



U.S. Fish & Wildlife Service

Fish Lines

Region 3 - Great Lakes/Big Rivers

Leadership in Conserving, Enhancing, and Restoring Aquatic Ecosystems

Fiscal Year 2007
Vol. 5 No. 5

Integrated Sea Lamprey Management

(See the "Feature Story" on Page 5)



-GLFC photos

Series of photos depicting integrated sea lamprey management in the Great Lakes; (Top Row, Lt. to Rt.) Technician Gregg Baldwin interacts with students at a Marquette, Michigan school, stressing the impacts sea lampreys and other aquatic invasive species have on the Great Lakes; Technician Wayne Stanislawski monitors a lampricide application; Technician Craig Aho monitors adult sea lamprey catch in a trap in the Manistique River; (Bottom Row) Larval sea lamprey; Technicians Sara Ruiter and Chad Andresen monitor adult sea lamprey catch in a fyke net; Technician Rob Katona injects a male sea lamprey as part of the sterile male release program.

Viral Hemorrhagic Septicemia: A New Invader in the Great Lakes

(See the "Feature Story" on Page 8)

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



Region 3 - Great Lakes/Big Rivers Region

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

Region 3 Focus Areas

1. Partnerships and Accountability

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

2. Aquatic Species Conservation and Management

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

3. Aquatic Invasive Species

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

4. Public Use

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

5. Cooperation with Native Americans

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

6. Leadership in Science and Technology

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

7. Aquatic Habitat Conservation and Management

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

8. Workforce Management

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

The vision of the Service's Fisheries Program is working with partners to restore and maintain fish and other aquatic resources at self-sustaining levels and to support Federal mitigation programs for the benefit of the American public.

Implementing this vision will help the Fisheries Program do more for aquatic resources and the people who value and depend on them through enhanced partnerships, scientific integrity, and a balanced approach to conservation.

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:

- Integrated Sea Lamprey Management*
(Page 5)
- Viral Hemorrhagic Septicemia:
A New Invader in the Great Lakes*
(Page 8)

Partnerships and Accountability (Page 10)



**Iron River NFH Partners
with Purdue University**

Aquatic Species Conservation and Management (Page 13)



A Taylor-made match?

Aquatic Invasive Species (Page 16)



**La Crosse FRO Gives
Presentation at Women in
Natural Resources Conference**

Public Use (Page 17)



**Driftless Area Highlighted
at Fly Fishing Expo**

Cooperation with Native Americans (Page 19)



**Ashland FRO Continues to
Assist with Tribal Sturgeon
Study**

Leadership in Science and Technology (Page 20)



**Lake Superior Agencies
Assess Cisco**

Aquatic Habitat Conservation and Management (Page 23)



**Hersey River Dam Removal
Project Completed**

Workforce Management (Page 26)



**Columbia FRO Welcomes
Patty Herman**

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

Feature Story: Integrated Sea Lamprey Management

Sea lampreys are primitive, jawless fish native to the Atlantic Ocean. Attaching to fish with their sucking disk and sharp teeth, sea lampreys rasp through scales and skin using their tongue and feed on body fluids, often killing the helpless fish. During its parasitic life stage, a sea lamprey can kill 40 or more pounds of fish.

Sea lampreys are so destructive that under some conditions, only one out of seven fish attacked by a sea lamprey will survive.

Sea lampreys entered the Great Lakes in the 1800s through manmade locks and shipping canals. By the late 1940s, populations had exploded in the upper Great Lakes, depleting lake trout and other native species. In 1954, the United States and Canadian governments signed a treaty creating the Great Lakes Fishery Commission, which partners with the Department of Fisheries and Oceans Canada and the Fish and Wildlife Service to deliver a sea lamprey control program.



-GLFC
These sea lampreys hold onto the glass of an aquarium with their mouth which acts like a sucking disk. Sea lampreys attach to fish with this sucking disk and sharp teeth. They rasp through scales and skin using their tongue and feed on body fluids, often killing the fish.

The sea lamprey control program uses several techniques—known as “integrated sea lamprey management”—including sea lamprey assessment, lampricide, traps, barriers, and the sterile male release technique.

Sea lamprey control begins with assessment. Crews visit hundreds of tributaries throughout the Great Lakes basin and, using an electro-fishing device, shock larval lampreys out of their burrows to estimate abundance. Larval assessment efforts allow biologists to develop models that accurately forecast larval abundance target streams for treatment.



-GLFC

Biologist Lisa Corradin electrofishes for larval sea lamprey. Data is used to estimate abundance in various tributary streams.

Streams are selected for treatment based on the cost-effectiveness of the treatment and the estimated number of larvae that will metamorphose into the parasitic adult stage and migrate to the open waters of the Great Lakes.

The primary sea lamprey control method used in the Great Lakes is the application of the selective lampricide TFM (3-trifluoromethyl-4-nitrophenol), which destroys stream-dwelling larvae before they transform into parasitic adults and prey on fish in the open lake. TFM is one of the most thoroughly tested pesticides in use today; its use in the Great Lakes is regulated by the U.S. Environmental Protection Agency and Health Canada, which have determined that it poses no threat to human health or the environment.

Spawning adults are captured in traps. Adult assessment efforts allow biologists to evaluate lake-specific control strategies. This information provides feedback on the effectiveness of past treatments and a road map for future treatments.



-GLFC
Biologist Dave Johnson analyzes lampricide concentration in an on-site lab.

Beyond lampricide, there are other weapons in the sea lamprey control arsenal. Sea lamprey barriers have been built to block upstream migration of spawning sea lampreys; most barriers allow other fish to pass. Barriers have reduced or eliminated lampricide treatment on many streams, or made lamprey control more efficient. Newer barrier designs include electrical barriers that repel sea lampreys during spawning without risk to other fish or wildlife, and adjustable-crest barriers that can be raised during the spawning run and lowered to allow other fish to pass the rest of the year.



-GLFC
Biologist Kasia Mullett inspects a sea lamprey barrier on Misery River.

Integrated sea lamprey management also relies on the sterile male release technique, first used in 1991 to control lamprey destruction by reducing spawning. The technique is straightforward: sea lampreys are captured in adult assessment traps and the males are sterilized and released back in to the streams. If enough sterilized males are released into a stream, they will out-compete fertile males during spawning and produce nests of infertile eggs.

Since the lampreys used in sterile male release are spawners, they are no longer preying on fish (their digestive systems shut down during the spawning phase) and pose no danger to fish populations. All sterilized sea lampreys are released into the St. Marys River as part of a comprehensive control program.



-GLFC
Technician Lori Criger releases sterile male sea lampreys into the St. Marys River. The sterile males out-compete fertile males during spawning and produce nests of infertile eggs.

Sea lamprey management in the Great Lakes is rapidly progressing thanks to research and new technologies. One of the most exciting developments in the sea lamprey control program is the potential use of pheromones — chemical cues that when released by an individual and smelled by a member of the same species, invoke a specific behavioral or physiological response.

Since sea lampreys are essentially swimming noses (a large portion of their brain is dedicated to the sense of smell), they can detect lamprey pheromones in very low concentrations. Because sea lampreys have very poor eyesight, they rely heavily on pheromones to make their way through life, using their highly developed sense of smell to locate prey, discover spawning streams and find mates.

Sea lampreys have been found to incorporate two distinct reproductive pheromones in their mating strategy. The migratory pheromone is released by sea lamprey larvae and detected by adults searching for suitable spawning streams. A strong migratory pheromone signal from a river indicates numerous larval sea lampreys and therefore suitable spawning and larval habitat upstream.

The mating pheromone is released by sexually mature males and detected by sexually mature females. The mating pheromone allows females to find nesting males and may also indicate to the female the quality of a male as a mate. The migratory and mating pheromones work in tandem as final reproductive cues for a species that dies immediately after spawning, and ensures that reproduction will be successful.

The potential to use pheromones in sea lamprey management appears to have considerable potential. Once scientists unlock how sea lampreys react to pheromones, they can be used to disrupt spawning behavior. For example, sea lampreys could be lured into traps or streams with no spawning habitat or to sterile mates. Pheromones are attractive because sea lampreys can detect them at extremely low concentrations and they are natural and environmentally safe compounds.

Another development in the sea lamprey control program is the use of a special device, known as RoxAnn, to map and inventory suspected larval sea lamprey hot spots in the Great Lakes.



-GLFC

Reproductive pheromones are being released at this site to lure sea lampreys into the traps. This technique has potential to reduce invasive sea lamprey numbers in the Great Lakes without using the traditional chemical control.

The RoxAnn device, coupled with GPS technology, measures substrate hardness and roughness, which can identify bottom substrates likely to harbor sea lampreys.

Overall, the sea lamprey management program has been very successful. Although lamprey populations fluctuate (like any species), ongoing control efforts have resulted in a 90% reduction of sea lamprey populations in most areas of the Great Lakes. Sea lamprey control is a critical management tool supporting the Fish Community Objectives developed by the lake committees as part of the Strategic Plan for Great Lakes Fishery Management. The FWS works in partnership with the Department of Fisheries and Oceans Canada, as agents of the Great Lakes Fishery Commission, to implement the integrated sea lamprey management program to protect a \$4 billion fishery.

Jessica Doemel, Marquette Biological Station

For additional information on integrated sea lamprey management, contact the Marquette Biological Station at:

Phone: 906/226-6571

or visit their website at:

<http://www.fws.gov/midwest/marquette/>

Feature Story: Viral Hemorrhagic Septicemia: A New Invader in the Great Lakes

Viral Hemorrhagic Septicemia (VHS) virus is one of the most feared fish diseases world-wide, and it has made its way into the Great Lakes. Biologists are concerned that the VHS virus could spread via the Chicago waterway and other Great Lakes tributaries into the Mississippi and Ohio River basins.

As spring approaches, the La Crosse Fish Health Center (FHC) will be working with state, federal and tribal partners in the Great Lakes in a basin-wide effort to monitor the spread of the VHS virus. La Crosse staff will also conduct surveillance outside the basin and provide technical assistance to tribal partners in the Great Lakes with the inspection of their hatcheries' VHS-susceptible species such as walleye and muskellunge.

