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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*

### Asian Carp: Huge Fish with Huge Impacts

(See the "Feature Article" on Page 5)



Series of photos depicting Asian carp in the Great Lakes/Big Rivers Region: (Top Left) Silver carp jump up to 10 feet out of the water when motorized vessels pass by. This behavior has resulted in injuries to boaters; USFWS photo (Middle) Illinois Natural History Survey (INHS) employees catch Asian carp in their assessment nets; INHS photo (Top Right) top to bottom: Silver carp, grass carp, bighead carp; Tennessee Wildlife Resources Agency photo by Bill Reeves (Bottom Left) This is a days catch of Asian carp for a commercial fisherman on the Illinois River; USFWS photo (Bottom Right) Greg Conover, Carterville Fishery Resources Office, explains the dangers of silver carp, an invasive species, to native river fish; USFWS photo

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.

Great Lakes - Big Rivers Region Fisheries Field Offices



# Great Lakes - Big Rivers Regional Fisheries Program

## Feature Article - Asian Carp: Huge Fish with Huge Impacts

### Pathways and Introductions into the United States

Four species of carp (bighead, silver, grass, and black), native to Asia, are making a big splash in our rivers. Bighead and silver carp were imported into the southern U.S. in the early 1970s to improve water quality in aquaculture ponds, and to possibly be marketed as food fish. Grass carp arrived in 1963 to research its potential as a biological control for nuisance aquatic vegetation, which had also invaded southern states. Black carp were first introduced into the United States by mistake, when they were included in shipments of grass carp sent to the southern states. In the early 1980s, this species was intentionally imported to control snails, which are intermediate hosts for parasites that sometimes kill cultured channel catfish. All four species of Asian carp escaped into the Mississippi River Basin, and all but the black carp developed self-sustaining populations. Bighead and grass carp have been captured in the Great Lakes Basin, but there is no evidence of reproduction.

**Bighead Carp**



-photo by D. Riecks

**Silver Carp**



-photo by L. Loushin

**Grass Carp**



-photo by B. Tabor

**Black Carp**



© Leo G. Nico

### Biology and Ecology

Bighead and silver carp are very similar in their biology and ecology. Both species live in a wide variety of habitats, but self-sustaining populations are most dense in large rivers and connected lakes, where moving river water provides conditions favorable for survival of fertilized eggs. In their native range, spawning of both species occurs during the spring, after water levels rise when water temperatures are 64-75° F. The buoyant, fertilized eggs drift in the current for 20-60 hours until they hatch. Bighead and silver carp are filter feeders during their entire lives, but newly hatched young feed first on plant plankton (phytoplankton). As bighead carp grow, they tend to consume more animal plankton (zooplankton) than phytoplankton, whereas silver carp may consume more phytoplankton than zooplankton throughout their lives. Bighead carp grow up to 12 inches per year in the Missouri River, a rate similar to that documented in its native habitats. This growth rate outpaces most fishes native to the Missouri River, and enables these carp to quickly become too big to be a part of native predatory fish diet. Bighead and silver carp can mature in only two years. Bighead carp can grow to about 60 inches and 110 pounds. In aquaculture facilities, silver carp have grown to 12 pounds in one year. In the wild, the silver carp may reach 39 inches and 60 pounds.

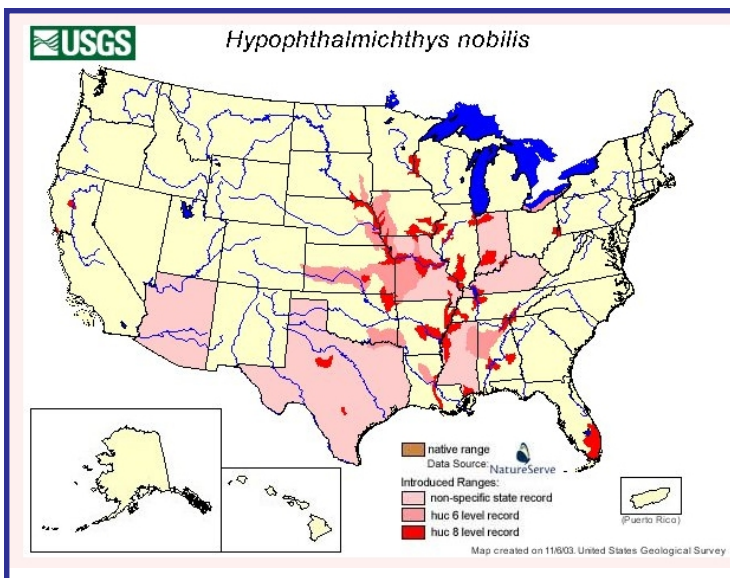
Grass carp have been stocked into lakes, ponds, and rivers, but self-sustaining populations tend to be restricted to large rivers and connected lakes because the species spawns over gravel in flowing water. Grass carp can eat up to 40% of their body weight per day, and grow to a maximum of 59 inches and 99 pounds, and live for 21 years. They were imported to test their suitability for biological control of nuisance aquatic plants, and have demonstrated that potential. Grass carp have actually eaten all of the aquatic vegetation in some ponds and lakes.

The biology of black carp is not as well documented as the other three species of Asian carp. We know that self-sustaining populations are established in most of the major river systems of eastern Asia. Black carp can grow to a maximum of 48 inches, and 71 pounds on a diet consisting almost exclusively of snails, mussels, and other invertebrates.

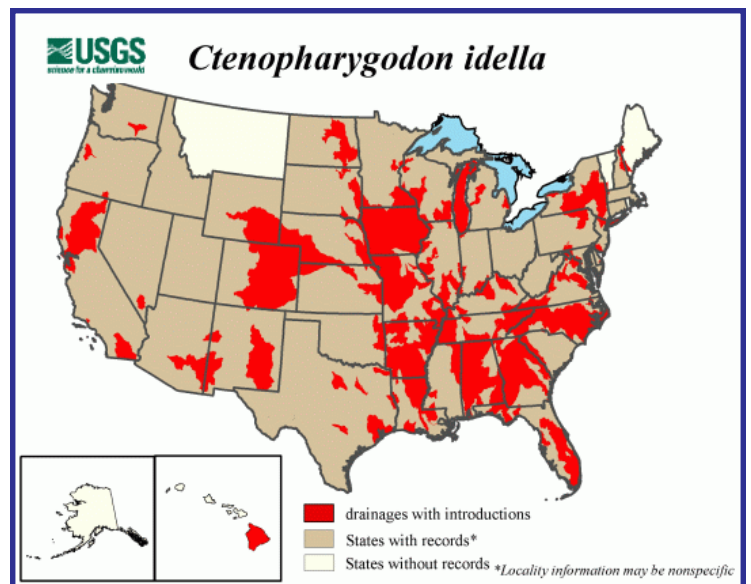
## Distribution and Abundance

Actual distribution and abundance of bighead and silver carp in the United States is not known. These species evade capture by current sampling methods that underestimate their relative and absolute abundances. We do know that grass carp inhabit waters within 45 states whereas bighead carp have been collected in 18 states, silver carp in 12 states, and black carp from only Illinois and Louisiana (some escaped from an aquaculture facility in Missouri). See the maps (below) for more details on the distribution of the four species of Asian carp.

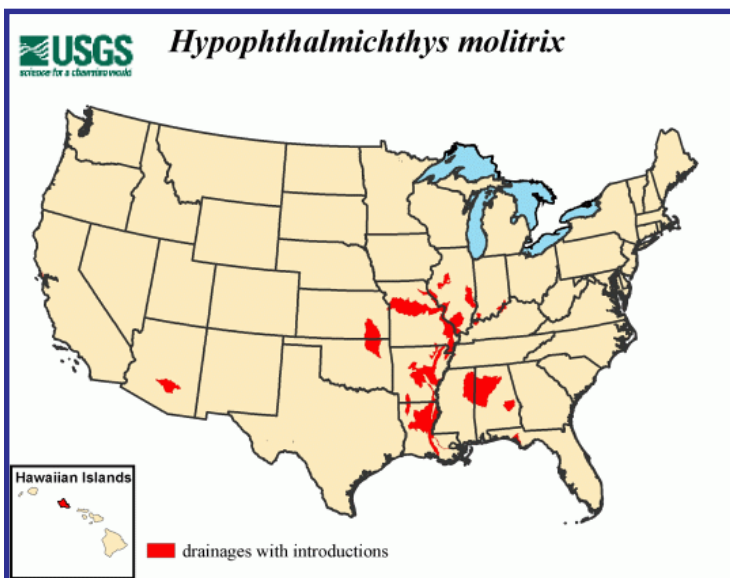
Data from the Illinois Natural History Survey's Great Rivers Field Station and Illinois River Biological Station indicate that bighead carp abundance has been increasing exponentially in a portion of the Mississippi River and silver carp may be increasing at similar rates in parts of the Mississippi, Illinois, and Missouri rivers. Bighead and silver carp populations have been doubling annually, that rate is the fastest possible for those species based on fishery statistics. The fast expansion of bighead and silver carp populations shows that the Missouri and Illinois Rivers are very well suited for bighead and silver carp. Other rivers in the region are probably also well suited to the requirements of those species.



