



U.S. Fish & Wildlife Service

Fish Lines



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Region 3 - Great Lakes/Big Rivers

Leadership in Conserving, Enhancing, and Restoring Aquatic Ecosystems

Motor Vessel Spencer F. Baird is coming to the Great Lakes
(See the "Feature Story" on Page 5)



-USFWS

The brand new M/V Spencer F. Baird was launched for sea trials in Morgan City, Louisiana, on Tuesday February 14, 2006. The vessel will make its way to the Upper Great Lakes to replace the aging M/V Togue as soon as construction is complete.

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.

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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

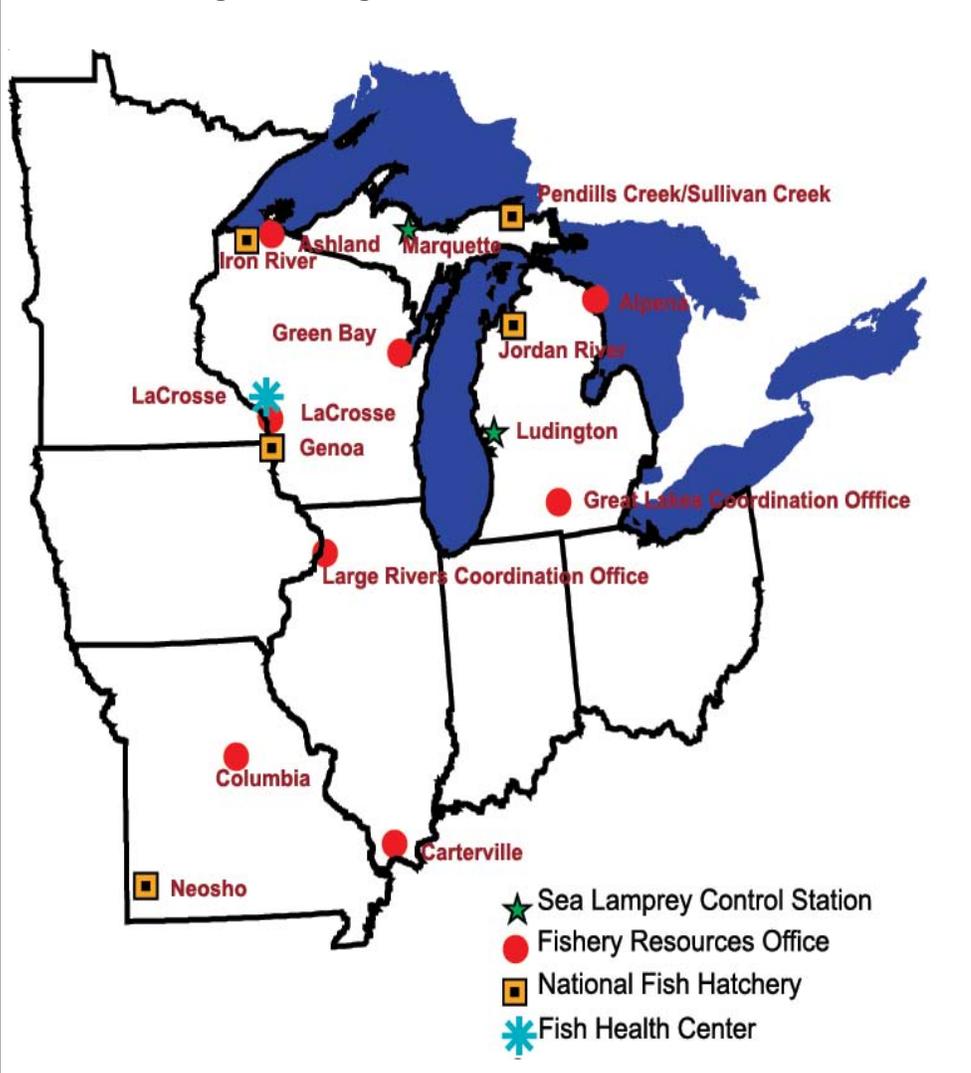
Fishery Resources Offices conduct assessments of fish populations to guide management decisions, perform key monitoring and control activities related to invasive, aquatic species; survey and evaluate aquatic habitats to identify restoration/rehabilitation opportu-

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 - Motor Vessel Spencer F. Baird is coming to the Great Lakes

The Fish and Wildlife Service has been raising and stocking lake trout in the Great Lakes since 1960 in an effort to restore populations of this native fish species. It wasn't until 1989 that the Fish and Wildlife Service acquired a vessel to release lake trout on offshore spawning reefs. Historically, most of the lake trout production in lakes Huron and Michigan came from offshore spawning reefs. The Motor Vessel (M/V) *Togue* performed this work admirably for more than a decade.

The *Togue* is being retired in 2006 because of an ageing hull and weakened infrastructure along with safety concerns, and will be replaced by the M/V *Spencer F. Baird*, named for a prominent zoologist who, beginning in 1871, served as the first head of the U.S. Fish Commission, a forerunner agency to the Fish and Wildlife Service.



-USFWS **Spencer F. Baird**

The M/V *Spencer F. Baird* will make its maiden run this year, but the replacement process has been in the works for nearly six years. This initiative began in May 2000 as the Fish and Wildlife Service started working with the U.S. Army Corps of Engineer's Marine Design Center in Philadelphia to develop a "Concept Definition" for a replacement vessel. The process laid out the mission, regulatory requirements, vessel characteristics, and design features of the new vessel, forming the humble beginnings of the M/V *Spencer F. Baird*.



-USFWS

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Next, the "Togue Replacement Team" came together. This multidisciplinary team was instrumental in conceptualizing the design of the *Spencer F. Baird* to meet the current stocking mission and add the stock assessment capabilities.

This team included a Fish and Wildlife Service Midwest Regional Office staff: Paul Evenson of Engineering, who served as project manager; Clark Bartelt, a contract specialist; Todd Turner, Region 3 fish hatchery team leader; and Bob Adair, Great Lakes program supervisor.

Region 3 field staff on the team included fishery biologist/data analyst Chuck Bronte and Project Leader Mark Holey from the Green Bay Fishery Resources Office (FRO) in Wisconsin; Togue crew members Robert Bergstrom, marine engineer, and Ship Captain Mike Perry, both of Jordan River National Fish Hatchery (NFH); and Hatchery Manager Rick Westerhof of Jordan River NFH.

Rounding out the team were Greg Lee, a naval architect with the Marine Design Center, and K.H. Ho, manager of marine engineering with ABS (American Bureau of Shipping) Consulting in Houston.

Improvements were made to the M/V Spencer F. Baird to minimize stress on native lake trout, while en route to offshore stocking reefs. Fish stocking characteristics include the following:

Fish tanks: Ten 1,000-gallon removable tanks designed to minimize fish seasickness, three large access hatches to facilitate fish monitoring, repair and maintenance of tanks and transport of larger fish (the *Togue* had eight tanks of less than 1,000 gallons and the tanks were not removable).

Fish capacity: 190,000 six-inch fish per trip (the *Togue* could carry 100,000 six inch fish per trip).

Oxygen system: Onboard oxygen concentrator system, 15 l/minute (the *Togue* used heavy oxygen bottles that had to be transferred back and forth from the vessel to the hatchery).

Dual ballast/chilled water system: 3,440 gallons, chilled from 65° to 45° Fahrenheit in less than 10 hours (the *Togue* had neither system, but relied on chilled water from the trucks and lake water, if it was colder, to lower the water temperature in the tanks).

A subgroup of this team was responsible for selecting a naval architectural firm to design the new vessel from proposals by companies. The team did on-site interviews with the top three firms, which was an excellent way to see who they would be working with. They selected Timothy Graul Marine Design of Sturgeon Bay, Wisconsin, to design the new “one-of-a-kind vessel” to stock lake trout and carry out stock assessment activities in the Great Lakes.

Graul and staff joined the growing team and assisted with selecting a shipyard to build the new vessel. Conrad Industries, Inc., in Morgan City, Louisiana, received the contract in October 2004. Founded in 1948 by J. Parker Conrad, Conrad Industries specializes in construction, conversion, and repair of a variety of marine vessels for commercial and government customers.

With the contract awarded, it was exciting to see the vessel being built after all the work that went into the design. The team hired ABS Consulting to ensure the vessel would be built to the American Bureau of Shipping’s internationally recognized construction and safety standards, and made weekly visits to Conrad Industries to review and report back progress to the Fish and Wildlife Service on all aspects of the construction.

Meanwhile, construction continued. Fish and Wildlife Service biologists held their breaths when hurricanes Katrina and Rita hit the Gulf Coast area in September 2005 as the M/V *Spencer F. Baird* was being built. Located in a corridor between the paths of the two storms, the shipyard was not damaged but construction came to a temporary halt because of port closures that affected supplies and material lines of support. Laborers were in short supply, as well. Fortunately, construction on the *Spencer F. Baird* resumed on a limited basis in October 2005.