First reported as a disease of European rainbow trout in 1938, VHS was not identified as the responsible disease pathogen until 1963. Since then, three VHS genotypes have been isolated from fish in Europe, and in 1988, a scientist isolated a fourth genotype from marine fish in the Pacific Northwest. One of the European genotypes significantly affects freshwater salmonids and pike; the remaining two affect marine fish.

Suspected vectors for VHS's introduction and spread in the Great Lakes include ballast water, movement of baitfish and natural migration of fish. For this reason, most of the states and provinces in the Great Lakes basin are considering or have taken steps to limit the uptake and discharge of ballast water or limit the movement of wild baitfish harvest from their waters.

In the spring of 2005, a significant die-off of freshwater drum occurred in the Bay of Quinte in Lake Ontario. The Ontario Ministry of Natural Resources isolated VHS from the fish. Although this was the first report of VHS in the Great Lakes, it was not the first isolation of the virus from the Great Lakes.

Biologists at Michigan State University had isolated an unknown virus from a muskellunge caught in Lake St. Clair in 2003, but did not pursue identification of the virus until learning of the Lake Ontario isolation. The Lake St. Clair isolation was confirmed as VHS in December 2005. These two separate reports of VHS placed the virus into emerging pathogen status in the Great Lakes basin.

In 2006, scientists isolated VHS during fish kills in lakes Erie, Ontario and St. Clair, the St. Lawrence River, and Conesus Lake, the westernmost Finger Lake in New York which is connected to Lake Ontario via the Genesee River. Fish affected included yellow perch, muskellunge, smallmouth bass and walleye.

In April, 2006, a significant mortality of freshwater drum was observed in the western basin of Lake Erie. The La Crosse FHC assisted the Ohio Division of Wildlife (ODW) with collection of bacterial and viral samples from 12 drum from Lake Erie near Sandusky, Ohio. The samples were processed at the La Crosse FHC lab and VHS was isolated.

The samples were forwarded to the U.S. Geological Survey Western Fisheries Research Center in Seattle, where the virus was confirmed to be VHS. DNA sequencing results were identical to the Lake Ontario freshwater drum and Lake St. Clair muskellunge isolates.

The ODW received a report of significant mortality of yellow perch from the central basin of Lake Erie in late May 2006. Once again, testing revealed that VHS was the cause. To date, all of the VHS isolates from throughout the Great Lakes have been genetically identical, indicating that this is a new introduction that has probably had assistance—such as ballast water—in spreading in the Great Lakes.

Other Great Lakes fish species that have been shown to be VHS carriers include bluegill, crappie, emerald shiner, northern pike, redhorse sucker, smelt, and white bass, though no fish kills of these species have been blamed on VHS to date. Disease signs reported with the Great Lakes genotype include hemorrhages in skin and muscle tissue, exophthalmia (“pop-eye”), abdominal fluid, distended abdomen, abnormal organs and necrosis of organ tissues.

Significant fish kills are expected to occur as VHS spreads into these new areas, and native fish populations or year classes in areas where the virus has already occurred will be susceptible to periodic outbreaks of VHS in the future.

In January, the Michigan Department of Natural Resources (DNR) reported that VHS had been isolated from Chinook salmon, lake whitefish and walleye from the Thunder Bay and Rogers City, Mich., areas of Lake Huron. Although mortality was not associated with this report, the fish showed clinical signs of VHS.

This spring, VHS was confirmed in a brown trout that washed onto shore near Algoma, Wisconsin. This fish showed clinical signs of VHS and was the first confirmed report of VHS in Lake Michigan. Smallmouth bass collected from Sturgeon Bay (Lake Michigan) as part of VHS surveillance efforts of the Wisconsin DNR and the La Crosse FHC were also VHSV-positive, although they did not show clinical signs.

Viral hemorrhagic septicemia has been confirmed to be the cause of a fish kill this spring in Budd lake (black crappie, bluegill, muskellunge), an inland lake located in central Michigan. In Wisconsin VHS has been confirmed to the cause of freshwater drum mortality in Little Lake Butte des Morts and Lake Winnebago, both part of the Lake Winnebago system which has a significant lake sturgeon population. The Lake Winnebago system is connected to Lake Michigan via the Fox River.

In response to the significant scale of the VHS outbreaks in the Great Lakes, the U.S. Department of Agriculture’s Animal and Plant Health Inspection Service (APHIS) issued a Federal Order on Oct. 24, 2006, prohibiting the interstate movement of VHS-susceptible species from Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania and Wisconsin, as well as the importation of these species from Canadian provinces of Ontario and Quebec.

APHIS later amended the Federal Order to allow interstate movement from the affected states if the fish tested negative for VHS according to one of several standards, including the Fish and Wildlife Service’s Standard Procedures for Aquatic Animal Health Inspections. Interstate movement was also allowed for human consumption if fish were transferred to a state-inspected slaughter facility. APHIS plans to issue an Interim Rule on VHS this spring. Following a comment period, the interim rule would become permanent.

The scale of the VHS outbreak in 2006 and the subsequent Federal Order have already had a significant impact on the operations of federal, state and tribal natural resource agencies, as well the private sector. The most significant impact has been—and will continue to be—on the movement of warm and cool water fish, a major component of state and tribal hatchery programs.

Historically, fish health inspections have not been performed on warm and cool water fish species. Often these species are not at the culturing facility long enough for inspection laboratory tests to be completed prior to stocking. In these instances, brood stock (which is often from wild stocks) will need to be tested prior to egg take to ensure that the virus is not passed down from parents to progeny. The APHIS rules should not have a significant impact on salmonid fish operations since cold water species have historically received fish health inspections.

Ken Phillips, La Crosse Fish Health Center

For additional information on Viral Hemorrhagic Septicemia contact the La Crosse Fish Health Center at:

608/783-8444

Partnerships and Accountability

Iron River NFH Partners with Purdue University

Iron River National Fish Hatchery (NFH) partnered with Purdue University graduate student researchers to study Lake Superior brook trout. Masters students Anna Varian and Lorena Edenfield are working to calculate the heritability for various morphological and meristic measurements such as body and fin shape, gill raker, fin ray, lateral line, scales and mandibular pore counts. They will also be looking at growth and development rates. Data collected will be compared across four to five different strains of Lake Superior brook trout. Iron River NFH currently maintains Tobin Harbor and Siskiwit strains of coaster brook trout.

Varian and Edenfield visited the hatchery last November to assist biologists with coaster brook trout spawning activities and collected milt and un-fertilized eggs for transfer to Purdue University. Iron River NFH supplied additional eyed eggs and sac fry for the study in January and February 2007.

Kurt Schilling, Iron River NFH



-USFWS

Purdue University graduate students spawn coaster brook trout with biologist Kurt Schilling at the Iron River National Fish Hatchery.

FHC Hill Week Focuses on Species Survival

The annual Fisheries and Habitat Conservation (FHC) Hill Week was held Feb. 26 to March 2. The theme for this year's event was "Species Survival Revival," highlighting the efforts of the Fisheries Division to restore self sustaining aquatic populations. Months of preparation by many people were required to plan and execute this event. While on detail in the FHC Branch, Alpena FRO biologist Susan Wells assisted with creating displays for the event and attended five congressional visits to discuss the outbreak of Viral Hemorrhagic Septicemia, the National Fish Passage Program and the National Fish Habitat Action Plan.

FHC Hill Week also coincided with the quarterly meeting of the NFHAP Board, where board members discussed interim objectives, proposed legislation and partnerships. Wells assisted with preparation of materials and attended the two-day meeting.

Susan Wells, Alpena FRO

Morning News Features Genoa NFH

Zack Brown and a camera crew from Channel 19 News from La Crosse, Wisconsin, spent the better part of a morning at Genoa NFH gathering information for a morning news feature. It was very fortuitous timing, as volunteers had gathered to assist in the annual clam cage assembly. Clam cages are used to confine host fish carrying hundreds of endangered Higgins' eye pearl mussel and winged mapleleaf mussel larvae on their gills. Roughly 25 of these fish, carrying approximately 250 mussel

larvae each, are placed in small aluminum framed cages and set over suitable mussel habitat that houses few or no invasive zebra mussels, which contribute to rapid declines in native mussel populations by colonizing on the shells of freshwater mussels and causing suffocation and the inability of the mussel to siphon feed. As many as 100 cages are built each year, requiring a large work force of volunteers to help complete the project.

While at Genoa, Brown also helped wrestle a lake sturgeon, another species of concern reared at the hatchery, and biologists discussed the station's ongoing lake sturgeon restoration strategies. The hatchery also had plenty of coaster brook trout fry on hand to show viewers how Genoa contributes to recovering this species in Lake Superior tributaries. Click on the following link to see the news footage: <http://www.wxow.com/News/index.php?ID=8160>.

Doug Aloisi, Genoa NFH



-USFWS

Lake sturgeon are just one of the many aquatic species cultured at the Genoa National Fish Hatchery.

International Symposia Features Endangered Mussel Recovery at Genoa NFH

Every three years the World Aquaculture Society, The National Shellfish Association and the Fish Culture section of the America Fisheries Society come together in a joint meeting that brings speakers from around the globe. The most recent gathering was held in San Antonio, Texas, in February. Attended by 3,500 people, this meeting included a symposium focusing on the culture of North America's most endangered taxa, freshwater mussels. Mussel Propagation Biologist Tony Brady of Genoa NFH was invited to present mussel culture techniques and lessons learned through their recovery work with the endangered Higgins' eye pearly mussel and winged mapleleaf mussels. Brady also attended presentations from other disciplines that will be applied to other hatchery operations.

Tony Brady, Genoa NFH

Instream Flow Model for Missouri in Development

Tracy Hill and Joanne Grady of the Columbia FRO attended the Missouri Department of Conservation's Instream Flow Task Force meeting on Feb. 27 in Jefferson City. Jim Henricksen of the U.S. Geological Survey's (USGS) Fort Collins Science Center was the key speaker, presenting the initial stream modeling work he is doing to classify Missouri streams.

Henricksen used natural flow regime data from 146 stream gages to develop a stream classification system for Missouri. He used the flow data for 10 years of least altered time in the analysis. After extensive statistical analy-

sis, the draft process breaks Missouri streams into six categories. Classifying the streams is the first phase of the project. Phase II uses this classification system and a user interface to determine and graph potential impacts to streams from proposed water development projects. This tool will help natural resource agencies determine the true impacts of many proposed Federal projects including dam construction and irrigation withdrawals.