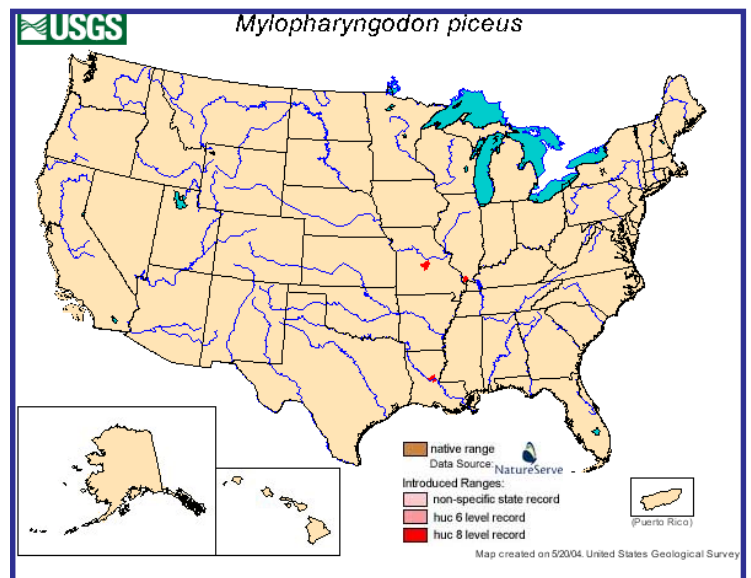
**Bighead Carp Distribution**



**Grass Carp Distribution**



**Silver Carp Distribution**



**Black Carp Distribution**

## Ecological Risks and Impacts

Ecological risk assessments are being completed for bighead, silver, and black carp. High densities, large sizes, and fast growth rates of bighead and silver carp pose a risk of competition for food with native fishes. Most juvenile, native fishes feed on zooplankton, and some native fishes, such as paddlefish, gizzard shad, bigmouth buffalo, and skipjack herring feed on zooplankton throughout their lives. Bighead and silver carp may also consume fish eggs and juveniles, which poses a risk of suppressing recruitment and abundance of some native fishes. Grass carp can eliminate vast areas of aquatic plants that are important as fish feeding, spawning, and nursery habitats. These habitat losses could reduce recruitment and abundance of native fishes. Black carp potentially could reduce abundance of already rare and endangered snails, mussels, and other invertebrates. Silver carp can jump at least 10 feet out of the water (see video at <http://www.protectyourwaters.net/>), a behavior that has resulted in injuries to boaters. It is probable that collisions between boaters and jumping silver carp will eventually result in human fatalities.

### Threat to the Great Lakes Basin

Bighead and silver carp are in the Illinois River, which is connected to the Great Lakes via the Chicago Sanitary and Ship Canal. These Asian carp pose the greatest immediate threat to the Great Lakes ecosystem. An electrical barrier is the only defense against the upstream movement of bighead and silver carp from the Illinois River into the Great Lakes. It was designed to repel fish but is experimental and presumably not 100% effective. Presently, bighead and silver carp are known to be within 22 miles of the electrical barrier, which is about 25 miles from Lake Michigan. Both species could reach the Great Lakes by swimming through the electrical barrier, or by release as bait fish or as fish sold live for food. Bighead and silver carp appear capable of colonizing all of the Great Lakes, and sustaining high-density populations. This would probably result in declines of many native fishes. Great Lakes sport and commercial fisheries are valued at \$4.5 billion dollars annually, without including the indirect economic effects of those industries. Degradation of the fisheries would have severe economic impacts on Great Lakes communities that benefit from those fisheries. Areas important to waterfowl production are also at risk from Asian carp, as are the waterfowl species that depend on small wetlands. Hunters spend more than \$2.6 billion

annually on their sport in the Great Lakes, so reduction of waterfowl populations there would negatively impact economies of communities that benefit from that activity.

### Threat to Other Basins and Locations

The Upper Mississippi River, other locations in the Mississippi River Basin, and other basins in the United States are at risk of range and population expansion by bighead and silver carp. The Upper Mississippi River System (UMRS) was declared by Congress as a “nationally significant ecosystem.” The UMRS is defined as the reach of the Upper Mississippi River between Minneapolis, Minnesota, and Cairo, Illinois; the entire length of the Illinois River; and the navigable portions of the Minnesota, St. Croix, Black, and Kaskaskia Rivers. The UMRS is represented in the states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin.

The system:

- Provides for more than \$6.6 billion in revenue annually from 12 million visitor days of use by people that hunt, fish, boat, and sightsee
- Provides recreation and tourism that employs 143,000 people
- Is a migratory flyway for 40% of all North American waterfowl
- Is a globally important flyway for 326 bird species (60% of all species in North America)
- Is inhabited by at least 260 fish species (25% of all fish species in North America) including nearby waters in the Upper Mississippi River Basin
- Is inhabited by 37 species of native mussels
- Is inhabited by 45 amphibian and reptile species and 50 mammal species
- Includes critical habitat for 286 state-listed or candidate species and 36 federal-listed or species of concern

Bighead and silver carp pose risks to these and other UMRS natural, cultural, social, and economic resources.

Bighead and silver carp are the Asian carp species that pose the greatest, immediate threat to other river basins and reaches of rivers not yet colonized. Grass carp, the most widely distributed invader, and black carp also pose risks of establishment and ecologic impact. Degraded habitat and declining fish and wildlife populations will result in loss of species biodiversity, which will impact our quality of life, economies, and the communities that rely on those economies.

### What Can You Do? –

- Become more informed about the spread of non-native species. Consult your local, state, and federal natural resource agencies on the threat of non-native species in your area, and the laws and regulations governing the importation, culture, maintenance, and stocking of non-native species.
- Exercise care when purchasing and using baitfish in lakes and streams. Ask your bait dealers where their baitfish came from, and never release any unused baitfish to the wild.
- Learn and understand the biology and needs of species before purchasing them for your home aquarium. Never release aquarium plants and animals into the wild.
- Support stronger local, state, and federal regulations to prevent the spread of non-native species, and let others know of your concerns for the protection of native species and habitats.
- Support your local, state, and federal natural resource agencies in all their efforts to stop the spread of non-native species, and support local and regional entities established to prevent and control invasive species. The Great Lakes Panel on Aquatic Nuisance Species was established to coordinate efforts to prevent species invasions and reduce their impacts in the Great Lakes Basin. The Mississippi River Basin Panel on Aquatic Nuisance Species coordinates similar efforts in the Mississippi Basin. Websites for those Panels (Great Lakes Panel - <http://www.glc.org/ans/panel.html>, Mississippi Basin Panel - <http://www.waux.cerc.cr.usgs.gov/MICRA/MRB%20Panel%20on%20ANS.htm>) will provide more information on what is being done, and the website for Protect Your Waters (<http://www.protectyourwaters.net/>) contains more information on what you can do to prevent the spread of non-native species.
- The Fish and Wildlife Service also provides operating expenses for all of the Regional Panels (Great Lakes, Mississippi Basin, Western, Northeast, Gulf, and Mid-Atlantic) on Aquatic Nuisance Species. The Panels identify priorities for activities in each region, coordinate aquatic nuisance species program activities, and advise public and private interests on control efforts.
- The Fish and Wildlife Service leads the development of a National Management and Control Plan for Asian carp. The Plan should be completed by the end of 2004, and will provide coordinated direction for prevention, management, and control activities targeted at Asian carp.
- The Fish and Wildlife Service continues to work with our partners to develop and implement approaches to control Asian carp and their effects on fish, wildlife, habitats, and people. For more information, see the Fish and Wildlife Service websites at <http://midwest.fws.gov/Fisheries/topic-ans.htm>, and <http://contaminants.fws.gov/Issues/InvasiveSpecies.cfm>.

