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U.S. Fish & Wildlife Service

Fish Lines

Region 3 - Great Lakes/Big Rivers

Leadership in Conserving, Enhancing, and Restoring Aquatic Ecosystems

Pendills Creek National Fish Hatchery; Brimley, MI

(See the "Station Spotlight" on Page 5)



Series of Fish and Wildlife Service photos depicting Pendills Creek National Fish Hatchery activities: (Top Row, Lt. to Rt.) An early November view of the hatchery building and outdoor, covered raceways; Headstart students receive a hands-on fishy experience during fish marking operations; Maintenance Mechanic John Shuman spends much of his winter clearing snow; (Middle Row, Lt. to Rt.) Biologist Faber Bland removes dead eggs from an incubator tray to keep fungus growth minimized; La Crosse Fish Health Center Director Rick Nelson discusses the semi-annual fish health inspection with Biologist Tracy Roessner; Raceway cleaning is a routine job to keep fish healthy; (Bottom Row, Lt. to Rt.) Pendills Creek's largest fish transport truck can haul up to 3300 pounds of 5 inch fish; These "eyed" lake trout eggs are close to hatching; Look carefully and you can see yearling lake trout hugging the bottom of the raceway.

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



Region 3 - Great Lakes/Big Rivers Region

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

Conserving America's Fisheries

Fisheries Program Vision for the Future



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.

Strategic Plan Vision 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. 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.

4. 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.

5. 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.

6. 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.

7. 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.

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Click here to visit our Fisheries Web Site

Great Lakes - Big Rivers Region Fisheries Field Offices

National Fish Hatcheries

National Fish Hatcheries develop and maintain brood stocks of selected fish strains with our primary focus on native species such as lake trout, pallid sturgeon, lake sturgeon and brook trout. Hatcheries also provide technical assistance and sources of fish and eggs to cooperating agencies, provide fish and eggs for research, stock fish and eggs as part of native fish restoration programs, stock fish in fulfillment of federal mitigation obligations and assist with restoration and 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. This program is supported through funding from the State Department and administered through the Great Lakes Fishery Commission.

Fishery Resources Offices

Fishery Resources Offices perform key monitoring and control activities related to invasive aquatic species; survey and evaluate native fish stocks and aquatic habitats to identify restoration opportunities; play a key role in targeting and

implementing native fish and habitat restoration programs; work with private land owners, states, local governments and watershed organizations to complete aquatic habitat restoration projects under the Service's Private Lands and the Great Lakes Coastal Programs; provide coordination and technical assistance toward the management of interjurisdictional fisheries; maintain and operate several key interagency databases; provide technical assistance 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.

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.

Fishery Coordination Offices

Fishery Coordination Offices work with Canadian and state natural resource agencies, county, local and tribal governments and other public and private organizations to provide crucial facilitation and inter-agency coordination functions affecting the management of native fishes and aquatic habitats.

Great Lakes - Big Rivers Region Fisheries Field Offices



Great Lakes - Big Rivers Regional Fisheries Program

Station Spotlight - Pendills Creek National Fish Hatchery

The Pendills Creek National Fish Hatchery (NFH), located in Michigan's Upper Peninsula near Brimley, Michigan, was established in 1950 and has contributed greatly to the restoration of lake trout populations in the Great Lakes.

Approximately 800,000 lake trout yearlings are reared at Pendills Creek annually. Mid-April marks the beginning of the stocking season but this doesn't mean that all the fish will be taken from Pendills immediately. There are three Federal lake trout hatcheries in the Great Lakes/Big Rivers Region that work together to stock approximately 3.7 million fish annually. Fish are hauled with distribution tank trucks from the hatcheries to the offshore stocking vessel, M/V Togue. Then they are put into tanks on the boat and taken to sites that have historical lake trout spawning habitat. All fish from this hatchery are stocked into Lakes Michigan and Huron.



-USFWS

Early each spring employees mark lake trout yearlings prior to stocking by removing a certain fin(s). Marking, known locally as fin-clipping, allows biologists to identify fish as a hatchery product providing critical information for lake trout rehabilitation in the upper Great Lakes.

The annual production cycle for this hatchery starts with receipt of 225,000 eyed lake trout eggs from nearby Sullivan Creek NFH in December. These eggs are incubated and hatched in Heath trays, and then the sac fry are moved into small indoor tanks. They remain inside until mid-June, or until there is room in one of 16 large, outdoor raceways. In May and June, the hatchery also receives approximately 900,000 fingerling lake trout from the Jordan River NFH which are placed directly into outdoor raceways.



-USFWS

**Pendills Creek National Fish Hatchery Staff
Left to Right: Crystal LeGault, James Anderson, Faber Bland, Tracy Roesner, John Shuman, Curt Friez**

With this shipment of fish, all of the stocking commitments for the following spring will be achieved.

The second week of March starts the fin-clipping season at Pendills. All fish must be marked before they are stocked to identify them as a hatchery product. Up to eight people are hired for this operation. Marking fish is just one part of the restoration plan objectives developed by natural resource agency partners in the Great Lakes Basin.

Unlike most hatcheries, the water that flows through the Pendills Creek NFH is not a constant temperature. It fluctuates between 33° F in the winter to 68° F in the summer. The fish are under an inch or more of ice in near freezing water and do not feed for at least one full month in the winter. Most of the weight gain occurs during the summer and the spring when water temperatures rise. The staff has developed a culture program which adds extra body fat to the fish during warm water periods when fish are aggressively feeding so they easily endure the long winter periods of cold water. Liquid oxygen supplementation and sediment filtration systems are being designed to enhance water quality and guarantee high quality fish for the restoration programs and increased production.

For detailed information about the Pendills Creek National Fish Hatchery, contact the office at (906) 437-5231 or visit their website at: http://midwest.fws.gov/Fisheries/site-pendills_hiawatha.htm

Partnerships and Accountability

Great Lakes/Big Rivers Field Station Staff takes our "Fisheries Vision for the Future" to our Partners

The vision of the Fish and Wildlife Service's Fisheries Program is working with partners to restore and maintain fish and other aquatic resources at self-sustaining levels and support Federal mitigation programs for the benefit of the American public. Implementing the Vision through Regional step-down plans 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. The Region 3 Fisheries Program and its partners and stakeholders recognize that many responsibilities for managing and conserving aquatic resources are shared, and overall success is contingent upon the combined knowledge, resources, and commitment of each party. During personal meetings, goals are set identifying resource needs over the next five years. Staff have met with the fisheries leadership in all of the states in the Great Lakes/Big Rivers Region since last spring. Field station coordination meetings and presentations targeted the following partners in November and December:

- Ashland Fishery Resources Office (FRO) met with Tribal representatives from Lac du Flambeau, Fond du Lac, Red Lake, and Leech Lake.
- Alpena FRO, Green Bay FRO, and Jordan River National Fish Hatchery (NFH) met with 40 representatives of five

Chippewa Ottawa Resource Authority (CORA) Tribes. CORA is charged with promulgating Tribal fishing regulations for 1836 Treaty waters of Lakes Superior, Michigan, and Huron.

- Alpena FRO presented to the Alpena Brown Trout Committee, Thunder Bay Walleye Club, and Michigan Association of Conservation Districts.
- Jordan River NFH presented to the Northland Sportsmen's Club.

Frank Stone, Ashland FRO

Heather Enterline, Alpena FRO

Jerry McClain, Alpena FRO

Rick Westerhof, Jordan River NFH

Tracy Hill, Alpena FRO

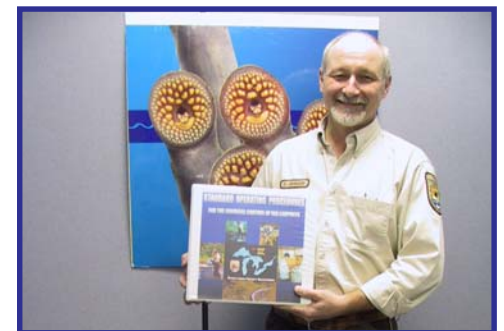


Revision Process for Major Sea Lamprey Management Document Initiated

A major revision of standard operating procedures for the application of lampricides in the Great Lakes Fishery Commission integrated management of sea lamprey control program has begun. The Lampricide Control Task Force sub-group responsible for revision of this document met December 2-3 in Escanaba, Michigan, to begin the process. Fish and Wildlife Service personnel from the Marquette Biological Station met with representatives of the Ludington Biological Station - Ludington, Michigan; Sea Lamprey Control Centre - Sault

Ste. Marie, Ontario; Great Lakes Fishery Commission - Ann Arbor, Michigan; and Upper Midwest Environmental Sciences Center - LaCrosse, Wisconsin. This document defines the methods used by Sea Lamprey Control personnel in the chemical control of invasive lampreys. The U.S. Environmental Protection Agency and Health Canada have stipulated in the restricted use pesticide labels for the lampricides TFM and Bayluscide that procedures outlined in this manual be followed in all applications of lampricides. The document will undergo a complete update, peer review, reprint, and distribution this year. This year's inclusion of standard operating procedures for use of the sea lamprey sterilant Bisazir represents a significant addition to this document.

Terry Morse, Marquette Biological Station



-GLFC by Joseph Genovese

David Johnson, Marquette Biological Station, holds a copy of "Standard Operating Procedures for Application of Lampricides in the Great Lakes Fishery Commission Integrated Management of Sea Lamprey Control Program. The standard operating procedures for the application of lampricides is being updated in 2004.

Sturgeon Tag Database facilitates Inter-Agency Communication

Carterville Fishery Resources Office (FRO) has expanded a sturgeon tag database for the Ohio River basin. The database was constructed in 2002 and initially contained data for sturgeon tagged in the lower Ohio River by biologists from Carterville FRO. In 2003, biologists from both the Illinois Department of Natural Resources and Purdue University supplied Carterville FRO with their sturgeon tag data for the Wabash River basin. The additional data has been incorporated into the database, and it now includes four years of tagging data (2000-2003) from two major river basins. Additional partners have requested to be included in the database.

Carterville FRO, with the cooperation of additional partners, plans to further expand the database to include sturgeon tag data from other portions of the Ohio River basin and the Mississippi River basin as well. As data from natural resource agencies is added, this database will become a valuable tool for biologists. It contains only tagging and contact information, so sharing of proprietary data will never be an issue. The database will facilitate communication between biologists by providing a simple means through which tagged sturgeon can be identified and the appropriate agency notified of their recapture.