Columbia FRO partnered with the Missouri Department of Conservation and USGS Science Support program in funding this groundbreaking work. Henricksen will be returning to Missouri in July to train biologists with the Missouri Department of Conservation and the Fish and Wildlife Service to use the system.

Joanne Grady, Columbia FRO



Honoring our Past, Shaping our Future: Region 3 All Program Project Leaders Meeting

Columbia FRO Project Leader Tracy Hill traveled to the Region 3 Project Leaders meeting in Indianapolis, Indiana, during the week of Feb. 5. The meeting provided an excellent opportunity to address the stated theme of *Honoring our Past, Shaping our Future: Leading Change in the Midwest Region*, kicking off with an outstanding plenary session that set the stage for the rest of the week. Plenary speakers addressed the changes in demographics and landscape conservation challenges. Meeting organizers did an exceptional job of arranging speakers for the meeting. Participants were treated to presentations by Deputy Secretary Lynn Scarlett, Director Dale Hall, Regional Directors from Region 2 and California/Nevada as well as Association of Fish and Wildlife Agencies Vice-President Matt Hogan and retired Director Lynn Greenwalt. The meeting provided a great opportunity to network with project leaders from across the Midwest Region as well as view presentations from a variety of topics ranging from Strategic Habitat Conservation to renewable energy.

Tracy Hill, Columbia FRO

2006 Great Lakes Lake Sturgeon Coordination Meeting

Members of the Great Lakes Basin Ecosystem Team - Lake Sturgeon Committee, with assistance from a steering committee of several partners, held a third Great Lakes Lake Sturgeon Coordination meeting in Sault Ste. Marie, Michigan. The purpose of these meetings is to provide a forum for communication and exchange of information relating to the study, management and restoration of lake sturgeon in the Great Lakes basin, and to address priority research and assessment needs and select emerging issues.

More than 120 people attended the meeting representing 40 entities including state, tribal/First Nation, federal and provincial governments, academic, private, and other non-governmental organizations. Evaluation forms completed by participants were extremely positive and indicated that attendees were pleased with the presentations and opportunities for interpersonal interaction.

Biologists Henry Quinlan and Jonathan Pyatskowit of the Ashland FRO contributed to the meeting. Quinlan served as a member of the Fish and Wildlife Service steering committee that led the meeting planning and organization. He also gave a presentation during the Assessment Technology session on Passive Integrated Transponder (PIT) tag technology for lake sturgeon rehabilitation in the Great Lakes. Quinlan also led the breakout session meeting of the Lake Superior Lake Sturgeon Work Group.

Pyatskowit handled the audiovisual duties for 25 video presentations during the meeting. His professionalism and thoroughness ensured that all presentations functioned as expected and that

presenters were at ease and familiar with the equipment prior to and during their presentations. *Henry Quinlan, Ashland FRO*



-Great Lakes Lake Sturgeon website

Great Lakes Fishery Resources Offices are heavily involved with lake sturgeon management in the Great Lakes.

Ashland FRO Great Lakes Vessel Fleet and Assessment Activities

Henry Quinlan and Glenn Miller summarized the Fish and Wildlife Service Great Lakes vessel and assessment capabilities for Lake Superior as part of a region-wide compilation that included information on Ashland FRO's small vessels operating on Lake Superior, personnel needs to fully accomplish work activities, and projections for *M/V Spencer F. Baird* operation.

Ashland FRO has three vessels less than 30 feet long dedicated to Lake Superior fishery assessment. They include the *R/V Chub*, a 29.5-foot gill net vessel; the *Northern Shoveler*, a 26-foot vessel capable of conducting bottom and mid-water trawling; and the 20-foot vessel, *Shiny*, outfitted for trawling in embayments and estuaries of the Great Lakes. Combined, these vessels can be on the water for up to 110 days a year, with a minimum of a two-person crew that amounts to at least 220 crew days during the open water season.

Henry Quinlan, Ashland FRO

Aquatic Species Conservation and Management

A Taylor-made match?

(The Neosho Daily News)

It's finally happened! A second wild pallid sturgeon has been captured and delivered to the Neosho NFH. But, like the first one, no one is sure what sex this new resident is.

"We now are beginning to think that our first fish, Liberty, is a male," said hatchery manager David Hendrix. "And we think the new fish is a female. If you look at the new fish, it has a bulge around the middle and that's a sign of eggs."

The new fish, which is almost exactly the same size as Liberty, was captured near Rocheport, Missouri, at a place on the Missouri River called Taylor's Landing. So, the new fish is already named "Taylor." The two fish are being kept separated because if Taylor is a female and has eggs, the hatchery staff doesn't want anything to happen to the eggs. If Liberty is a male, introducing him into the same pool with Taylor may create some fireworks and that would risk both the female and her eggs.

A noted fish biologist is scheduled to come to Neosho in April to examine and officially determine the sex of both Liberty and Taylor. Until then, the hatchery staff and some members of the Friends of the Neosho National Fish Hatchery can only stay back and wait for the doctor to make the exam. And, if what looks reasonable to the human eye is true, then the local hatchery can truly celebrate. Finding not only one, but two wild pallid sturgeons and having a mating pair is truly something to celebrate. But, for now, it's pretty

evident that Liberty and Taylor are taking life easy in separate swimming pools, and they have no idea of how very special they are.

Kay Hively, Friends of the Neosho National Fish Hatchery



-Kay Hively

This federally endangered pallid sturgeon is the second fish brought to the Neosho National Fish Hatchery, to start a brood stock as a source of progeny for recovery efforts in the lower Missouri River.

Volunteers Make Short Work of Mussel Cage Construction

In the wild, freshwater mussels use fish as "mobile homes" to house their larva, or *glochidia*, through their fragile early life stage. These "mobile homes" allow mussel beds to be colonized in new areas and populations to be dispersed over wide areas. Genoa NFH has been aiding in this natural process since 2001. The hatchery builds small aluminum propagation cages to house roughly 25 fish that have been infested with glochidia, from endangered Higgins' eye pearl mussels or other listed species.

Propagation cages allow the mussels to drop off into substrate placed on the bottom of the cage, where they are protected from predation throughout the first two years of life. Since 2001, more than 500 cages have been constructed for these efforts, producing more than 40,000 sub-adult and adult mussels.

Each year for the past six years, volunteers have come to Genoa NFH to build the cages. This year, workers built 47 cage units. From these cages, the Genoa staff anticipates production of two endangered species and five state listed species. In less than two days, 11 volunteers from five organizations—Friends of the Upper Mississippi Fisheries Services, Friends of Pool 9, Wisconsin Department of Natural Resources, Iron River NFH and the Twin Cities Field Office—put in 87.5 hours drilling, skinning and riveting cages. The staff at Genoa NFH would like to thank all who volunteered to make this year's cage event a success.

Tony Brady, Genoa NFH



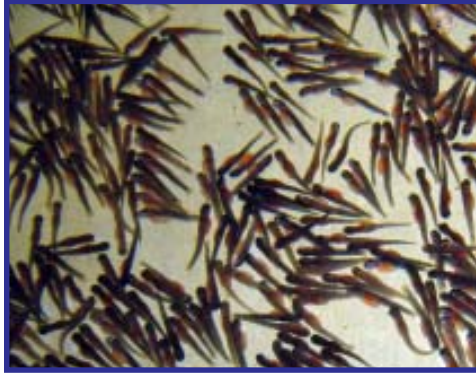
-USFWS

Fish and Wildlife Service staff and volunteers construct native mussel culture cages at the Genoa National Fish Hatchery.

Genoa NFH Receives Rainbow Trout Eggs from Ennis NFH

Genoa NFH received 460,000 Rainbow trout eggs this winter from Montana's Ennis NFH. The majority of the resulting fry are reared to two inches by April. During this time they are used as forage to feed approximately 15,700 host fish for the endangered Higgins' eye pearl mussel, including largemouth bass, smallmouth bass, channel catfish and walleyes. These five- to six-inch fish have been held in an icy one-acre pond throughout the winter. In early April, they will be harvested from the pond and then placed in rearing tanks until the time is right to artificially inoculate larval mussels onto their gills, for restoration and recovery efforts within the Upper Mississippi River basin.

By the end of the cold winter, these host fish are in excellent condition; however, as temperatures rise, so does their hunger. One problem that the staff faces is the possibility of compromising the health of the host fish if they are fed a forage species that harbors diseases and parasites. This chance can be reduced by feeding the bass and walleye a certified disease-free forage base which can be obtained by culturing rainbow trout eggs from Ennis, which has a disease-free classification. That rating is maintained throughout the rearing process at Genoa NFH, and the forage ensures healthy, well-fed fish throughout the mussel propagation season.
Nick Starzl, Genoa NFH



-USFWS

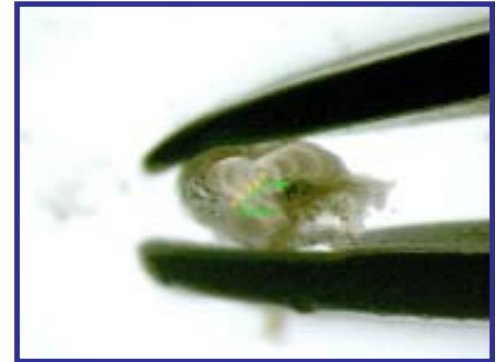
These rainbow trout fry hatched out from eggs at the Genoa National Fish Hatchery (NFH). The eggs were provided by the Ennis NFH, Montana.

Percid Fin Ray Age Determination

Biologist Scott Koproski from the Alpena FRO and lab manager Roger Greil from Lake Superior State University (LSSU) began analyzing fin rays of Percid fish, species from the perch family. The rays were collected during the 2006 gill net assessment of the St. Marys River. Both Alpena FRO and LSSU are members of the St. Marys River Fishery Task Group, a sub-committee of the Lake Huron Technical Committee charged with monitoring and assessing fish populations in the St. Marys River, the connecting waterway between Lake Superior and the lower Great Lakes. In 2006, the task group scheduled a river-wide gill net assessment.