-USFWS photos

M/V Spencer F. Baird Construction Photos

**Key principal characteristics of the
M/V *Spencer F. Baird* include:**

Length (overall): 95 feet
Beam (molded): 30 feet
Draft fully loaded, amidships: 9 feet, 6 inches
Complement: Captain, Marine Engineer, Seaman/
 Fisherman, five biologists
Staterooms: two single, three double occupancy
Fuel Capacity: 8,160 gallons
Potable water: 1,925 gallons
Propulsion: Geared diesel engines, 850 BHP each
 at 2,100 RPM; Two 54-inch diameter, four-blade
 fixed pitch propellers on solid shafts
Speed: Maximum: 14.7 MPH; Minimum: trawling
 sustainable for 45 minutes at 1 MPH
Certification: USCG Uninspected Vessel, ABS
 International Load Line
Route: Exposed waters/Great Lakes winter
Class: ABS A1, AMS, Survey/Fishing Vessel and
 Ice Class CO notation per ABS Steel Vessel Rules,
 2004
Science spaces: wet lab and gill net lifting station
 in starboard bow, dry lab for electronics and wing
 control station forward of amidships

On February 13, 2006, Conrad Industries launched the *Spencer F. Baird*. Sea trials are expected to occur in late March to test all equipment and machinery to ensure that it is operating properly. Delivery to the M/V *Spencer F. Baird's* home port of Cheboygan, Michigan, is anticipated to be late April 2006, assuming the vessel passes its sea trials with flying colors.

Special events surrounding the vessel's debut are being planned for this summer. They include a grand dedication event with dignitaries to be invited from the Interior Department, Fish and Wildlife Service, and Congress, as well as possibly some "port-of-call" events where the vessel would be open for tours at various ports around the Great Lakes. Watch future issues of *Fish Lines* for more information about events.

Following all of the events and hoopla, the new vessel and its crew will get to work. It is expected that the *Spencer F. Baird* will stock about 3.7 million lake trout annually, primarily in lakes Huron and Michigan.

Unlike the *Togue*, the new vessel will be able to evaluate the performance of stocked lake trout and measure the abundance of other species using gill

nets, bottom and midwater trawls, and scientific echosounders that measure abundance and distribution of fish with sonar. This capability will expand the science mission of the fishery resources offices to meet the information and assessment needs of the Fish and Wildlife Service, as well as those of state, tribal, provincial, and Federal partners, through coordinated surveys.

Fishing gear selections were made to complement those of our partners' survey vessels; however, new technologies were also included to improve efficiencies and data quality. For example, an "autotrawl system" will allow sensors on the trawls to communicate data with the onboard winches to automatically pay out or retrieve cable as required to keep the trawl geometry correct. This is the first system of its kind to be used on a vessel in the Great Lakes.

The M/V *Spencer F. Baird* contains a wet lab in the starboard bow for retrieving gillnets with a hydraulic lifter and processing catches from all gears. Trawl winch controls and hydroacoustic monitoring systems, as well as output screens for navigation data, are located in a dry lab just aft of the wet lab and near the main work deck. Davits for deploying other gear such as plankton nets or bathymetric profilers are located on the starboard and port upper deck as well as an extra science winch for towed bodies.

The Fish and Wildlife Service expanded capabilities to off-shore stock lake trout in lakes Huron and Michigan in 1989, when it acquired a former shrimp trawler that had been seized as contraband. After a retrofit, this vessel, renamed the *Togue*, stocked more than three million lake trout annually in lakes Huron and Michigan. Of 63 science vessels operating in the Great Lakes, the M/V *Togue* is the only hatchery fish distribution vessel in operation.

In its lifetime as a stocking vessel, the M/V *Togue* has put tens of millions of lake trout in the Great Lakes, making it one of the keys to the potential success of the Fish and Wildlife Service's lake trout rehabilitation program.

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Partnerships and Accountability

Lake Sturgeon Recruitment in Missouri's Large Rivers

Project Leader Tracy Hill is leading the Columbia Fishery Resources Office (FRO) in collaboration with the Missouri Department of Conservation (MDC) to determine the success of 20 years of lake sturgeon stocking in Missouri's large rivers by the state. The overall management goal of the stocking effort is a self-sustaining lake sturgeon population that could support a limited recreational fishery. Given that it takes lake sturgeon 15-20 years to reach spawning age, an evaluation of whether this effort has worked is timely. Specifically, data collection is proposed that will determine whether stocking of hatchery-reared lake sturgeon can be suspended in favor of self-sustaining lake sturgeon populations. Study objectives are to: (1) quantify the extent of recruitment to age one by wild fish relative to that of hatchery-reared fish; (2) quantify the extent of recruitment to spawning age (20+) by wild female fish relative to that of hatchery-reared females; (3) identify locations of spawning lake sturgeon aggregations; (4) characterize habitat conditions of spawning locations; and (5) validate presence of eggs or larvae near spawning locations.

Hill and several Columbia FRO staff attended the formal study presentation to MDC fishery researchers and leadership in December. Columbia FRO staff will assist with data collection and tagging of lake sturgeon on the Missouri River as well as providing technical expertise on lake sturgeon biology.

Tracy Hill, Columbia FRO



-USFWS

Wyatt Doyle implants a passive integrated transponder (Pit) tag into the base of the dorsal fin of a lake sturgeon. Columbia Fishery Resources Office is working with the Missouri Department of Conservation to determine the success of their lake sturgeon stocking program.

Terrestrial Wildlife Committee Herptile Monitoring

The Ashland FRO is involved in developing an amphibian/reptile (herptile) monitoring program for the Lake Superior basin through the Binational Program - Lake Superior Work Group's Terrestrial Wildlife Committee (TWC). Ted Koehler from the Ashland FRO is a member of this committee. The TWC commissioned a report from Gary Casper, herpetologist for the Milwaukee Museum, in 2002 to describe the status of herptiles in the Lake Superior basin. In 2003, a herptile workshop was held in conjunction with the Society for Conservation Biology meeting in Duluth, Minnesota. To continue development of a basin monitoring program, a joint United States/Canadian herptile monitoring project was funded by the Environmental Protection Agency - Great Lakes National Program Office.

Steve Hecnar, Lakehead University in Ontario, and Gary Casper will lead the project which will produce statistical information related to the probability of de-

tecting a particular species with each particular sampling method. Intensive sampling at four sites will be conducted over a two year period. Two sites will be in the United States and two will be in the Canadian portion of the Lake Superior basin. The sampling sites for the first year are near Thunder Bay on the Canadian side and at Pictured Rocks National Park on the United States side. The sites for year two have not been determined.

Ted Koehler, Ashland FRO



-USFWS

Blanding's Turtle

The Ashland Fishery Resources Office is involved in developing an amphibian/reptile (herptile) monitoring program for the Lake Superior basin through the Binational Program.

Jordan River Staff Reaches Out to Six Mile Lake Residents

Rick Westerhof and volunteer Dan Myers attended a meeting of the Six Mile Lake Association and Chain of Lakes Coalition. One of Michigan's finest natural resources is the Chain of Lakes in Antrim County, located just west of the Jordan River National Fish Hatchery (NFH). Staff provided information about the formation of a Friends group for Jordan River NFH. Coalition Chair Michelle Nerone had attended the hatchery's Friends organizational meeting in September and was instrumental in getting our mes-

sage out. Rick's presentation has not yet netted any response from this group or their partners. Failure? No, we are looking for quality not quantity, so we'll just keep plugging away and will eventually encounter the right people. Case in point; as a result of a similar meeting the week before, some new acquaintances have expressed a tentative interest in taking on leadership roles in our future Friends group.
Tim Smigielski, Jordan River NFH

Columbia Fishery Resources Office Submits Ten Year Summary Report on Paddlefish Stock Assessment

Biologists Joanne Grady and Nick Utrup completed a ten year summary report on the national paddlefish stock assessment project for the Mississippi Interstate Cooperative Resource Association (MICRA). Biologists from state and Federal agencies in 22 states have been stocking, sampling, and tagging paddlefish in large rivers throughout the Mississippi River basin since 1995. This is the largest fish tagging project of its kind in the world. Over 1.5 million hatchery reared paddlefish and 20,000 wild adult paddlefish have been tagged with coded-wire tags.

While the majority of recaptured fish were located in the same areas in which they were originally tagged, movements of fish were identified within and between the major river systems. Recaptures of 2,100 fish occurred during 10 years. This information will be used by project biologists in each of the major river systems to develop population estimates and interjurisdictional management plans for paddlefish. The Columbia and Carterville FRO's have aided

MICRA with project oversight, tag processing, and database management since 1997.
Joanne Grady, Columbia FRO



-USFWS photo by Jeff Finley
 Joanne Grady of the Columbia Fishery Resources Office tags a paddlefish fingerling with a coded-wire tag prior to stocking. The fish was produced at Missouri's Blind Pony State Fish Hatchery.

Mission Minded Meeting held to Build Partnerships for Mussel Restoration Efforts in the Cedar River, Iowa

The mission of the Fish and Wildlife Service is "Working with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people." This mission was at the heart of a meeting held in early January between Genoa NFH, Hartman Reserve Nature Center, Iowa Department of Natural Resources (DNR), Cedar River Festival Group, and other user groups.