### Research and Management Needs

The Great Lakes/Big Rivers Region (Region) of the Fish and Wildlife Service comprises the states of Minnesota, Iowa, Missouri, Wisconsin, Illinois, Michigan, Indiana, and Wisconsin. The Region supports research and management efforts to develop and implement cutting-edge techniques to prevent range expansion of Asian carp, and control their populations. We have begun several partnerships to conduct research and implement the most advanced scientific techniques to effectively and efficiently control Asian carp, with minimal impacts on native fish and wildlife. The future of our native fish and wildlife depend on our ability to control Asian carp and other invasive animals and plants. We continue to work with our partners to slow the spread of these unwelcomed inhabitants.

*Mike Hoff, Regional Office*

### What is the U.S. Fish and Wildlife Service Doing? –

- The Fish and Wildlife Service provided \$507,726 in Fiscal Year 2004 to support State and Interstate Management Plans to limit range expansion, abundance, and economic impacts of Asian carp and other species.

For detailed information about Asian carp, contact our Invasive Species Coordinator, Michael Hoff, at (612) 713-5114 or email him at [michael\\_hoff@fws.gov](mailto:michael_hoff@fws.gov)



## Partnerships and Accountability

### Fisheries Program Vision for the Future presented by the Alpena Fishery Resources Office

Alpena Fishery Resources Office (FRO) staff gave presentations about the Fishery Program's Vision for the Future (Vision) to two groups in March. Assistant Project Leader Tracy Hill presented the Vision to the Alpena Bass Club on March 3. This presentation is part of a strategic planning process to enhance partnership efforts for effective management of Great Lakes fisheries and aquatic resources. During the presentation, Hill provided the Bass Club with an overview of our agency's Fisheries Vision and explained the activities of the Alpena FRO. Hill also requested feedback from the group and sought input on how the Alpena FRO could better assist this group. Opportunities for collaborative projects with the group were discussed as well as strategies to enhance communication.

On March 10, Biologist Heather Enterline presented the Fisheries Vision at the annual meeting of the Michigan Association of Resource, Conservation and Development Offices (RC&Ds) represented by 30 participants. RC&Ds are important partners to the Fish and Wildlife Service in implementing habitat restoration activities and/or watershed-scale plans. Questions were asked regarding funding opportunities through the Partners for Fish and Wildlife Program, Coastal Program, and the Fish Passage Program. Feedback and recommendations on the Vision were requested; however, no comments have been received to date. The Fisheries Vision for the Future is a roadmap

for the Fish and Wildlife Service's Fisheries Program. It describes priorities for the next five years. Strategic planning for the future of the Fish and Wildlife Service's Fisheries program requires enhanced efforts for partnering with state, tribal, and local governments as well as non-governmental organizations to pursue collaboration and cooperation.

*Tracy Hill and Heather Enterline, Alpena FRO*



Alpena Fishery Resources Office staff presented the Fish and Wildlife Service's Fisheries Vision to the Alpena Bass Club in March.

### Presentations at the Great Lakes Fishery Commission Meetings

The Great Lakes Fishery Commission held its annual upper Lake Committee meetings in March at Ypsilanti, Michigan. Since 1980, individual Lake Committees serve as the major action arms for implementing the Joint Strategic Plan for Management of Great Lakes Fisheries. The Committees, and Council of Lake Committees, address a wide variety of issues critical to a healthy Great Lakes ecosystem. The annual meeting provides an opportunity for members from lakes Superior, Michigan, and Huron to convene with field biologists and

commissioners to receive information, develop policy, and standardize operational procedures.

Henry Quinlan of Ashland Fishery Resources Office (FRO) gave a presentation to the Lake Superior Committee on the progress being made lake-wide toward assessment and rehabilitation of lake sturgeon. Highlights included initial surveys of seven tributaries that currently support lake sturgeon populations of unknown size, identification of successful spawning in the White River, Wisconsin, and increases in abundance of juvenile lake sturgeon near the Bad River, Wisconsin. Henry also serves as the United States Co-chair of the Aquatic Communities Committee (ACC) of the Binational Program, and provided a presentation to update the Lake Superior Committee on activities of the ACC.

One key point is the completion of the Lakewide Management Plan (LaMP) 2004 Update that describes progress and accomplishments being made toward objectives of the 2000 LaMP. Another key point is the development of an integrated document by the 3 ecosystem committees (Terrestrial Wildlife Communities Committee, Habitat Committee, and ACC) that describe the characteristics, status, and trends of the natural resources of the Lake Superior basin. As a result of these presentations, the Lake Superior Committee has a better understanding of efforts and progress being made, and accomplishments that support a healthy, stable, and sustainable Lake Superior ecosystem.

*Henry Quinlan, Ashland FRO*

### Partners meet to discuss Brook Trout Rehabilitation in the Apostle Islands National Lakeshore

The Ashland Fishery Resources Office (FRO) met with the National Park Service, Red Cliff Band Natural Resources Department, Bad River Band Natural Resources Department, Wisconsin Department of Natural Resources, Great Lakes Indian Fish and Wildlife Commission, and Trout Unlimited in March to discuss the status of coaster brook trout and rehabilitation opportunities in the Apostle Islands National Lakeshore (APIS). Coaster brook trout, the migratory form of brook trout, has rarely been seen in the Bayfield Peninsula and the Apostle Islands since the late 1800s, primarily due to over-harvest and habitat degradation. The parties agreed to assess APIS waters for coaster brook trout populations. Ashland FRO will draft a work plan to survey potential brook trout habitat within the park. The work will be a joint effort between the partners and will begin with assessment activities in several areas of the APIS where brook trout are known to occur.

Information gathered from this assessment will be used by management agencies to guide attempts to rehabilitate populations of this migratory form of brook trout in this area of Lake Superior.

*Jonathan Pyatskowitz, Ashland FRO*

### Biologist from the Green Bay Fishery Resources Office presents Information on Lake Sturgeon in the Green Bay Basin

Biologist Brian Gunderman from the Green Bay Fishery Resources Office (FRO) gave a presentation at the joint meeting of the Wisconsin and Michigan chapters of the American Fisheries Society in Marinette, Wisconsin in January. The presentation, titled "Status Assessments of Lake Sturgeon Stocks in the Lower Green Bay Basin," summarized two years of research by biologists from Green Bay FRO, the Wisconsin Department of Natural Resources, Purdue University, and Michigan State University. The presentation included information on the abundance, distribution, movements, and population dynamics of lake sturgeon in Green Bay and surrounding tributaries. This research is part of a basin-wide effort, funded by the Great Lakes Fishery Trust and the Giovanni Auletta Armenise Harvard Foundation, to determine the status of this native species in Lake Michigan.

*Brian Gunderman, Green Bay FRO*



*-USFWS*

**A lake sturgeon swims in the shallows of Green Bay in northwestern Lake Michigan. Green Bay Fishery Resources Office works with partners to determine the status of this native species in Lake Michigan.**

### Case History of Fish Community Change in Lake Superior published by Fish and Wildlife Service Biologists

A variety of factors have changed the fish community of Lake Superior since 1970. To document changes, the Great Lakes Fishery Commission sponsored a series of workshops to describe changes in each of the Great Lakes and present a prognosis for the future. Chuck Bronte, Green Bay Fishery Resources Office (FRO), will lead a writing team that includes Contaminant Biologist Dave DeVault (Ecological Services), to develop a manuscript that describes fish community change in Lake Superior and the factors that resulted in that change. This work was recently published in the December 2003 issue of the *Canadian Journal of Fisheries and Aquatic Sciences*.

Lake Superior, in contrast to the other Great Lakes, has undergone significant restoration in the last 30 years with many native fishes demonstrating some form of recovery. Lake trout, both lean (stocked by Fish and Wildlife Service hatcheries) and siscowet types are now almost completely restored and are approaching or exceeding historical levels of abundance in some areas. Influences of introduced Pacific salmon are minimal and this species will likely remain a small part of the fish community. Fish populations will be dependent on the recruitment dynamics of forage fish, and to some extent the major predator, siscowet lake trout. Managers must concentrate on habitat protection and enhancement in near shore and river areas, and halt additional species introductions to promote further restoration of Lake

Superior. Persistence of Lake Superior's native deepwater species is in contrast to other Great Lakes where restoration will be difficult in the absence of these ecologically important native fishes. Reprints of the manuscript are available upon request by contacting Charles Bronte at: [charles\\_bronte@fws.gov](mailto:charles_bronte@fws.gov).

*Charles Bronte, Green Bay FRO*

### St. Marys River Fishery Task Group Meeting

Biologists Scott Koproski and Anjanette Bowen from the Alpena Fishery Resources Office (FRO) and Terry Morse from the Marquette Biological Station participated in the March meeting of the Lake Huron Technical Committee's St. Marys River Fishery Task Group held at the Bay Mills Resort and Casino in Brimley, Michigan. Discussion items included the following issues in the St. Marys River: International Joint Commission proposal for peaking and ponding operations, sea lamprey control plans for 2004, updates to the Lake Huron Technical Committee, report on the 2002 St. Marys River survey, 2005 creel survey status for United States and Canadian portions of the river, walleye stocking and evaluation plan, and status report of river species. Partnerships are an important part of the Fish and Wildlife Service's Fishery Strategic Vision and critical to the mission to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American public.