Nate Caswell, Carterville FRO

Formation of Huron Pines Resource, Conservation & Development River Fund

The Huron Pines Resource, Conservation & Development (RC&D) River Fund is an endowment fund that is in the first stages of development. This fund is being created with the purpose of sustaining long-term watershed protection and habitat improvement work in the Department of Agriculture's Northeast Michigan Region (11 counties of Huron Pines service area). "Soft funding" to support watershed restoration groups is unpredictable and subject to rapid change. This fund would allow restoration groups to have a steady supply of funds to assist their endeavors. Many entities are involved with the creation of this endowment to ensure its use will be flexible and meet the needs of local partners. Partners include the Michigan Department of Natural Resources, Michigan Department of Environmental Quality (MDEQ), Natural Resource Conservation Service (U.S. Department of Agriculture), many of the local watershed restoration committees, local conservation organizations, and private landowners. Alpena Fishery Resources Office (FRO) Partners for Fish and Wildlife Coordinator, Heather Enterline, is serving on the steering committee for the River Fund to assist in the process because ultimately this fund will become a resource for a wide range of watershed restoration activities in northeast Michigan. The first meeting of the steering committee was held November 6 at the MDEQ office in Gaylord. This endowment fund is designed so private individuals or businesses that would like to invest in cleaner water and

healthier watersheds in northeast Michigan have a way to support these watersheds on a long-term basis. Interest earned on the principle of the endowment fund will be distributed to watersheds for habitat restoration projects.

Heather Enterline, Alpena FRO



Partners for Fish and Wildlife Coordinator, Heather Enterline, is serving on the steering committee for the development of a Huron Pines Resource, Conservation & Development River Fund with the purpose of sustaining habitat improvement work in northeast Michigan.

Shovelnose Sturgeon reintroduced into Scioto River, Ohio

The Carterville Fishery Resources Office (FRO) is assisting the Ohio Department of Natural Resources (DNR) to reintroduce shovelnose sturgeon into waters of the upper Ohio River basin. Shovelnose sturgeon, once common in the upper Ohio River and lower sections of its larger tributaries, were last seen in Ohio in 1957. Shovelnose sturgeon are common in the Ohio River downstream of Ohio; however, dam construction, habitat loss, and pollution extirpated the species from the upper Ohio River basin. The Ohio DNR is reintroducing adult and juvenile shovelnose sturgeon provided by the Carterville FRO into the Scioto River, one of Ohio's premier rivers providing both good water quality and high quality habitat. Also during 2003, Carterville FRO worked with Southern Illinois University and Logan Hollow Fish Farm to spawn wild captured shovelnose sturgeon. Two shipments of fingerlings were

shipped to Ohio DNR's Kincaid fish hatchery where they were grown out and released into the wild.

Greg Conover, Carterville FRO



-USFWS

Scott Schell, fishery biologist with the Ohio Department of Natural Resources, holds a shovelnose sturgeon captured by Carterville Fishery Resources Office staff from the lower Ohio River. These fish will be used as part of a re-introduction effort in the upper Ohio River Basin.

Partners Meet to discuss National Lakeshore 2003 Stream Surveys

Stream surveys were completed in Pictured Rocks National Lakeshore (PIRO) streams managed by the National Park Service. Lee Newman conducted the backpack electrofishing surveys with help from PIRO personnel and local volunteers. The stream surveys were completed as part of an ongoing effort to re-establish coaster brook trout populations in tributary streams and Lake Superior. The stream surveys are designed to monitor status of stocked and native brook trout in

the streams as well as rainbow (steelhead) trout and coho salmon.

On October 23, a meeting of the PIRO coaster brook trout management partners was held in Marquette, Michigan. Attending were Ashland Fishery Resources Office (FRO) Project Leader Mark Dryer and Biologist Lee Newman, Wildlife Biologist Jerry Belant of PIRO, Research Biologist Ed Baker and Lake Superior Supervisor Steve Scott of Michigan Department of Natural Resources and Dr. Jill Leonard, professor at Northern Michigan University. The purpose was to develop a work plan for 2004 field season activities and begin assignments of duties and responsibilities to agencies and individuals. Funding sources and constraints were also discussed.

Lee Newman, Ashland FRO

Local Partners enter Battle against Sea Lampreys

The Indiana Department of Natural Resources and the city of Traverse City, Michigan have joined forces with the Great Lakes Fishery Commission (Commission) and the Fish and Wildlife Service to combat sea lampreys in the Great Lakes through the construction of two new sea lamprey barriers. The Fish and Wildlife Service, a contracted agent of the Commission, is currently pursuing construction of new sea lamprey barriers in Kids Creek in Traverse City, Michigan and Trail Creek in Michigan City, Indiana. Memoranda of agreement were signed by officials from the Commission, Fish and Wildlife Service, and these local co-sponsors to construct, operate, and maintain sea lamprey barriers in the two tributary streams. The majority of sea lampreys are currently controlled through the

application of the lampricide TFM. Sea lamprey barriers are a proven alternative to lampricide control and these agreements are instrumental in reducing or eliminating the need to treat the streams with the lampricide as the program moves toward the Commission strategic vision milestone of achieving 50% of control of the invasive parasites through alternative control methods by 2010.

Kasia Mullett, Marquette Biological Station

Fisheries Staff participates in the Lake Sturgeon Committee of the Great Lakes Basin Ecosystem Team

Marquette Biological Station and Alpena Fishery Resources Office (FRO) staff participated in a conference call of the Lake Sturgeon Committee of the Fish and Wildlife Service Great Lakes Basin Ecosystem Team. The purpose for the call was to finalize the 2004 Action Plan for the Lake Sturgeon Committee, begin planning for the next Great Lakes Lake Sturgeon Workshop, prioritize flex fund projects for submission through the Basin Team, and finalize document review for the 2002 Great Lakes Lake Sturgeon Workshop. Through the Lake Sturgeon Committee over 40 partnerships have been formed between federal and state agencies, tribal governments, Canadian agencies, academic institutions, commercial fishers, sport anglers, private organizations and individuals in order to conserve, protect and enhance lake sturgeon populations across the Great Lakes Basin. Fish and Wildlife Service offices throughout the Great Lakes are working together with other partners to better understand the

lake sturgeon's unique life history and meet rehabilitation challenges.

One challenge is to control invasive sea lampreys without negatively affecting native fish populations such as lake sturgeon in tributaries of the Great Lakes to protect the fishery and related economic activities in the basin (an estimated annual benefit of \$4-6 billion/year to the region). Since the "Interim Protocol for Applications of Lampricides to Streams with Populations of Young-of-Year Lake Sturgeon (*Acipenser fulvescens*)" was implemented in 1998, no mortality of lake sturgeon has been observed during lampricide applications in the United States.

*John Weisser, Marquette Biological Station
Tracy Hill, Alpena FRO*

Michigan Sea Grant Strategic Planning Forum

Alpena Fishery Resources Office (FRO) participated in a strategic planning forum hosted by Michigan Sea Grant that provided an overview of their draft strategic plan and to solicit input on issues. The meeting was held in Mackinaw City, Michigan on December 3. Participants included representatives from the Chippewa Ottawa Resource Authority, Michigan Department of Natural Resources, Mackinaw City Parks, Michigan Bait Dealers, and many others. New issues of importance to Sea Grant's mission were identified and ranked. Michigan Sea Grant is currently partnering with the Fish and Wildlife Service in many areas including fish passage and aquatic invasive species management. Partnerships are important to our activities and a key element in our Fishery Program Vision.

Anjanette Bowen, Alpena FRO

Alpena Fishery Resources Office participated in a forum hosted by Michigan Sea Grant to provide an overview of their draft strategic plan. Our agency is currently partnering with Michigan Sea Grant in many areas including fish passage and invasive species management.



Breakfast Banquet Honoring Centennial Help

Fishery Biologist James Boase traveled to Wyandott, Michigan on December 17 to attend a breakfast banquet honoring some of the people that made last fall's Detroit River International Wildlife Refuge (DRIWR) Centennial celebration a success. The breakfast was sponsored by DTE Energy and honored approximately 60 people. Congressman John Dingell was unable to attend, due to illness, but was recognized for his continuing support of the Detroit River ecosystem. Doug Brewer, acting Supervisor of the DRIWR, gave a brief speech thanking all of the people that made the celebration a success. River Navigator John Hartig followed with words of thanks and provided his perspective on the future of the refuge and stated that "This is just the beginning." Those that were honored included representatives from DTE Energy, Ford Motor Company, General Motors, Diamler Chrysler, LazyBoy Furniture, Bass Pro Shops, and Cabella's, as well as governmental officials from Wayne County, the cities of Wyandotte, River Rouge, Southgate, Riverview, Trenton, Dearborn, Monroe, and Windsor, Ontario. Honorees were given a framed picture with images of the DRIWR and Interior Secretary Gail Norton's visit signed by Congressman Dingell. This event

was an excellent opportunity to network with local supporters of the Detroit River International Wildlife Refuge. Working with local governments and private corporations has been beneficial in aiding the ongoing research that the Alpena Fishery Resources Office (FRO) is currently involved with in the Detroit River. Maintaining and expanding these networks is key to the success of research that Alpena FRO is conducting in this area of the Great Lakes and to the Fish and Wildlife Service's efforts in building a successful refuge in the heart of the Detroit, Michigan/Windsor, Ontario Metropolitan areas.

James Boase, Alpena FRO

Upper Basin Pallid Sturgeon Work Group meet in Montana

A meeting of the Upper Basin Pallid Sturgeon Work Group was held in Miles City, Montana in December. Regional Fish Health Center (FHC) Project Leader Rick Nelson represented Region 3. Discussions covered many topics relating to the recovery of pallid sturgeon in the Missouri River basin. Specific topics included field monitoring/research; fish health updates on hatcheries rearing pallid sturgeon; propagation and numbers of fish reared; agency reports including Army Corps of Engineers, Fish & Wildlife Service and U.S. Bureau of Reclamation; Western Division of the American Fisheries Society peer review of the recovery team's plan, status, plan for review, and time line; and funding review and prioritization of funding proposals for work to be completed in 2004.

Rick Nelson, La Crosse FHC

Aquatic Species Conservation and Management

Invasive Ruffe Likely to Occur throughout Little Bay de Noc, Lake Michigan

In cooperation with the Michigan Department of Natural Resources (DNR), the Ashland and Green Bay Fishery Resources Offices (FRO) conducted a survey to assess relative abundance and range expansion of the invasive fish, Eurasian ruffe, within Little Bay de Noc, Lake Michigan. Bottom trawl tows (5-minute duration) was the sampling method used in the survey. The trawling transects were not randomly selected, but instead were chosen on the probability of containing ruffe. One ruffe was captured in the Kipling area north of Gladstone, Michigan where ruffe were previously detected. Two adult ruffe were captured in one tow near the east shore of the bay, approximately 3 miles northeast of Gladstone. In a separate survey conducted in July, Michigan DNR also captured a ruffe in the Kipling area. However, no ruffe were captured in Escanaba harbor transects where they had been previously captured. A total of 7 ruffe have been captured since ruffe were discovered here in August of 2002. Species of interest captured in the bycatch included 144 invasive round goby, 54 native yellow perch, and numerous invasive zebra mussels. With the presence of ruffe confirmed on an east shore location as well as two west shore locations, it is likely that ruffe occur sporadically in preferred habitat throughout Little Bay de Noc.