Tony Brady, mussel biologist from Genoa NFH, presented a proposal for freshwater mussel restoration for the upper Cedar River in Northeast Iowa to the leaders of local Cedar River interest groups. Topics for discussion included a history of mussels in the Cedar River, the mussel life and reproductive strategies, and techniques used by Genoa NFH to carry out mussel restoration and recovery programs. A history was

given of Genoa's achievements in producing the Federally endangered Higgins' eye pearlymussel and other native mussels. A question and answer session followed the presentation with many interesting and informed questions. Several goals of this meeting included building support for the project from the local user groups and identifying volunteers to assist with the implementation of the restoration project.
Tony Brady, Genoa NFH

Alpena Fishery Resources Office provides Technical Assistance to the U. S. Geological Survey

Biologist Scott Koproski assisted Chuck Madenjian of the U. S. Geological Survey (USGS) Great Lakes Science Center with ageing burbot otoliths from lakes Michigan and Huron (otoliths are bony structures in the head of fish that show growth rings similar to those in trees). Madenjian has been collecting burbot otoliths for four years to identify growth characteristics of Great Lakes burbot populations. Koproski has extensive experience ageing otoliths, and Madenjian provided samples to Koproski for analysis. Koproski used the crack and burn technique to identify annuli formation within 70 pairs of otoliths. This marks the fifth consecutive year that Koproski has been assisting USGS with burbot otolith analysis. Written results of this work should be available in the winter upon completion of data analysis.

Scott Koproski, Alpena FRO

Aquatic Species Conservation and Management

New Sampling Techniques Used to Collect Juvenile Lake Sturgeon in the St. Clair River

With funding provided by DTE Energy, biologists from Alpena FRO and Michigan DNR Lake St. Clair Research Station purchased and tested trammel nets and gillnets in the St. Clair River system. Trammel nets have been successfully used by commercial fishers and biologists in large rivers like the Mississippi and Missouri. They have been used for many years to capture, virtually unharmed, a wide variety of species and sizes of fish.

Trammel nets can best be described as a small mesh gillnet sandwiched between two large mesh gillnets. Unlike gillnets, trammel nets do not typically gill the fish. Instead, fish get caught in a pocket that is formed by the smaller inner mesh as they try to swim through. The trammel nets were 33 yards in length, had a 1 inch inner mesh surrounded by 8 inch outer panels. The nets can be fished in a number of ways such as anchoring or allowing the nets to drift with the current. Gill nets used in this survey were 131 yards in length and had a mesh size of 2.2 inches. With this pilot study, trammel nets were drifted in the river and anchors were used while fishing gillnets. The gill nets were fished in the delta region of the river where water velocities were lower. The goal of this demonstration effort was to collect juvenile lake sturgeon that were less than three years old. During the past decade, efforts to collect young sturgeon in the St. Clair River have utilized setlines with smaller hooks. After nine years of sampling, less than 25 juvenile lake sturgeon have been captured with

no young-of-the-year lake sturgeon captured.

Our first attempts using trammel nets managed to capture only one adult lake sturgeon in 15 transects. We found that the net was susceptible to snagging on clusters of zebra mussels and other debris located on the river bottom. By the end of August, a concurrent effort by researchers from Alpena FRO and U. S. Geological Survey Great Lakes Science Center (GLSC) had completed a substrate survey of the St. Clair River using Side-scan sonar. The Side-scan information enabled biologists to avoid most snag hazards in a second survey with the trammel nets, and as a result, four lake sturgeon ages two and three were captured. Fishing in the delta region of the river resulted in the capture of three lake sturgeon ages zero, one, and two.

Interestingly, the four lake sturgeon captured in the river were within 22 yards of a juvenile sturgeon that had previously been implanted with a sonic tag and had been located earlier on the same day. It is not fully understood if juvenile lake sturgeon move in schools or if limitations in certain habitat parameters cause juveniles to congregate together. Repeated attempts to recapture the implanted juvenile were unsuccessful. Capture of the implanted fish would have enabled biologist to check the health of the fish since its release in June 2005.

This sampling effort allowed researchers from various agencies to share information about different sampling techniques. Our goal is to continue working with our partners from the GLSC, Michigan DNR, and corporate sponsors to continue to test new sampling

techniques in our effort to better understand the basic habitat needs of lake sturgeon in this system.

James Boase, Alpena FRO



Michigan DNR photo by Mike Thomas
New sampling techniques were tested to collect these juvenile lake sturgeon in the St. Clair River system. The St. Clair River flows southward connecting the southern tip of Lake Huron to Lake St. Clair and forms the boundary between the United States and Canada.

Merry Christmas Lakers!

On a bright and chilly day in December, 370 adult lake trout were released at the shores of beautiful Lake Superior. Staff from the Iron River NFH loaded the trout at the hatchery and stocked them near Port Wing, Wisconsin. The fish averaged between 20 and 28 inches in length and weighed about five pounds each. Each fish was fin clipped to identify them as hatchery origin. Stocking in mid-December brings about many challenges, from frozen equipment to iced fingers. This was truly a unique experience in that traditional distribution is carried out in spring to early summer when the weather is somewhat warmer and not hovering around 0 degrees Fahrenheit!

The fish were stocked for several reasons: 1) The brood stock rearing facility where these fish were kept is nearing capacity and cannot handle any additional lake trout; 2) The current demand

for lake trout eggs do not require the hatchery to maintain these brood stock any longer; and, 3) Brood stock reductions allow for the expansion of preferred strains to better suit program goals.

Steve Redman, Iron River NFH



-USFWS photo

Retired brood stock from the Iron River National Fish Hatchery are netted out of a distribution tank and carefully slid through a pipe into their new Lake Superior home.

2005 Sampling Season Ends with Record Numbers of Pallid Sturgeon

The 2005 sampling season of the Pallid Sturgeon and Associated Fish Community Project was a success with the Columbia FRO catching a record 38 Federally endangered pallid sturgeon. Throughout the year, pallid sturgeons were captured in a variety of gears including standard gears outlined by the protocol and wild gears selected by Columbia FRO staff based on prior experience on the river. Gill nets, a standard gear, were the most successful by catching 11 pallid sturgeon followed closely by the two different sizes of trammel nets that were drifted in the river's current in order to catch fish. Our focus now shifts to winter gill netting to start the "Sturgeon Season" of the 2006 sampling year. As we build on our experiences of the past and the expertise in this office, we hope to break our 2005 record in the

coming year. Increased focus, stocking, funding, expertise, and manpower have contributed to Columbia FRO's efforts to recover Federally endangered pallid sturgeon populations to the Missouri River.

Corey Lee, Columbia FRO



-USFWS photo by Wyatt Doyle

Corey Lee holds a Federally endangered pallid sturgeon captured during winter gill net sampling for the Pallid Sturgeon project.

Reconnaissance of Whittlesey Creek and the North Fork of Whittlesey Creek

On December 16, Henry Quinlan, Glenn Miller, and Jonathan Pyatskowit from the Ashland FRO walked segments of Whittlesey and North Fork Whittlesey creeks to locate suitable sites for the placement of egg incubation boxes for stocking coaster brook trout eggs. The egg stocking effort supports a seven year experiment to restore coaster brook trout to Whittlesey Creek, a tributary to Lake Superior near Ashland, Wisconsin. Suitable sites need water depths of at least 17 inches to completely submerge the box, preferably located close to areas that will provide nursery habitat once the eggs hatch. Suitable sites were hard to find. A substantial flood event occurred during the fall that channelized the stream and brought down significant amounts of sand that was deposited in former pool habitats. Eight poten-

tial sites were located on the North Fork and five on Whittlesey Creek. During the walk, coho salmon were observed along with numerous otter, mink, raccoon, and eagle tracks which indicated they were dining on the salmon.

Jonathan Pyatskowit, Ashland FRO

Advancements in Missouri River Sturgeon Monitoring

We are at the threshold of understanding sturgeon interactions at a scale few in the world have been able to undertake," was the take-home message from this year's 2005 annual meeting for the Missouri River Pallid Sturgeon Monitoring Project attended by Wyatt Doyle and Tracy Hill of the Columbia FRO.

Project partners reviewed the year's successes and discussed potential changes for the upcoming year. The project is planned to be at full implementation by 2007 with participants from state and Federal agency teams positioned throughout the entire range of the 2000 mile river. A highlight from the meeting was an agreement of participants on the Lower Missouri River to tag shovelnose sturgeon to assist an ongoing effort by the Missouri Department of Conservation (MDC), to detect movement and determine mixing or size of populations throughout the Mississippi and Missouri rivers. MDC has tagged an estimated 10,000 shovelnose sturgeon over four years and estimate 40,000 will need to be tagged to get sound population estimates. Currently, monitoring crews could tag over 6,000 fish per year as a supplement to MDC's efforts. Tagging efforts are also occurring on the Mississippi River.

Carterville FRO is maintaining the basin-wide database for the collective effort. As the monitoring

program grows, we continue to see opportunities to assist partners in improving large river science.

Understanding shovelnose sturgeon movements and population sizes will also aid in recovery of the closely related pallid sturgeon, a Federally endangered species.

Wyatt Doyle, Columbia FRO



-USFWS photo by Andy Starostka

Floy tags are used for a mark and recapture project for shovelnose sturgeon, to assist the Missouri Department of Conservation detect movement and determine mixing or size of populations throughout the Mississippi and Missouri rivers.

Pallid Sturgeon Culture at the Neosho National Fish Hatchery

The Federally endangered pallid sturgeon being reared at the Neosho NFH continue to thrive. Fish in the heated raceways had almost two inches of growth for the month! All but one of the fiberglass raceways in the original portion of the sturgeon building will be outfitted with heaters before the next rearing cycle in an effort to cash in on our ability to produce larger fish with heated rearing units.

