sonic telemetry tags from 2006 field activities; however, because of inclement weather in April and flow ice in the St. Marys River, the implanted lake sturgeons were not relocated. The North Channel of the St. Marys, which wraps around the northern tip of Sugar Island, was clogged with ice flows. This area is where 10 of the 12 implanted lake stur-

geon were located during the last tracking activity that took place in January.

Even though tracking activities were unsuccessful, Koproski had a productive meeting with Roger Greil and Ashley Moerke from Lake Superior State University (LSSU). LSSU's partnership has been instrumental in the success of the lake sturgeon work taking place within the St. Marys River. They have provided vessels, crew, storage and office space. They are considered experts for the St. Marys River and lake sturgeon within the river. Without their partnership this project would not have been as successful as it was in 2006.

The project was funded by the National Fish and Wildlife Foundation – Bring Back the Natives fund. The funding secured by Koproski covered work for 2006, and additional funds are being sought from the Foundation to continue the telemetry work in 2007 and beyond. The sonic tags implanted in the lake sturgeon have a four-year battery life. By following these fish over subsequent years we hope to identify critical habitat within the St. Marys River that is necessary for different life stages and reproductive success of this pre-historic species.

Scott Koproski, Alpena FRO



Alpena FRO, Jordan River NFH Collaborate on Stocking Poster

It all began in 2003 when 1836 Treaty Coordinator Aaron Woldt of the Alpena FRO developed the first GIS map showing the complexity of the offshore lake trout stocking program. Since that time, the stocking vessel crew supplied the trip data and other relevant information to complete the poster. Biologist Tim Smigielski of the Jordan River NFH assists with coordination of the effort and Woldt updates and prints the map. They displayed another interpretive poster at the Upper/Lower Lakes meeting in Ypsilanti, Mich., in March. Alpena FRO and Jordan River NFH staff continue to develop collaborative efforts in order to advance the mission of the Fish and Wildlife Service.

Aaron Woldt, Alpena FRO and Tim Smigielski, Jordan River NFH

Jordan River Staff Battles Dissolved Oxygen Problems

Jordan River NFH rears approximately two million lake trout yearlings for native lake trout rehabilitation in lakes Huron and Michigan. This spring the hatchery has slightly more fish on station. The fish are now about 5-7 inches (10-12 fish per pound).

A sudden spring warm-up with temperatures in the upper seventies raised the water's temperature, reducing its capacity to hold oxygen, while simultaneously increasing the biological demand for oxygen. Staff monitored oxygen levels and determined that the situation was critical, especially with the hatchery at high loadings and another week until fish could be stocked. Staff installed reflective tarp over the water intakes to reduce temperature spikes, put micropore stones (to add additional oxygen to the water supply) in some of the raceways, manipulated water in the outside raceways, did not feed fish or clean raceways for three days and quickly ushered visitors away from the fish to prevent additional stress.

While many staff were on the road busy stocking fish, biologist Rick Westerhof monitored oxygen levels and kept a close eye out for stressed fish. Fortunately, a change in the stocking schedule allowed Jordan River NFH to release some fish early and reduce loadings at the hatchery. As a result of the efforts, no fish were lost during this emergency.

Tim Smigielski and Rick Westerhof, Jordan River NFH

Fish Marking Project Completed

The 2006 year class of lake trout yearlings at Jordan River NFH has been marked with the lake-wide fin clip. The 2.2 million yearlings received a "double clip" this year. This means that two fins were removed, denoting the 2006 year class of hatchery fish. The clip, known as RPLV (right pectoral fin, left ventral fin), is used by resource agencies around the Great Lakes for age determination purposes. The project started in late January and was completed on April 2. The lake trout, when recovered during assessment and creel census surveys, are referred to as "known age fish" and are identifiable as a hatchery produced lake trout. During the clipping season, 9 to 13 fin clippers worked seven hours a day to accomplish this task. Biologist Paul Haver provided much of the coordination and leadership necessary to complete the project successfully. Thanks to all for another year of clipping fins.

Tim Smigielski, Jordan River NFH



-USFWS photo by Wayne Talo

A pectoral fin is removed from a lake trout yearling. Hatchery-reared fish are marked prior to stocking into the Great Lakes.

Fish Health Inspections and Wild Fish Health Surveys Performed

Wild Fish Health Survey work at the La Crosse Fish Health Center (FHC) consisted of 21 cases with 39 lots of fish. Fish health inspections accounted for 10 cases with 13 lots of fish, and diagnostic operations were conducted for 3 cases with 6 lots of fish during the month of March, totaling 58 lots of fish from 16 species tested. Services performed by the La Crosse FHC included Federal hatchery inspections, wild fish health surveys, state fish hatchery cooperative agreements and Viral Hemorrhagic Septicemia (VHS) surveillance in the Great Lakes basin. This is the start of the VHS surveillance, Spring Viremia of Carp and Largemouth Bass Virus season - the workload will continue to be at peak levels for many months.