*Anjanette Bowen, Alpena FRO*

### Agencies discuss Cormorants in Minnesota

Personnel from the Fish and Wildlife Service, the Minnesota Department of Natural Resources (DNR), area tribes, and the University of Minnesota met on March 5 in Brainard, Minnesota to discuss control and management options for the large and expanding populations of double crested cormorants in Minnesota. Steve Lewis, Division of Migratory Birds, explained Fish and Wildlife Service policy concerning cormorants and Lee Newman of the Ashland Fishery Resources Office (FRO) helped describe the current status of cormorants at Grand Portage Indian Reservation. The group arrived at a consensus to recommend several management actions: 1) Designate a DNR cormorant contact(s) for the tribes and the U.S. Department of Agriculture (USDA); 2) Maintain a database of cormorant complaints; 3) Establish a process that insures coordination among the authorized agents (tribes, state, and USDA) to assess and respond to complaints at any breeding colony or migratory stopover site; and 4) In cooperation with other authorized agents, finalize a list to identify thresholds to begin control measures in problem locations.

*Lee Newman, Ashland FRO*



*-USFWS*

**Double Crested Cormorant**

### Wisconsin Aquaculture Conference

Approximately 300 people interested in fish farming attended the Wisconsin Aquaculture Conference held in Oshkosh, Wisconsin in March. This annual conference draws novice and experienced fish farmers from a four state area including Wisconsin, Minnesota, Michigan, and Illinois. Its success is because of the wide variety of speakers, vendors, and seminars that appeal to everyone in attendance. Educational information on how to get started, fish health management issues, market strategy, equipment, laws and regulations, and supply sources of fish species for your facility was available.

The La Crosse Fish Health Center (FHC) and Project Leader Rick Nelson have a working partnership with the aquaculture industry to present seminars and workshops at conferences and recruit attendees to the annual Fish Health Management short course held in La Crosse, Wisconsin. Numerous questions were answered about fish health problems in the fish rearing business. Nelson was presented an award during the banquet lunch by Dr. Myron Kebus, Wisconsin State Fish Health Veterinarian for the Wisconsin Aquaculture Association. The "Aquaculture Educational Award" was presented for on-going support, training, outreach, and cooperation with our partners including private aquaculture, Wisconsin Department of Natural Resources (DNR), Wisconsin Department of Agriculture, and the Consumer Protection Program.

*Rick Nelson, La Crosse FHC*

## Protecting the Jordan River Management Area for the Future

Rick Westerhof, Hatchery Manager of the Jordan River National Fish Hatchery (NFH), attended the recent Friends of the Jordan River (FOJ) board meeting. The highlight from the meeting was the discussion of Ward Lake Energy's request to drill two new natural gas wells in the Jordan River Management Area (JRMA). The proposed sites would violate the provisions of the JRMA Plan of 1974, which specifically prohibits oil, gas, or mineral extraction.

FOJ is opposed to the new gas well sites on the basis of their negative environmental impacts, precedent-setting intrusion into a protected natural area, and drainage of public resources (Richter 2004). Since 1974, all previous requests to drill on public land on the JRMA have been opposed, withdrawn, or denied. The JRMA guiding principles are to protect in a near natural setting the exceptionally high environmental and aesthetic attributes of the nearly 23,000 contiguous acres of public land for low impact multi-use recreation (Richter 2004). The Michigan Department of Natural Resources describes the Jordan River Valley as the "Crown Jewel" of Michigan's forest ecosystems. Even though the public and oversight agencies are doing the best they can, there are inherent legal issues. Under Michigan's property laws, there is separate ownership of the surface lands and mineral rights.

The two proposed natural gas wells would be located approximately one mile above the National Fish Hatchery near a snowmobile trail and hiking path. Potential concerns and impacts include bulldozing well pads and developing access roads, flow lines,

and processing plants that may degrade and disrupt fragile forest ecosystems. The potential impacts from the proposed gas wells on the hatchery's water supplies are from brine releases which contain chlorides. Petroleum products, diesel fuels, and hydraulic fluids used during the drilling process could contaminate the water supply if a spill(s) occurred. The wells are above and between both of the water sources. The hatchery's water supplies come from two springs or creeks called Five and Six Tile creeks. Five Tile supplies 2,000 gpm and Six Tile provides 3,000 gpm of gravity flow water to the hatchery.

The FOJ is a local grass roots conservation organization that is vital to the continued protection of the JRMA for future generations. The hatchery staff will continue to work with the FOJ to improve public access to the JRMA, while promoting environmental stewardship of such a great natural resource.

*Timothy Smigielski and Rick Westerhof, Jordan River NFH*



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**This is a proposed natural gas well site near the Jordan River National Fish Hatchery. The hatchery is located in the Jordan River Management Area which consists of 23,000 contiguous acres of public land in Michigan near Lake Michigan. Most of this acreage is hardwood forests along the beautiful Jordan River Valley. The Friends of the Jordan River group opposes well drilling and promotes environmental stewardship of this natural resource.**

## Lake Huron U.S. Agency Coordination Meeting

Alpena Fishery Resources Office (FRO) staff attended the Lake Huron U.S. Agency Coordination Meeting in March. The purpose for the meeting is to assist federal, state, tribal, and non-governmental agencies to refine their management of the domestic Lake Huron watershed. The U. S. Environmental Protection Agency (EPA) and Environment Canada recently initiated an effort to develop a binational process to address basin-wide environmental issues in Lake Huron. To guide the development of the Lake Huron Binational Partnership, and to ensure that domestic responsibilities are met, agencies working in the Lake Huron watershed need to better understand each other's on-going activities, coordinate actions where possible, and set joint priorities for future action. Tracy Hill made a presentation during the meeting explaining the activities of the Alpena FRO relative to Lake Huron. The meeting was attended by 45 people representing the following organizations: U.S. Geological Survey Great Lakes Science Center, National Oceanic and Atmospheric Administration Great Lakes Research Lab, U.S. Army Corps of Engineers, EPA, Chippewa Ottawa Resource Authority, Michigan Department of Natural Resources, Huron Pines Resource Conservation and Development, Michigan Department of Agriculture, Great Lakes Fishery Commission, Michigan Department of Environmental Quality, Northeast Michigan Counsel of Governments, and Ducks Unlimited.

*Tracy Hill, Alpena FRO*

# Aquatic Species Conservation and Management

## Surveillance detects Minor Ruffe Range Expansion during 2003

All dedicated and reported incidental surveillance reported only minor range expansion of the invasive fish, Eurasian ruffe during 2003. Monitoring activities were summarized by the fishery resources offices from Ashland, Alpena, Green Bay, and Lower Great Lakes, and the Ontario Ministry of Natural Resources in the 12th annual ruffe surveillance report. Annual surveillance activities detected ruffe in Lake Huron in 1995 and in Lake Michigan in 2002. No ruffe have been detected in the Lower Great Lakes. Using gillnets, the Alpena Fishery Resources Office (FRO) conducts ruffe population reduction in the Thunder Bay River Estuary, the only known ruffe colony in Lake Huron. In Lake Michigan, ruffe were detected only in Little Bay de Noc in northwestern Lake Michigan. In Lake Superior, ruffe were detected as far east of the Duluth Harbor as the Keweenaw Waterway on the south shore and Thunder Bay Harbor in Canada. The report, "Surveillance For Ruffe In The Great Lakes, 2003", is on the Ashland FRO website at: <http://midwest.fws.gov/ashland>. Gary Czypinski, Ashland FRO



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This invasive Eurasian ruffe was captured in Little Bay de Noc (northwestern Lake Michigan). Great Lakes Fishery Resources Offices and the Ontario Ministry of Natural Resources summarized their surveillance findings for 2003.

## Wild Fish Health Assessment on the Upper Mississippi River

The La Crosse Fish Health Center (FHC) completed its annual spring wild fish health assessment with the assistance of Genoa National Fish Hatchery (NFH) on Pool 9 of the Upper Mississippi River. The survey took place on March 25 and on April 8 this year. Genoa was involved in their spring netting of walleye and northern pike to provide eggs for a variety of stocking and mussel projects. The FHC tested up to 30 fish of each species captured during hatchery netting operations for the wild fish health survey and to determine the fish health status of the Genoa NFH. Since the nets, used by the hatchery crew, do not target specific fish species, FHC biologists were able to acquire fish health samples from 14 different species with a total of over 260 fish sampled.