Roderick May, Neosho NFH

Coaster Brook Trout Eggs Arrive at Genoa National Fish Hatchery

The Genoa NFH received the year's allotment of coaster brook trout eggs through several shipments in December and January from the Iron River NFH. Several spawns throughout the spawning season are taken to ensure genetic conservation of the brook trout strains perpetuated at the hatchery.

The brook trout produced at Genoa NFH are part of an ongoing Great Lakes multi-agency restoration effort involving the Fish and Wildlife Service, National Park Service, and the states of Wisconsin, Minnesota, and Michigan. The "coaster" strain of brook trout is endemic to the Great Lakes and other drainages along the Atlantic coast. The species is threatened due to over fishing, competition with invasive species, and habitat loss throughout their historic range. Each year, the Genoa NFH distributes thousands of brook trout to restore populations in and around areas such as Isle Royale National Park, Michigan, and Grand Portage Indian Reservation, Minnesota. Genoa NFH's 2006 production is scheduled to include over 30,000 stockable fish ranging in size from 2-9 inches and to maintain a backup brood stock line for the Iron River NFH.

Nick Starzl, Genoa NFH



-USFWS photo

Coaster brook trout eggs are being gently removed from a female at the Iron River National Fish Hatchery (NFH). Once fertilized with milt from the male fish, eggs will be sent to the Genoa NFH to support restoration programs.

Lake Sturgeon Study Presented at the 2006 National Coolwater Fish Culture Workshop

Nick Starzl of the Genoa NFH gave a presentation about lake sturgeon culture at the 2006 Coolwater Fish Culture Workshop located near the beautiful Wisconsin Dells, Wisconsin. The annual meeting brings fish culturists together from across the nation in order to exchange new and old ideas for the advancement of cool water fish species such as walleye, perch, northern pike, and sturgeon.

One issue which has perplexed lake sturgeon fish culturists is the fish's resistance to accept prepared diets over natural diets. Unlike some other species, the lake sturgeon has not been efficiently reared on commercially available feeds. Consequently, the fish is traditionally fed an expensive frozen diet consisting of chironomid larvae, krill, or adult brine shrimp. This expensive diet can skyrocket the production price of the fish to \$2.00 each. In an effort to reduce production costs, the Genoa NFH has been investigating cost saving techniques for the production of lake sturgeon. The hatchery staff propagates up to 40,000 six inch sturgeon annu-

ally, and would benefit from the ability to feed this species commercially produced or prepared diets.

During the summer of 2005, an experiment involving 6,000 larval lake sturgeon investigated the ability to convert cultured fish onto a commercial diet at an early age (less than a month). It was decided to use a new diet from Inve Aquaculture Inc., a leading aquaculture feed producer. The diet comes in a very small and consistent size and is manufactured to wean larval fish off natural food. Although the feed has been used on other species and was considered successful, it had never been tested on larval lake sturgeon. Fish fed a regime of the Inve feed did grow at a rate comparable to the fish fed the natural diets; unfortunately, survival was significantly lower at only 18% compared to 97% being fed the natural diet. No further trials with this diet were undertaken due to the low survival.

Similar investigations were conducted over the last three years utilizing a Bio-Oregon product called Bio-Diet. It is a moist diet which has had much higher results (35% in 2003 and 60% in 2005) while fish were being fed under similar conditions. Future studies using bio-diet will be run in order to refine the technique of habituating the lake sturgeon off of brine shrimp and over to the prepared diet. The economic value of these trials may be substantial by cutting production costs by as much as 50%.

Nick Starzl, Genoa NFH



-USFWS

Lake sturgeon are separated into multiple tanks and fed a variety of commercially produced diets in efforts to determine if a prepared diet can be used to culture lake sturgeon opposed to the standard, and expensive, natural diets.

Lake Trout Egg Receipts

Jordan River NFH began receiving shipments of eyed lake trout eggs for the 2006/2007 rearing season on November 9. As of the end of December, there were in excess of five million eggs/sac fry (recently hatched fish) on station. Another 350,000 to 400,000 will be received in January. If survival is similar to last year's estimates, approximately 70% will start the feeding stage. These eggs are obtained from Fish and Wildlife Service brood stations in Michigan's Upper Peninsula (Sullivan Creek NFH), Northern Wisconsin (Iron River NFH), and Wyoming (Saratoga NFH). They will remain in our care for the next 1 ½ years, at which time they will be released into lakes Michigan and Huron in support of lake trout rehabilitation plans.

Wayne Talo, Jordan River NFH



-USFWS photo by Tim Smigielski

Lake trout eggs are being size sampled as part of the inventory process. Fifty eggs are captured on the plate. The number of eggs per ounce is then determined by the amount of water the 50 eggs displace.

Fish and Wildlife Service gives Talk on Sturgeon Tag Identification Database

On December 20, biologist Adam Kowalski gave a presentation at the Michigan DNR lake sturgeon committee meeting about the newly constructed Great Lakes-wide lake sturgeon tagging database. Kowalski explained that a grant for \$11,000 was received from the Great Lakes Fishery Trust in 2004 to construct and maintain a database to house tag information such as tag type, tag number, tag location, and contact information. Kowalski also updated the group on the current status of the database which contains over 10,000 passive integrated transponder (PIT) tags and over 100 external tag sequences. He also emphasized the need for everyone to send their data to him to be entered into the database for improved data sharing among lake sturgeon researchers. Kowalski noted to the group that the database is housed at the Great Lakes Fishery Commission's web site and can be viewed at the following web address: <http://www.glfc.org/sturgeontag/index.htm>.

Adam Kowalski, Alpena FRO

Aquatic Invasive Species

Final Report Provided on Round Goby Predation Study

Alpena FRO submitted a final report to the U.S. Environmental Protection Agency Great Lakes National Program Office (GLNPO) on a study examining predation of invasive round goby on lake trout eggs at a historical spawning reef in Northern Lake Huron. Because of its widespread abundance and predatory nature, the goby is a likely threat to lake trout rehabilitation efforts. Trap-lines and set-lines were used to catch round goby from Mischley Reef in Thunder Bay from May to October in 2002 and 2003 and in October 2004. Diets were documented for 421 round goby collected in October. Lake trout eggs were detected in the diet of round goby captured from the reef each year, but they were not common. Dreissenids, a type of mussel, were the most abundant prey item found. Although lake trout eggs comprised a small portion of the diet of round goby captured during this study, we continue to believe that round goby may affect lake trout reproduction and that more information is needed. Submission of this final report completes the Alpena FRO requirements for this GLNPO grant.

Anjanette Bowen, Alpena FRO



-USFWS photo by Anjanette Bowen

The round goby is an invasive species in the Great Lakes whose diet includes fish eggs and may impact lake trout reproduction.

Asian Carp Working Group Completes Second Draft of Management Plan

The Asian Carp Working Group met in Nashville, Tennessee, to review and discuss the first draft of the *Management and Control Plan for Asian Carps in the United States*. Asian carps include four different fish species not native to North America — black carp, bighead carp, grass carp, and silver carp. The Asian Carp Working Group was formed to develop a management plan to address the effects these fish have on native fish and aquatic ecosystems. Assistant Project Leader Greg Conover of the Carterville FRO serves as chair of the Working Group, which comprises representatives from the aquaculture industry (black, bighead, and grass carps are commercially raised either for food or to improve the production of other fish by controlling aquaculture pests), natural resource agencies, university staff, and many others. Since the meeting in Nashville, the working group has completed revisions to the first draft of the plan, and a second draft was submitted to the group and to the Fish and Wildlife Service Region 3 Fisheries Program for concurrent review. Comments on the second draft have been

received and are currently being addressed. A final draft is scheduled to be submitted to Region 3 and the Aquatic Nuisance Species Task Force in February (see story in this issue).

Greg Conover, Carterville FRO

Task Force Briefed on Draft Carp Management and Control Plan

In February, Assistant Project Leader Greg Conover of the Carterville FRO briefed the Aquatic Nuisance Species Task Force—representatives from across the country who came together to address aquatic invasive species in the United States—on the progress of the *National Management and Control Plan for Asian Carps in the United States* in Washington, D.C. Conover chairs the Asian Carp Working Group, formed to come up with a plan to address black carp, bighead carp, grass carp, and silver carp, collectively known as “Asian carps.” These fish were brought into the country as potential sources of fish to be grown on fish farms for human consumption and/or as biological control agents to take care of aquatic pest problems on fish farms and other areas. Unfortunately, once in the wild, each of these species can cause problems for native fish and collectively, have the potential to cause major damage.

The briefing covered the status of the plan, currently in second draft, as well as the major components and recommendations in the plan. While Conover was the face of the plan in this briefing, many individuals have worked diligently — and often late into the night or on weekends — to make this plan a reality. A huge debt of gratitude is owed to each of the individuals

who have been actively involved and who will continue their involvement until the plan is completed and implemented.