Rick Nelson, La Crosse FHC

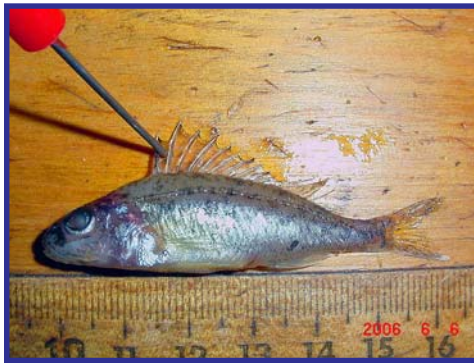
Aquatic Invasive Species

Ashland FRO, Northland College Cooperate on Ruffe Study

The Ashland FRO provided 200 frozen ruffe specimens for a cooperative research project currently in progress with Northland College under the guidance of Dr. Derek Ogle of the Department of Mathematics. Northland senior James Junker is studying aging methodology on the invasive Eurasian ruffe for his required senior project. Dr. Ogle studied thousands of ruffe while interning for the Fish and Wildlife Service's Lake Superior Biological Station.

A growth ring called an annulus is produced each year on the scales, spines and otoliths (inner ear) of fish. The age of a fish is estimated by counting the number of annuli present. Junker is assessing aging techniques using the scales, spines or otoliths to determine the most accurate and efficient method for aging Eurasian ruffe. In ruffe, the annuli are most easily identified in spines, but preparing spines to obtain a cross-section can be labor intensive. Jim is currently experimenting with various techniques more efficient for extracting the cross-section of a spine. As requested by the Ashland FRO, Jim is also recording other data from the ruffe specimens including length, weight, sex and maturity.

Gary Czypinski, Ashland FRO



-USFWS

An invasive Eurasian ruffe is being examined. Biologists collect data such as length, weight, sex, and maturity as part of invasive species monitoring.

Annual Spring Ruffe Surveillance Conducted in Thunder Bay

The Alpena FRO conducted surveillance to detect spawning phase Eurasian ruffe in the Thunder Bay River, Lafarge harbor and Partridge Point marina areas of Thunder Bay in April. Small mesh gill nets were set overnight, biweekly, but no ruffe were captured. All by-catch were measured and released. Tissue samples were collected from yellow perch and walleye for a genetic study conducted by the University of Toledo - Great Lakes Genetic Laboratory to determine unique DNA markers for spawning populations of these native species.

The ruffe is an invasive fish species, native to north-central Europe, which is related to the yellow perch. It is thought to compete with native species, including yellow perch, for food and habitat resources. Ruffe were first found in the Thunder Bay area of Lake Huron in 1995, the only area of the Lake where this invasive has been captured. Their populations increased and peaked in 1999, then began to decline. In 1996, the Alpena FRO initiated fall efforts to remove young-of-the-year ruffe, and in 2002 an annual effort was

initiated in the spring to remove adult spawning ruffe. Young-of-the-year fish were last collected in the fall in 1991 and spawning phase ruffe were last captured in the spring of 2003. Ruffe have not been captured in the Thunder Bay area since 2003. Efforts continue to detect any remnant or resurgence of the population. Aquatic invasive species monitoring and control is essential to promoting healthy native species populations.

Anjanette Bowen, Alpena FRO



-USFWS photo by Anjie Bowen

Alpena Fishery Resources Office conducts annual surveillance for spawning phase Eurasian ruffe in areas of Thunder Bay during the month of April. No ruffe have been captured since 2003.

Public Use

Michigan Hosts 2007 Earth Day Celebration

The Michigan Departments of Environmental Quality, Agriculture, and Natural Resources hosted their annual Earth Day Celebration at Constitution Hall in Lansing, Mich. The celebration brought together a number of organizations and agencies to help teach children about the earth, its processes and properties. More than 1,000 students attended the event, many bused in from their schools. The Fish and Wildlife Service was invited to participate in the celebration, as were a number of other agencies and organizations. Barbara Hosler with the East Lansing Field Office and Anjanette Bowen of the Alpena FRO provided hands-on displays and live fish at the Aquatic Invasive Species display. Alpena FRO brought an aquarium with live invasive sea lamprey provided by the U.S. Geological Survey's Hammond Bay Biological Station. Displays with invasive species mounted in plastic were also available to be examined, and there were a number of fishery games for children to play.

Anjanette Bowen, Alpena FRO



-USFWS photo by Bob Kavetsky
Anjie Bowen of the Alpena Fishery Resources Office participated in the 2007 Earth Day celebration held at Constitution Hall and sponsored by several State of Michigan Departments.

Celebrating Earth Day on the Ottawa NWR

The Alpena FRO and Ottawa National Wildlife Refuge (NWR) hosted an Earth Day event that included a small-scale habitat restoration project. This project is an extension of the National Public Lands Day event that was started in 2003. A group of volunteers applied bank stabilization techniques along 140 feet of a tributary to Crane Creek at the entrance of the refuge's new visitor center. Crane Creek is a low-gradient stream that flows through the refuge and empties into Lake Erie through a flooded river mouth. The Creek provides habitat for migratory birds and Lake Erie fish and is a vital link between the Refuge and the Lake. Bank stabilization techniques used in this project will enhance the habitat and reduce sedimentation into the Creek without the use of large rock.

Soft engineering techniques were used for the project, with materials such as coconut filter fabric, coir logs, and native live plants and seed mixes. The materials are completely biodegradable five years after the vegetation has been established. More than 1,000 plants used during the Earth Day event were grown over the winter by an avid Refuge volunteer. Biologist Susan Wells and Refuge Operations Specialist Sara Mason planned this as an Earth Day event to allow people the opportunity to become involved in habitat management of a small portion of the Refuge. Individuals involved with the project responded with positive attitudes towards the restoration project and enjoyed the opportunity for the hands-on work. Many of the almost 40 volunteers also participated in the 2003 and 2004

National Public Lands Day event and plan on returning for the event in future years. This project provides an opportunity which is not usually offered to the public, and their efforts can be viewed by all when entering the refuge.