Gary Czypinski, Ashland FRO



-USFWS

This ruffe was captured during a survey to assess relative abundance and range expansion of invasive Eurasian ruffe within Little Bay de Noc, northern Lake Michigan.

Have Black Carp invaded the Cypress Creek National Wildlife Refuge?

The black carp is an invasive fish imported to the United States to control snails in aquaculture ponds. The snails are an intermediate host for trematode parasites in channel catfish. Native to eastern Asia, the black carp feeds upon mollusks and crustaceans. Most biologists believe that if black carp ever become established in United States waters, they would pose a serious threat to native mollusks and snail species, many of which are already in peril. In March a black carp was captured by a commercial fisherman in Horseshoe Lake, Alexander County, Illinois, which is an isolated backwater lake of the Mississippi River. The fish was identified as a black carp by an Illinois Department of Natural Resources biologist and later confirmed by Southern Illinois University. The fish was determined to be triploid (incapable of reproducing) by a Fish and Wildlife Service triploid grass carp inspector. It is believed

that this fish may have entered Horseshoe Lake via the Cache River Drainage. During the summer, Carterville Fishery Resources Office (FRO) began a monitoring program on the Cache River at the Cypress Creek National Wildlife Refuge. Staff used electrofishing gear to sample the river. While no additional black carp were discovered during 2003, Carterville FRO will continue to



-USFWS

This triploid (incapable of reproducing) black carp was captured from Horseshoe Lake in Alexander County, Illinois. Carterville Fishery Resources Office immediately began a monitoring program in the area finding no more black carp.

monitor for the presence of this potentially destructive fish.
Greg Conover, Carterville FRO

Take Two... New Brood Stock Started

Iron River National Fish Hatchery (NFH) has created another year class of brook trout brood stock. This Superior Siskiwit Bay brood will supplement the stock we have on-site and will eventually replace the mature brood lot. This year class was created from reciprocal crosses of the 98 and 99 year classes originally collected in waters at Isle Royale National Park. One half of the eggs were sent to

Genoa NFH to be reared as a back up for Iron River. Currently, Iron River NFH is the only brood facility for the Isle Royale strains of brook trout in the Fish and Wildlife Service. Low stream flows and limited wild stock numbers have prevented additional collections at Isle Royale.

As part of restoration efforts, Iron River NFH stocks brook trout at Isle Royale National Park, Pictured Rocks National Lakeshore, and Keewenaw Bay Reservation in Michigan and Whittlesey Creek in Wisconsin, as well as supplying eggs to the Grand Portage Indian Band and Genoa NFH. The Fish and Wildlife Service has set up a study for Whittlesey Creek by partnering with Ashland Fishery Resources Office, Whittlesey Creek National Wildlife Refuge, Wisconsin Department of Natural Resources, and Iron River NFH. This study program calls for stocking brook trout as mature fish, yearlings, fingerlings, and eggs. These efforts will attempt to determine which strain will succeed in Whittlesey Creek and guide future restoration efforts.

Angela Baran, Iron River NFH

Fall Lake Sturgeon Assessments in Green Bay

Lake sturgeon populations in Lake Michigan declined dramatically during the last half of the 19th century, due primarily to commercial overfishing and habitat destruction. The work described here is part of a basin-wide project, funded by the Great Lakes Fishery Trust and the Giovanni Auletta Armenise Harvard Foundation, to determine the current status of sturgeon in Lake Michigan and develop strategies to restore populations to self-sustaining levels.

As part of an effort to determine the population size for lake sturgeon residing in Green Bay, biologists from Green Bay Fishery Resources Office (FRO) and Wisconsin Department of Natural Resources recently completed their fall gill net assessment at the mouth of the Peshtigo River.

Twenty-eight lake sturgeon were collected, and two of these individuals were recaptures from previous assessments. Captured sturgeon were measured for length, girth, and weight, sampled for genetic material, and tagged for future identification prior to release. The mark-recapture information from this assessment will be combined with data on over 450 other lake sturgeon captures from Green Bay and surrounding tributaries to obtain an estimate of the population size for lake sturgeon residing in Green Bay. Analysis of the genetic samples collected during this assessment (which will be conducted by researchers at Michigan State University) also will facilitate calculation of the contribution of each discrete spawning stock to the overall population in Green Bay which is located in northwestern Lake Michigan.

Brian Gunderman, Green Bay FRO

Lake Michigan Lake Sturgeon Status Assessment Project Completes Second Year of Open Water Assessment

The Green Bay Fishery Resources Office (FRO) completed its second large-scale collection of lake sturgeon from the open waters of Green Bay. This work is part of the Fish and Wildlife Service's involvement in the Lake Michigan Lake Sturgeon Status Assessment Project, a large cooperative initiative by

biologists and researchers from nine partner agencies and institutions around the Lake Michigan basin to gather information necessary to proceed with rehabilitation efforts for this species. Fishery Biologist Rob Elliott of the Green Bay FRO serves as project manager.

A contract was made with Hickey Brothers Fisheries to set and help fish six large commercial trap nets in southern Green Bay during May-June. A total of 155 lake sturgeon were captured, including both juvenile and large adult fish ranging from 23-82 inches and up to 140 lbs. Captured sturgeon were measured, sampled for genetic material, and tagged with passive integrated transponder (PIT) tags for later identification. Pectoral fin spines were also collected from a sub sample for aging. Seven of the fish had been previously tagged during other components of this basin wide status assessment project. Biological, catch rate and recapture data, along with analysis of the genetic samples, are being used to help determine the origin, abundance, distribution, and movement of these fish and how they contribute to the mixed stock of lake sturgeon residing in Green Bay.

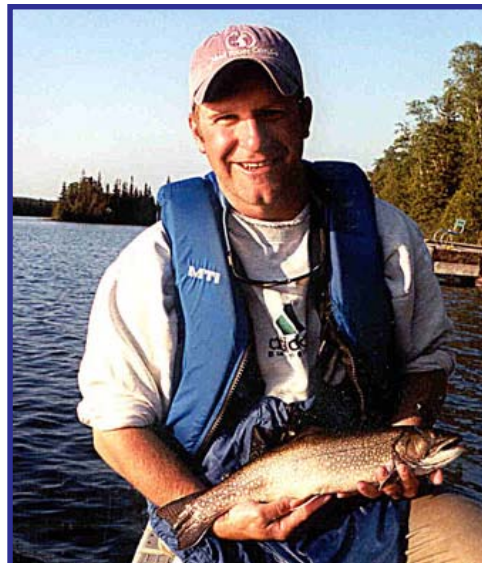
While sturgeon were commonly encountered years ago when these waters were heavily fished commercially, large trap nets have not been fished in southern Green Bay in many years, and until the initiation of this component of the project, no biological data existed on the mixed stock of sturgeon from these waters. Funding for the project was provided by the Great Lakes Fishery Trust and the Giovanni Auletta Armenise Harvard Foundation.

Robert Elliot, Green Bay FRO

Ashland Fishery Resources Office completes Survey of Chequamegon Bay for Coaster Brook Trout

Ashland Fishery Resources Office (FRO), along with personnel from the Wisconsin Department of Natural Resources, completed 3 electrofishing surveys on Chequamegon Bay, Lake Superior. In 2001, an electrofishing index station was established along approximately 4 miles of shoreline between Ashland and Washburn, Wisconsin. This station was selected to determine presence, abundance, and habitat use by lake-dwelling brook trout. This station has been sampled in 2001, 2002, and 2003 and will continue to be sampled two to three times annually throughout the experimental re-introduction of coaster brook trout to Whittlesey Creek. The first two surveys were conducted in October, and the third survey was completed in November. No brook trout were among the 17 fish species captured.

Glenn Miller, Ashland FRO



-USFWS

Ashland Fishery Resources Office and Wisconsin Department of Natural Resources staff search for the elusive coaster brook trout.

Alpena Fishery Resources Office Participates in Lake Whitefish Distribution Study in Lake Huron

In November, staff from the Alpena Fishery Resources Office (FRO) participated in a joint study with Michigan Department of Natural Resources (DNR) to assess efficiency of various sized trap nets on lake whitefish spawning grounds adjacent to Alpena, Michigan. The Fall 2003 work was a pilot project for a 3 year Fish and Wildlife Service Restoration Act funded study slated to begin in Fall 2004. The goal of the pilot project was to determine if small trap nets could efficiently capture sufficient numbers of lake whitefish for the 2004-06 mark/recapture study. From 2004 to 2006, the study plan calls for Fish and Wildlife Service and Michigan DNR to tag and release 3,000 lake whitefish annually in the Alpena area.

Biologists Aaron Woldt, Scott Koproski, Adam Kowalski, and Tracy Hill set two 6' high trap nets and one 4' high trap net near South Ninemile Point, north of Alpena. The 3 nets also had varying sized throat openings (12 to 18"). We varied throat size in an attempt to determine an optimum size that balanced trap avoidance and trap escape. Staff from Michigan DNR's Alpena Fisheries Research Station set 3 similar nets on known lake whitefish spawning grounds in Thunder Bay as well. Inclement weather with higher and more frequent winds than normal hampered sampling attempts, but Fish and Wildlife Service personnel were able to complete 8 lifts before a 10 day long storm event in early November, including 2 gales with winds over 35 knots that severely damaged all 3 nets, ended operations for the year. DNR

personnel were able to fish until mid-November due to protection from prevailing winds inside Thunder Bay.

In general, catch rates of lake whitefish in all nets were low. Nets with the smaller sized throat openings (12") seemed to have higher catch rates than nets with the larger openings, but sample sizes were small. Due to low catch rates in the small nets and their vulnerability to weather events, it is apparent that sampling efforts in 2004 to 2006 must include contracting with commercial fishers who use much larger pots (20' wide X 10' high). We will also experiment with fishing a large net bought specifically for this study (20' X 10'). This large net was not fished this year due to logistic concerns and inexperience with fishing such large gear. Data collected in this pilot study will improve study methodologies and help partners understand lakewide, lake whitefish movement dynamics and spawning activity. Results of the 2004-06 study will be used to implement a movement matrix in statistical-catch-at-age models used to set annual lake whitefish harvest limits in 1836 Treaty waters.

Aaron Woldt, Alpena FRO

Lake Michigan Invasive Ruffe came from an Introduced Population within the Great Lakes

Dr. Carol Stepien, Director and Research Professor-Great Lakes Genetics Laboratory, Cleveland State University, found that the newly introduced ruffe population in Lake Michigan came from one of the previously introduced populations within the Great Lakes, and not from an overseas location. The Ashland

Fishery Resources Office (FRO) had extracted tissue samples from three ruffe specimens captured from Lake Michigan and requested Dr. Stepien to perform a genetics study in order to determine the source population (Lake Superior or Lake Huron). This determination would have provided insight into the probable vector of introduction, information which would have aided in the ongoing evaluation of the Ruffe Control Program; however, Dr. Stepien discovered that all Great Lakes ruffe populations possess the same genetic make-up, and the source Lake population could not be identified. In her research paper entitled "Risk Analysis And Genetic Identity Of The Eurasian Source Population For The Ruffe (*Gymnocephalus cernuus*) Invasion In The Great Lakes", Dr. Stepien further stated that the ruffe in the Great Lakes came from the Elbe River in Northwestern Europe, a tributary of the Baltic and North Seas.