Greg Conover, Carterville FRO

Sea Lamprey Barrier Built on Michigan Tributary

Staff at the Marquette Biological Station coordinated efforts among the Great Lakes Fishery Commission (GLFC), Emmet County, Mich., and the U.S. Army Corps of Engineers to reconstruct a sea lamprey barrier on the Carp Lake River, which encompasses approximately 46 square miles at the northern tip of Michigan's Lower Peninsula. Construction of this barrier will save the program about \$91,000 in lampricide treatment costs every 3.8 years and moves the sea lamprey program toward the GLFC strategic vision milestone of achieving 50 percent control of invasive sea lampreys through alternative methods by 2010. Barriers restrict access of migrating sea lampreys to spawning habitat in streams and can significantly reduce the spawning potential of sea lampreys in the Great Lakes. The standard sea lamprey barrier uses a fixed-crest height and overhanging lip to maintain a vertical drop of about a foot from headwater to tail water over the period of lamprey migration. Although most sea lamprey barriers are fixed crest, alternative designs (i.e., electrical, adjustable crest, velocity, and combined fixed crest and electrical barriers) are being tested.

Gregory Klingler, Marquette Biological Station

Triploid Grass Carp Inspections

Biologist Nate Caswell of the Carterville FRO conducted fall inspections of triploid grass carp prior to shipment. Carterville FRO is one of a few Fish and Wildlife Service offices participating in the Fish and Wildlife Service's Triploid Grass Carp Inspection and Certification Program, a service offered to producers, to help protect waters from invasive grass carp. The inspection program provides assurance to natural resource agencies and others concerned about protecting aquatic resources that, within the confidence limits of the inspection program, shipments contain only sterile triploid grass carp and none capable of reproducing (diploids). During fall 2005, Caswell conducted two inspections for triploid grass carp producers in Region 3, certifying 4,325 triploid grass carp for shipments to three states. No producers failed inspections in 2005. A small percentage of producers have failed inspections in the past, supporting the need for the Fish and Wildlife Service's involvement in this process to protect our aquatic resources from invasive species.

Nathan Caswell, Carterville FRO



-Department of Ecology

Grass Carp or White Amur

Greg Conover Hosts Symposium on Grass Carp Regulations at Midwest Conference

Grass carp are a controversial management tool in that they are regulated differently throughout the United States. Long-lived non-native fish, grass carp eat large amounts of vegetation, as much as 26 percent to 100 percent of their body weight per day. They are a cost-effective alternative to chemicals and mechanical methods to remove undesired vegetation from water bodies; however, it can be very challenging to stock grass carp without undesired effects on native aquatic vegetation. Grass carp can also swim great distances in river systems, far beyond the intended location as a management tool.

Because state grass carp regulations vary, Assistant Project Leader Greg Conover of the Carterville FRO led a symposium on the management and regulation of grass carp at the 66th Annual Midwest Fish and Wildlife Conference in December. Federal and state biologists, researchers, and private aquaculturists participated in the session that addressed a range of grass carp issues, including a review of the history of

importation and use in the United States, triploid efficacy, the Fish and Wildlife Service national Triploid Grass Carp Inspection and Certification Program, state regulatory approaches and experiences with grass carp, and national strategies identified within the draft Asian carp management and control plan. Symposium results will address recommendations within the draft *Management and Control Plan for Asian Carps in the United States*.
Greg Conover, Carterville FRO

Aquatic Nuisance Species Task Force Committee Examines Sampling Protocols

Gary Czypinski of the Ashland FRO participated in a meeting of the Monitoring and Detection Committee of the Aquatic Nuisance Species Task Force. The purpose of the committee is to study the feasibility of developing standardized sampling protocols for detecting and monitoring aquatic invasive species. The committee is composed of research and management biologists from Federal and state agencies and universities. At this meeting, the committee discussed variables that enter into a sampling design, including specific needs of the sampling organization, methodology, interpretation of data, level of monitoring and purpose for sampling.

Because of the difficulty in designing a standardized sampling protocol that encompasses these variables, the committee recommended a more selective approach, choosing from a library of existing sampling protocols. Existing protocols will be collected and rated according to difficulty, cost, strengths, weaknesses and limitations, which may include habitat, season, time of day, availability of

gear, ease of implementation, completion time, efficiency, and bias. Investigators and monitors will have an opportunity to choose an existing sampling protocol that most closely meets the needs and capabilities of their particular organization. The committee is testing the feasibility of this approach by applying it to existing sampling protocols on seven aquatic invasive species, including Eurasian ruffe and round goby.
Gary Czypinski, Ashland FRO

Students Learn Impacts of Invasive Species

Fish and Wildlife Service personnel from the Marquette Biological Station presented information to students at the Kingsford High School in Kingsford, Michigan, about the negative affects invasive species have in Great Lakes waters. Seeing live sea lampreys gave students a close-up look at an invasive, parasitic fish. Students also learned the importance of biodiversity in the aquatic community, and how sea lampreys and other invasive species are having a significant effect on the health of the aquatic ecosystem, as well as economic impacts to the Great Lakes. The Fish and Wildlife Service delivers a program of integrated sea lamprey control in the United States waters of the Great Lakes as a contracted agent of the Great Lakes Fishery Commission.

John Weisser, Marquette Biological Station



-GLFC

Greg Baldwin of the Marquette Biological Station presents information to Kingsford High School students on negative impacts of invasive species in the Great Lakes.

Fourth Graders Learn About Aquatic Invasive Species

The fourth-grade students of Washburn Elementary School in Washburn, Wisconsin, are learning about the impacts, pathways, and control of aquatic invasive species in the Great Lakes. Located on Lake Superior's Chequamegon Bay, the city of Washburn depends on tourism associated with the available aquatic recreation. Most of the students participate in sport fishing and swimming in the bay, while some are members of long-time commercial fishing families. Sea lamprey, ruffe, watermilfoil and ballast water are familiar words in their households. Since aquatic recreation is so important to the area, the fourth grade teachers consider learning about aquatic invasives an important part of their curriculum. Gary Czypinski spoke to the students about the problems associated with aquatic invasive species, pathways of introduction, and some control techniques, and showed them preserved specimens of sea lamprey, Eurasian ruffe, and rusty crayfish. The sea lamprey and its life history sparked the most interest and questions from the students.

Gary Czypinski, Ashland FRO

Public Use

Bass Management Paying Off at Crab Orchard Lake in Southern Illinois

Crab Orchard Lake is a 7,000-acre impoundment at Crab Orchard National Wildlife Refuge (NWR) in Southern Illinois. The lake is a popular destination for anglers, host to several fishing tournaments each year, and important to the local economy. The Illinois DNR, Carterville FRO, and refuge staff manage the recreational fishery in the lake, and they complete fall electrofishing surveys each year as a management tool.

The Carterville FRO crew electrofished four sites for 30 minutes each. Biologists use the data collected from the fish netted to assess the fishery, and based on this year's results, things are looking up. Bass numbers, weight, and the proportion of larger fish increased, with a corresponding increase for bluegill. Generally, a good bluegill population is the result of a good bass population since the two are very closely related. Management actions such as establishing a "spawning refuge" on part of the lake, stocking young bass, and more restrictive fishing regulations appear to be paying off. This is just one example of successful collaboration among partners that is translating into a measurable benefit for anglers and for the economy in Southern Illinois.

Nathan Caswell, Carterville FRO



-USFWS photo by Nathan Caswell
Project Leader Rob Simmonds of the Carterville Fishery Resources Office shows off a net full of bass and sunfish captured as part of the annual fall fishery survey on Crab Orchard Lake in Southern Illinois.

Ashland FRO Web Page Averages 56,000 Internet Hits per Month

The Fish and Wildlife Service's Internet tracking system has shown that the Ashland FRO's Internet family now averages 56,000 hits per month, based on statistics from September through November 2005. The message that we hope to relay is the enhanced level of technical support and general information that is now being accessed by the public. One must wonder what dividends will develop from this level of public interest. Some of the highlights collected from this survey include:

- average page views per day of 356
- most visited pages are the home page, Midwest Tribal Aquaculture Network (MTAN), brook trout page, accomplishment reports, aquatic invasive species and ruffe control page
- most downloaded file is the Whittlesey Creek Brook Trout Telemetry Report

Networking with the public to inform them and share our accom-

plishments can take place in many ways. The Ashland FRO web page is just one tool we use to communicate our responsibilities and staff accomplishments.

Frank Stone, Ashland FRO

Lake Sturgeon Research Presented at Club Meetings

Biologist James Boase attended the Saginaw Field and Stream Club monthly meeting in Saginaw, Mich., giving a presentation titled *Lake Sturgeon Recovery Efforts in the Saginaw River Watershed* to about 100 club members. The two main points of the presentation were current efforts to identify lake sturgeon spawning tributaries connecting to Lake Huron, and identifying and mitigating impediments to spawning success in the Saginaw River watershed. The primary impediments to lake sturgeon recovery in the Saginaw River watershed are the limited number of lake sturgeon remaining in the watershed and blocked access to spawning substrates. Boase highlighted these two impediments and discussed potential solutions. The presentation was well received by members of the group.

Boase gave a similar presentation to about 250 members of the Frankenmuth Conservation Club. The informal presentation allowed the audience to participate by asking questions and sharing their encounters with lake sturgeon while fishing in the Saginaw River and Saginaw Bay. Questions focused on how lake sturgeon habitat rehabilitation would enhance the abundance of other species, sturgeon interaction with invasive species, and health risks associated with the consumption of lake

sturgeon. The forum was an excellent opportunity to explain how the Alpena FRO is working with other biologists, recreational anglers, and commercial anglers from both Canada and the United States to better understand and enhance sturgeon populations throughout the Great Lakes. In addition, the meeting provided an opportunity to interact with recreational anglers from mid-Michigan and explain the vital role they play in the rehabilitation of lake sturgeon.