After all agencies finished sampling, volunteers sorted the aging structures and provided them to the agency that volunteered to age specific species. Koproski and Greil cross-sectioned the fin rays collected from 1,000 Percids using a Dremel saw and counted the annuli present in the structure. Like other calcified structures, seasonal growth patterns can be identified within the structure and ages assigned. After all the aging is complete, the task

group will report results to the Lake Huron Technical Committee.
Scott Koproski, Alpena FRO



-USFWS photo by Scott Koproski

The fin ray from a Percid (perch family) has been sectioned and aged. Alpena FRO fishery biologist Scott Koproski has aged a number of Percids collected during a coordinated gillnet assessment of the St. Marys River, conducted by the St. Marys River Fishery Task Group in 2006.

Alpena Gillnet Repair Completed

During February, Alpena FRO biologist Adam Kowalski mended approximately 3,600 feet of assessment gillnets consisting of 100-foot panels of two- to six-inch stretch mesh strung in ½-inch increments. They are used by the Alpena FRO for the annual fishery independent lake whitefish assessment in 1836 Treaty waters. Mending consists of inspecting every net for holes, broken floats, and broken ties. Holes are repaired by either sewing in new twine across gaps or by replacing large holes with new sections of net. If nets are damaged beyond repair, replacement nets are built.

Net repair is key to collecting accurate and consistent data during annual fisheries assessments. Nets must be strung similarly and repaired to the same standard each year to assure consistent gear selectivity across sampling years. Net repair and construction will continue throughout the winter until spring assessments begin.

Alpena FRO uses gillnets from summer through fall for lake whitefish and lake trout population assessments in Lake Huron. Lake whitefish and lake trout are native species harvested in both state and tribal commercial and sport fisheries. Much of the work is required as conditions of the 2000 Consent Decree.

Adam Kowalski, Alpena FRO

Fish and Wildlife Service Contributes to Fishery Status Report

Ashland FRO biologists Jonathan Pyatskowit, Glenn Miller, Gary Czapinski and Henry Quinlan, and office administrator Joan Bratley worked as a team to summarize data on all species collected during targeted aquatic invasive species surveys for the Lake Superior State of the Lake report. Biologists conducted surveys and assisted with data entry. Bratley and Quinlan queried the database records and provided data to partner fishery agencies who are actively involved with the Great Lakes Fishery Commission Lake Superior Technical Committee by contributing data and expertise to develop oral presentations for the 2007 Lake Committee meetings which will feature Lake Superior's aquatic ecosystem. The presentations will be followed with written reports. Quinlan serves as a member of the technical committee and is the lead for the lake sturgeon and brook trout sections and a contributor for the near shore fish community section.

Henry Quinlan, Ashland FRO

Lake Superior Basin Herptile Monitoring Program Progresses

The first year of field work on the Lake Superior basin Herptile Monitoring Program has now been completed. Staff developed and field tested a basin-wide amphibian and reptile monitoring program and data repository process. The Ashland FRO has been involved in this process through its role on the Binational Program's Lake Superior Work Group.

Representative sites in the Canadian and United States portions of the Lake Superior basin are being sampled for two field seasons. Components of the project include sampling site selection, intensive surveys, database development and statistical analyses. Results will be applicable throughout the Lake Superior basin for use in amphibian and reptile habitat protection and restoration.

Reptiles and amphibians were identified as critical groups of species to be monitored by the State of the Lake Ecosystem Conference and the Lakewide Management Plan 2000, and many are in decline worldwide. Lake Superior is at the northern edge of the natural range of many herptile species and thus changes in their abundance in the basin may be indicative of pending environmental changes elsewhere. They may also be particularly useful for monitoring in the Areas of Concern to document progress in remediation and restoration. The work currently being conducted will make great strides in achieving goals outlined within the management plan and benefit herptile species and their habitat throughout the Lake Superior basin.

Ted Koehler, Ashland FRO



-Steve Hecnar

A biologist measures a painted turtle as part of the Lake Superior basin Herptile Monitoring Program.

Partners Register Lake Sturgeon from Spear Harvest

The morning of Feb. 9 found Ashland FRO biologist Glenn Miller, Northland College students Melissa Kjelvik and Lance Uselman, and Northland College graduate Lindsey Lesmeister heading to Oshkosh, Wisconsin, to attend the annual meeting held for registration station personnel for the Lake Winnebago spear harvest season. All lake sturgeon harvested from Lake Winnebago are required to be registered at one of seven registration stations.

Harvest of these magnificent fish is regulated by harvest caps set by annual population estimates. The 2007 Lake Winnebago harvest cap was 556 juvenile females, 556 adult females and 1,000 males. The mandatory registration gathers important biological data. Registration staff weigh and measure each sturgeon, remove the first ray of the pectoral fin for aging, determine the sex, and remove the stomach contents of the first ten sturgeon registered for diet analysis. Any black egg females—a stage of egg development that indicates the sturgeon will spawn in the spring—have their ovaries sampled and eggs taken back to the Wisconsin DNR lab to determine fecundity.

Glenn Miller, Ashland FRO

Aquatic Invasive Species

La Crosse FRO Gives Presentation at Women in Natural Resources Conference

With the threat of Asian carp invading the upper Mississippi River and its tributaries, it's imperative to educate recreational user groups who might accidentally spread them. La Crosse FRO biologist Louise Mauldin spoke to some 100 students and professionals about the potential impacts of these voracious invasives.

The Iowa Women in Natural Resources (IWINR) is a nonprofit organization, established in 1998 to promote communication among employees in natural resource fields and provide professional and environmental education opportunities. On Feb. 9, students and professionals gathered at Lime Creek Nature Center near Mason City, Iowa, for the 19th annual Iowa Women in Natural Resources Conference.

Mauldin discussed several invasive species introduced to the Great Lakes and upper Mississippi River ecosystems that have caused serious ecological and economic impacts. She also talked about potential threats of the round goby and Asian carp to the two ecosystems and the early detection and monitoring efforts currently underway in the Illinois waterway by the Fish and Wildlife Service, other agencies and partners. Mauldin discussed tools to prevent, slow down or stop the spread of Asian carp and other invasive species. She concluded the presentation by showing an Asian carp video to reinforce the seriousness of these potential threats.

Louise Mauldin, La Crosse FRO



-USGS
Asian carp is always a hot topic at conferences.

Biologist Has a Science Night

Alpena FRO biologist Jim McFee took part in the Defer Elementary School science night in Grosse Point Park, Michigan, on the shores of Lake St. Clair. More than 200 students and parents visited classrooms mainly dealing with physics-related topics. The Fish and Wildlife Service room dealt with invasive species and control measures.

The night was filled with questions and answers about aquatic invasive species, triggered by a display board filled with information on invasive species and a video on Asian carp. The display board contained information on round goby, tubenose goby, Eurasian ruffe, sea lamprey, zebra mussels and Asian carp. The students also had a chance to look at preserved fish, which may help them identify these species if they see them on their next fishing or lake trip. Plenty of literature was also available to take home. The main message of the night was to help stop the spread of unwanted species by cleaning boats and not dumping bait.

As a follow-up to the program, students were drawn pictures of their favorite Lake Michigan fish. The collection of pictures will be sent to state legislators and United States congressional representatives to encourage support for construction of a permanent fish barrier in the Chicago Sanitary Canal, the last line of defense for the Great Lakes from Asian carp.

Jim McFee, Alpena FRO

Public Use

Driftless Area Highlighted at Fly Fishing Expo

The La Crosse FRO staffed an exhibit at the Great Waters Fly Fishing Expo at Itasca, Illinois, a suburb of Chicago. Fly fishing enthusiasts learned about the Midwest Driftless Area Restoration Effort (MDARE), a pilot partnership for the National Fish Habitat Action Plan, and engaged in a series of workshops which educated them about three major themes—conservation, fly fishing and adventure travel. Trout Unlimited gave a presentation on the “Challenges of the Driftless,” highlighting its own Driftless Area restoration effort, which complements MDARE. In addition, a nationally-known fly fishing author and fly tier provided a program on southwest Wisconsin trout.

We took advantage of the venue’s location near the Chicago Waterway to educate the public about invasive Asian carp and their potential impact on the Great Lakes. The Bill Dance video on silver carp was a big hit and eye opener for those that had never seen the acrobatic character of this invasive fish.

As a complement to this event, in March the La Crosse FRO participated in another Great Waters Fly Fishing Expo in Minneapolis, Minnesota. These events were great opportunities to interact with fly-fishing enthusiasts who live in or near the Driftless Area.

Pam Thiel, La Crosse FRO



-USFWS

Pam Thiel of the La Crosse Fishery Resources Office represented the Fish and Wildlife Service at the Great Waters Fly Fishing Expo in Itasca, Illinois.

The NWR: a Natural Tonic for Families

Long weeks of mid-winter darkness and sub-zero temperatures recently left members of families in the Coulee Region of southwestern Wisconsin coping with symptoms of cabin fever. To help cure this annually recurring malady and prevent its epidemic spread, the La Crosse FRO participated for the second consecutive year in the Mid-Winter Family Sport Show, a community event held Feb. 16-17 at Coulee Region Christian Schools in nearby West Salem, Wisconsin. With original posters designed to highlight seasonal opportunities for families to “Discover the Nature of America” and “Prevent Nature-Deficit Disorder” on prominent display, the FRO-sponsored booth promoted family participation in outdoor seasonal activities available to the public at many national wildlife refuges. Staff distributed brochures describing some of these activities— fishing, hunting , hiking, photography and wildlife observation—available at area refuges such as Necedah, Trempealeau and the Upper Mississippi River National Wildlife and Fish Refuge, as well as handouts

encouraging ethical outdoor practices and environmental stewardship, to the hundreds of people who attended this event.

Mark Steingraeber, La Crosse FRO



-USFWS

The National Wildlife Refuge system promotes family participation in a wide variety of outdoor seasonal activities.

Wisconsin Public Television Exposes the Lake Trout Program

February is generally considered to be quiet time when it comes to interest in the programs at the Iron River NFH. As a result, early in the month, we were happy to share a day with a film crew from Wisconsin Public Television. The crew arrived at the hatchery mid-morning and spent the day focused on interviewing, filming and developing a story on lake trout rehabilitation efforts in the Great Lakes. Biologist Charles Bronte from the Green Bay FRO gave an interview focused on the fisheries management side of rehabilitation efforts, while Dale Bast, Clark Bartelt and Kurt Schilling focused on the hatchery perspective. An interesting feature of the day was assisting the public television crew with filming adult lake trout inside the hatchery raceways. A camera was placed in an aquarium that was then submerged to allow filming of the fish in the water. Even though it was an extremely cold day, all involved

had a great time. It is always valuable to tell our story - now it will also be told on Wisconsin Public Television.