Susan Wells, Alpena FRO

Jordan River Biologist Speaks to Young Authors

Biologist Tim Smigielski from Jordan River NFH was a guest speaker at the annual "Young Authors Day" at Shanty Creek Resort in Bellaire, Mich. Smigielski spoke to the group of 15 aspiring writers about scientific writing. The students, primarily fifth and sixth graders from Mancelona Schools, chose Smigielski's presentation from a list of speakers. Smigielski explained the main differences between scientific writing and other types of writing, such as creative writing. He also presented a slide show on Great Lakes salmon and trout identification - a topic that they may choose to write about in the future.

Tim Smigielski, Jordan River NFH



-USFWS

Biologist Tim Smigielski presents fish anatomy to some aspiring young authors.

Jordan River NFH Staff Celebrates Earth Day with Partners

President of the Jordan River NFH Friends Group, Bob MacCord, and wife Liz and biologist Rick Westerhof were on hand at the Michigan DNR's Oden State Fish Hatchery to celebrate Earth Day. Together they applied hundreds of Fish and Wildlife Service "Trout" tattoos to willing visitors. Bob, Liz and Rick spent the day telling the story of lake trout rehabilitation, sea lamprey control and the importance of Friends Groups to Fish and Wildlife Service facilities. The highlight of the day was a bald eagle attempting to catch excess brood stock from the display pond. Unfortunately, the eagle was unsuccessful as the fish are quite large. The Fish and Wildlife Service was well represented with retiree Barry Matthews from the Ludington Biological Station displaying live sea lampreys. Maureen Jacobs, coordinator of the Michigan Fisheries visitor center, provided a front and center location for the Jordan NFH display.

Tim Smigielski and Rick Westerhof, Jordan River NFH



-Michigan DNR
Jordan River National Fish Hatchery Friends Group President Bob MacCord and wife Liz participate in Earth Day events at the Oden State Fish Hatchery.

Students Tour Jordan River NFH

On April 30, biologist John Johnston led a tour of the Jordan River NFH for students from Bellaire High School. Rick Westerhof provided a discussion on environmental issues pertaining to the surrounding watershed. The discussion covered geology, hydrology, soils and land use, water quality, biological communities, fisheries management and recreational use. The group of 25 juniors and seniors from Bellaire's environmental education class loved the hatchery grounds and the informative presentation.

Tim Smigielski, Jordan River NFH

Genoa NFH Gets Involved with Local Outreach Events

April kicks off the beginning of Outreach season at Genoa NFH. In April, mussel biologist Tony Brady was asked to give fish and mussel talks at two events. The first event was the 4-H Super Saturday held on April 14, during which 124 boys and girls ranging from Kindergarten to 6th grade gathered to learn about the hatchery and its many programs. Other stations at Super Saturday included birds of prey, hunting safety and a fishing pond. The Super Saturday event was headed up by the Vernon County 4-H Leader/Parent Federation and the Wisconsin DNR. The second event was Environmental Days at West Salem Middle School. The Middle School invited a biologist to talk about endangered freshwater mussels as part of their efforts to inform students about organisms they are rarely exposed to. More than 200 3rd and 5th graders attended the mussel presentation. Other groups represented at

Environmental Days included the U.S. Army Corp of Engineers, U.S. Geological Survey and the Wisconsin DNR.

Tony Brady, Genoa NFH

Genoa NFH Holds Annual Kids Fishing Day

The Friends of the Upper Mississippi Fishery Services and the three Upper Mississippi River fisheries field stations joined forces to host the annual kids fishing day at Genoa NFH on Saturday, May 12. A group of 125 kids and 75 parents enjoyed a great morning after a momentary light rain shower, which did not dampen their enthusiasm for fishing for the big one. They had the opportunity to learn more about fish and fishing. They also had a chance to try their luck in a Hatchery pond stocked with rainbow trout raised at the Hatchery.

The kids first went through four stations where they learned how to make and tie jigs, identify fish and fish habitats, recognize fish anatomy and notice fish health. After an hour of learning, new found skills were put into practice in a fishing pond stocked with 1,500 10- to 14-inch trout. Prizes were awarded for the biggest and smallest fish with everyone getting a hat, tee shirt and goody bag, so everyone was a winner. A light lunch was also provided. No child left without something to remember the day by, and plenty will have new stories to tell of the one who didn't get away!

Doug Aloisi, Genoa NFH and Rick Nelson, La Crosse FHC

Teaching Big River Ecology at the Big Muddy

A sunny day in April provided a great setting for an outdoor education day on the Big Muddy NF&WR for high school students from Eldon, Mo. Columbia FRO biologist Andrew Plauck spent the morning talking with the advanced biology students about large river systems, specifically the Missouri River. Thirty students and instructors rotated among Plauck, Troy Gordon (chairman of the Friends of the Big Muddy) who talked about the refuge's history and public use and volunteer opportunities, and Big Muddy NF&WR park ranger Tim Haller who showed several large turtles caught in a trap he set out the previous evening. Haller also talked about the ecology of turtles and other animals on the Refuge. Haller also discussed Rachel Carson and her work in honor of her 100th birthday. Plauck talked about the history of the Missouri River, modifications made by the U.S. Army Corps of Engineers, and the diverse fish inhabiting the river.