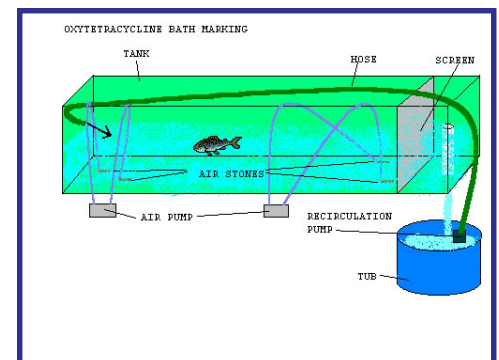
Corey Puzach, La Crosse FHC

## Iron River National Fish Hatchery Brook Trout get Oxytetracycline Markings

The Iron River National Fish Hatchery (NFH), with assistance from Frank Stone from the Ashland Fishery Resources Office (FRO), completed the marking of their coaster brook trout fry for 2004. Oxytetracycline marking is administered in lieu of a fin clip marking because the fish are too small, less than one inch in length, to accurately clip. To mark fry, they are exposed to a 700 parts per million solution of oxytetracycline for an 8 hour period in a recirculation bath treatment. The absorption of the oxytetracycline by the fish makes a permanent mark on their bones.

As fish grow and add new bone, there will be a permanent yellow spot or ring from when the fish was marked. Biologists extract the otolith (inner ear bone) of brook trout they later capture in the lake. When the otolith is exposed to ultraviolet light, the oxytetracycline mark glows yellow distinguishing this fish as a hatchery product.

A means of evaluating stocked hatchery reared fish is an important facet of fishery management. The information gained from this oxytetracycline marking project will give fishery managers a better means to estimate survival of stocked brook trout fingerlings. The fish that were marked will be stocked into Tribal waters for the Keweenaw Band and in the waters off Isle Royale National Park. The purpose of these stockings is to initiate the restoration of a naturally reproducing population of coaster brook trout in its native waters. Nick Grueneis, Iron River NFH  
Frank Stone, Ashland FRO



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This diagram shows the recirculation bath system used at the Iron River National Fish Hatchery to mark coaster brook trout fry with oxytetracycline. The absorption of the chemical by the fish makes a permanent mark on their bones which allows for future identification.

### **Fish and Wildlife Service to lead Drafting of the Lake Trout Restoration Plan for Lake Michigan**

Lake trout restoration in Lake Michigan has been ongoing since the 1960s with the Fish and Wildlife Service playing a major role by stocking 99% of all lake trout introduced. A formal interagency lake trout management plan was developed in 1985 and has been implemented since then, but success towards restoration of self sustaining stocks has been elusive. An evaluation of the impediments to lake trout restoration was completed in 2002-2003 (<http://www.glfsc.org/lakecom/lmc/lstore.pdf>) and identified potential factors that are limiting success. A new plan, based on this impediment analysis, will be drafted in 2004. Chuck Bronte, Green Bay Fishery Resources Office (FRO), will lead the effort as Chairman of the Lake Michigan Lake Trout Task Group. A writing team of state and tribal managers, Fish and Wildlife Service biologists, and Great Lakes Fishery Commission staff will meet at the Ludington Biological Station, Ludington, Michigan, in late May to develop a draft management plan. This new plan will focus on concentrating lake trout stockings by National Fish Hatcheries in areas with good habitat that were historically important and are protected from fishing mortality. These measures and others should increase the potential to develop sustained natural reproduction and reestablish lake trout as the community dominant predator in selected areas of Lake Michigan. *Charles Bronte, Green Bay FRO*

### **Ashland Fishery Resources Office completes Lake Superior Angler's Creel Lake Trout Scale Reading for the Michigan Department of Natural Resources**

The Ashland Fishery Resources Office (FRO) analyzed a set of lake trout scales collected from anglers at various creel check points on Lake Superior. The creel is run by the Marquette Fisheries Station, Michigan Department of Natural Resources (DNR). Scales were collected in both 1836 and 1842 treaty waters of Lake Superior. The ageing information, obtained by reading growth lines in scales, is used in conjunction with the biological data in models to set harvest regulations for lake trout in Lake Superior. Approximately 800 lake trout scales from the 2003 creel in 1836 waters and 400 scales from the 1998 and 1999 creel in 1842 waters were read. This is the third year the Ashland FRO has assisted with scale reading for the Michigan DNR, and this partnership appears to be a long-term association. Data collected from the creels and surveys by the natural resource agencies throughout the lake are critical components to monitor restoration of a native species in Lake Superior.

*Glenn Miller, Ashland FRO*

### **And The Grand Total of Lake Trout Eggs produced at Sullivan Creek National Fish Hatchery is...**

The Sullivan Creek National Fish Hatchery (NFH) successfully incubated and shipped 3.1 million eyed lake trout eggs last fall, with the last being shipped out in January. While 225,000 were transferred to the main station at Pendills Creek NFH, the rest were

shipped to Jordan River NFH, Iron River NFH, Allegheny NFH, and the Michigan Department of Natural Resources. A small batch of eggs was shipped to Purdue University to assist a graduate student with research for his thesis. The number of eyed eggs produced this year is a bit lower than past years because the staff had to stock some of the older lots to make room for younger, replacement brood stock that will be maturing in the next couple of years.

*Curt Friez, Pendills Creek NFH*



*-USFWS*

**These lake trout eggs are close to hatching. The eyes of the fish can be seen through the shells of the eggs. The Sullivan Creek National Fish Hatchery, near Brimley, Michigan, produced approximately 3.1 million eggs this fiscal year for high priority lake trout restoration programs.**

### **Green Bay Fishery Resources Office summarizes Sport-fishing and Fish Stocking Activities in Lake Michigan for 2003**

The Fish and Wildlife Service's Green Bay Fishery Resources Office (FRO) produced its annual reports to brief the Lake Michigan Lake Committee on recreational fishery trends and lake-wide salmonid stocking activities during 2003. The reports were distributed at the Lake Committee meeting, held March 24-25 in Ypsilanti, Michigan.

The Green Bay FRO maintains the Great Lakes Stocking Database and the Lake Michigan Recreational Fishery Creel Database to assist fisheries management programs in Lake Michigan and throughout the Great Lakes. The Great Lakes Stocking Database contains records for fish stocked in the Great Lakes since 1950; the Lake Michigan Recreational Fishery Creel Database contains lake-wide catch, harvest, and effort data collected from Lake Michigan anglers. These databases are annually summarized by staff to update the Lake Michigan Lake Committee on the number of salmonids stocked and the number harvested by sport-anglers in Lake Michigan. This information is used by the Lake Committee to assess the recreational fishery and in formulating future management decisions in Lake Michigan.

*Dale Hanson, Green Bay FRO*



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**These sport fisherman had a successful fishing trip on Lake Michigan. The Green Bay Fishery Resources Office maintains the "Lake Michigan Recreational Fishery Creel Database" which contains lake-wide catch, harvest, and effort data which is used by partners to manage the fishery.**

## Finclipping at Pendills Creek National Fish Hatchery

Just like clockwork, March brought slightly warmer weather, less snow, melting ice, and fin clipping to the Pendills Creek National Fish Hatchery (NFH). Fin clipping refers to the process of removing a fin(s) from lake trout yearlings to identify them as hatchery products. Starting a week later this year, on March 15, eight temporary employees (called fin clippers) spent their first week getting adjusted to this year's clip of the left pectoral fin and the right ventral fin. This year, the clippers are working eight hour days instead of the usual seven to try to make up for the later start time. Assistant Manager Crystal LeGault hoped that by starting a week later, the staff wouldn't have to deal with ice in the raceways which hinders fish removal. Unfortunately, the second day of fin clipping saw Biologist Tracy Roessner jumping into an ice covered raceway to bring in a load of fish for marking. With nearly twice as many fish to mark this year, compared to last year, everyone at Pendills Creek is expecting an overlap into fish distribution which starts the third week in April.

*Curt Friez, Pendills Creek NFH*



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**Each spring, employees at the Pendills Creek National Fish Hatchery mark lake trout yearlings by removing a certain fin(s). Marking allows biologists to identify fish as hatchery products providing critical information for lake trout rehabilitation efforts in the Great Lakes. Marking will be complete at the end of April.**

## New Year Class of Lake Trout hatches at Pendills Creek National Fish Hatchery

The year 2004 started out well at the Pendills Creek National Fish Hatchery (NFH) with the hatching of approximately 220,000 baby lake trout on January 20th. These babies were transferred from the Sullivan Creek NFH, a substation of Pendills Creek, in mid-December as eggs. The Lewis Lake strain sac fry will remain in the tank room until mid-June so they can grow in a more controlled environment. In June, these production fish will be moved to outdoor raceways until they are distributed the following spring in support of the Great Lakes lake trout rehabilitation plans.