The Frankenmuth Conservation Club is Michigan's oldest conservation club and has more than 1,800 members. The club manages property adjacent to the Cass River, where lake sturgeon research has been taking place since the spring of 2005. This is the second opportunity Alpena FRO staff have had to present at this club and has resulted in better communication between the two groups. Results of the improved communication have already paid off. During the 2005 spring sampling period, when lake sturgeon migrated into rivers to spawn, a club member spotted a lake sturgeon near a suspected spawning area within the Saginaw watershed. The member notified biologists from Alpena FRO, who went to the location and officially documented lake sturgeon use of the system.

James Boase, Alpena FRO

Detroit River Lake Sturgeon in the News

On December 28, Project Leader Jerry McClain was interviewed by a Detroit News reporter gathering information on lake sturgeon restoration efforts in the Detroit River. As part of a story of water quality issues in the Detroit River, the reporter was looking for information on lake sturgeon habitat requirements and concerns in the system. McClain provided information on collaborative efforts in which the Alpena FRO is involved, particularly the pre- and post-construction fishery surveys associated with the newly constructed artificial reef near Belle Isle. In addition, McClain spoke with the reporter about the habitat alterations that have taken place in the Detroit River and the lack of remaining lake sturgeon spawning habitat in the system as an impediment to restoration of the species in this region of the Great Lakes. The reporter became interested in the sturgeon side of the story after visiting the Alpena FRO website and reading information posted there regarding our lake sturgeon restoration efforts. The Alpena FRO website is at: <http://www.fws.gov/midwest/alpena/index.htm>.

Jerry McClain, Alpena FRO

Biologist Goes Back to School

With eyed lake trout eggs in tow, biologist Angela Baran recently visited the Ashland, Wisconsin, Middle School. Seventh-grade math teacher Kathy Sill is trying to get students to realize that math is used everyday in many jobs. The students were able to perform sample counts on the eggs by displacing water in a graduated cylinder. After calculating the number of eggs in a milliliter, they calculated how many eggs were on station at the Iron River NFH. Once the students got over their initial "eewww that's gross" reaction, they were fascinated by the eyes of the fry moving inside the eggs. The comments then turned to, "Can we touch the eggs?" and questions of what we do with the fish and eggs at the hatchery. There were also many questions of how to get a job at a hatchery... so hopefully we will be seeing some of those students in the Fish and Wildlife Service!

Angela Baran, Iron River NFH



-USFWS

These students are counting fish eggs into a cylinder containing water to get a sample count of the eggs. The amount of water displaced for a given number of eggs yield an average number of eggs per ounce.

“Fish are Fun” Begins Anew

Tim Smigielski is once again hosting his monthly children’s educational program called *Fish are Fun* at Jordan River NFH. This event is part of an effort by the Fish and Wildlife Service to increase public awareness concerning the agency’s mission and programs in the Great Lakes region. The programs are held in the evenings and begin with *Hatchery Happenings*, an interpretive tour of current activities at the hatchery. There are hands-on activities as well as an animated presentation about the “Fish of the Month.” The one and a half hour programs began December 20. The remainder of the programs will be held the third Tuesday of the month at the same time. Refreshments will be available.

Tim Smigielski, Jordan River NFH

Neosho Staff Keep the Public Informed

Hatchery Manager Dave Hendrix of the Neosho NFH gave two radio interviews during December. One was for a national show out of Philadelphia, Pennsylvania, and the other was a show out of Chicago, Illinois. The interviews seem like a long way from Neosho, Missouri; however, the message about the Fish and Wildlife Service’s mission is universal.

Roderick May, Neosho NFH

Columbia FRO Chief Addresses Local Optimist Club

Project Leader Tracy Hill of the Columbia FRO spoke at the November meeting of the Optimist Club of Fayette, Missouri. Optimist Club is a voluntary organization of civic-minded men and women banded together for progressive thought and action in community service. Optimists strive to promote an active interest in government and civic affairs, aid and encourage the development of youth, and believe that through positive action in their communities they can create a better tomorrow. Hill gave a presentation describing the Columbia FRO’s role in natural resource protection in Missouri and Iowa, the Fisheries Program Strategic Vision, general description of the Fish and Wildlife Service, and current Columbia FRO projects. Approximately 25 to 30 local community members and businessmen and women attended the meeting. The presentation was well received, and many Optimist Club members expressed their appreciation for the information.

Tracy Hill, Columbia FRO

Newspaper Article Calls Hatchery “Snowmobile-Friendly”

A December article published in several Northern Michigan newspapers, including the Boyne City Citizen Journal, Antrim County News, Kalkaska Leader and Elk Rapids Town Meeting, highlighted the Jordan River NFH’s outreach efforts, contrasting our current focus on customer service with the minimal outreach efforts of years gone by. Writer Jane Booze interviewed Project Leader Rick Westerhof and Lead Biologist Tim Smigielski for the article titled *Fish Hatchery Snowmobile-Friendly*. Although the main thrust was our desire to become a popular spot for winter snowmobile tourism (as well as year-round tourism), the article also discussed our annual fish production cycle, the Hatchery Fest, and the Friends group, explaining the mission of a Friends group and making a pitch to those potentially interested in becoming involved to contact the hatchery.

Wayne Talo, Jordan River NFH

Cooperation with Native Americans

Red Lake Walleye Restoration Effort

The Ashland FRO continues to work with the Red Lake Band of Chippewa, Minnesota DNR, Bureau of Indian Affairs, and the University of Minnesota to restore a naturally spawning population of walleye in Red Lake. During a December 7 meeting, Frank Stone met with the Red Lake Task Force Committee to discuss the walleye restoration program and performance indicators of this long term restoration effort.

Frank also presented additional information for a Web page that he developed for the Red Lake Recovery program. Once finalized, the Web page will highlight the history, population decline, and restoration of walleye populations in Red Lake. The proposed Web page will contain several links; a resource fact sheet, progress reports, restoration and fishery assessment data, media and agency links, an image library, and a tribal profile.

Historically, the Upper and Lower Red lakes have provided food, recreation, cultural pursuits, and income to many people. Government leadership, cooperation, and coordination have been paramount throughout this process. All parties have demonstrated a willingness to provide leadership by example to achieve the community support and involvement required to reach the goals of this Red Lake walleye restoration effort.

Frank Stone, Ashland FRO



-MapQuest

Upper Red Lake and Lower Red Lake are in the center of the map. The Ashland FRO continues to work with the Red Lake Band of Chippewa, Minnesota DNR, Bureau of Indian Affairs, and the University of Minnesota to restore a naturally spawning population of walleye in Red Lake.

Technical Assistance Request Received from Tribes

Staff from the Ashland FRO recently conferred with tribal biologists from three reservations to discuss technical assistance options for 2006. Depending on the scope of the requests, technical assistance by the Ashland FRO is often provided to tribes on an as-needed basis; however, projects are often out of the normal scope of our responsibility and require a reimbursable agreement between the tribe and the Fish and Wildlife Service. These preliminary meetings help to identify the tribe's technical assistance needs, those projects that will require reimbursable agreements, and the level of assistance that may be needed.

The intent of the discussion at the Red Lake Reservation was to keep the lines of communication open between our two agencies. The Red Lake Band is considering requesting our assistance for one week of trawling assessments for forage fish abundance in Red Lake or with species composition surveys within several inland lakes on

the reservation. The topic of increasing law enforcement efforts within Red Lake was also discussed. The budget for the tribal law enforcement office will not be increasing despite the increased demand on the Red Lake fishery that will occur this April. The tribe will consider drafting a 2006 grant proposal that will address this resource need. The discussion ended with a reminder to contact the Fish and Wildlife Service for any technical assistance requests.

The Bad River tribe wants to evaluate results of stocking programs for walleye and yellow perch. A means of identifying hatchery released fish from wild fish is needed. The tribe also wants to develop stocking plans for walleye and yellow perch. Other discussion topics included the Great Lakes Coastal program, brook trout population assessments in Morrison and Bell creeks, and replacing their electrofishing boat. The tribe will contact the Ashland FRO if any technical assistance is needed.

Although the Lac Courte Oreilles tribe did not request specific technical assistance projects, Ashland FRO staff did review a 2006 Tribal Wildlife Grant proposal for establishing a fishery management plan for the reservation. It was also agreed that the next draft of this plan may be reviewed by our staff before the final proposal is submitted.

Frank Stone, Ashland FRO

Leadership in Science and Technology

Temperature Depth Recorder Recovered from Lake Sturgeon

On November 21, biologist James Boase from Alpena FRO, working with biologist Ray Argyle from the U.S. Geological Survey Great Lakes Science Center (GLSC) in Ann Arbor, Michigan, extracted a temperature depth recorder from a lake sturgeon captured by Purdy Fisheries Ltd. In the spring of 2002, biologists implanted 20, mostly adult, lake sturgeon with recording devices and released them in Southern Lake Huron. The procedure was repeated again in 2003 with 20 more lake sturgeon. Since 2002, four lake sturgeon have been recaptured and all four recorders have been recovered and information downloaded.