Gary Czypinski, Ashland FRO



-USFWS

The Great Lakes ruffe populations possess the same genetic make-up. These invasive fish came from the Elbe River in northwestern Europe, a tributary of the Baltic and North Seas.

Sea Lamprey Control Program destroys Lampreys to save Lake Trout

During the April 1 through October 30 field season, the Fish and Wildlife Service's sea lamprey control program treated 34 Great Lakes streams and lentic areas (6 in Lake Superior, 11 in Lake Huron, 15 in Lake Michigan, and 2 in Lake Erie) with lampricides to eliminate larval sea lamprey populations. These treatments destroyed an estimated 5 million sea lampreys including about 300,000 that would have metamorphosed to the parasitic phase in 2003 and entered the Great Lakes. There, each parasitic phase sea lamprey would have been capable of killing upwards of 40 pounds of lake trout and salmon during its year long life in the lakes. The Fish and Wildlife Service's sea lamprey control program is conducted under contract with the Great Lakes Fishery Commission. The successful control program continues to ensure sport fish rehabilitation in the Great Lakes and protects a fishery valued at over \$4.0 billion.

Dennis Lavis, Ludington Biological Station



-GLFC

A sea lamprey control technician administers lampricide to eliminate larval sea lamprey populations from this stream. Each parasitic phase, invasive sea lamprey can kill upwards of 40 pounds of fish.

La Crosse Fishery Resources Office assists Genoa National Fish Hatchery with Brood Stock Collections

Dave Wedan and Scott Yess from the La Crosse Fishery Resources Office (FRO) along with volunteer Bill Brockman assisted Roger Gordon, Nick Starzl, and Tony Brady from Genoa National Fish Hatchery with largemouth and smallmouth bass brood stock collections. Over 70 smallmouth were collected along with approximately 30 largemouth bass during three days of electroshocking on the Wisconsin River near the Dells. The La Crosse Fish Health staff ran virology tests on the bass prior to transporting to Genoa NFH with all tests being negative. These brood stock will be kept at the hatchery to supply the Region with fingerlings to meet high priority management plan commitments.

Scott Yess, La Crosse FRO

That's it in an Eggshell!

The Iron River National Fish Hatchery (NFH) is a combination brood stock and production facility tasked with raising lake trout and coaster brook trout to restore depleted Great Lakes populations. This fall, 960 mature lake trout from four different strains (Apostle Island, Traverse Island, Isle Royale, and Green Lake) produced 5 million green eggs for restoration programs. Of these, 3.8 million reached the eyed egg stage with 1.4 million to be raised at this hatchery to the fingerling and yearling stages and the remainder shipped to other production facilities. This year the lake trout spawning season ran from October through early November with peak

spawning occurring in mid-October. All lake trout are air-spawned using compressed oxygen injected into the body cavity to gently force the eggs out with minimal stress to the fish. A modified one-on-one spawning method is used to insure maximum genetic diversity in the offspring.

In addition, 445 coaster brook trout were spawned from late October through early December producing almost one million green eggs with over 500,000 surviving to the eyed egg stage. Once eyed, eggs were shipped to Genoa NFH for their fingerling and yearling programs, and Whittlesey Creek National Wildlife Refuge and Grand Portage Indian Community for direct egg plants into the creeks. Over 180,000 eggs were kept at the hatchery to provide fry and fingerlings to meet management plan objectives at Keweenaw Bay Indian Community and Isle Royale National Park. Both strains of coaster brook trout, (Siskiwit Bay and Tobin Harbor), were developed from populations located on Isle Royale National Park. The brook trout are spawned by hand-stripping the adults and are mated using the one-on-one spawning method.

Denise Johnston, Iron River NFH

Summary of Lake Trout Egg Deliveries to Jordan River National Fish Hatchery

During the period from November 18, 2003 through January 6, 2004 Jordan River National Fish Hatchery (NFH) received eyed lake trout eggs from Saratoga NFH (Saratoga, Wyoming), Sullivan Creek NFH (Brimley, Michigan), and Crystal Springs State Fish Hatchery (Minnesota Department of Natural Resources, Altura, Minnesota). The following

breaks down the egg deliveries from brood station by strain:

Sullivan Creek NFH - Green Lake 140,092; Lewis Lake 161,024; Seneca Lake 984,385; Superior-Apostle Islands 782,947 ; Superior-Traverse Island 159,471
TOTAL = 2,227,919

Saratoga NFH - Lewis Lake 2,369,846; TOTAL = 2,369,846

Crystal Springs SFH - Superior-Isle Royale 458,250
TOTAL = 458,250

The grand total of eggs received from brood stock stations equaled 5,056,015. These eggs were spawned in the fall of 2003, and the resulting fish will be released in the Spring of 2005 at which time they should be approximately 6 to 7 inches in length. The lake trout yearlings will be released into Lakes Michigan and Huron in support of restoration efforts for this important native fish.

Rick Westerhof, Jordan River NFH

Commercial Fishers gathering Important Data on Lake Superior Lake Sturgeon

A volunteer program utilizing commercial fishers on Lake Superior allows biologists to gather data on lake sturgeon caught incidentally in trap and gill net sets. The Ashland Fishery Resources Office (FRO), Michigan Department of Natural Resources, and the Bay Mills Indian Community, have been gathering biological information, including length, weight, and girth measurements for each captured sturgeon. Commercial fishers are also collecting genetic material by taking a small fin clip for analysis. Lake sturgeon are tagged with a numbered floy tag supplied by the agencies and released. Most of the fish the commercial fishers handle are immature, usually 18–30 inches

in length. Sturgeon of this size are rarely seen in spawning runs in tributaries to Lake Superior, nor as juveniles in the tributaries. Data gathered in this life stage will help biologists better understand the needs and habitats of lake sturgeon. This is the third year that the Ashland FRO has been involved with this program.

This year was a good year with the commercial fishers providing information on 25 lake sturgeon. The majority of these fish were caught in the Keweenaw Peninsula area in upper Michigan. One lake sturgeon that was tagged in June of 2002 was recaptured in July of 2003. This sturgeon had covered over 170 miles of shoreline from where it was originally tagged! To date, a total of 76 lake sturgeon have been handled by commercial fishers on Lake Superior. Along with the commercial fishers, four tribal natural resource departments are also gathering biological data and tagging sturgeon. They recorded a total of 12 sturgeon in 2003. A copy of the 2001–2002 Commercial Fishers Report for the Great Lakes can be viewed at: <http://midwest.fws.gov/sturgeon/rpt-GLCommercial01-02.pdf>.

Glenn Miller, Ashland FRO



-USFWS

A Fish and Wildlife Service biologist and a commercial fisherman work together to collect biological information from this lake sturgeon incidentally captured during fishing operations.

Oh No... The Sky is Falling!

The day has finally come... the contract has been awarded, and the domes at Iron River National Fish Hatchery (NFH) are due to come down this spring. In the late 1980's, the hatchery received monies to construct the air filled domes over the raceways. These domes were initially an improvement of conditions at the hatchery for fish rearing by eliminating all predator problems and sun burning of the fish; unfortunately, the domes have collapsed 5 times due to snow loads. These building failures are a safety hazard to employees and the visiting public. They happen so rapidly that any person caught under the snow load during a collapse could have been killed or seriously injured. Equipment, electrical panels, and escape doors have been crushed by tons of snow

and ice. The fallen material also poses a threat to fish by cutting off the raceway water supply.

Problems with the domes over the years necessitates their removal and replacement with a steel framed building. Funding for the replacement buildings has been secured. Last fall, the designs were completed and the bidding process opened in October. Approximately 20 contractors inspected the site to develop bids. The bidding closed in December and the contract awarded to Oscar J. Boldt Construction. Future meetings with this construction company will determine the exact date to begin work, but the demolition of the brood stock dome is due to begin in early spring. This is sure to be an interesting year for Iron River NFH and more reports of progress will follow!

Angela Baran, Iron River NFH

Jordan River National Fish Hatchery Raceway Replacement Project

On October 16-17 Paul Evenson from the Division of Engineering visited the Jordan River National Fish Hatchery to begin the raceway replacement project. Along with replacing the raceways, the project will include covers and installation of a liquid oxygen system for the 48 outside raceways.

The project design phase is being funded from the Lower Fox River and Green Bay Natural Resource Damage Assessment settlement. Once the project is completed, the hatchery will be able to maintain and increase propagation of quality lake trout for the Great Lakes. For example, the new raceway covers will eliminate the loss of fish to predation (birds and mammals). Last year alone, we lost 180,000 fish to predation in less than six months.

Rick Westerhof, Jordan River NFH



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Air supported domes over the raceways at the Iron River National Fish Hatchery have collapsed 5 times due to heavy snow loads. A steel framed building will be constructed in 2004 to alleviate this dangerous situation.

Public Use

New Brook Trout Videos are on the Ashland Fishery Resources Office's Web Page

Thanks to the efforts of Lee Newman, Joan Bratley, and Frank Stone, the Ashland Fishery Resources Office's (FRO) web page now has two new videos to help explain our brook trout restoration efforts. The first video is an up close and personal look at these beautiful fish. The second clip shows some of the efforts taken to reintroduce coaster brook trout at the Grand Portage Indian Reservation. More videos will soon be coming that will show additional aspects of brook trout restoration and other great accomplishments by the Ashland FRO staff. To view these new videos, please direct your Internet browser to: <http://midwest.fws.gov/ashland/native.html>.

Communication tools, such as videos, help to inform the public about the fishery restoration activities now underway by the Fish and Wildlife Service.

Frank Stone, Alpena FRO



-USFWS

The Ashland Fishery Resources Office's website has added two new videos which explain brook trout restoration efforts. To view the videos, go to: <http://midwest.fws.gov/asland/native.html>

Let's Learn about Fishing

Assistant Project Leader Tracy Hill of the Alpena Fishery Resources Office (FRO) participated in the Alpena County, Michigan Public Library's Fall Series "Let's Learn About Fishing" on October 4. This series was called "Let's Learn about Fishing" and included activities and demonstrations on fly-tying, Great Lakes salmon fishing equipment, fish identification, how to bait a hook, fish game activities, and casting. Tracy used the event as an opportunity to promote recreational fishing among youth and to educate adults about the role of the Fish and Wildlife Service's Fishery Resources Offices. Approximately 50 area youth participated in the event. Other partners assisting with the event included Boy Scouts of America, Alpena Public Schools, Michelle's Pet World, and Thunder Bay Steelheaders Association. This event provided a unique opportunity to explain to the public the Fish and Wildlife Service's mission and efforts to restore native fish and our efforts to control exotics in the Great Lakes.