Live fish were collected the day before to show the adaptations of big river fish. The shovelnose sturgeon was a big hit because none of the students had ever seen or touched one. One brave girl wanted to hold the fish when all of her classmates were afraid of the ancient looking creature. Plauck demonstrated some of the fishing gear used on the River by pulling a trawl and a trammel net along the parking lot. After talking about fish for a while, Plauck encouraged the students to consider a career in natural resources and gave them information on how they can work for the Fish and Wildlife Service as a college student through a student experience program. The day ended with a trip down to the boat

ramp to release the live fish back into the river.

Andy Plauck, Columbia FRO

Columbia Has a Day with Wildlife

On April 1, biologist Jennifer Johnson and technician Tammy Knecht represented the Columbia FRO at Columbia, Missouri's, annual "A Day with Wildlife" celebration. This marks the third year we have participated in the event organized by the Missouri Department of Conservation, Columbia Downtown Optimist Club and American Legion Post 202. The event featured booths from government and non-governmental organizations related to natural resources. Popular activities included archery and marksmanship workshops along with a children's fishing clinic. This free event provided local residents an opportunity to enjoy a fine spring day and explore the numerous outdoor activities Missouri has to offer.

We used the event as a springboard to promote the goals and current activities of the Fisheries program. The Columbia FRO provided shovelnose sturgeon, allowing kids and adults to get up close and personal with this odd looking fish. This was an opportunity to educate attendees on general life history characteristics of sturgeon and what role they play in the River ecosystem. Those brave enough to handle the fish were rewarded with a sturgeon print tee shirt stating "I hugged a sturgeon from the Big Muddy." Successful completion of a fish identification puzzle earned children a sturgeon stress toy, a "Fishing ABC's" coloring book or tattoo. Jennifer and Tammy fielded questions from visitors regarding current station activities such as

the Pallid Sturgeon Recovery Project, Habitat Assessment Project and Mitigation efforts along the Missouri River.

Jennifer Johnson and Tammy Knecht, Columbia FRO



-USFWS photo by Tammy Knecht

Biologist Jennifer Johnson demonstrates the unique attributes of a shovelnose sturgeon to a family during their visit to the "Columbia Day With Wildlife" in Columbia, Missouri.

Creel Survey Data Needs a Second Look

When Columbia FRO technician Brian Elkington proofed and re-analyzed DeSoto NWR's DeSoto Lake creel survey data, several summary tables in the computer output from the Iowa DNR did not add up to the total shown. After alerting the DNR to a possible glitch in the analysis software, it was agreed that the data needed to be re-analyzed. This was the only way to ensure accuracy before the results were integrated into the DeSoto Lake Management Plan. Using formulas developed specifically for the analysis of creel survey data, all the estimates and values were re-calculated. This included total angling trips, total catch for the season by species, mean catch rates and many other important variables. Differences between the original and re-calculated data existed for some of the variables. For example, estimates of the total number of angler trips in-

creased from the initial analysis of 22,033 to 26,655. Combining the updated total angler trips with 2001 census data, we estimate that there is an annual economic input of approximately \$1,196,000 to the area. Total estimated catch at DeSoto Lake also increased from 100,881 to 135,971. Of those caught, approximately 111,027 were crappie species.

Brian Elkington, Columbia FRO



-USFWS
DeSoto NWR technician Brian Elkington poses for his photo at DeSoto Lake, where he served as a creel clerk.

La Crosse FRO Celebrates Earth Day in the Driftless Area

The Fish and Wildlife Service and its partners worked with the Natural Resource Conservation Service to commemorate the 37th Earth Day at Whitewater State Park in the Driftless Area of Minnesota. The La Crosse FRO supported a booth highlighting the Midwest Driftless Area Restoration Effort that is part of the National Fish Habitat Action Plan. The same poster displayed there was used later that month at the Congressional Casting Call in Washington, D.C., an event on the Potomac River that educates Congress, partners and stakeholders on this national program designed to protect, restore and enhance our national aquatic systems.

More than 200 people attended the Earth Day event, which drew attention to the collaborative four-state effort to unite organizations, communities and individuals within the Driftless Area of the Upper Mississippi River basin. The Driftless Area encompasses nearly 24,000 square miles of the Upper Mississippi River basin in parts of Minnesota, Wisconsin, Iowa and Illinois. The absence of glacial disturbance and associated glacial drift deposits lends the region its name and contributes to its unique character. The rugged hills and steep topography drain to streams and rivers before emptying into the Upper Mississippi River.

Although this region has a high ecological value and restoration potential, it is also a major source of pollutants to the Lower Mississippi River and the Gulf of Mexico.

Christina Muedeking, Regional Assistant Chief for the U.S. Geological Survey, signed a symbolic check for \$1.3 million for the Driftless Area. U.S. Congressman Tim Walz from Minnesota and Brad Pfaff from Congressman Ron Kind's office in Wisconsin joined in the festivities. There were also numerous exhibits and environmental learning stations like mist-netting birds, trout and stream invertebrates, grass planting and Angel, a rehabilitated bald eagle.

Pam Thiel, La Crosse FRO



Students Slice Slippery Salmonids to Learn Science

Enthusiasm—and many “oohs” and aahs”—ran rampant as the advanced agriculture class at Cochrane Fountain City, Wis., High School got to see different fish parts during a presentation by La Crosse FRO's Heidi Keuler, who demonstrated a rainbow trout dissection before the students themselves cut open a fish without damaging the organs inside.