Kurt Schilling, Iron River NFH



-USFWS
Kurt Schilling holds an aquarium below the water surface as the cameraman takes video of lake trout brood stock at the Iron River National Fish Hatchery.

Columbia FRO Celebrates "Eagle Days" at Truman Lake

After an icy snow storm postponed Eagle Days on Truman Lake in Missouri, the event was rescheduled for February. The third annual Eagle Days was held at the Army Corps of Engineers' visitor center on the lake. Columbia FRO technicians Lee Erickson and Derek Eisenbrei staffed a display featuring a trawling demonstration video, Region 3 video, activity books, fish identification puzzle, and fisheries brochures.

The event brought together a wide array of organizations such as woodcarver John Hernandez of the Mescalero Apache Tribe, the Audubon Society and the Springfield Zoo.

Lee Erickson, Columbia FRO

Stress Relief while Recovering Sturgeon

We've all reached the point when our knuckles turn white; we grit our teeth and want to scream! Recovering endangered species can be a very challenging undertaking involving folks from all walks of life. The Columbia FRO has devised a way to ease this stress a bit.

A host of competing interests for resources is all too often an ingredient for declining fish populations. The Fish and Wildlife Service, using tools such as strategic plans, have identified methods to ease these tensions by working with partners rather than against them. One method to get on good terms with someone is to offer them a useful gift upon meeting. We typically offer a business card, ink pen or even a refrigerator magnet as a way to provide much needed contact information about who we are and what we do. This self-marketing approach can be applied to an endless list of gadgets. We've worked with a local company to design and develop a "generic" sturgeon stress toy available for anyone who wishes to order them. Now that the mold for the stress sturgeon is in place, custom printing and color schemes can be adapted to meet any office's outreach needs. Contact the Columbia FRO at (573) 234-2132 for information on ordering your own stress sturgeon.

"When your knuckles turn white as you clutch the air in frustration, know that your partners are likely in the same boat. Offer them a stress sturgeon to ease their angst and put your contact information in their hands like no one else."

Jeff Finley, Columbia FRO



-USFWS photo by Jeff Finley

The "Stress Sturgeon" was designed by the Columbia Fishery Resources Office as a means to ease tensions when dealing with declining fish populations.

Outreach and Education Help Achieve Fish and Wildlife Service Mission

Patience is the key to farming, you plant a seed and in time it will grow. Effective outreach is much the same; you put out information that may take many months to materialize results. At Genoa NFH we are beginning to see those results through our monthly station newsletter. After reading the station's monthly newsletter, Travis Brady, the museum manager of The Greenburgh Nature Center in Scarsdale, New York, contacted the hatchery. He was interested in receiving information on the invasive zebra mussel. The Greenburgh Nature Center produces rotating exhibits for their visitors and wanted to focus an exhibit on zebra mussels and other aquatic invaders. The Fish and Wildlife Service helped the museum create an aquatic exotics exhibit and the hatchery sent pamphlets, stickers and other information about the problems associated with the zebra mussel.

Tony Brady, Genoa NFH

Cooperation with Native Americans

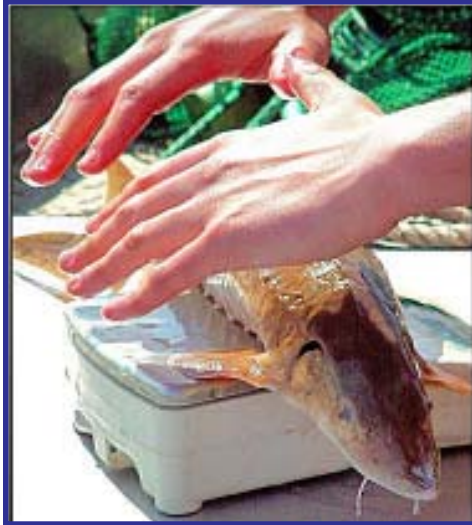
Ashland FRO Continues to Assist with Tribal Sturgeon Study

Under a reimbursable agreement with the Grand Portage Tribe of Lake Superior Chippewa and in cooperation with the 1854 Tribal Authority, the Ashland FRO continued capture and equipment assistance for a lake sturgeon telemetry study in the St. Louis River, along the Minnesota-Wisconsin border at the mouth of Lake Superior. Historically, the St. Louis River supported a large reproducing population of lake sturgeon. The population was eliminated by the early 1900s but is being restored.

The purpose of the study is to use telemetry to identify juvenile and sub-adult lake sturgeon habitat on a seasonal basis. This information will then be used in support of restoration efforts. The Ashland FRO provided a small craft trawler and operator/biologist to collect juvenile/sub-adult lake sturgeon for radio tagging in the lower St. Louis River. In 2006, a total of nine sturgeon were targeted for radio tagging, with five specimens captured by the Ashland trawler, and four captured by anglers.

Tracking during the summer and fall of 2006 indicates that the sturgeon are moving very little, with half of the nine tagged sturgeon occupying water less than 10 feet in depth, and the remainder in water 15 to 18 feet deep. The sturgeons in shallower water are displaying more movement than the sturgeon in deeper water. Approximately 10 additional lake sturgeon will be radio tagged in 2007 to enhance this study.

Gary Czypinski, Ashland FRO



-USFWS

The Ashland Fishery Resources Office continued capture and equipment assistance for a lake sturgeon telemetry study in the St. Louis River (Minnesota and Wisconsin) for the Grand Portage Tribe.

Joint Fishery Assessment Steering Committee Meets

Frank Stone participated in an annual meeting of the Joint Fishery Assessment Steering Committee held at the Lac Courte Oreilles Indian Reservation. Representatives from the Wisconsin DNR, Great Lakes Indian Fish & Wildlife Commission and Bureau of Indian Affairs met to discuss 2006 inland walleye, bass and musky surveys that the steering committee helped fund. Assessment data collected from spring/summer/fall surveys were presented as well as 2007 assignments and a projected budget. The data collected from the 310 surveys reflect the lake recruitment values and are combined to yield the information needed to help determine the number of adult walleye that can be safely harvested by tribal spearing in 2007.

Frank Stone, Ashland FRO

Trout Fry Transferred to Keweenaw Bay Hatchery

In support of tribal lake trout rehabilitation programs, Iron River NFH transferred 140,000 Traverse Island strain lake trout fry to the Keweenaw Bay Indian Community (KBIC) Tribal Fish Hatchery on Jan. 31. Because of limited egg incubation space at the KBIC hatchery, Iron River staff agreed to keep surplus Traverse Island eyed lake trout eggs on site and incubate them through hatch to the swim up stage. Once the fry were ready to begin feeding on their own, they were shipped inside the incubator trays to the KBIC Hatchery. This marks the first time that Iron River attempted this type of fry shipment. Shipping the fry inside the trays within a tank of water keeps the fry groups separate and allows for easier transfer to rearing tanks once they arrive at KBIC hatchery.

Kurt Schilling, Iron River NFH



-USFWS

Incubation trays are prepared for shipping lake trout fry from the Iron River National Fish Hatchery to the Keweenaw Bay Indian Community Tribal Fish Hatchery.

Leadership in Science and Technology

Lake Superior Agencies Assess Cisco

The gales of November held off for a few weeks while scientists probed the waters of western Lake Superior to conduct fall assessments of cisco – the fish formerly known as lake herring. Four agencies—the USGS, Minnesota and Wisconsin DNRs, and the Ashland FRO—along with the University of Minnesota-Duluth contributed staff, equipment and expertise to conduct hydro-acoustic and mid-water trawl spawning congregation surveys for cisco, the key prey fish in the Great Lakes.

The objective of the effort, which Ashland FRO contributed to, was to collect acoustic data to measure densities of large ciscos in four coastal statistical units. Ashland FRO deployed hydro-acoustic gear off the *Northern Shoveler* and followed pre-established transects in Wisconsin waters of Lake Superior. All work was done at night and navigation was conducted by instrumentation. The vessel worked in tandem with the USGS *R/V Kiyi*, which allowed comparison of two different transducers and provide information on whether night operation of the *R/V Kiyi* influences the distribution of suspended cisco below the vessel where hydro-acoustic gear is deployed.

Henry Quinlan, Ashland FRO



-USFWS
Ashland Fishery Resources Office prepares to collect acoustic data to measure cisco densities in western Lake Superior.

Green Bay FRO estimates Lamprey-Induced Mortality in Trout

Green Bay FRO collaborated with state and tribal biologists to facilitate the assessment modeling process in lakes Superior, Huron and Michigan. Recently, John Netto generated estimates of sea lamprey-induced fish mortality for the treaty management units in these lakes. A logistic regression was fit to state, tribal and federal agency observations of sea lamprey wounds on lake trout to generate a model of wounding rate as a function of fish length. The wounding rates are then combined with growth models for each unit and assumptions regarding the probability of surviving a lamprey attack, to generate estimates of sea lamprey-induced mortality rates for all years and ages included in the assessment models.

The estimate of 2005 mortality based on 2006 data indicates that trends in sea lamprey mortality differ among the lakes. In Lake Huron, lake trout mortality from sea lamprey was similar to last year's estimate and remains low relative to the rest of the time series. In eastern Lake Superior, estimates of sea lamprey mortality decreased by nearly 50 percent

from last year after increasing the previous two years. In northern Lake Michigan, estimates of mortality increased this year, suggesting that the declining trend in sea lamprey mortality seen last year is not continuing. Sea lamprey induced mortality estimates for northern Lake Michigan were the highest of the areas included in the analysis. Since the harvest limits for 1836 Treaty waters are based on total mortality limits, the level of sea lamprey induced mortality directly influences the level of lake trout harvest available for recreational and tribal commercial fisheries.

John Netto, Green Bay FRO

Fish and Wildlife Service Leads Publication of Interagency Research on Trout in Lake Michigan

Chuck Bronte and Mark Holey of the Green Bay FRO led the analysis and publication of an interagency cooperative research project evaluating the lake trout rehabilitation effort in Lake Michigan. The project, funded by the Great Lakes Fishery Trust, teamed the Fish and Wildlife Service with biologists from the state and tribal departments of natural resources and the USGS on a three-year project comparing the relative abundance of lake trout spawners at 19 stocked spawning sites to 25 unstocked sites.