The research project is the work of biologists from Ashland FRO and GLSC. Alpena FRO's involvement has been to provide technical support, first during the implantation phase of the project and more recently during the recovery of the recorders. The recorders that were implanted in the lake sturgeon back in 2002 and 2003 have been collecting information about the temperature and depth of each fish as it moves freely around the Great Lakes. Batteries in the recorders are designed to record information for three years. During that active period, the information about temperature and depth gets permanently stored in the memory of the recorder. Information recovered indicates that lake sturgeon spend most of their time in relatively shallow areas of the Great Lakes.

In addition to each fish having a recorder, each fish is marked with two external Floy tags and an

internal passive integrated transponder (PIT) tag. The purpose of the tags is to allow the fish to be identified if captured by a commercial or recreational angler.

Three of the four lake sturgeon recovered have been captured by Purdy Fisheries. The latest fish captured was a juvenile fish not large enough for legal harvest. After the tag was extracted, the fish was sutured and after a thirty minute recovery period was released in the headwaters of the St. Clair River. The fish was healthy, having gained a few pounds and grown a few inches since its release in the spring of 2003.

James Boase, Alpena FRO



-Ron Purdy

A temperature depth recorder is surgically removed from a lake sturgeon. The battery-operated devices are designed to record information for three years.

Spring Rise Strategy Meeting

Wyatt Doyle and Tracy Hill represented the Columbia FRO at a meeting of state and Federal scientists that are planning a comprehensive scientific approach to evaluating a "Spring Rise" on the Missouri River in 2006 and beyond. This effort is in response to an agreement by basin stakeholders, U.S. Army Corps of Engineers (Corps), and Fish and Wildlife Service to change the historical operation of four upper Missouri River dams to enhance pallid sturgeon spawning conditions below Gavins Point Dam near Yankton, South Dakota. The magnitude of effort and concessions required to arrive at the opportunity to evaluate the effects of water conditions on an extremely rare fish promises to task each agency's abilities and draw on their unique expertise in the area of river restoration. The Spring Rise team will employ the U.S. Geological Survey, Corps, six state agencies, and three Fish and Wildlife Service offices to collect data in potentially six different programs to provide a comprehensive look at pallid sturgeon biology in the Missouri River. Columbia FRO has led the effort by collecting pallid sturgeon and providing strategies for project design.

Wyatt Doyle, Columbia FRO

Aquatic Habitat Conservation and Management

Mississippi Side Channel Restoration Begins at Harlow Island

Whenever a restoration project is completed, people want to know, "Did it work?" One way to answer that question is to compare fish populations before and after the habitat is manipulated. To begin this evaluation process on the Mississippi River, field crews from the Carterville FRO completed the first season of fish community surveys in a remnant side channel of the Middle Mississippi River along Harlow Island, which is part of the Middle Mississippi River NWR.

The largest body of water on Harlow Island was once a side channel that is now isolated from the river except under high-flow conditions. The U.S. Army Corps of Engineers' St. Louis District is considering a project to restore the river's connection to this backwater. From July through October 2005, FRO field crews conducted monthly surveys of the fish community in this backwater to obtain baseline data for evaluating restoration activities. Crews conducted similar surveys in another "control" backwater that has a stronger connection to the river. This control will help determine whether any changes at Harlow Island are system-wide or the results of the project. Unfortunately, the control backwater dried up from drought conditions in 2005. Sampling was only completed there during July and August. Preliminary results show that the Harlow Island backwater holds a number of native fishes, indicating that restoration could benefit these species; however, this backwater is also home to staggering numbers of year-old invasive Asian carp (primarily silver carp) waiting for

the next high water event that will allow them to escape into the river.

Nathan Caswell, Carterville FRO



-USFWS photo by Rob Simmonds
Biologist Nate Caswell records data while technician Ray Wild measures a fish captured during pre-restoration sampling at the Harlow Island side channel site on the Middle Mississippi River, Missouri.

Palet Wetland Restoration Project in Process

A recently completed phase of the Palet 05 Partners for Fish and Wildlife wetland restoration project on agricultural land near the White River in Ashland County, Wisconsin, entailed restoring one 8 acre wetland and enhancing 16 acres of waterfowl nesting cover through a deferred haying/grazing agreement. The landowners signed a Habitat Development Agreement to protect the restored area for a period of 10 years. In addition to providing wildlife habitat, this wetland will serve as an important buffer to sediment entering the White River, an important spawning river for lake sturgeon. Three wetland sites were previously restored on the farm.

The landowners, Tim, Tom and David Palet, have been diligently improving their farm for wildlife, and welcome the assistance of the Fish and Wildlife Service and other agencies. The Natural Resources

Conservation Service provided technical assistance on this phase of the restoration and the Ashland Bayfield Douglas Iron - Land Conservation Department provided technical and financial assistance.

Ted Koehler, Ashland FRO



-USFWS
The Palet 05 Partners for Fish and Wildlife program wetland restoration project near the White River in Ashland County, Wisconsin, restored one 8 acre wetland and enhanced 16 acres of waterfowl nesting cover.

Columbia FRO Partners to Replace Iowa Fish Barrier

Columbia FRO is partnering with Iowa DNR, Hungry Canyons Alliance (HCA), and the Natural Gas Pipeline Company of America (NGPC) to build fish-friendly structures on Seven Mile Creek in Montgomery County, Iowa. The project involves building two weir structures to help control a 6.5 feet drop in elevation.

HCA is a non-profit organization that secures Federal and state cost share funding to build stream bed degradation control structures such as weirs in 17 Western Iowa counties with thick loess deposits. HCA and the Iowa DNR have been working together for several years to find the most cost effective way to control streambed degradation, yet allow for fish migration. Previous projects, partially funded by Co-

lumbia FRO, showed which structures with a 20:1 run to rise slope allowed fish to move over them. Before a “fish-friendly” weir protocol was developed, many sheet-pile and grouted riprap weirs were built with a 4:1 slope, which impeded fish movement. Iowa DNR, HCA, and Fish and Wildlife Service have been working together to replace these structures.

The NGPC pipeline that crosses Seven Mile Creek is at risk for structural damage from stream bed erosion. NGPC was considering several solutions when HCA proposed building a weir to protect the pipeline. The proposed weir would also help control further stream erosion and was significantly cheaper than other solutions. This new weir would be approximately 250 feet downstream from an existing weir. Using criteria agreed on by HCA and the Iowa DNR, the existing weir was identified as a prime candidate for fish passage modification.

The existing weir will be modified to control 3.5 feet of elevation drop and the downstream NGPC structure will be built to control 3 feet. The structures will be approximately 140 feet from each other. The existing weir’s slope will be modified to 20:1 run to rise with grouted riprap. The downstream weir will be constructed with sheet pile and a 20:1 grouted riprap slope. Both weirs will have V-notches in the sheet pile and grouted riprap, a maximum of one foot high from the center to the base of the banks. On both weirs, the biggest rock will be randomly placed in the center third of the channel.

The weir project will open access to an additional 4.1 miles of stream, benefiting a variety of native species including flathead

chub, an Iowa species of concern; sport fish such as channel catfish, bullheads, bluegill, largemouth bass, crappie; and numerous non-game species. Constructing new weirs and replacing fish barriers with structures that allow fish movement with other organizations is helping promote the Fish and Wildlife Service’s goal of working with partners to identify and provide aquatic species access beyond barriers.

Nicholas Frohnauer, Columbia FRO



-Hungry Canyons Alliance photo by John Thomas

This is a proposed site for a fish passage project on Seven Mile Creek in Southwest Iowa.

Johnson’s Pond Partnership is Worth the Effort

When citizens from Mancelona, Michigan, called the Jordan River NFH for some advice for improving a pond on municipal property, they had no idea what they were getting into, nor with whom they were about to be dealing. The group envisioned dredging an area adjacent to a man-made dike, stabilizing the bank, and creating better fishing access for kids, while also improving fish habitat. Sounds good, right?

The pond and property were donated to the village some years back for a youth fishing pond. Biologist Tim Smigielski of the Jordan River NFH met with the group on site and agreed that the area had been abused and needed

attention, but still had great potential. Tim found that the pond has an existing population of bluegill and largemouth bass, but the lack of depth would soon cause a winter kill. He also learned that, years ago, some stocked rainbow trout had survived over the winter. So Tim encouraged the group to proceed and secured a challenge cost share grant for the project.

“The effort that it takes to organize and implement even a small project such as this is really surprising,” said Joan Moore, one of the lead cooperators in the project, adding “We certainly could not have done it without Tim’s skills.”

“Tim Moore, of the Mancelona Bass Festival Committee, one of the lead cooperators, was the ‘foreman’ who really deserves the lion’s share of the credit,” said Smigielski. Johnson’s Pond, now sporting more than two hundred feet of new rock rip rap shoreline and “water deep enough for fish to swim,” will be showcased for the first time this spring. Hundreds of children are expected to line the new shoreline in hopes of hooking an opening day trout during Michigan’s season opener on the last Saturday in April.

Tim Smigielski, Jordan River NFH



-Joan Moore

Biologist Tim Smigielski of the Jordan River National Fish Hatchery inspects the rip rap installation at Johnson’s Pond in Mancelona, Michigan. The pond is being renovated to support a recreational fishery.