“Don't forget everyone, Ms. Jumbeck says we get chocolate if we don't pop the air bladder during the dissection!” one of the high school students said to the rest of the class as she started slicing into the rainbow trout. By the end of the class period, everyone was digging in with both hands. All 18 students had lots of fun as they learned about 20 or so organs and their functions. In addition, Heidi spoke about several fish diseases including Viral Hemorrhagic Septicemia, which was originally documented in Europe in the 1930s on a rainbow trout farm, and is now present in some locations in the Great Lakes basin.

Heidi Keuler, La Crosse FRO

Cooperation with Native Americans

Ashland FRO Assists with Spring Walleye Surveys

The Ashland FRO assisted the Great Lakes Indian Fish and Wildlife Commission this spring with several walleye population surveys. The objective of this project was to estimate spawning populations of adult walleye and collect fish for mercury testing from several lakes in northern Wisconsin.

Walleye population estimates are used to set safe harvest levels, on which tribal harvest quotas are based. This year's assessment activity was assigned to Frank Stone, who conducted electrofishing surveys on three lakes, collecting more than 4,000 fish during an eight-night period. The sampling effort is conducted at night because this is when spawning activity and opportunities to collect adult fish are maximized. Normally, one to three nights of collection are needed on each lake to obtain sufficient data.

Frank Stone, Ashland FRO



Leadership in Science and Technology

Biologists Add Another Piece to the Sturgeon Reproductive Puzzle

Columbia FRO has teamed up with the U.S. Geological Survey (USGS) Columbia Environmental Research Center to better understand where, when and under what conditions sturgeon reproduce in the Missouri River. USGS biologist Mandy Annis joined FRO biologists Lee Erickson, Emily Kunz, Joe McMullen and Nick Utrup for field training in April, learning how to determine whether sturgeon are gravid (carrying eggs) and how to extract eggs.

Columbia FRO biologists are now collecting blood and egg samples from gravid shovelnose sturgeon weekly. A small incision on the belly and a needle prick are all that are needed to accomplish this goal. The fish is left with little more than a scar. Annis and USGS research biologist Diana Papoulias examine the eggs to determine their maturity and evaluate hormone levels in the blood to discover correlations between the two. These values are then compared to environmental factors such as time of year, river stage and water temperature. This data provides biologists with a better picture of the factors influencing when and why these fish spawn. Blood and eggs have also been taken from several endangered pallid sturgeon. Biologists working to recover this species can study any similarities with shovelnose sturgeon that may potentially aide in identifying environmental factors necessary for successful spawning.

Columbia FRO and USGS are working in full cooperation, using new and advanced technology, to better understand how and why

sturgeon species spawn in the Missouri River. This work will improve our ongoing efforts to understand and recover the endangered pallid sturgeon. It may also lead to more informed management decisions regarding the protection of other sturgeon species
Emily Kunz, Joe McMullen and Nick Utrup, Columbia FRO



-USFWS photo by Nick Utrup
Columbia Fishery Resources Office technician Emily Kunz draws blood from a shovelnose sturgeon for a U.S. Geological Survey sturgeon reproductive assessment.

Lake Trout Assessment Models Updated for 1836 Treaty Waters

Each year, the terms of the 2000 Consent Decree require the Modeling Subcommittee of the Technical Fisheries Committee to generate recommended safe harvest limits for the lake trout fisheries in the 1836 treaty waters of lakes Superior, Michigan and Huron. John Netto from the Green Bay FRO worked closely with Jory Jonas and Shawn Sitar of the Michigan DNR to update the Statistical Catch at Age assessment models for the Michigan waters of lakes Michigan and Superior. Each model is designed to represent a region in each lake consisting of one or more management units. Four regional assessment models are used in Lake Michigan and three in Lake Superior.

The preliminary results from this year's assessments were presented at the Modeling Subcommittee's March meeting in Roscommon, Michigan. At this meeting, the biologists present any changes made to the models, discuss the results of ongoing research, and review the current year's stock assessment results. The Technical Fisheries Committee, which comprises state, tribal and Federal representatives, reviews the methods applied, discusses alternatives, and accepted the results of this year's assessment by consensus.

John Netto, Green Bay FRO

Analysis of Aging Error Presented to the MSC

Green Bay FRO biologist Dale Hanson presented a method to quantitatively assess aging error in fishery data to the Modeling Subcommittee during its March meeting. The method applies models to describe aging error and bias associated with a reader's age estimates for a sample of fish. Further, the model uses this information to predict the actual age distributions of fish in the sample. This research will be used to improve the process through which fishery age composition data is generated for the statistical catch at age models that are used to develop harvest limits in Treaty waters of the Upper Great Lakes.
Dale Hanson, Green Bay FRO

Aquatic Habitat Conservation and Management

Monitoring Fish Passage at the Potagannissing Dam Project

In September 2006, an old non-functioning fish ladder and dam headwall were removed from the Potagannissing River within three miles of Harbor Island NWR off Michigan's Upper Peninsula using National Fish Passage Program funds. A series of four rock weirs were placed below the removed headwall to create a rock fish-ramp, reducing slope and creating appropriate resting pools for upstream migration of important native species, particularly northern pike, which have been declining in this region.