Tracy Hill Alpena FRO

Sea Lamprey Display "Summoned to Summit"

Personnel from the Sea Lamprey Management Program, Marquette Biological Station staffed the Sea Lamprey Display at the Third Annual Environmental Summit (Summit) organized by the Binational Public Advisory Council at Lake Superior State University, Sault Ste. Marie, Michigan in November. The Summit is organized as an annual event for the citizens of Sault Ste Marie,

Michigan and Ontario.

Participants learned and shared information about progress on environmental issues along the St. Marys River and surrounding area. The St. Marys River is the interconnecting waterway between Lake Superior and Lake Huron.

Terry Morse, Marquette Biological Station

Eagle Scout Projects at Jordan River National Fish Hatchery

Robert Petersen (maintenance mechanic) had a vision to make a self guided interpretive nature trail and provide better access to the Jordan River National Fish Hatchery (NFH). He needed project volunteers and contacted the Petoskey Boy Scout Troup. Ben Fifer and Adam Ward were in search of projects for their Eagle Scout Badges and committed to the projects. Fifer took on the nature trail project and worked with Petersen to lay out the route from Five Tile to Six Tile water sources. The trail makes a one mile loop around the hatchery. Ben and his small group of friends cleared the vegetation, small brush and some large trees and installed posts for interpretive signs. The interpretive signs will describe specific natural features of the area. The trail also doubles as a cross country ski trail with several turns and hills to make it more challenging.

Adam earned his Eagle Scout Badge by demonstrating his leadership and organization skills to complete the access project at the hatchery. Adam and eight of his friends cleared the access trail of vegetation, spread Afton stone on the cleared path, cleared vegetation for several vehicles to

park along the valley road, and built several benches next to the trail. Adam, his loyal friends, and Robert Petersen spent several weekends completing the project. The hatchery provided the materials and the Scouts provided the labor. Beneficiaries of the safer access trail will be hikers, bird watchers, hunters, fishermen, and snowmobilers that use the Jordan River Valley and visit the hatchery.

Last year, the hatchery received approximately 15,000 visitors. Due to these scouts die hard attitude and desire to earn their Eagle Scout Badges, the general public now have an interpretive trail and safe access to the beautiful Jordan River Valley and the Jordan River NFH. *Rick Westerhof, Jordan River NFH*



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Eagle Scout candidate Adam Ward, pictured top-center, earned his badge by demonstrating his leadership and organization skills to complete a public use access trail to Jordan River National Fish Hatchery.

Local Girl Scout Troops visited Martha's Theatre at the Crab Orchard National Wildlife Refuge for "Make a Difference Day"

Crab Orchard National Wildlife Refuge (NWR) hosted a Saturday event which brought Girl Scout troops together with biologists for a half day of outdoor education. Biologists from Cartersville Fishery Resources

Office (FRO) provided and staffed a fisheries station for the event. The scouts were very interested in seeing, touching, and learning about the different fish found in the lakes on Crab Orchard NWR. Based on the number of screams from girls who were splashed by fish, the station was a big hit. *Greg Conover, Cartersville FRO*

Southgate Anderson High School Students learn about Lake Sturgeon

Fishery Biologist James Boase traveled to Southgate, Michigan on December 8 to present information about the lake sturgeon recovery efforts taking place in the Detroit River. Students from Southgate Anderson High School were shown a 20 minute Power Point presentation and then were introduced to an array of field sampling gear. During both segments of the presentation a series of questions were given to engage the students and demonstrate how development in southeast Michigan has impacted lake sturgeon rehabilitation efforts. The two main points presented were how pollution and habitat loss in the Detroit River has severely impacted this species. In addition, information was presented about why the corridor connecting Lake Huron to Lake Erie is vital to lake sturgeon survival. The 50 minute presentation was attended by five environmental biology classes for a total of approximately 95 students. The forum was an excellent opportunity to explain how the Alpena Fishery Resources Office (FRO) is working with state and local governing bodies as well as citizens in an effort to rehabilitate lake sturgeon populations throughout the Great lakes. *James Boase, Alpena FRO*

Coaster Brook Trout Issues presented to Marquette, Michigan Citizens

Lee Newman, Ashland Fishery Resources Office (FRO) gave a presentation on habitat needs and rehabilitation plans for native coaster brook trout to a large group of concerned citizens, environmentalists, and anglers in Marquette, Michigan. The local sponsoring group, Yellow Dog Preserve, is very concerned about exploratory drilling and the possibility of a hard rock, sulfide mine being developed in the immediate area of the headwaters of the Yellow Dog and Salmon Trout Rivers. At present, the Salmon Trout River supports the only self sustaining population of coasters on the United States mainland and the Yellow Dog was a historic coaster brook trout stream.

Lee Newman, Ashland FRO

Jordan River National Fish Hatchery featured on "Hook and Hunting" Program

Paul Haver, Biological Science Technician, arranged for a hatchery visit by Dan Boss, Channel 9&10 News TV reporter, to film a segment for his "Hook and Hunting" program. Boss viewed the disinfection and enumeration of lake trout eggs received from Sullivan Creek NFH and interviewed Assistant Project Leader David Huntly. This event provided not only a forum to showcase our program, but it also presented an opportunity to advertise our desire to form a Friends Group. The piece aired on Thursday, December 4 and was broadcast statewide.

Rick Westerhof, Jordan River NFH

Cooperation with Native Americans

A Lake Sturgeon Success Story

A lake sturgeon success story is unfolding on the White Earth Reservation in northwest Minnesota due to the efforts of several partners. Partners such as White Earth Department of Natural Resources (DNR), Rainy River First Nations, and Fish and Wildlife Service have worked as a well oiled machine to make this a reality. Recognition should go to Randy Zortman and his staff at White Earth DNR and Joe Hunter and his staff at Rainy River First Nations who have worked with four Fish and Wildlife Service stations; Genoa National Fish Hatchery (NFH), Neosho NFH, La Crosse Fish Health Center and La Crosse Fishery Resources Office (FRO). A lake sturgeon management plan for the White Earth Reservation was completed in 1998 and after three years of successful stocking, survival and growth were documented this year. During surveys conducted in October two young lake sturgeon were collected from White Earth Lake and four were caught at Round Lake. The number of fish are not as important at this point as the fact that lake sturgeon are present and healthy. The management plan calls for two more years of stocking, then an evaluation will be made on the stocking recommendations. Monitoring of the survival and growth is critical for successful restoration projects.

Scott Yess, La Crosse FRO



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Survival and growth were documented from lake sturgeon stockings in White Earth Lake and Round Lake on the White Earth Reservation. Tribal staff from White Earth Department of Natural Resources and Rainy River First Nations worked with Fish and Wildlife Service offices at Genoa National Fish Hatchery (NFH), Neosho NFH, La Crosse Fish Health Center, and La Crosse Fishery Resources Office to make this management plan objective a reality.

Red Lake Walleye Restoration Effort

In cooperation with the Red Lake Band of Chippewa's, and Minnesota Department of Natural Resources (DNR), the Ashland Fishery Resources Office (FRO) continued bottom trawling for the sixth year to assess abundance of juvenile walleye and forage fish in the Upper and Lower Red Lakes, Minnesota. The Red Lake Band provided funding for the trawling project. In 2000, trawling was expanded to include the eastern half of the Upper Red Lake under the jurisdiction of Minnesota DNR. In accordance with the Red Lake Walleye Restoration Plan, this survey is used by the tribe and Minnesota DNR to aid in the assessment of walleye recruitment, the success of walleye stocking, and the status of forage fish stocks. Approximately 119 million walleye fry have been stocked in this restoration effort since 1999.

A total of 60 tows were completed during the period of August 11-13. An average of 0.86 walleyes were captured per tow, slightly down from 2002 but comparable to other years with slightly more young-of-the-year captured than older walleyes. Year class strength of yellow perch was good, possibly enhanced by the walleye fry stocking last spring. Since these assessments began in 1998, a declining trend has been observed in freshwater drum, shiners, trout-perch, johnny darter, and adult yellow perch, potentially indicative of an increasing predator population. However, adult yellow perch become more successful in evading the trawl with age. Evasion success coupled with poor year classes from 1999-2001 is probably accounting for the continued decline in the adult perch catch. The first significant natural walleye recruitment is expected from the 1999 stocking during spring, 2004.

During a December 17th meeting, Mark Dryer and Frank Stone met with the Red Lake Task Force Committee to discuss the 2003 walleye stocking program and performance indicators of this long term restoration effort. Several key elements were discussed at this meeting: The three previous walleye fry stockings have successfully recruited into this fishery; restoration stocking as part of the long term plan are no longer needed; a small scale research stocking may yield valuable data and is currently scheduled for 2004 and 2005; Red Lake and Minnesota DNR biologists will now be focusing on establishing future harvest methods and a probable date to reopen this fishery.

Historically, the Red Lakes have provided food, recreation, cultural pursuits, and income to many people. If this restoration effort succeeds, it may well be the single most successful walleye restoration event ever accomplished within the State of Minnesota. 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 the Red Lake recovery effort.

Frank Stone and Gary Czipinski, Ashland FRO

Technical Fisheries Committee finalizes Lake Whitefish Harvest Limits

The Technical Fisheries Committee (TFC) met in Roscommon, Michigan on December 3 to finalize lake whitefish harvest limits for 2004. Model generated harvest limits, based on the most current biological and harvest data, are produced annually by the TFC's Modeling Subcommittee (MSC) for management units where fisheries are shared between Parties consisting of the five Chippewa-Ottawa Resource Authority (CORA) tribes and the State of Michigan in 1836 Treaty waters of Lakes Superior, Michigan and Huron. The Consent Decree requires the TFC to provide these final harvest limits to the Parties by December 1 each year. In management units where the whitefish fishery is reserved for the CORA tribes, harvest regulation guidelines (HRG) are established by the tribes according to terms of a Tribal Management

Plan. Final HRGs will be provided to the Parties once CORA has established them. Alpena Fishery Resources Office (FRO) Project Leader Jerry McClain (TFC Chair) and Treaty Fisheries Unit leader Aaron Woldt (MSC co-Chair), John Netto and Chuck Bronte from the Green Bay FRO, along with Bob Adair from the Regional Office attended the meeting. McClain mailed the final harvest limit recommendations to the Parties on December 15.

Interagency participation in the Modeling Sub-Committee and the Technical Fisheries Committee ensures cooperation and agreement for establishment of safe harvest limits for lake whitefish and lake trout. The effort fulfills Fish and Wildlife Service trust responsibilities to the Great Lakes natural resources (interjurisdictional fisheries) and to the 1836 Treaty Tribes.

*Aaron Woldt and Jerry McClain, Alpena FRO
John Netto, Green Bay FRO*

Green Bay Fishery Resources Office completes Stream Restoration Project

The Green Bay Fishery Resources Office (FRO) worked cooperatively with the Oneida Tribe of Indians of Wisconsin to complete a stream restoration project. A channelized portion of Trout Creek, located on Tribal land in Outagamie County, Wisconsin, was identified as a potential restoration site in 2000.