Mississippi River “Herculaneum” Reach Takes First Step Toward Greater Habitat Diversity

One consequence of “taming the Mississippi River” was a major reduction in the complexity of habitat. Rather than a wide river with side channels and a mixture of water depths and habitat types (including seasonally flooded areas), much of the Mississippi River has been greatly narrowed, resulting in the loss of some important habitats. The U.S. Army Corps of Engineers’ St. Louis District is planning a dike-notching project that will alter the configuration of dike fields in the Herculaneum reach to restore some of this habitat diversity.

“Wing” dikes are rock structures that jut out from the river bank to redirect flow to the center of the river. These dikes have eliminated much of the side channel and island habitat that was once present in the river. Notching wing dikes and constructing v-shaped “chevron” dikes will create island and side channel habitat that the Herculaneum reach is lacking.

From July through October 2005, field crews from the Carterville FRO surveyed the fish community in this reach to obtain baseline data for evaluating the restoration project. Crews used a suite of gears, including boat electrofishing, mini-fyke nets, hoop nets, gill nets, and trawling, to capture a wide range of species. They also surveyed at a similar “control” reach located near Trail of Tears State Park in Missouri. This will help to determine whether changes in the fish community at Herculaneum are system-wide or the result of restoration activities.

Nathan Caswell, Carterville FRO



-USFWS photo by Nathan Caswell
Technicians Derek Simms (left) and Ray Wild prepare to set a hoop net as part of pre-project monitoring in the Herculaneum reach of the Middle Mississippi River near the Middle Mississippi River National Wildlife Refuge. Habitat alterations scheduled for this reach are designed to increase habitat diversity in this highly modified stretch of river.

Michigan Stream Team Meets

On December 7, Alpena FRO biologists Susan Wells and Heather Rawlings participated in a Michigan Stream Team meeting along with representatives of the Michigan Department of Environmental Quality (DEQ), Michigan Department of Transportation, Michigan DNR, Natural Resources Conservation Service, Fish and Wildlife Service, U.S. Forest Service, and U.S. Geological Survey. The Stream Team was formed in 2003 to develop statewide regional curves, where appropriate data is available, based on relationships of hydrologic parameters. The team’s long-term goal is to provide those involved in stream restoration efforts a tool to improve restoration design and minimize disturbances to stream channels and their associated floodplains and wetlands.

The meeting was convened to discuss hiring someone to conduct the majority of the surveying needed to calculate regional curves in Michigan. The group decided to hire a graduate student through the USGS, once approval is se-

cured from Michigan DEQ who will be supplying the start money for this project. The team also discussed final revisions for the *Protocol for Field Surveys of Stream Morphology at Gaging Stations in Michigan*, which the group compiled to standardize methods used to survey stream segments. The document will be ready for public use in January. *Susan Wells, Alpena FRO*

Protocol for Field Surveys of Stream Morphology at Gaging Stations in Michigan



Early Stages of Fish Passage on the Mississippi River

Carterville FRO participated in planning and preliminary evaluation of proposed fish passage projects at two of the main stem locks and dams on the Upper Mississippi River. Biologist Nate Caswell attended a planning meeting hosted by the U.S. Army Corps of Engineers’ St. Louis District to discuss construction alternatives for fish passage projects at Mel Price Lock and Dam near Alton, Illinois, and Lock and Dam 22 near Hannibal, Missouri. One topic of discussion was a plan to monitor the fisheries at the dams before, during, and after construction of

the fish passage structures. This project emerged as one facet of the plan.

The purpose of the work was to determine which fish species were concentrating in the area below the dams on a seasonal basis. The Corps of Engineers used a specialized vessel, the M/V *Boyer*, to perform high-resolution sonar work below both dams in May 2005. Concentrations of fish below the dams were mapped, and Carterville FRO field crews used deep-water electrofishing in an attempt to determine the species composition of these areas. Unfortunately, deep-water electrofishing did not produce many fish because water temperatures were too high for the technique to be effective. Crews then used a series of gill nets to capture fish near the bottom in the mapped areas. They captured a variety of species at Mel Price Lock and Dam, but nearly all fish captured at Lock and Dam 22 were shovelnose and lake sturgeons.

As a follow-up to the May 2005 work, crews repeated the sampling in November. This time the water was cooler and deep-water electrofishing was effective in catching a variety of species at depths up to 30 feet. Fortunately, even though many of the fish were in waters deeper than 30 feet, they were up off the bottom and suspended in 10 to 20 feet of water. Fish suspended at these depths are often difficult to capture with traditional electrofishing or netting methods.

This work will be an ongoing part of a multi-faceted fisheries monitoring plan for these fish passage projects and biologists hope for continued success with deep-water electrofishing. A special thanks goes out to Southern Illinois University as well as Andy Plauck, a former Southern

Illinois University student, now with Columbia FRO, for technical assistance and equipment necessary for deep-water electrofishing. *Nathan Caswell, Carterville FRO*



USFWS
Biologist Nate Caswell pilots a boat while Dale Gates (U. S. Army Corps of Engineers) prepares to net fish during deep-water electrofishing as part of pre-project evaluation at the future site of a fish passage project on the Middle Mississippi River, Illinois.

Thunder Bay Project Meeting Held

Alpena FRO biologist Aaron Woldt participated in a Working Committee meeting for the Thunder Bay Power Company Thunder Bay River Project Implementation. The Working Committee was created to assist Thunder Bay Power (TBP) in meeting the requirements of its Federal Energy Regulatory Commission (FERC) license. Woldt is the Fish and Wildlife Service's representative on the committee.

The primary focus of the December 7 meeting was to discuss finalizing the sale of the Thunder Bay Power Projects to North American Hydro (NAH), which officially took over operation of the Thunder Bay River hydroelectric projects on July 30 and chose to retain the Thunder Bay Power name. Working Committee members met Scott Klabunde, NAH Midwest plant operations manager, who will represent NAH at future

meetings. Discussions also included disposition of lands adjacent to Thunder Bay River hydroelectric projects that were not sold to NAH. Most of these lands were sold for development. Planned development at the Hubbard Lake site will cause a conflict with existing plans for a recreational fishing pier scheduled to be built in 2013 by TBP using funds from the settlement escrow account. The Working Committee heard a proposal to relocate the pier to the opposite side of the river. The developer would absorb all construction costs for the pier, foot path, and parking lot which would be built seven years ahead of schedule, in 2006. The Working Committee will accept or decline the developer's proposal at its March 2006 meeting.

The Working Committee also discussed license article 409, pertaining to downstream fish passage and protection. Great Lakes Environmental Center, a contractor retained by TBP, recently completed a draft downstream fish passage and protection evaluation, including a "desktop" model/evaluation of existing fishery data as directed by the working group at its June 2005 meeting. The committee agreed to review the draft report within 30 days. NAH agreed to seek a filing extension from FERC, if necessary, to allow for the full 30 day review by the Michigan DNR and Fish and Wildlife Service staff.

Aaron Woldt, Alpena FRO

Workforce Management

Young Student Volunteers at Jordan River NFH

Jennifer Arnott, an eighth grader at East Jordan Middle School, has been volunteering at Jordan River NFH to learn about lake trout. She is enrolled in a student leadership program that requires her to complete a science project and perform community service work. For her science project, she chose to report on the life cycle of the lake trout. At this time of year, the hatchery provides a good setting to see lake trout at both the fingerling and egg stages. Jennifer assisted with inventory of eggs in November. She also gained first-hand experience with adult lake trout by volunteering at the Sullivan Creek NFH during the fall spawning season as part of a 4-H Club project. Most recently, on the cold and snowy morning of December 4, Jennifer fulfilled part of her community service commitment by helping to clean raceways. It's unusual to see this level of commitment in a person this young. Our staff appreciates her involvement and we are glad to assist with her project.

Wayne Talo, Jordan River NFH



-USFWS photo by Wayne Talo

Student Volunteer Jennifer Arnott learns about lake trout and aquaculture at the Jordan River National Fish Hatchery.

Jordan River's Tim Smigielski chairs Region 3 Fish Culture Meeting

Staff from Region 3 national fish hatcheries annually gather to present their work and exchange ideas about aquaculture science, current hatchery issues, and various methods to enhance public use at the facilities. Each year, a different hatchery takes the lead in hosting the event. This year, Tim Smigielski, lead fisheries biologist at the Jordan River NFH, chaired the event, which was held at the Hampton Inn in Gaylord, Michigan, on December 13 and 14.

This year's conference was very informative, featuring presentations from six Fish and Wildlife Service hatcheries, Alpena FRO, and Washington Office, as well as a presentation and tour of the Michigan Fisheries Visitor Center and Oden State Fish Hatchery. Topics discussed included fish health, nutrition, rearing practices, public use and outreach, oxygen supplementation technologies, and water quality issues. We were also honored to have Dr. Don Garling, professor of Fisheries and Wildlife at Michigan State University, present *The Status of Aquaculture in the U.S. and Great Lakes Region*. The 2006 conference will be hosted by Pendills Creek NFH in Brimley, Michigan, tentatively in December 2006.

Wayne Talo and Tim Smigielski, Jordan River NFH

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-Jerry French Postcard Collection

Windows in time

A Glimpse into our Proud Past

The Beaufort Fish Hatchery was located near the village of Beaufort, near the Shakleford Banks in Carteret County, North Carolina. The hatchery was established in 1901 and ceased operations in 1949.

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