In April, biologist Susan Wells of the Alpena FRO assisted the Michigan DNR with post-construction fish surveys above the Potagannissing Dam structure. Many marsh-like lakes exist upstream of this dam that historically provided ideal spawning habitat for northern pike before passage was blocked by the dam.

The Michigan DNR spent three days sampling the system to determine whether fish were able to pass the new weir structure installed the previous year. They found walleye below the structure in cobble habitat using a backpack electrofisher and captured numerous white suckers in trap nets above the structure, along with a few northern pike. The DNR attributed the low numbers of pike to the decrease in population in the system. Restoration projects such as the installation of the weirs will continue to be used to enhance the pike population by allowing access to spawning and rearing habitats. Plans to continue sampling with Michigan DNR next year during the northern pike migration have been discussed, along with adding

parameters and developing a long term data set. Partners for this project included the Drummond Island Sportsman's Club and Michigan DNR, who provided the equipment for the sampling along with the design, survey, and permit work for construction of the weirs. *Susan Wells, Alpena FRO*



-Michigan DNR photo by Tim Cwalinski

Alpena Fishery Resources Office biologist Susan Wells assisted the Michigan Department of Natural Resources with post construction fish surveys above the Potagannissing Dam fish ladder, which was removed in September, 2006 and replaced with this fish ramp. Areas upstream of this dam historically provided ideal spawning habitat for northern pike.

Touring Mullett Creek

On April 26, biologist Tim Cwalinski (Michigan DNR), Perry Smeltzer (Natural Resource Conservation Service), and Heather Rawlings (Alpena FRO) toured the entire length of Mullett Creek, a small tributary of Mullett Lake. This area is part of the Cheboygan River watershed and a Partners for Fish and Wildlife focus area in Northern Michigan. The biologists traveled to all of the road crossings, walking reaches of the Creek, and noting agricultural and erosional impediments found in the watershed. As recently as 15 years ago, this small tributary was a noted brook trout stream. Recent events such as development, road-building and increased agri-

cultural use have degraded the stream to a point where brook trout presence is limited to the headwaters. A two-day electrofishing survey led by the Michigan DNR is scheduled for June to gather some pre-restoration data. All three agencies have agreed to focus efforts on this tributary in the hopes of turning the stream around before the current impediments become a permanent situation.

Heather Rawlings, Alpena FRO



-USFWS photo by Heather Rawlings

Alpena Fishery Resources Office biologist Heather Rawlings toured Mullett Creek with the Michigan Department of Natural Resources and the Natural Resource Conservation Service in April to identify potential fish passage projects such as this culvert.

Mitigation Monitoring Season Begins Again

April 1 marked the beginning of the third consecutive field season for the Mitigation Monitoring Program. This season, the Columbia FRO crew will be deploying all of our standard gears and will look at differences in catch between night electrofishing and the newly developed push trawl technique. Team leader Jeff Finley, crew leader Cliff Wilson, technician Joe McMullen and science aide Jake Norman have begun the season without major problems and look forward to monitoring the development of four chutes to

benefit riverine fishes. Columbia FRO's mitigation crew uses diverse gear to collect biological information on the entire community of fish at these sites. Gear types deployed each month are: night and daytime electrofishing, large and small diameter hoop netting, drifting trammel nets, miniature fyke netting, push trawling and bow trawling. Each gear type is used in randomly selected segments of each chute and rotated to reduce the depletion of fish communities and populations.

Four chutes were selected for this multi-year study. The Lisbon Bottoms chute was naturally created by the Missouri River in a series of floods from 1993 through 1996. Two pilot chutes were excavated by the U.S. Army Corps of Engineers and are modified by the River during flood events. The Overton Chute was constructed in 2002, and Tadpole was created in 2006. The Tate Island Chute is one of the few remnant chutes from the 1950's.

This long-term data set will help us characterize species composition and life stages of fish using these study sites. We will examine and compare species abundance, richness and diversity and identify target species of fish using these chutes. We will also record key habitat parameters that differ from the main channel.

Jeff Finley, Columbia FRO



-USFWS photo by Jeff Finley
Shoreline vegetation is inundated by floodwaters at the mouth of Overton Bottoms chute on the Missouri River.

The Missouri River Bank and Stabilization Project of 1912 and 1945 allowed for a 9-foot navigation channel from Sioux City, Iowa, to the mouth of the River near St. Louis.

Side channels were blocked off by revetment, pile dikes and rock dikes, causing them to silt in over a short time period. The loss of these important and diverse habitats has contributed to the decline in several native fish species, including endangered pallid sturgeon.

These habitats provide shallower water with slower velocities than the main channel and serve as spawning and nursery sites for native fish. A side channel functions as a small natural riverbed, allowing natural erosion and deposition to occur and creating a complex interaction of substrates, woody debris and shoreline vegetation.

Within the past decade the U.S. Army Corps of Engineers has been working with their state and Federal partners to reestablish side channels. The Columbia Fishery Resources Office studies fish use of these sites from April 1 to the end of navigation flows in mid-October to document the importance of these habitats for riverine fish.