*Curt Friez, Pendills Creek NFH*

## Public Use

### Fisheries Program Presentations at the Opening of the Whittlesey Creek National Wildlife Refuge Exhibit

Mark Dryer, Ashland Fishery Resources Office (FRO), and Gerry Jackson, Assistant Regional Director for Fisheries in Region 3, each gave a presentation at a public and agency gathering to celebrate the opening and ribbon cutting for a new exhibit at the Northern Great Lakes Visitor Center and Whittlesey Creek National Wildlife Refuge (NWR). The exhibit is of Whittlesey Creek and depicts a fall scene with spawning brook trout, other native fish and wildlife mounts, flood plain and stream habitats, and a bald eagle nest. It also includes an interactive panel where visitors can hear animals and prerecorded narrative messages. The Ashland FRO provided assistance with exhibit interpretation of coaster brook trout, the anadromous brook trout found in Whittlesey Creek. Jackson and Dryer spoke about the Fish and Wildlife Service's Fishery program, partnerships, and coaster brook trout rehabilitation efforts in Whittlesey Creek. Participating in cutting of the ribbon was Gerry Jackson, Mark Dryer, Katie Goodwin (Whittlesey Creek NWR), Marjorie Bunce (Senator Herb Kohl's Northern Wisconsin staff), Representative Gary Sherman (Wisconsin Assembly), and Ann Archie (U.S. Forest Service Forest Supervisor).  
*Mark Dryer, Ashland FRO*



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**Pictured is the new exhibit at the Northern Great Lakes Visitor Center and Whittlesey Creek National Wildlife Refuge. The exhibit depicts a fall scene with spawning brook trout, other native fish and wildlife mounts, flood plain and stream habitats, and a bald eagle nest.**

### Lake Sturgeon Habitat Project presented to Grosse Point Sportsman's Club

Biologist James Boase traveled to Grosse Point Farms, Michigan on March 16 to attend the Grosse Point Sportsman's Club meeting. Boase gave a presentation titled "Lake Sturgeon in the Huron/Erie Corridor." Approximately 45 recreational anglers from the Grosse Point area attended the presentation. The informal presentation allowed the audience to participate throughout the talk by asking questions and sharing their encounters with lake sturgeon while fishing in Lake St. Clair and the Detroit and St. Clair rivers. Questions focused on how lake sturgeon habitat rehabilitation would enhance the abundance of other species, interaction with invasive species, potential for increased poaching as public awareness increases, and health risks associated with the consumption of lake sturgeon. The forum was an excellent opportunity

for Boase to explain how the Alpena Fishery Resources Office (FRO) is working with biologists, recreational anglers, and commercial fishers from both Canada and the United States in efforts to better understand and enhance sturgeon populations throughout the Great lakes. Also, the meeting provided Boase an opportunity to interact with recreational anglers from southeast Michigan and explain the vital role they play in the rehabilitation of lake sturgeon. This presentation provided an excellent opportunity to explain to the public the Fish and Wildlife Service's mission and efforts to restore native fish and control invasive species. Specifically, the presentation focused on efforts to reconstruct lake sturgeon spawning habitat in the Detroit River and the benefits for other species of fish in that area of the Great Lakes. The benefits of native species restoration and the detriments of invasive species was clearly defined and explained.  
*James Boase, Alpena FRO*

### Anglers get Hooked on Fishing at the Mississippi Valley Fishing Expo

Fish and Wildlife Service offices from La Crosse and Genoa, on the Upper Mississippi River, joined forces to set up and staff a booth at the first annual Mississippi Valley Fishing Expo (Expo) which was sponsored by the Onalaska Omni Center, Onalaska, Wisconsin. This first year event was attended by over 3,000 people who found the Fish and Wildlife Service booth to be very interesting. Featured displays included native mussels, mounted fish, an aquarium with trout and lake sturgeon, video on



exotic carp and endangered mussels, and numerous posters on a variety of aquatic topics. A majority of the questions and concerns were about the exotic carp and our native mussels. The lake sturgeon in the aquarium and a large mount were also a big hit. Sunglasses, key chains, and coloring books were distributed to the children. Holding the Expo in March is perfect timing for spring fever anglers. The staff heard very positive comments on the display and the Expo in general. This event was an excellent outreach opportunity and will be attended next year.

*Scott Yess, La Crosse FRO*



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**A visitor enjoys the Fish and Wildlife Service booth at the Mississippi Valley Fishing Expo in Onalaska, Wisconsin.**

### **Ashland Fishery Resources Office highlights Experiment To Restore Coaster Brook Trout To Whittlesey Creek through Public Presentations**

**A**shland Fishery Resources Office (FRO) biologists have been busy this spring highlighting the experiment to restore coaster brook trout to Whittlesey Creek, part of the Whittlesey Creek National Wildlife Refuge (NWR). Biologist Glenn Miller gave three presentations at the Northern Great Lakes Visitor Center and Whittlesey Creek NWR. The first

event was for the public dedication of a new exhibit depicting the Whittlesey Creek watershed, highlighting the wildlife of Whittlesey Creek. The second and third presentations were for the Whittlesey Creek NWR Habitat Management Plan (HMP) public hearing. This two part hearing was open to the general public and partners highlighting the living document that is to be the Whittlesey Creek NWR. Sessions were held in the afternoon and early evening so everyone that was interested in the HMP had a chance to see the presentations and voice their opinions. Learn more about the development of this document by visiting: [http://midwest.fws.gov/ashland/whitt-crk/Hab\\_Mang\\_Plan.html](http://midwest.fws.gov/ashland/whitt-crk/Hab_Mang_Plan.html).

*Glenn Miller, Ashland FRO*

### **Fish R Slimy**

**T**he four and five year old students of the Kinross Head Start Program paid a visit to the Pendills Creek National Fish Hatchery on Monday, March 29th to observe the fin clipping operation. Fin clipping is the process used to mark yearling fish by removing a fin(s) to identify them as a hatchery product. Although the children don't really understand what's going on, the students love picking the fish up and touching them. This class of 19 students was also treated to coloring books and sunglasses before they left. Two more groups of Head Start students and one class of kindergarteners are scheduled for the weeks to follow.

*Curt Friez, Pendills Creek NFH*

### **Great Lakes Waterways Curriculum underway with Local Educators**

**I**n March, Biologist Susan Wells from the Alpena Fishery Resources Office (FRO) participated in a round table discussion with Alpena area educators and National Oceanic and Atmospheric Administration staff regarding the development of a Great Lakes waterways curriculum. The group was formed in January 2004 to formulate ideas on how to develop an educational tool that would encompass many facets of Great Lakes resources including fisheries. Many of the educators identified fisheries as a missing component in their teachings of Great Lakes issues and want to include the topic in the development of this curriculum. The group determined the focus age group to be grades four through seven. Many different ideas on a central theme for the curriculum were examined. One of these included imitating the route of a shipping vessel stopping at different ports in the Great Lakes where the resources at these locations can be examined. The group will meet quarterly to formulate more concise ideas and look for avenues of funding. This is an example of collaboration between federal agencies and local school districts to enhance education on Great Lakes natural resources and related issues. This group will provide avenues for the Fish and Wildlife Service to enhance outreach efforts and will foster positive working relationships to benefit fish and wildlife resources.

*Susan Wells, Alpena FRO*

## DeSoto National Wildlife Refuge drafts Fishery Management Plan

Biologist Louise Mauldin from the Columbia Fishery Resources Office (FRO) worked with staff from DeSoto National Wildlife Refuge (NWR), Iowa Department of Natural Resources, and Nebraska Game and Parks Commission to draft a fishery management plan for DeSoto Lake which is located on the refuge. Louise has been responsible for management surveys and recommendations at DeSoto Lake for the last five years. Columbia FRO has advised refuge staff on fish management issues for almost thirty years and has helped to develop the lake into one of the premier bass fishing lakes in western Iowa. While the lake supports several bass tournaments every year, an overabundant common carp population creates a difficult environment to maintain the bass fishery.

*Louise Mauldin, Columbia FRO*



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This healthy bass was collected during an electrofishing survey at DeSoto Lake. This lake, which is part of the DeSoto National Wildlife Refuge, has provided excellent recreational fishing for decades.