Funding was secured and Interfluvio Inc., a consulting firm, was hired to design and manage the project. Ground breaking began on October 6, 2003 with the initial step of dewatering the stream completed a day earlier. Over 650 yards of channelized stream was restored using natural channel

design concepts. The instream construction was completed in 11 days, while 300 trees were planted several weeks later. This project is part of an ongoing effort to restore degraded areas throughout the Trout Creek watershed. Funding for the construction portion was provided by Fish and Wildlife Service flex funds, while matching funds from the Tribe contributed toward consultant costs.

Stewart Cogswell, Green Bay FRO



Before Restoration

Green Bay Fishery Resources Office worked with the Oneida Tribe of Indians of Wisconsin to complete this stream restoration project on Trout Creek, located on Tribal land in Outagamie County, Wisconsin. Over 650 yards of channelized stream was restored using natural channel design concepts.

After Restoration



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No Lake Whitefish or Lake Trout Eggs found in Nine Eurasian Ruffe captured during Spawning

In cooperation with the Red Cliff Natural Resources Department (NRD) and Northland College, the Ashland Fishery Resources Office (FRO) sampled for the invasive fish, Eurasian ruffe, during lake whitefish and lake trout spawning population assessments near the Apostle Islands in Lake Superior. This project began in 2001 to determine at what level ruffe may be preying on lake whitefish eggs. In Lake Constance, Central Europe, ruffe predation on whitefish eggs was identified as a potential factor in the decline of that whitefish fishery. This was the first year of assessment on lake trout spawning grounds.

Red Cliff NRD performs annual gillnet assessments on the local whitefish and lake trout populations during spawning to determine tribal harvest quotas. Single 50 foot gillnet panels capable of capturing ruffe were attached to each of 4 gangs of whitefish gillnets and to each of 4 gangs of lake trout gillnets. Red Cliff tribal biologist Matt Symbal reported that the whitefish gangs were fished for one night, and the lake trout gangs were fished for 7 nights. A total of 9 adult ruffe were captured during the lake trout assessment, and no ruffe were captured during the whitefish assessment. No ruffe have been captured in the whitefish assessments since monitoring began in 2001. Dr. Derek Ogle, associate professor of mathematics, Northland College, identified the contents of the ruffe stomachs to consist primarily of midge fly larvae (chironomids), scuds (amphipods), and caddis fly larvae (trichoptera). No eggs of any kind were found in the 9 ruffe

stomachs. This study was initiated to satisfy concerns of the Chippewa Ottawa Resource Authority and the Red Cliff NRD on the potential impact of ruffe to Great Lakes lake whitefish and lake trout recruitment.

Gary Czypinski, Ashland FRO

Coded Wire Tags removed From Tribal Lake Trout

During the month of December, Fishery Biologist Adam Kowalski extracted and read coded-wire-tags (CWTs) from lake trout. CWTs are microscopic metal tags placed in the snouts of juvenile, hatchery reared lake trout. Hatchery personnel inject tags into the fish and remove the fish's adipose fin so that tagged lake trout can be identified by anglers and researchers. Lake trout heads were collected during the spring fishery independent lake whitefish survey and fall lake trout assessment conducted by the Chippewa Ottawa Resource Authority. We also extracted and read CWTs from sport-fishery caught lake trout heads collected by Michigan Department of Natural Resources personnel on Lake Huron. CWTs are extracted by cutting lake trout snouts into smaller and smaller pieces until the tag can be seen and removed. A metal detector is used to help the extractor find tags. CWTs are read under a microscope, and each tag's unique number is recorded. The tag number, when compared to stocking records, yields information such as stocking location, stocking date, fish age, fish strain, and hatchery of origin. In total, Kowalski removed and read 450 tags from approximately 500 heads. This concludes CWT extraction for the 2003 field season. All CWTs extracted and

read at the Alpena Fishery Resources Office (FRO) will be entered in the Lake Huron Technical Committee CWT database which is shared among all contributing resource agencies.

Data collected from lake trout CWTs are used in several ways. First, lake trout age data are used in population models that determine lake trout harvest limits for parties to the Year 2000 Consent Decree. Second, stocking location data are used to determine lake wide lake trout movement patterns. Finally, two existing studies to determine differences in survival between large and small stocked lake trout and differences in survival of various lake trout strains depend on CWT data. These outcomes are consistent with the Fish and Wildlife Service's goal of building and maintaining self-sustaining populations of native fish species while providing recreational fishing opportunities and meeting the needs of tribal communities. The multi-agency nature of this work is consistent with our goal of establishing and maintaining open, interactive communication with partner agencies.

Adam Kowalski, Alpena FRO



-USFWS

This enlarged image shows a microtag at the base of the machine nozzle which injects the tag into the snout of a yearling fish prior to stocking. Tags have a unique numeric code etched onto the surface. Tags retrieved from adult fish are read under a microscope to yield valuable data for managers.

Leadership in Science and Technology

Experimental Treatment used on Lake Trout Eggs at Iron River National Fish Hatchery

Yearly, millions of lake trout eggs are collected and incubated at the Iron River National Fish Hatchery (NFH). During the incubation process, fish eggs are exposed to fungi. Fungi are naturally occurring organisms that often attack dead fish eggs and can spread to adjacent live eggs, killing them. Formalin is currently used to control mortality associated with fungus on lake trout eggs; however, there are increasing concerns over user safety and environmental discharge following formalin use at hatcheries.

In a collaborative effort between the Iron River NFH and the U.S. Geological Survey's Upper Midwest Environmental Sciences Center, a study was generated to compare the effectiveness of formalin and hydrogen peroxide to control mortalities associated with fungal infections on lake trout eggs. Little information is available on the efficacy of hydrogen peroxide to control fungal infections on lake trout eggs. Hatchery personnel would prefer to use hydrogen peroxide in their hatchery production facilities; however, they have concerns regarding the efficacy of hydrogen peroxide to control fungal infections on lake trout eggs under actual hatchery production conditions. A second concern of hatchery personnel is if there exists an egg developmental stage that is sensitive to hydrogen peroxide treatments. Results of this study will provide scientific data that will assist fish culturists in determining if hydrogen peroxide should be the

therapeutant of choice in treating lake trout eggs. Recommendations will be formulated regarding hydrogen peroxide use in lake trout culture and identify if any sensitive egg development stages exist. Agencies and private aquaculturists need a safe, effective therapeutant for lake trout culture that is environmentally friendly.

Steve Redman, Iron River NFH



-USFWS

Steve Redman monitors water quality for an experimental hydrogen peroxide egg treatment at Iron River National Fish Hatchery. Staff are looking at hydrogen peroxide as a formalin replacement to treat fungus on lake trout eggs.

Divers search for Endangered Winged Mapleleaf Mussel

Divers from the Fish and Wildlife Service assisted Dr. Mark Hove, University of Minnesota, in an effort to locate winged mapleleaf mussels. Winged mapleleaf are an endangered species considered to be one of the rarest mussels in North America

and are only found in a short stretch of the St. Croix River near Taylors Falls, Minnesota. Dr. Hove, along with researchers from the U.S. Geological Survey and the La Crosse Fishery Resources Office (FRO), are trying to determine the host fish species for the winged mapleleaf. A critical step to this research is finding gravid (larva-bearing) winged mapleleaf mussels. To date this has been a major obstacle, but in 2003 four new gravid mussels were transferred to Dr. Hove's lab. These mussels should produce sufficient numbers of glochidia (mussel larva) to conduct the host research.

Scott Yess, La Crosse FRO

Results of Study to Evaluate Survival of Enhanced Quality Lake Trout Presented

Fishery Biologist Aaron Woldt and Project Leader Jerry McClain of the Alpena Fishery Resources Office (FRO) attended a Great Lakes Lake Trout Program meeting from December 9-11 in Marquette, Michigan. Meeting attendees included staff from the Great Lakes FRO's, Region 3 Federal Hatcheries, Regional Office, and Regional Fish Health Center. Woldt presented results from the Lake Huron Enhanced Quality Study, which compared coded-wire-tag (CWT) returns of standard and enhanced quality Lewis Lake strain lake trout yearlings reared at Jordan River National Fish Hatchery (NFH). For this study, paired plantings of standard quality (approx. 20 per pound) and enhanced quality (approx. 10 per pound) CWT lake trout were planted at each of four sites in both 1996 (1995 year class) and 1998

(1997 year class). The four sites stocked with experimental lake trout from north to south were Adams Point, Middle Island, Sturgeon Point, and Point Au Barques. For each year class, approximately 30,000 standard quality and 30,000 enhanced quality lake trout yearlings were planted at each stocking site. Since 1996, these CWT lake trout have been captured in survey, commercial (gill-net and trap-net), and recreational gears. Woldt showed two types of analyses: 1) an effort independent analysis using Chi Square methods to analyze returns from all sources and 2) an effort dependent analysis using the Wilcoxon Test for Matched Pairs to analyze only survey caught fish. Woldt led an open discussion of the two analysis techniques, including the pros and cons of each, and compared results of the Lake Huron Study to those of the Lake Michigan Study, as presented at this meeting by Chuck Bronte of the Green Bay FRO.

Overall, the results of the Lake Huron study using either analysis technique showed that the enhanced quality fish survived significantly better than the standard quality fish, although significant differences in survival were not detected for each site and each year class using the Wilcoxon Test for Matched Pairs. Woldt stressed that the Lake Huron study results only pertain to Lewis Lake fish reared at Jordan River NFH. Meeting attendees agreed, in light of both the Lake Michigan and Lake Huron study data, that the enhanced quality fish did survive better than the standard quality fish. Discussions then began regarding how to raise a larger number of enhanced quality lake trout. Evaluating the effects of hatchery rearing procedures allows the Fish and

Wildlife Service to better support lake trout restoration efforts by providing the best quality hatchery product possible.

Aaron Woldt, Alpena FRO

Hatchery Explores Options to Improve Fish Quality

On November 6, water quality expert Greg Kindschi (Fish and Wildlife Service employee from Bozeman, Montana) visited Jordan River National Fish Hatchery (NFH) to evaluate the physical facilities and to provide recommendations to improve fish rearing conditions. Following is a brief summary of his main recommendations: 1) have a comprehensive chemical analysis done on spring water supplies; 2) investigate means of improving dissolved oxygen concentrations in the outside raceways to maintain at or above 60% of saturation (low dissolved oxygen concentrations become problematic during spring when our fish loads are at their annual peak); 3) install rotating drum or disk filters at water intakes to reduce the quantity of silt brought into the hatchery during heavy rains (excessive silt loads irritate fish gills predisposing fish to bacterial gill disease); 4) acquire funding to construct a building over outside raceways.