The goal was to evaluate how effective site-specific stocking was in re-colonizing historically important spawning reefs. Results indicate that adult fish were more abundant on stocked sites than on unstocked sites, suggesting that site-specific stocking is more effective at establishing spawning aggregations than the ability of hatchery-reared lake trout to find

spawning reefs, especially those offshore. Spawner densities were generally low and relatively too young in age at most sites to expect significant natural reproduction; however, densities were sufficiently high at some sites to expect reproduction, and therefore the lack of recruitment was attributed to other factors.

Other results are as follows: Less than three percent of all spawners could have been wild fish, indicating that little natural reproduction occurred in past years. Sea lamprey wounding was generally lower for fish of the Seneca Lake strain and highest for strains that originated from Lake Superior. Fish captured at offshore sites in southern Lake Michigan had the lowest probability of wounding, while fish at onshore sites in northern Lake Michigan had the highest wounding. The relative survival of the Seneca Lake strain was higher than that of the Lewis Lake or the Marquette strains for older year classes examined. Survival differences among strains were less evident for younger year classes. Recaptures of coded-wire tagged fish of five strains indicated that most fish returned to their stocking site or to a nearby site, and that dispersal from stocking sites during spawning was about 100 km.

The paper concluded that future rehabilitation strategies should rely on site-specific stocking of lake trout strains with good survival at selected historically important offshore spawning sites to increase egg deposition and the probability of natural reproduction in Lake Michigan. The paper will be published in the North American Journal of Fisheries Management in early 2007.

Charles Bronte, Green Bay FRO

Peer-Review of USGS Study Plans Completed

At the request of Dr. David Kennedy of the USGS Upper Midwest Environmental Sciences Center, La Crosse FRO biologist Mark Steingraeber recently peer-reviewed two Quick Response Program study plans. One study will evaluate the relative sensitivity of zebra mussels, an aquatic invasive species, and black sandshell mussels, a representative native species, when exposed in the laboratory to BioBullets, a microencapsulated formulation of a salt that is particularly toxic to freshwater mussels. The outcome of this review was a recommendation to conduct tests with equal numbers of mussels of both species and with individuals of similar wet tissue weights. This should prevent the collection and analysis of potentially problematic data that could result from the use of different numbers and sizes of mussels in test systems.

The second study will compare the effectiveness of traditionally used Heath tray incubators to moist air incubators in the development of lake trout eggs to the eyed-stage, as well as to determine whether lowered incubation temperatures may increase fry production. The outcome of this review was a recommendation to include the use of an additional moist air incubation system to accommodate a third test treatment maintained at a cold temperature of 4 to 7 degrees Celsius. This should prevent the potential interaction of two test variables that may confound efforts to determine the independent impact of each variable on egg viability among different strains of lake trout. If results of these pending studies are successful, new and effective tools may become available to help

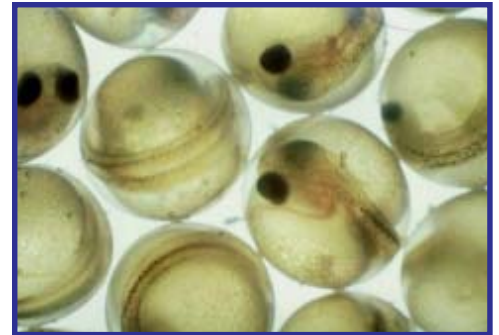
combat zebra mussels and aid efforts to recover imperiled native mussels and fish.

Mark Steingraeber, La Crosse FRO



-USFWS

A study plan of the U. S. Geological Survey's Upper Midwest Environmental Sciences Center is to evaluate the relative sensitivity of invasive zebra mussels to a formulation of a salt (potassium chloride) that is toxic to freshwater mussels.



-USFWS

Another study plan of the U. S. Geological Survey's Upper Midwest Environmental Sciences Center is to compare the effectiveness of traditionally used Heath tray incubators to moist air incubators in the development of lake trout eggs.

Sunny Times Ahead at the Neosho NFH

No matter where you work, trying to lower costs and raise profits is important. And one of the easiest ways to improve the bottom line and do something good for the world is to use solar energy. Rural farmers have been into solar power for some time, finding that small solar panels work well with pasture gates, electric fences and even on machinery.

Solar power is proving its worth at southwestern Missouri's Neosho NFH. In an initial experiment, the staff at the hatchery attached small solar panels to three of the automatic fish feeders to see how much help they would provide to the battery-powered feeders. Biologist Jamie Pacheco says the experiment is very successful.

"Normally, a six-volt battery will last about two months," Pacheco explained. "After we added the solar panels, we watched them and, after six months, we changed the batteries. The batteries were not yet dead, but we decided six months was enough for now."

The solar panels on the feeders keep batteries charged as biologists do their everyday work in the fishery raceways. The experiment was so successful that ten more solar panels are on order.

"The same company that sells the fish feeders also sells the solar panels," Pacheco said. "They make the panels so they just fit right on with a small terminal."

The fish feeders at the hatchery are not much different than feeders used in poultry houses and other buildings on some farms and ranches. Automatic feeders allow us to feed the fish exactly how much and when we want to. If we didn't have the automatic feeders,

we would have to have one person here all day long weighing feed and feeding the fish. Now all we do is fill the feeders twice a week and the feeders take care of the rest. The feeders hold 75 pounds of feed, and with the solar panels they need even less attention.

The solar panels in the raceways are under a metal roof and face north and south, soaking up enough solar energy to keep them going.

"The panels don't have to have direct sun to work," Pacheco said. "They do fine where we have them now."

The solar efforts at the Neosho NFH are part of a government wide mandated program called "Greening of America." In this program, all government facilities are required to find ways to save energy. At Neosho, the staff uses not only the solar panels; they recycle paper and cardboard and purchase as many items as possible made of recycled materials.

The energy-wise programs used at the hatchery can also be used in homes and on farms and ranches. Not only is it economically wise, it makes for a safer and healthier country. Hopefully, more companies will recognize the value of making solar feeders and other energy efficient products for the farm and ranch. If you want to know whether it's a good idea, just ask Jamie Pacheco. He will quickly explain his feelings:

"No complaints. We like it."

Kay Hively, Friends of the Neosho National Fish Hatchery



-Kay Hively
Jamie Pacheco of the Neosho National Fish Hatchery proudly displays an automatic fish feeder that uses solar panels to charge the batteries.

Aquatic Habitat Conservation and Management

Hersey River Dam Removal Project Completed

The Hersey River is a high quality trout stream in lower Michigan that once contained the now extirpated arctic grayling. As was common place in the mid-1800s, a dam was built on the Hersey River to power a mill. Hersey Dam was near the river mouth and blocked nearly all fish migration between the Hersey and Muskegon rivers.

The Hersey River provides spawning, nursery and seasonal refuge habitat for Muskegon River fish and is one of the principal coldwater sources for the Muskegon River. This dam had several uses throughout its history but was currently serving no purpose and was in a dangerous state of decay. The town of Hersey and the Muskegon River Watershed Assembly had spent over eight years identifying the problem and potential solutions, working through logistical details and trying to secure funding for the project. Additionally, the Michigan DNR completed a Watershed Assessment and Management Plan for this watershed that included specific plans for the removal of the Hersey Dam.

The Green Bay FRO was contacted in 2005 about funding assistance for this project. A proposal was submitted through the Fish Passage Program and funding was secured in early 2006. The dam was removed in October of 2006, with the last few details wrapping up in early 2007, opening more than seven miles of high-quality habitat for native brook trout and other aquatic organisms. The Hersey River now flows free in this area for the first time in over 148 years. A total of \$50,000,

nearly a fifth of the total project cost, came from the Fish Passage Program. The Michigan DNR will continue to assess the Hersey River to quantify effects of the dam removal on the fish community.

Stewart Cogswell, Green Bay FRO



The Hersey River, Michigan, before (above) and after dam removal (below).



-USFWS photos by Stewart Cogswell

Watershed Group Begins Taking Shape

The Menominee River has long been considered a valuable resource by Native Americans, timber companies and resource professionals. It forms a portion of the boundary between Wisconsin and upper Michigan and is one of the largest watersheds in the Lake Michigan drainage basin. The Menominee River and its tributaries have a combined drainage area of more than 4,000 square miles. Six tributaries are classified as Michigan Blue Ribbon Trout Streams, comprising over 75 miles of high quality trout habitat.

The Green Bay FRO has been working to address environmental concerns and conservation priorities in the Menominee River

watershed and has taken the lead in identifying and bringing together conservation professionals and determining the best way to partner within the watershed.

Overall, the watershed is relatively non-developed, with 86.3 percent of the basin forested, while only 7.3 percent is designated as agricultural land. The demands on the watershed are complex and involve a variety of resources and user groups. Similar to watersheds across the country, the Menominee faces ongoing concerns such as runoff, municipal use, hydropower and invasive species to name a few. One emerging area of concern is the development of remote areas for recreational land use. In the near future, large tracts of land including lake, reservoir and stream frontage will be developed within the watershed. How this land is developed will affect the entire watershed. Additionally, past logging practices continue to plague current stream function and contribute tons of sediment to streams.

During the past decade, fishery managers have become concerned about the upstream migration of higher water temperatures and the potential loss or degradation of cold water habitat. Though located in a remote area, the Menominee River watershed has a real need for a coordinated approach towards conservation and restoration. Several watershed groups exist on a few small streams, but there is no broad support for the entire basin.

An initial meeting of interests in the Menominee was well attended by an array of agencies including the Michigan and Wisconsin DNRs, U.S. Forest Service, The Nature Conservancy, Natural Resources Conservation Service,

county conservationists, county conservation districts, River Alliance of Wisconsin, The Forestland Group, Plum Creek Timber Company, Iron River Watershed Council and Trout Unlimited. Attendees supported developing an advocacy group for the entire watershed and nominated a steering committee to proceed with two immediate goals: disseminate information and develop a framework with clear objectives for the group. The Green Bay FRO will be involved with this process and assist partners as needed. The benefits of a watershed group are already being realized with several agencies exchanging data.