## Jordan River and Pendills Creek National Fish Hatcheries team up for Outdoor Expo

The 2004 Traverse City Hunting and Fishing Expo (Expo) brought nearly 5,000 outdoor enthusiasts together to view various booths featuring guided hunts, taxidermy, and fishing gear, and the Fish and Wildlife Service was there to educate the many interested people. The Jordan River NFH has been setting up a booth at the Expo for several years now and this year Pendills Creek's James Anderson and Tracy Roessner spent a day each helping the Jordan River staff. The booth gave an overview of the Fisheries Program but emphasized the lake trout rehabilitation effort. This included an aquarium with several lake trout and a map showing the vessel fish distribution trips taken throughout the Great Lakes during the 2003 stocking season. The Fish and Wildlife Service's offshore stocking vessel captain, Mike Perry, was present on Sunday to answer questions about the boat trips. The Fish and Wildlife Service's presence at this event was a grand success and the staff at Pendills hopes to help out again next year.

*Curt Friez, Pendills Creek NFH*



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Pendills Creek and Jordan River National Fish Hatchery staff team up to offer an educational booth at the Hunting and Fishing Expo.

## Pendills Creek National Fish Hatchery's Visitor Center gets a New Look

A lot of people wonder what the staff at Pendills Creek does in the winter when the raceways are covered with ice. This year, Biologist Tracy Roessner focused her attention on the visitor's center which had a 1970's feel to it. For the cost of some paint, she was able to transform it into a bright and cheery area with some very informative, inexpensive displays.

Primer and paint were the first focus in order to cover up the "Dijon mustard yellow" color of the walls. Most of the materials used were recycled from what the hatchery already had in storage. Display cases were transformed from gun metal grey government bookcases that we all know so well, by priming and painting. Two presentations were printed, laminated, and glued to the walls. One of these describes the work that goes into the hatchery and the process by which many things are done. The other depicts life here at the hatchery from its beginning through some old photographs. Finally, some very colorful fish are circling overhead as a border. Not to be outdone was maintenance mechanic Johnny Shuman, who replaced the ceiling tiles and added more lighting. Many thanks go out to John and also to volunteers Matt and Rachel who endured weeks of painting. We hope plenty of visitors stop by this summer to find out what our hatchery is all about!

*Curt Friez, Pendills Creek NFH*

## Cooperation with Native Americans

### Fishery Management Reports completed for the White Earth Reservation and the Tamarac National Wildlife Refuge

A Lake Sturgeon Status Report was completed for the White Earth Reservation. The report highlights the lake sturgeon restoration effort being conducted by the White Earth Department of Natural Resources, Fish and Wildlife Service, and partners. Our partners on this project include Rainy River First Nations, Minnesota Department of Natural Resources, and the White Earth Land Recovery Project. Lake sturgeon have not been caught on the reservation since the early 1900's. This majestic native species is not only unique but is culturally significant to Native Americans. Since 2001, over 30,000 fingerling lake sturgeon have been stocked into White Earth and Round Lakes. Survival of these stocked fish was documented in October 2003 and we expect this project to be a restoration success story.



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White Earth Department of Natural Resources (DNR) biologist Will Bement holds a lake sturgeon that was caught in Round Lake on the White Earth Reservation. Lake sturgeon have been restored on the reservation by the White Earth DNR, Fish and Wildlife Service, and partners.

The adjacent Tamarac National Wildlife Refuge was also surveyed in 2003 with northern pike the dominant predator in Pine, Blackbird, and South Chippewa. A baseline community survey was conducted on the Ottetail River and 21 species were collected. The report includes fishery management recommendations. *Scott Yess, La Crosse FRO*

### Fish and Wildlife Service Biologists assist with the generation of Harvest Limits for 1836 Treaty Waters

Biologists Aaron Woldt of the Alpena Fishery Resources Office (FRO) and John Netto of the Green Bay FRO represented the Fish and Wildlife Service at the March 16-18 meeting of the Modeling Subcommittee (MSC) of the Technical Fisheries Committee (TFC). The primary focus of this meeting is to generate preliminary 2004 harvest limits for lake trout in 1836 Treaty waters of lakes Huron, Superior, and Michigan. As stipulated in the 2000 Consent Decree, preliminary lake trout harvest numbers must be calculated by the MSC, reviewed by the TFC, and presented to the parties to the decree by March 31 each year. The 2000 Consent Decree is a 20 year fishery allocation agreement for 1836 Treaty waters signed by the State of Michigan, United States, Bay Mills Indian Community, Sault Ste. Marie Tribe of Chippewa Indians, Grand Traverse Band of Ottawa and Chippewa Indians, Little River Band of Ottawa Indians, and Little Traverse Bay Bands of Odawa Indians. The MSC will complete final lake trout harvest numbers and present them to the parties by April 30th as stipulated in the

Decree. Woldt and Ji He (Michigan Department of Natural Resources) presented an update of the status of northern Lake Huron (MH-1 and MH-2) lake trout stock assessment models, model diagnostic output, and preliminary 2004 lake trout harvest limits. 2004 Lake Huron preliminary lake trout harvest limits increased from 2003 levels due to lower than target total mortality rates and increases in stock biomass due to decreasing mortality. These preliminary limits were presented to the TFC for review on March 30. In addition to performing model analyses, Biologist Woldt also ran the MSC meeting ensuring all agenda items were discussed and kept meeting minutes. A preliminary draft of the March 16-18 MSC meeting minutes was mailed to MSC members for review. Harvest limits produced at this meeting, when reviewed by the parties and finalized, will become binding 2004 lake trout harvest limits for 1836 Treaty waters. These harvest limits will allow lake trout fisheries to be executed while still protecting the biological integrity of the lake trout stocks.

*Aaron Woldt, Alpena FRO*  
*John Netto, Green Bay FRO*

### Green Bay Fishery Resources Office produces Lamprey Mortality and Survey Catch per Effort Estimates for 1836 Treaty Waters

John Netto of the Green Bay Fishery Resources Office (FRO) assisted state and tribal biologists with data processing and provided analyses to facilitate the assessment modeling process in lakes Superior, Huron, and Michigan. Recently, John has generated estimates of sea

lamprey induced mortality for the treaty management units in lakes Superior and Huron. This year's estimate of 2002 mortality, based on 2003 data, indicates that lake trout mortality rates from sea lamprey attacks have increased slightly from last year, but are still much lower than earlier in the time series. The dramatic decline in sea lamprey mortality in Lake Huron was attributed to effective treatment efforts in the St. Mary's River. This year's estimates indicate that the sea lamprey population has rebounded slightly from the treatment induced population decline.

This year, John also ran the mixed model analyses for generating catch per effort estimates for the lake trout surveys in lakes Superior and Michigan. The mixed models provide a mean value of catch per unit of effort for the multiple surveys in each management unit. These models use the location of the survey, the year of the survey, and the depth of the survey site as factors that determine the overall catch per unit effort for each management unit.

*John Netto, Green Bay FRO*

### **Red Lake Walleye Restoration Effort**

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

indicators of this long term restoration effort. Frank also presented the first draft of an Internet web page that he developed for the Red Lake Recovery program. The web page will highlight the history, decline, and recovery of this important resource. The proposed web page will contain several links; Resource Fact Sheets, Progress Reports for 2002/2003, Recovery and Fishery Assessment Data, Media and Agency Links, Image Library, and a Tribal Profile.

Several additional topics were discussed at this meeting: The Minnesota DNR and the Red Lake Nation are focusing on selecting from different harvest models to use for the Red Lake walleye fishery; The Red Lake DNR developed a questionnaire for the Band members that will attempt to define future harvest options preferred by the tribe; The tribe will need significant funding increases for future fishery assessments, creel surveys, and law enforcement efforts. Frank suggested that they consider submitting a proposal with the 2004 Tribal Wildlife Grant program. The Minnesota DNR and the Red Lake Band will continue with an experimental walleye fry stocking (10 million) to study survival rates.

*Frank Stone, Ashland FRO*

### **Population Assessment of Sora, Virginia, and Yellow Rails**

The Bad River Band of Lake Superior Chippewa Wildlife Department has completed the second year of a 3 year study to assess sora, Virginia, and yellow rail populations in the wild rice dominated wetlands of the Kakagon/Bad River wetland complex. Radio tracking and monitoring was conducted during

the 2003 migration periods and breeding season. The cooperative project was developed and led by the Tribe in partnership with the Fish and Wildlife Service's Great Lakes Coastal Program and the Ashland Fishery Resources Office (FRO), as well as the Bureau of Indian Affairs' Circle of Flight Program.

Rails are small, secretive migratory birds of wetlands which are usually heard and rarely seen. Sora, Virginia and yellow are the three species of rails documented during this year's field season. The study area is the 16,000 acre Kakagon/Bad River wetland complex located in northern Wisconsin on Lake Superior. It is the largest ecologically intact estuary system in the upper Great Lakes and has been designated as a National Natural Landmark by the U.S. Department of the Interior.