The building will provide shade to lake trout which do not feed well after the sun has fully risen, limit the sunlight which causes excessive algal growth on the raceway walls in the spring, and keep fish eating predators out of the raceways. In the winter/spring of 2003, we estimate an inventory loss to predators (raccoons, opossums, mink, and herons) at approximately 10% of our fish production.

Rick Westerhof, Jordan River NFH

New Stocking and Assessment Vessel 60% Design Phase Review Meeting

The new Great Lakes stocking and assessment vessel 60% design phase submittal was reviewed by members of the "New Vessel Team" (alias Togue Team) on September 26, 2003 at the Green Bay Fishery Resources Office (FRO). Bob Bergstrom, Marine Engineer, and Mike Perry, Ship Captain from the Jordan River National Fish Hatchery (NFH) participated in the meeting along with Chuck Bronte, Green Bay FRO; Todd Turner, Regional Office Fisheries; Paul Evenson, Project Manager, Division of Engineering; and staff from Timothy Graul Marine Design (TGMD) from Sturgeon Bay, Wisconsin. Overall, the design of the new stocking and assessment vessel is proceeding smoothly. The 90% design submittal is scheduled for December 12, 2003. The New Vessel Team is very pleased with TGMD and is confident the vessel will be a great asset to the Fish and Wildlife Service and native lake trout restoration efforts in the Great Lakes.

Rick Westerhof, Jordan River NFH

The design of the new Great Lakes stocking and assessment vessel is proceeding smoothly. The vessel will replace the M/V Togue and will be a great asset to native lake trout rehabilitation.

Great Lakes Basin Ecosystem Team Web Update Presentation

Anjanette Bowen of the Alpena Fishery Resources Office (FRO) provided a brief presentation on updates made to the Great Lakes Basin Ecosystem Team web site (<http://greatlakes.fws.gov>) during the November 19-20 meeting of the Great Lakes Basin Ecosystem Team held in Chicago, Illinois. Web changes were made to better reflect emerging issues and priorities within the team including the addition of migratory birds, endangered species, and coastal habitat restoration web pages. The site has had over 221,067 hits (21,348 visitors) in 2003, with 32,781 hits (2,929 visitors) in October 2003 alone. The presentation was given via MCI web conferencing. Outreach, coordination, and partnerships between Great Lakes agencies are important for resource preservation and are key elements of the Fish and Wildlife Service's mission and the Fishery Program Vision.

Anjanette Bowen, Alpena FRO



The Great Lakes Basin Ecosystem Team's website has updates worth checking out! The site has had 221,067 hits (21,348 visitors) in October 2003 alone.

See: <http://greatlakes.fws.gov>

New Trawling Vessel for the Alpena Fishery Resources Office

In 2003, the Boston Whaler used by the Alpena Fishery Resources Office (FRO) for trawling purposes was retired due to safety concerns. The vessel was primarily used to monitor the establishment and expansion of aquatic nuisance fish species (ANS) in various shipping ports in Lake Huron. A new vessel is currently being fabricated by American MetalCraft Marine, Inc. of Clayton, New York. On December 9, Fishery Biologist Scott Koproski met with vessel designers and discussed vessel layout, helm and gauge set-up, and potential design improvements for the trawl winch system to ensure the new vessel meets station needs. The new vessel will be 24' in length with an 8' beam, and have a walk around center console. The trawling boom, winch, and winch power system will be removed from the retired whaler and installed on the new vessel. At the suggestion of American MetalCraft personnel, the drive system for the winch will be modified to improve system charging efficiency and reduce deck clutter. Koproski also participated in a field trial with a vessel of similar hull design to learn the handling capabilities and characteristics of the new vessel. Aquatic invasive species monitoring is a high priority of the Fish and Wildlife Services due to the potential impacts exotics have on native flora and fauna. Staff from the Alpena FRO have been monitoring introductions and expansion of ANS fish species in Lake Huron since the office opened in 1992. The new trawling vessel will allow ANS monitoring and control to continue in Lake Huron.

Scott Koproski, Alpena FRO

Coasters buried in Gravel

On December 16 and January 8, fertilized coaster brook trout eggs from the Iron River National Fish Hatchery (NFH) were buried in man made redds or placed in astroturf bundles in hatching boxes in Whittlesey Creek, which is part of the Whittlesey Creek National Fish and Wildlife Refuge in northern Wisconsin. The eggs were from two bloodlines, Siskiwit Bay and Tobin Harbor strains of coaster brook trout that originated from Isle Royale National Park. On December 16 25,300 eggs were packaged in coolers at the hatchery and later placed in man made redds and artificial bundles in the stream by the Ashland Fishery Resources Office (FRO), Wisconsin Department of Natural Resources, and hatchery staff. The second trip, on January 8, included 23,875 eggs with the local Trout Unlimited chapter assisting in this effort.

The eggs were taken from all 7 weeks of the spawning cycle to ensure that a complete genetic component reaches the wild. The staff of the Ashland FRO will monitor the progress and success of the hatch in this attempt to re-establish this native game fish. To assist in monitoring when hatch occurs, a small number of eggs were placed in small clear Plexiglas egg cards that were staked to the stream bed beside the redds or bundles to allow a quick visual check on development and hatching success.

This stocking event is an attempt to evaluate which life stage will survive best to re-establish a migratory brook trout population on Lake Superior's south shore.

John Johnston, Iron River NFH

Aquatic Habitat Conservation and Management

Palet 03 Wetland Restoration Project

The Palet 03 Partners for Fish and Wildlife wetland restoration project consisted of 2 wetland restoration sites totaling 13 acres. The project took place on agricultural lands near the White River in Ashland County, Wisconsin. In addition to providing wildlife habitat, these wetlands will serve as important buffers to sediment entering the White River, which is an important spawning river for lake sturgeon. Three wetland sites were restored on the farm the previous year, and with the addition of this year's site, the complexity of the wetland habitat and its value to area wildlife has greatly increased. On the three wetlands constructed last year, broods of Canada geese, mallards, and blue-winged teal were verified.

The majority of the construction was completed in September with some final adjustments to the spillway in early December. A Wetland Development Agreement was signed to protect the restored area for a period of 10 years. These wetlands will enhance wildlife habitat on the adjacent upland as well, and approximately 180 acres have been positively impacted for wildlife. Species which are benefiting from the habitat restoration and protection project include migratory waterfowl such as wood duck and American black duck, migratory songbirds such as wood thrush and yellow warbler and the threatened gray wolf. The landowners, Tim, Tom and David Palet, have been diligently improving their farm for wildlife and welcomed the assistance of the Fish and Wildlife Service and other agencies. The

Natural Resources Conservation Service provided technical assistance on this phase of the restorations and the Ashland Bayfield Douglas Iron - Land Conservation District provided technical and financial assistance. *Ted Koehler, Ashland FRO*



Before Restoration

The Palet 03 Partners for Fish and Wildlife wetland restoration project restored 2 sites for a total of 13 acres. This project in Ashland County, Wisconsin serves as a buffer for sediment entering the White River, which is an important spawning river for lake sturgeon.

After Restoration



-USFWS

Announcement of Lake Sturgeon Spawning Reef at Belle Isle in the Detroit River

Fishery Biologist James Boase was in attendance at the official announcement of the construction of the lake sturgeon spawning reef at Belle Isle on the Detroit River. The announcement

was attended by dignitaries from Windsor, Ontario and Detroit, Michigan local media, interested businesses, federal and state biologists, and private citizens. Boase presented two posters depicting the collaborative efforts by researchers from the Alpena Fishery Resources Office (FRO) and the U.S. Geological Survey (Great Lakes Science Center) involving lake sturgeon in the Detroit River. One poster showed the results of the pre-construction survey (spring 2003) of the proposed reef site. The second poster showed how the artificial reef was to be constructed. Questions from reporters from the Detroit News, Detroit Free Press, and the Mayor of Detroit staff were answered. In addition, one local radio station (WWJ AM 950) aired segments of the interview with Boase. Major contributors for this project include: Michigan Sea Grant, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, U.S. Geological Survey, Michigan Department of Natural Resources, Michigan Department of Environmental Quality, Great Lakes Fishery Trust, the City of Detroit, and Detroit Edison. If successful this project will not only be the first artificial spawning reef constructed in the Great Lakes specifically for lake sturgeon, but will also serve as a demonstration of a partnership effort working for the common good of a state listed species.

James Boase, Alpena FRO

Jones Wetland Restoration Completed

Construction has finished on the Jones Wetland Project. This Partners for Fish and Wildlife project consisted of two wetland restoration sites with a total of nearly 3 wetland acres. In addition to providing wildlife habitat, these wetlands will serve as important buffers to sediment entering Fish Creek. This wetland will enhance wildlife habitat on the adjacent upland as well, and approximately 120 surrounding acres have been positively impacted for wildlife. Species which will benefit include the wood thrush, American black duck, wood duck and gray wolf. Northland College currently monitors a wolf pack not far from the project site through telemetry and howling surveys. Protection of this site and the increased public awareness of the importance of protecting habitat for all wildlife; each make a small step in maintaining corridors where big predators can still roam.

Ted Koehler, Ashland FRO



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The Jones Wetland Restoration project restored two wetland sites for a total of nearly 3 wetland acres. Species that will benefit from this restoration include wood thrush, American black duck, woodduck, and gray wolf.

Fish Friendly Road Crossings Project for Bad River Watershed

The Bad River Watershed in northern Wisconsin is a large and complex system that has tremendous economic, cultural, and natural resource value to the region. There are 1,074 road crossings on streams in the watershed. An estimated 40% of these are causing significant damage to the riparian system. Many are fish barriers while others are significant sources of stream sedimentation by erosion. The majority of these crossings are owned or are under the authority of township, county governments, or private landowners.

Working with the Bad River Watershed Association and the Ashland League of Women Voters, Lee Newman developed a grant application that was funded through the Fish and Wildlife Service's Fish Passage Program for \$30,000. The grant will fund the replacement of three problem culverts, which will serve as demonstration projects. In addition, the grant supported an intensive training program on the design, construction, and site management of "Fish Friendly Road Crossings" to resource managers and road maintenance personnel in the Bad River Watershed. Those attending the October course in Ashland, Wisconsin included town and county road builders, Department of Transportation personnel, and concerned environmentalists. The training and experience brought to the watershed through this program are likely to have a major impact in reducing the riparian habitat damages associated with future construction and maintenance of road crossings. The Ashland Fishery Resources

Office (FRO) will continue to work with the Bad River Watershed Association to obtain funding for correcting environmental problems associated with road crossings.

Lee Newman, Ashland FRO



-USFWS

The Fish and Wildlife Service's Fish Passage Program provided funding for a grant that will replace three problem culverts, such as the one pictured, in the Bad River Watershed to serve as demonstration projects.