Brilla Wildlife Habitat/Fish Creek Watershed Restoration

Approximately 5,000 trees were planted on the Brilla Wildlife Habitat/Fish Creek Watershed Restoration, restoring an additional 15 acres of a nearly 200-acre restoration site on the Brilla Dairy Farm in Mason, Wis. White pine, red pine, white spruce and red oak were planted to restore forested conditions in the Fish Creek watershed, which supports native brook trout and large runs of migratory fish from Lake Superior. Studies have shown that deforestation in the area has contributed to the degradation of habitat in Fish Creek and other streams. In the past, the shading effect of the forest allowed for a gradual spring runoff period and lower peak flows. Now, with the sun beating down on a much more open landscape, the spring melt occurs very quickly, eroding banks and sending large amounts of sediment into critical fish spawning areas. As outlined in best management practices developed for the area, reforestation is critical to restoring the health of Wisconsin's Lake Superior tributaries.

Funding and technical assistance were provided by the Partners for Fish and Wildlife Program through the Ashland FRO. Other partners included the landowner, Department of Agriculture's Natural Resource Conservation Service and Farm Service Agency, and the County Land Conservation Department. A tree planter was rented from the Wisconsin DNR, and landowner Dick Brilla and son Andy donated equipment, fuel and many hours of labor to get the trees in the ground.

The watershed restoration project will benefit migratory birds such as the golden-winged warbler, Canada warbler, olive sided fly-

catcher and wood thrush. The project will also help provide travel corridors for other area wildlife including listed species such as Canada lynx, and migratory game birds such as American woodcock. A Partners for Fish and Wildlife Program Habitat development agreement was signed. In 2004, the location of the farm where this year's project occurred was protected from any development under the FSA's Debt for Nature program and a conservation management plan for a minimum of 50 years.

Ted Koehler, Ashland FRO



-USFWS

White pine, red pine, white spruce and red oak are being planted to restore forested conditions in the Fish Creek watershed near Mason, Wisconsin.

Fish Passage Has Potential in Mark Twain National Forest

Mark Twain National Forest partnered with the Forest Service's Northern Research Station to assess impacts of low water crossings in the Courtois River, a major tributary of the biologically unique and diverse Meramec River. Graduate student Gonzalo Mendez inventoried 108 crossings within the Salem and Potosi districts of the forest, surveying 32 of these crossings using field data and the Coffman model to determine whether aquatic organisms could pass through the structures. Thirteen crossings failed to pass Coarse B

and Coarse C filters designed to assess organism passage for minnows and darters, respectively. Tracy Hill and Joanne Grady of the Columbia FRO met with biologists and managers of the Mark Twain National Forest and visited several crossing sites. We discussed funding opportunities including the National Fish Passage Program, state agency and county commission partners, and potential for the Forest Service engineers to provide engineering design for possible projects. Two crossings on either side of a major Forest Service campground have already been identified in the Forest's Shoal Creek Project Scoping Report. Incorporation in this environmental assessment will provide National Environmental Policy Act clearance for these crossings when partners and project design have been pulled together for funding proposals. We look forward to continuing this partnership with our sister agency to benefit Missouri's native stream fishes.



-USFWS photo by Tracy Hill

Joanne Grady of the Columbia Fishery Resources Office meets with Forest Service biologists and an engineer to discuss options for this low water crossing which acts as a barrier to fish passage in Mark Twain National Forest.

Joanne Grady, Columbia FRO

Annual Settling Basin Maintenance Completed at Jordan River

In late April, Jordan River NFH maintenance mechanic Bob Petersen and biologist John Johnston worked on "One of the Dirtiest Jobs in America." It certainly looks like the guys are not having fun, but we know deep down inside they are reminiscing about playing in the "mud" as a little kid. It is odiferous and messy, but it is sorely needed after a long winter of fish propagation. Jordan River NFH's discharge permit requires an annual cleaning of the water treatment basin. Bob finds it easier to do three times a year. The basin works most efficiently when clean (small quantity of its capacity in use). Thanks Bob and John for another job well done.

Tim Smigielski and Rick Westerhof, Jordan River NFH



-USFWS photo by Clarice Beckner

Biologist John Johnston (left) and Maintenance Mechanic Bob Petersen clean the effluent settling basin at the Jordan River National Fish Hatchery, an annual requirement under their water discharge permit.

Workforce Management

Animal Caretaker at Jordan River NFH is Real Life "007"

Volunteer Ray Purroll is our 007, the James Bond of Jordan River, always completing his mission with a style that's all his own. Purroll, of Bellaire, Michigan, has been assisting hatchery staff with fish culture duties, fish distribution activities, public outreach events, fin clipping and various other duties as assigned. Ray works weekends when the hatchery is operating at maximum loading. He cleans and feeds primarily the outdoor raceways, caring for two million lake trout yearlings while the permanent staff person cares for the 3.5 million fry inside the hatchery building. Ray is a single parent who works up to three jobs during the year to support his family. He has two children, Megan, 11, and Dylan, 9. He is a great dad to his kids and just a fun guy to be around. Ray really bails out the hatchery staff when they are spread thin during distribution. For this spring, in particular, he has been our rock since there had been two to three staff on the road and one staff on the *M/V Spencer F. Baird* so far this distribution season. Thanks, Ray!

Tim Smigielski, Jordan River NFH



-USFWS
Ray Purroll has "saved the day" many times during heavy workload periods at the Jordan River National Fish Hatchery. He is very mechanically inclined and is willing to step in when the work needs to be done!