Stewart Cogswell, Green Bay FRO

Marengo River Brook Trout Habitat Protection Project

A 50-foot by 200-foot eroding bank on the Marengo River in Bayfield County, Wisconsin, had been causing sediment problems to this highly important brook trout water for many years. A wall of exposed and collapsing earth was present at the site. Historic land use practices in the area had previously cleared the existing banks of vegetation which protected the site from large-scale erosion. Concerned about the negative impacts to the fishery and the steady encroachment of the river bend into an adjoining field, landowners Julie and Jeff Vaillencourt worked with the Ashland Bayfield Douglas and Iron Land Conservation Department, the Natural Resource Conservation Service and the Ashland FRO. Financial and technical assistance were provided through the Partners for Fish and Wildlife Program.

Recognizing that rivers are a dynamic resource and that no high priority infrastructure was in place that would require extreme hardening of the banks, the partners worked together to find a solution to the problem that would most benefit natural resources while providing the long-term stability the landowner desired. Partners used multiple conventional restoration practices as well as cutting edge technology. Before the project, the near vertical bank allowed the river to slam into its side with great force. To solve this problem a local contractor was hired to excavate the river bank to produce a more gradual slope. This action will dissipate the energy of the water on a larger and more stable surface. To complete this part of the construction process,

the exposed soil was seeded and is protected with erosion blankets.

With the help of the University of Wisconsin Engineering Department, submerged vane technology was used to help stabilize the toe of the slope. Submerged vanes are rectangular plastic sheets placed in an eroding streambed to redirect the water flow, resulting in deposition of sediment at the toe of the eroding bank. Vanes stabilize the stream without affecting the sediment load and velocity of other parts of the stream, which sometimes happens with bank “hardening” practices. In this case the vanes were an effective way to help solve the problem of the power of the water undermining the outside river banks.

Construction finished in the fall of 2006 and the site is being monitored to make sure no problems occur. Riparian forest tree species will be planted at the site this spring to further protect the river banks and reduce sediment, as well as provide additional habitat for migratory birds and other wildlife. The reduction in sediment that once plagued brook trout spawning habitat will have a positive impact for many miles downstream. With the completion of the Vaillencourt project, another piece of the puzzle is in place for overall large scale fish and wildlife habitat restoration and protection in the Great Lakes basin.

Ted Koehler, Ashland FRO



-USFWS map by Stewart Cogswell

The Menominee River watershed includes lands in Michigan and Wisconsin (pink shaded area). The Green Bay Fishery Resources Office is actively engaging partners to work together on this 4,000 square mile watershed.

Ox Creek Brook Trout Habitat Restored

Over the past two years, habitat restoration partners in northern Wisconsin have worked with landowners to restore brook trout habitat on Ox Creek, a spring fed tributary to the wild and scenic St. Croix River that is designated as Class II trout water. The first reach of stream was completed in 2005, and the second and third reaches were completed in 2006. Working with the Natural Resources Conservation Service, County Land Conservation Department and the landowner, the Ashland FRO participated in the project through the Partners for Fish and Wildlife Program. Over the course of the project, partners installed anchored wood structures at selected locations in the stream to restore large woody cover and create scour holes to expose spawning gravel.

The resulting habitat benefits from the entire project include approximately 1,400 feet of brook trout habitat restored, and miles of habitat beyond enhanced through reduced sediment and an improved fishery. The restoration will also benefit wading birds, herptiles and mammals.

To restore habitat for brook trout and other aquatic life in Ox Creek, partners placed red pine logs to mimic natural conditions which once existed in the stream. The logs were drilled and wooden posts driven through both ends, then water jetted and pounded into the substrate to hold them in place. Through both seasons of field work, a crew from the Gordon Correction Center performed the majority of the labor and did an excellent job. In this case, not only will the public benefit from the restored habitat, but also the crew from the correctional facility who

gained new experience and insight which will help them better integrate into society in the future.

Ted Koehler, Ashland FRO



-USFWS

A work crew from the Gordon Correction Center restore habitat in Ox Creek by placing logs that restore natural conditions of this spring-fed tributary of the St. Croix River.

2005 Habitat Assessment Report Completed

The 2005 Habitat Assessment and Monitoring Program (HAMP) annual report was completed in February. The 2005 field season was the initial year of biological monitoring of created shallow water habitat areas. The program is intended to monitor man made aquatic habitat improvement sites on the channelized portion of the Missouri River. These sites are constructed by the Army Corps of Engineers (Corps) and are intended to increase the diversity of aquatic habitats found in the Missouri River. Projects will hopefully begin to increase specific habitats critical to the endangered pallid sturgeon.

This initial season provided the sampling foundation for the project. Much of the season was dedicated to gear exploration, creation of a sampling design and the acquisition of equipment and personnel. Sampling comprised of two major components—biological and physical. Columbia FRO and partners conducted biological sampling of targeted fish, deploy-

ing eight different gear types on six selected sites. Fieldwork was conducted from June through October 2006.

Our monitoring will provide Corps construction engineers with information on how fish are responding to these constructed sites and how to get the best biological response from each site. Report preparation for the 2005 field season was delayed while the agencies developed standardized sampling, data and reporting guidelines for this new program. Report preparation began after completion of the 2006 field season.

Andy Starostka and Nick Frohnauer, Columbia FRO

Huron Pines RC&D Annual Meeting Held

Alpena FRO biologist Heather Rawlings attended the Huron Pines Resource, Conservation and Development (RC&D) annual meeting in Hillman, Michigan. The meeting showcased watershed restoration projects completed in the 2006 field season, partnerships created and general activities of the RC&D. The Michigan Department of Environmental Quality, Michigan DNR, Natural Resource Conservation Service, U.S. Forest Service, and Fish and Wildlife Service gave reports. Rawlings provided highlights of the Alpena FRO 2006 Partners for Fish and Wildlife and Fish Passage Programs field activities, and outlined planned projects for 2007 and projects for which we have submitted proposals for funding through a number of Fish and Wildlife Service sources. The Alpena FRO is working closely with Huron Pines RC&D on a number of large projects and initiatives for the 2007 field season.

Heather Rawlings, Alpena FRO

Workforce Management

Columbia FRO Welcomes Patty Herman

Patricia “Patty” Herman joined Columbia FRO’s Pallid Sturgeon Assessment team as a lead technician in February. Herman completed graduate and undergraduate work in biological sciences at Southern Illinois University – Edwardsville, specializing in aquatic ecology. She brings with her an intense and profound interest in conservation as well as a diverse background including experiences in fisheries, natural heritage and land management. Herman has worked for the Missouri Department of Conservation as part of the Pallid Sturgeon Assessment project, Cartersville FRO as a technician, Mecklenburg, North Carolina, County Park and Recreation as a natural resource specialist, and Illinois Natural History Survey as part of the Long-Term Resource Monitoring project. She also completed a one-year residency with Illinois DNR – Division of Natural Heritage. Herman is looking forward to working with and gaining knowledge and skills from the experienced staff at the Columbia FRO. *Patty Herman, Columbia FRO*



-USFWS
Patty Herman holds a blue catfish collected in the Mississippi River as part of the Herculaneum Stone Dyke Alteration Project.

The Future Looks Bright in the Fisheries Program

Columbia FRO biologist Nick Utrup recently had the privilege of showing a local high school student what it’s like to work for the Fish and Wildlife Service as ninth grader Jimmie Garth shadowed him for a day. Jimmie expressed an interest in marine and freshwater biology and took the initiative to familiarize himself with the profession. To his credit, he understood the importance of investigating his career interest at an early age to determine if it is the correct path for him.

Jimmie arrived at 8 a.m. sharp with his lunch in hand and an eager attitude. We spent several hours in the morning talking about the job, showing him around and introducing him to other people in the office. After learning about the history and projects at the Columbia FRO, Jimmie sat in on a presentation given by the Missouri

DNR about recent activities at a state park in southeast Missouri. At lunch, Jimmie enjoyed listening to discussions amongst several biologists. He shared his interests and future plans with the group. After lunch, Jimmie and Utrup spent time in the boat barn learning about fisheries sampling equipment and how to properly clean and repair gill nets. Afterwards, Jimmie asked great questions and discussed what he learned. Jimmie had a great time and expressed interest in volunteering for our office in the future. His interest in a potential career in fisheries is a positive sign that the future of the Fisheries program looks bright. *Nick Utrup, Columbia FRO*

Columbia FRO Prepares a New Employee Handbook

New employees are often expected to “hit the ground running.” Employee orientation can be confusing and stressful for a new hire, especially if they have never worked for the Fish and Wildlife Service. Columbia FRO has assembled a new employee handbook to help.

We worked closely with our administrative staff and all levels from the project leader down to technicians to put together this handbook. It provides everything from necessary paperwork to basic “how to’s” and some friendly guidance on a myriad of decisions a new employee must make. Having a format such as this will enable us to track the progress of new employees during their processing period. The handbook includes a welcome section and chapters covering necessary paperwork for education, pay and benefits, policy, station and project history, performance expectations, orientation to

our facilities and a section for tracking skill set training. The New Employee Handbook is a tool set up to be “one stop shopping” for new hires. We began fielding the handbook with the recent hire of two employees and are seeking their feedback to make it even better. Working to ease the transition process of newly hired employees using this handbook will reduce stress, streamline the processing period and enable us to track the training and development of our greatest resource.

Jeff Finley, Columbia FRO

Fisheries Information System Training

Columbia FRO biologist Jennifer Johnson completed Fisheries Information System (FIS) training at the National Conservation Training Center on Feb. 21 through 22. The Web-based FIS database simplifies data entry, retrieval and reporting and provides “real time” data access to the Fisheries Program. The course included both lectures and “hands-on” learning in the computer lab. Objectives of the course included describing the connection between FIS data, the Fisheries Strategic Plan, performance measures, and the budget formulation process; explaining the connectivity of the modules within FIS; writing relevant, accurate, and concise FIS projects; and creating summary reports relevant to field stations, regional and Washington office reporting requirements. This training will help the Columbia FRO produce accurate needs and accomplishment modules in a timely manner.

Jennifer Johnson, Columbia FRO

Biologists Highlight Fish and Wildlife Careers

Columbia FRO staff members Jeff Finley, Lee Erickson, Tammy Knecht, Derek Eisenbrei and volunteer Chris Clemens provided information about careers with the Fish and Wildlife Service to some 150 seventh graders at three middle schools in Columbia, Missouri, discussing Fish and Wildlife Service programs, how to build experience, the type of education required, salary ranges, and the importance of volunteering. It was exciting to see students at this level already starting to think about possible careers within the realm of fisheries and wildlife. Outreach events such as these are the building blocks to ensure the future of natural resource conservation by connecting people with nature.