Evaluation of Polychlorinated Biphenyl Remediation at Crab Orchard National Wildlife Refuge

The Carterville Fishery Resources Office (FRO) and the Crab Orchard Superfund Office (COSO) are working to evaluate the effectiveness of polychlorinated biphenyl (PCB) remediation at the Sangamo National Priorities List (NPL) site under the Crab Orchard Superfund Project. Although PCB production was banned in the United States in 1979, contaminated hotspots associated with industrial activities remain. PCB remediation was conducted through soil and sediment removal at the Sangamo NPL site from 1995-1997.

Personnel from Carterville FRO and COSO have completed the first year of sampling in an ongoing project to evaluate the effectiveness of PCB remediation at the Sangamo NPL site. Along with the physical and chemical

analyses of fish conducted by COSO personnel, Carterville FRO will examine the population structure of upper trophic level fishes. The growth of fish collected from Sangamo Bay in Crab Orchard Lake will be compared with those collected from another, similar but uncontaminated bay. In addition, fish community diversity, species richness, and species evenness will be compared between sites. Although additional data on upper trophic level fishes is needed, preliminary results show greater fish species richness, diversity, and evenness in Sangamo Bay, possibly indicating successful remediation efforts at this site.
Nate Caswell, Carterville FRO



-USFWS

Fishery biologists from Carterville Fishery Resources Office electrofish in Crab Orchard Lake as part of an evaluation on the effectiveness of polychlorinated biphenyl (PCB) remediation at the Sangamo National Priorities List site under the Crab Orchard Superfund Project in southern Illinois.

Biologists Quantify Lake Sturgeon Spawning Habitat in Green Bay Tributaries

Dam construction, channelization, industrial and residential development, and pollution have severely reduced the amount of suitable lake sturgeon spawning habitat in Lake Michigan tributaries. This habitat destruction, coupled with commercial overfishing in the late 19th century, has reduced or

eliminated lake sturgeon populations in many Lake Michigan tributaries. A basin-wide effort to assess the status of sturgeon populations, funded by the Great Lakes Fishery Trust and the Giovanni Auletta Armenise Harvard Foundation, was initiated in 2002. As part of this project, biologists from the Green Bay Fishery Resources Office (FRO) and the Wisconsin Department of Natural Resources conducted a survey of sturgeon spawning habitat in three tributaries to Green Bay which is located in northwestern Lake Michigan.

Another tributary, the Fox River, was surveyed by researchers from Stantec Consulting Services, Inc. Suitable spawning sites were identified, and the total area of lake sturgeon spawning habitat in each river was calculated. This information, combined with data from spring spawning assessments, will allow biologists to decide what measures need to be taken to restore lake sturgeon populations in these rivers.

Brian Gunderman, Green Bay FRO

Fish Passage Decision Support System tested with Northeast Michigan Barriers

In November, Biologist Susan Wells, Alpena Fishery Resources Office (FRO), reviewed the Fish Passage Decision Support System (FPDSS). This system was designed to be an interactive method of obtaining and entering information on barriers throughout the United States as a key component of the National Fish Passage Program. Wells tested the system by entering numerous barriers from northeast Michigan into the system. After a week of reviewing the system, a write up

of findings was submitted to the National and Regional Fish Passage Coordinators. A few problems were discovered and improvements suggested. Overall, the system is an excellent tool for resource managers, biologists, and policy makers. It will be an indispensable tool once fully operation. This is an example of interagency collaboration to improve information sharing of resources. The FPDSS will allow agencies to use scientific evidence to support their decisions on resource policies and restoration activities. Once completed, this project will benefit numerous public and private agencies across the United States including the Fish and Wildlife Service.

Susan Wells, Alpena FRO

National Fish Passage Program (<http://fisheries.fws.gov/FWSMA/FishPassage/>)

PROGRAM GOAL

To restore native fish and other aquatic species to self-sustaining levels by reconnecting habitat that has been fragmented by barriers, where such re-connection would not result in a net negative ecological effect such as providing increased habitat to exotic species.

To view Regional work with aquatic habitat conservation and management:
<http://midwest.fws.gov/Fisheries/v-habitat.htm>

Survey of Presque Isle County Wetland Site

On December 9, Biologists Susan Wells and Heather Enterline from the Alpena Fishery Resources Office (FRO) surveyed the property of Dave Bregge. The survey was to determine the

potential of a wetland restoration site through the Partners for Fish and Wildlife Program. The property is located in Presque Isle County, Michigan on 80 acres. If restored, there will be 10 acres of wetland habitat. Wells and Enterline provided the landowner with information on fish habitat, grasslands, and prairies for optimal wildlife practices on his land. Enterline will be designing the restoration plans in cooperation with the National Resources Conservation Service (NRCS). The restored wetland habitat will benefit migratory birds, amphibians, and enhance water quality for adjacent watersheds by reducing sediment loads. Many partners are involved with this project including NRCS and local property owners.
Susan Wells, Alpena FRO

Carterville Fishery Resources Office completes Work on Two Dredge Spoil Placement Projects

Under the terms of a recent Clean Water Act Section 404 permit, to discharge dredged material into the waters of the United States, the U.S. Army Corp of Engineers agreed to assess the ecological impacts of dredged material placement. Carterville Fishery Resources Office (FRO) recently completed two, three year studies to assess the impacts of dredged material placement on the fish communities of the Illinois River (La Grange Pool) and Mississippi River (Pool 21). Carterville FRO completed monthly fish community sampling for the pre-placement study period and a post-placement study period. Comparisons between the pre-placement sample and the post-placement sample will provide insights on the effects of dredged

material placement on the fish communities of the Mississippi River and Illinois River. Carterville FRO is currently analyzing data and preparing a final report to be presented at a 404 interagency conference during March 2004.
Nate Caswell, Carterville FRO



-USFWS

Shoreline dredge material is being placed on the Illinois River. Carterville Fishery Resources Office is working with the U.S. Corps of Engineers to assess the impacts of dredged material placement on fish communities in the Illinois River (La Grange Pool) and Pool 21 of the Mississippi River.

Little Elk River Restoration Site Survey Completed

The initial survey has taken place for the Partners for Fish and Wildlife Program's Foylick Project. This river restoration project will take place on private land located in Price County, Wisconsin along approximately 2,000 feet of the Little Elk River. The section of river targeted for restoration was mapped and morphological characteristics identified. The information will be used to form an ecosystem restoration approach that is fish, wildlife, and farmer friendly. The restoration project will take place on a 40 acre section of pasture of an active dairy operation and is a partnership between the landowner, Price County Land Conservation District, Wisconsin

Department of Natural Resources, and Fish and Wildlife Service.

The Little Elk River is a cold water trout stream and home to native brook trout. Years of grazing pressure at the project location have negatively impacted the stream, its banks, and native vegetation. Working with the landowner, planning is now being conducted to restore and protect the impacted area while meeting the needs of farming operations. The stream banks will be stabilized, fish habitat and instream structures will be applied, and the riparian area will be restored and protected. The cattle will be fenced out of the stream and access restricted to a single maintained crossing. Brook trout were observed during the survey and will no doubt benefit from improved stream conditions. Many other species will benefit from the restoration activities including wood duck, American bittern, wood thrush, yellow warbler, and leopard frogs.
Ted Koehler, Ashland FRO



-USFWS

This Elk River site is being surveyed for a Price County, Wisconsin restoration project that will protect 2,000 feet of river. It is a cooperative effort between the landowner, Price County Land Conservation District, Wisconsin Department of Natural Resources, and the Fish and Wildlife Service.

Workforce Management

Sportswomen to the Rescue

In October, three volunteers from the Lake Superior's Reel Women sportswomen's group spent the day assisting Iron River National Fish Hatchery (NFH) staff with lake trout spawning. These women heard of the opportunity to volunteer for spawning in April after talking to hatchery staff at the Trout Unlimited Fishing Expo in Ashland, Wisconsin. They kept true to their word and contacted us in September for a time to come and volunteer. After getting used to things, the volunteers were able to spawn both male and female fish, rinse eggs, and spawn check another group of fish. With their assistance, we were able to sort and spawn our lake trout much faster. One woman returned to help with coaster brook trout spawning in November. I guess we didn't scare them off after all! We hope to work with the "Reel Women" again next year.

Angela Baran, Iron River NFH



-USFWS

Three volunteers from the Lake Superior's Reel Women sportswomen's group spent the day assisting at the Iron River National Fish Hatchery. Volunteer help is critical during spawning season.

Great Lakes Fish Team meet to discuss Strategies

A meeting of the Great Lakes Fish Team was held at the Marquette Biological Station in Marquette, Michigan during the week of December 8-12. Great Lakes Project Leaders and La Crosse Fish Health Center (FHC) staff met to discuss several important issues related to the lake trout restoration program such as lake trout yearling production, lake trout brood stock strains, and spawning procedures. A new Fish Team structure is being developed to better address timelines and responsibilities for increased efficiency and accountability.

Rick Nelson, La Crosse FHC

Fisheries Job Shadowing Experience

Alpena Fishery Resources Office (FRO) Biologists Adam Kowalski, Scott Koproski, and Anjanette Bowen provided a job shadowing opportunity in fisheries for the Alpena Volunteer Center and ACES Academy on December 23 in Alpena, Michigan. An ACES Academy student interviewed staff and learned about activities conducted by the Fish and Wildlife Service and Alpena FRO. Bowen provided an overview of the Fish and Wildlife Service and Alpena FRO, including mission, activities, how activities are integrated in the office, and job opportunities. Kowalski provided hands-on training in lake trout coded-wire tag recovery, processing, and how the tag provides fishery data and information. Koproski provided a demonstration on how fish scales and other bony structures are used to determine the age of fish. Job

shadowing is a great opportunity for both the Fish and Wildlife Service and students. The Fish and Wildlife Service is able to partner with community organizations to provide education and students are able to experience jobs first hand and learn about career pathways.

Anjanette Bowen, Alpena FRO

Fish Health Short Course taught at New Mexico State University

A one week short course titled "Introduction to Fish Health Management" was taught to attendees from the New Mexico Game and Fish Department, Fish and Wildlife Service, and New Mexico State University in Las Cruces, New Mexico. The course was sponsored by the National Conservation Training Center and taught by Rick Nelson, Project Leader of the La Crosse Fish Health Center (FHC). Two new instructors were presenting for the first time and they were Linda Beck and Marlene Rodarte from the Bozeman FHC in Bozeman, Montana.

Fish culturists and management biologists were taught a wide variety of material including anatomy of fish, fish health management, microscope use, necropsy procedures, parasitology, bacteriology, virology, nutritional and environmental problems, treatment calculations, and legal chemicals for fish use. The 38 hour course, with half lecture and half laboratory sessions, was taught to 15 attendees. The lab and lecture facilities were provided by the New Mexico State University with the cooperation of Dr. Colleen Caldwell, Assistant Coop Unit Leader.

Rick Nelson, La Crosse FHC

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Fish Lines

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Windows in time

A Glimpse into our Proud Past

This is a March 12, 1964 photo of some of the outdoor raceways and buildings at the Manchester National Fish Hatchery.

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