Joe McMullen Leaves the Mississippi River for the Missouri River

I'm from Hillsboro, Mo., where I lived and went to school for 18 years. After high school graduation, I received a Bachelor of Science degree in biology and a graduate degree in natural science (focusing on GIS and botany) from Southeast Missouri State University. My thesis research involved the habitat preferences of bird communities in bottomland hardwood forests, and was conducted on Mingo NWR near Puxico, Mo. While attending college I worked for the Missouri Department of Conservation in Jackson, Mo., at the Open Rivers and Wetland Field Station. Primarily I worked on the Long Term Resource Monitoring and Environmental Monitoring and Assessment Program. Each focused around the same principle and required the monitoring of fish species and habitat, as well as water quality factors on the Middle Mississippi River. I also spent a great deal of time working on the Pallid Sturgeon Project, and was fortunate to see many of these fish.

Joe McMullen, Columbia FRO



-USFWS
Joe McMullen of the Columbia Fishery Resources Office holds a pallid sturgeon collected near Cape Girardeau, Missouri, on the Mississippi River.

Columbia FRO Welcomes Adam McDaniel

Adam McDaniel joined the Columbia FRO in April. Adam graduated in 2006 from Southern Illinois University (SIU) at Carbondale with a Bachelor of Science in Zoology and a concentration in fisheries. He began working as a fisheries technician in 2004 with the SIU Fisheries and Illinois Aquaculture Center, where he spent the majority of his weekends and summers assisting graduate students on various field projects and assignments. He collected data to determine movement, habitat use, reproductive stage and fecundity of Asian carp species in the Illinois River and a major backwater (Swan Lake, Ill.). He also worked on the Swan Lake habitat assessment and sampled larval fish communities in the Illinois and Mississippi rivers.

Adam's first experience with the Fish and Wildlife Service was as a temporary technician with the Carterville FRO in 2006. During his employment he worked on the Stone Dyke Alteration Project, fish passage, sport fish management and invasive species issues. He is looking forward to expanding his knowledge in fisheries with the Columbia FRO.

Adam McDaniel, Columbia FRO



-USFWS photo by Andy Plauck
Adam McDaniel of the Columbia Fishery Resources Office holds his first pallid sturgeon captured in the Missouri River.

A Lesson in Trawling the Big Muddy

During April, Columbia FRO biologist Andy Plauck presented on-the-water lessons in the art and science of stern trawling. The impromptu class consisted of four students: Patty Herman, Emily Kunz, Brett Witte and Colby Wrasse. These new employees had limited experience with stern trawling and were eager to learn.

Stern trawling on the Missouri River, with its swift current and snag-laden substrate, is a challenging endeavor requiring specialized skills, experience and equipment. Plauck stressed the importance of safety and the need to follow standardized sampling protocols. Students were shown the proper methods for deploying and retrieving the trawl net, operating the hydraulic winches, and driving the large trawl boat. Through the training session, the new employees had the opportunity to experience the various duties of a trawling crew. Although these four learned a great deal, cross-training of all the new employees was not feasible during the short training session. Training on stern trawling will continue throughout the year, since even seasoned "river rats" learn something new every day on the water.

Stern trawling is an important research technique on the Missouri River because it allows scientists to sample areas that would be difficult or impossible to sample with other gears. Stern trawling has proven to be effective in capturing a wide variety of riverine fish species including pallid and shovelnose sturgeons. Columbia FRO continues to be leaders in experimental trawl design, and the office is continually striving to perfect existing trawl techniques

while experimenting with new trawling methods.

Colby Wrasse, Columbia FRO

2007 Motorboat Operation Certification Course Held

During the week of April 23, Alpena FRO biologist Jim McFee attended the Motorboat Operation Certification Course offered at the Biological Station in Marquette, Mich. The three-day course covered boat operation and skills, both on and in the water. Classroom topics included rules of the road, aids to navigation, emergency procedures, fire suppression, and techniques for overall handling. On-the-water training consisted of backing and unloading a trailer, docking in a slip, learning the avoidance move, and completing the star maneuverability course. The water training also provided the chance to swim while wearing a lifejacket, practice overboard retrieval techniques, and learn how to throw a life ring and line. McFee passed all portions of the course and has had a chance to use his recently learned skills on the Detroit River. Not only was this a good training opportunity, but also gave McFee a chance to meet several Fish and Wildlife Service employees from another station.

Jim McFee, Alpena FRO

La Crosse FRO Participates in Science and Math Expo

On April 11, Heidi Keuler from the La Crosse FRO was a judge at the annual La Crosse Center Science and Math Expo, which brought in more than 675 junior high students from western Wisconsin who had worked collectively on science and math experiments. These experiments were then displayed on a poster and presented to local science and mathematics professionals who judged not only the students' projects, but also their understanding of the scientific method. Judges were allowed to give constructive criticism, but were strongly encouraged to stress the positive aspects of the project. Each judge reviewed 12 to 13 projects or had contact with approximately 25 to 30 students. The Science and Math Expo is very beneficial to not only the students who learn about the scientific method, but also to the professionals in the Science and Math fields who may employ these same students some day.

Heidi Keuler, La Crosse FRO



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Fish Lines

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3159. U.S. FISH HATCHERY, NEAR LEADVILLE.



-Jerry French Postcard Collection; U.S. Fish Hatchery; Leadville, Colorado (1900)

Windows in time

A Glimpse into our Proud Past:

The Leadville Fish Hatchery is located in Lake County at the foot of 14,418 ft. Mount Massive. The hatchery was established in 1889 and continues operations as the nation's oldest hatchery west of the Mississippi.

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