Lee Erickson, Columbia FRO



-Michelle Baumstark

Lee Erickson of the Columbia Fishery Resources Office gives a presentation about Fish and Wildlife Service careers to a Gentry Middle School class in Columbia, Missouri.

National Fish Hatchery Saves Money with a Little Elbow Grease

Maintenance needs at national fish hatcheries are ever present and of growing concern to staff and managers.

The ever widening maintenance funding gap—\$132 million dollars in FY 2007 alone—puts constant pressure on hatcheries to come up with solutions to meet basic production goals for a vast array of species provided by national fish hatcheries.

For years hatchery managers have had to make difficult decisions as to what maintenance needs to fund on an annual basis. Genoa National Fish Hatchery, located in southwestern Wisconsin, is no exception.

The hatchery, which is currently in its 75th year of operation, is the second oldest in the Midwest Region, and one of the oldest active hatcheries currently operating in the federal system. Initially constructed in 1932 as a warm water species production facility, Genoa has morphed over three-quarters of a century into a highly diverse hatchery that annually produces 14 species of finfish and up to eight species of freshwater mussels.

With this added complexity, aquatic species culture systems have evolved to include a wide array of technologies and real property infrastructures. All of the systems need constant maintenance and care, putting further stress on a static maintenance funding system.

In order to meet many of the maintenance needs of the facility, the Genoa staff has had to be creative, motivated and skilled to keep many of the older infrastructure systems viable. A recent example of this “get it done” work

ethic is demonstrated in a system wide rehab project to upgrade the hatchery's lake sturgeon culture operation.

Genoa NFH is currently the largest producer of lake sturgeon for restoration purposes in the United States. The hatchery annually produces between 30,000 and 40,000 fall fingerlings of three distinct strains, as well as yearling fish, to meet restoration goals for this unique species across the Midwest.

The project requires multiple large volume tanks, raceways and fry-rearing equipment. Because of budget constraints, much of this equipment includes converted fish culture equipment from other Genoa NFH programs and excess property, all of which require periodic maintenance to meet the annual needs of the project.

The most recent maintenance demands for this system included refurbishing six large production tanks for the coming summer grow-out season. This "rehabilitation" project, when bid out to private contractors, came in at more than \$38,000, which represented more than 50 percent of the hatchery's annual maintenance funds.

Given the extensive needs of a 75-year-old hatchery, this was just not feasible. Maintenance staff took on the project, and with limited assistance from biological staff, completed the repairs for under \$8,500—including labor and supplies.

Without this commitment from the hatchery staff, the production of lake sturgeon at Genoa NFH would most certainly have been affected in the immediate future, with long term ramifications to the restoration program.

Roger Gordon, Genoa NFH



-USFWS

Maintenance mechanic Dan Kumlin of the Genoa National Fish Hatchery places the final touches to recondition a lake sturgeon culture tank.

Biologist hosts Otolith Aging Workshops

Biologist Dale Hanson of the Green Bay FRO held two otolith aging workshops in January to advance efforts aimed at improving fisheries age data among Lake Michigan management agencies. Otoliths, or fish ear bones, are the primary structure used for fish aging in many stock assessment programs. The workshops, held in Charlevoix, Michigan, and Green Bay, Wis., brought 20 fish agers from three states and three tribal agencies together to age a "known age collection" of lake trout otoliths. The workshop results will be used to determine the potential benefits, including increased age accuracy, if agencies begin using otoliths to age fish instead of fish scales.

Dale Hanson, Green Bay FRO

Students Learn About Careers with the Fish & Wildlife Service

Katie Goodwin from the Whittlesey Creek NWR and Gary Czypinski from the Ashland FRO participated in an annual Career Day event sponsored by Northland College in Ashland, Wisconsin. Northland College specializes in environmental education, and Career Day is a good opportunity for science and natural resource students to network with professionals from a variety of environmental fields in positions that the students would like to explore. Participants included federal, state, tribal and private agencies from around the area specializing in natural resource management and conservation. The focus of questions from students centered around temporary summer employment, permanent employment, and what the Fish and Wildlife Service is doing to conserve and protect our natural resources. Students were briefed on general information regarding our organization, the type of work performed by the Fish and Wildlife Service, where to look for federal environmental jobs, tips for obtaining a federal job, and summer opportunities with the Whittlesey Creek NWR and Ashland FRO.

Gary Czypinski, Ashland FRO

Great Lakes - Big Rivers Regional Fisheries Offices

Regional Office, 1 Federal Drive, Fort Snelling, MN 55111-4056; 612/713-5111

Gerry Jackson (gerry_jackson@fws.gov)

Michigan

Alpena Fishery Resources Office
Federal Building; 145 Water Street
Alpena, MI 49707
Jerry McClain (jerry_mcclain@fws.gov)
989/356-3052

Jordan River National Fish Hatchery
6623 Turner Road
Elmira, MI 49730
Rick Westerhof (rick_westerhof@fws.gov)
231/584-2461

Ludington Biological Station
229 South Jebavy Drive
Ludington, MI 49431
Dennis Lavis (dennis_lavis@fws.gov)
231/845-6205

Marquette Biological Station
3090 Wright Street
Marquette, MI 49855-9649
Katherine Mullet (katherine_mullet@fws.gov)
906/226-6571

Pendills Creek/Sullivan Creek
National Fish Hatchery
21990 West Trout Lane
Brimley, MI 49715
Curt Friez (curt_friez@fws.gov)
906/437-5231

Missouri

Columbia Fishery Resources Office
101 Park Deville Drive; Suite A
Columbia, MO 65203
Tracy Hill (tracy_hill@fws.gov)
573/234-2132

Neosho National Fish Hatchery
East Park Street
Neosho, MO 64850
David Hendrix (david_hendrix@fws.gov)
417/451-0554

Illinois

Carterville Fishery Resources Office
9053 Route 148, Suite A
Marion, Illinois 62959
Rob Simmonds (rob_simmonds@fws.gov)
618/997-6869

Wisconsin

Ashland Fishery Resources Office
2800 Lake Shore Drive East
Ashland, WI 54806
Mark Brouder (mark_brouder@fws.gov)
715/682-6185

Genoa National Fish Hatchery
S5689 State Road 35
Genoa, WI 54632-8836
Doug Aloisi (doug_aloisi@fws.gov)
608/689-2605

Green Bay Fishery Resources Office
2661 Scott Tower Drive
New Franklin, WI 54229
Mark Holey (mark_holey@fws.gov)
920/866-1717

Iron River National Fish Hatchery
10325 Fairview Road
Iron River, WI 54847
Dale Bast (dale_bast@fws.gov)
715/372-8510

LaCrosse Fish Health Center
555 Lester Avenue
Onalaska, WI 54650
Richard Nelson (rick_nelson@fws.gov)
608/783-8441

LaCrosse Fishery Resources Office
555 Lester Avenue
Onalaska, WI 54650
Pamella Thiel (pam_thiel@fws.gov)
608/783-8431



Fish Lines
Region 3, Great Lakes/Big Rivers
2007 Vol. 5 No. 5

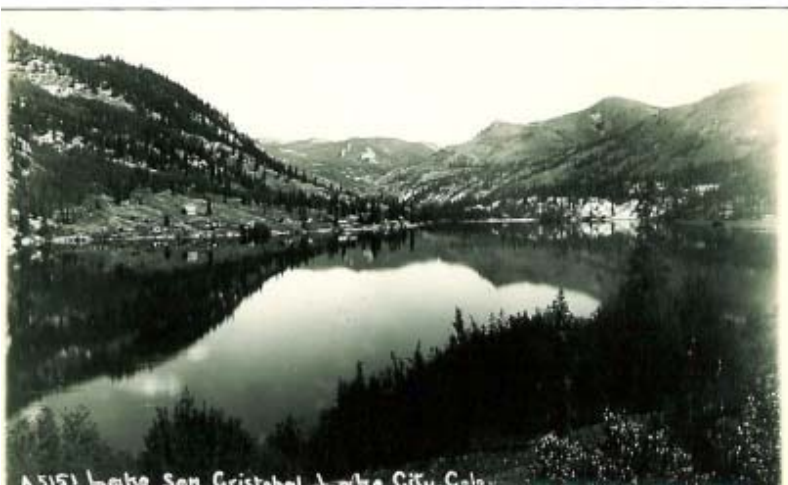
U.S. Fish & Wildlife Service
Region 3
Division of Fisheries
1 Federal Drive
Ft. Snelling, MN 55111

Phone: 612/713-5111

Questions or comments concerning *Fish Lines* can be addressed to Dave Radloff, 612/713-5158 or email at david_radloff@fws.gov



Printed on 30% Recycled
 by Fiber Weight Paper



-Jerry French Postcard Collection; U.S. Fisheries Sub-station, Lake City, Colorado (circa 1930)

Windows in time

A Glimpse into our Proud Past:

The Lake City Sub-station was located on Lake San Cristobal on the Lake Fork of the Gunnison River in Hinsdale County, Colorado. Natural spawning beds located near the natural dam provided excellent egg taking opportunities. Aside from the spawning beds, the Bureau owned a small cabin and storage building on the east side of the lake. Supervised by either the Leadville or Creed Hatchery, the sub-station was operated from 1932 until the late 1950's. The Bureau cabin is just visible on the right edge of the photo.

Fish Lines is produced by the Fisheries Program, Region 3, U.S. Fish & Wildlife Service, Ft. Snelling, Minn. Items included are selected from monthly reports submitted by Region 3 fisheries offices. Photos included are used by permission and may be copyrighted.

Questions or comments concerning *Fish Lines* should be addressed to Dave Radloff, 612/713-5158 or email at david_radloff@fws.gov

Equal opportunity to participate in, and benefit from programs and activities of the U.S. Fish and Wildlife Service is available to all individuals regardless of race, color, national origin, sex, age, disability, religion, sexual orientation, status as a parent and genetic information. For information contact the U.S. Department of Interior, Office for Equal Opportunity, 1849 C Street N.W., Washington, DC 20240