*Ted Koehler, Ashland FRO*



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**The Bad River Band of Lake Superior Chippewa Wildlife Department has completed the second year of a 3 year study to assess sora, Virginia, and yellow rail populations in the wild rice dominated wetlands of the Kakagon/Bad River wetland complex.**

## Leadership in Science and Technology

### Coaster Brook Trout Project is College Capstone Presentation

Ashland Fishery Resources Office's (FRO) Student Temporary Employment Program student, Jessica Krajniak, presented her senior capstone (thesis) to her peers, co-workers, and the public on March 25th. A senior at Northland College, Jessica presented a summary of her work involving the FRO's continued experiment to establish a self-sustaining migratory brook trout population in Whittlesey Creek near Ashland, Wisconsin. Since the experiment began in August of 2003, she has assisted with the stocking of adult "coasters" containing radio transmitters, as a part of the Whittlesey Creek National Refuge Centennial Celebration and a stocking of eyed eggs.

Throughout the initial stages of the project, Jessica spent a substantial amount of time working with the telemetry portion of the experiment. This included setting up and maintaining the logging station on the creek as well as conducting hand-held telemetry surveys along the creek and within Chequamegon Bay. Jessica also had the opportunity to take a group of perspective Northland students, interested in Natural Resources, into the field. They were given background information on the fisheries project as well as shown the telemetry techniques frequently used.

*Jessica Krajniak, Ashland FRO*



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**Jessica Krajniak, Student Temporary Employment Program employee at Ashland Fishery Resources Office, presents her senior capstone (thesis) on her coaster brook trout telemetry work, involving the continued experiment to establish a self-sustaining migratory brook trout population in Whittlesey Creek near Ashland, Wisconsin.**

### Fish Health Assessment on Pallid Sturgeon completed at Neosho National Fish Hatchery

During the week of March 1st, an unusual fish health assessment was completed at the Neosho National Fish Hatchery (NFH) by the La Crosse Fish Health Center (FHC). The Neosho NFH is located in Neosho, Missouri and is the only federal fish hatchery in Region 3 rearing pallid sturgeon as part of the Missouri River Upper Basin Recovery Program. Approximately 3,000 sturgeon are being raised on live food and will be marked prior to release in designated sites of the recovery plan. This is the 3rd year of production at Neosho, and the specialized techniques perfected by a dedicated staff have consistently produced high quality sturgeon for the program.

No standard laboratory procedure exists to screen for certain newly discovered sturgeon viruses. Histology is the only current method to identify these viruses. By collecting selected fish organs to process for histology,

any virus present is identifiable by patterns of deterioration of the tissue. The process takes about two weeks to complete. Other standard fish health analyses were also completed. These procedures are to identify any certifiable bacteria present that would impact the disposition of these fish for stocking in mandated recovery areas. Special thanks to the staff of the Neosho NFH and all their assistance.

*Rick Nelson, La Crosse FHC*

### Intra-Service Consultations conducted to Comply with the Endangered Species Act

Risk management staff of the sea lamprey management program consulted with personnel of the Fish and Wildlife Service's Ecological Services Bloomington, East Lansing, Green Bay, and New York Field Offices to comply with the Endangered Species Act. Concurrence was achieved on lampricide treatment strategies to kill larval sea lampreys and procedures to protect and avoid disturbance to 9 federally listed endangered, threatened, and candidate species in 20 of the 47 streams proposed for treatments in Minnesota, Wisconsin, Michigan, and New York during 2004. The federally listed species included the bald eagle, dwarf lake iris, eastern massasauga rattle snake, Houghton's goldenrod, Karner blue butterfly, Kirtland's warbler, Michigan monkey-flower, piping plover, and Pitcher's thistle. Consultations were conducted in accordance with section 7 of the Endangered Species Act of 1973, as amended. The sea lamprey program continues to work closely with partners to control populations of sea lampreys in

tributaries of the Great Lakes to protect the fishery and related economic activities in the basin (an estimated benefit of \$4-6 billion/year to the region). The Fish and Wildlife Service delivers a program of integrated sea lamprey control in the United States waters of the Great Lakes as a contracted agent of the Great Lakes Fishery Commission.

*John Weisser, Marquette Biological Station*

### **Fish and Wildlife Service participates in Mass Fish Marking Initiative for the Great Lakes**

In fall 2004, the Great Lakes Fishery Commission (Commission) recruited Chuck Bronte of the Green Bay Fishery Resources Office (FRO) to join a team of state, tribal, provincial fish managers, and Commission representatives tasked to investigate the use of mass marking procedures on hatchery fish stocked into the Great Lakes. Mass marking involves the placement of Coded Wire Tags (CWT) into the snouts of young fish prior to their release into the wild. The codes on the tags assist fishery managers to determine survival, growth, movement, and overall performance of hatchery-reared fish. Only a fraction of hatchery-reared fish stocked into the Great Lakes, including lake trout reared by the Fish and Wildlife Service, receive CWTs. Tagging a larger proportion of these fish among all agencies would greatly improve fisheries management and research opportunities. Bronte has been working with the Mass Marking Coordination Team since October 2003. This involvement began with a visit to the Pacific Northwest where this type of interagency

coordination has been ongoing for 20 years. The team visited a tag and mass marking manufacturing vendor, a laboratory that centrally processed the recovered tags, and database managers responsible for archiving the large amount of data gained from recovered tagged fish. These processes and systems will be used as models for implementation of mass marking in the Great Lakes. Management agencies from across the basin are very interested in this technology and demonstration projects are being scheduled for this summer at the Iron River National Fish Hatchery in Wisconsin and the Platt River State Fish Hatchery in Michigan. Both demonstrations will allow fishery administrators, managers, and scientists an opportunity to see mass marking at work and determine the feasibility for applications in the Great Lakes.

*Charles Bronte, Green Bay FRO*

### **Lake Michigan Lake Sturgeon Research Team receives Additional Funding for Status Assessment**

A team of Lake Michigan lake sturgeon researchers led by the Green Bay Fishery Resources Office (FRO) received an additional \$145,000 from the Great Lakes Fishery Trust to extend a three year comprehensive assessment of the status of lake sturgeon in Lake Michigan for another year. The goal of this study is to describe the current status of lake sturgeon in Lake Michigan by determining the abundance, reproductive success, degree of genetic structuring and diversity, and other population characteristics of the populations remaining in Lake Michigan. Current results of this work indicate that some populations are

reproducing successfully and showing indications of increasing abundance. However, their numbers are still marginal at best in most systems and lake wide, account for only a few thousand fish, far less than 1% of the millions that lived in the lake historically. The information gathered by this study will lay the necessary groundwork for proceeding with necessary rehabilitation efforts for this important native species throughout Lake Michigan.

This project continues to be a cooperative effort by several principal investigators and their staff from throughout the Lake Michigan region including Rob Elliott from the Green Bay FRO, Dr. Nancy Auer from Michigan Technological University, Dr. Trent Sutton from Purdue University, Dr. Doug Peterson from the University of Georgia, Dr. Kim Scribner from Michigan State University, Dr. Ed Baker from the Michigan Department of Natural Resources (DNR), Tom Meronek from the Wisconsin DNR, and Marty Holtgren from the Little River Band of Ottawa Indians. Elliott serves as project manager for the group and leads the work being conducted in southern Green Bay. In addition to significant in-kind and direct match funding from each of the agencies and institutions involved, outside funding for this project now totals \$500,000 from the Great Lakes Fishery Trust and \$200,000 from the Giovanni Auletta Armenise Harvard Foundation.

*Robert Elliott, Green Bay FRO*

# Aquatic Habitat Conservation and Management

## Mount Maude Lake Wild Rice Restoration Project

During the summer of 2003, the construction phase of the Mount Maude Lake Wild Rice Restoration Project on the Grand Portage Reservation was completed by the Grand Portage Natural Resources Management Program (GPNRMP). This 79 acre wetland restoration project was led by the Grand Portage Tribe, and partners included the Grand Portage Reservation Tribal Council, Bureau of Indian Affairs Midwest Office, Ashland Fishery Resources Office (FRO), Natural Resource Conservation Service Duluth Office, Ducks Unlimited Great Plains Office, and the Grand Portage Construction Company.

Mount Maude Lake is the only natural wild rice lake within the Grand Portage Indian Reservation, but over the last 50 years the rice beds have been in steady decline. The GPNRMP will plant wild rice into the project area in the fall of 2004. Additional plantings will occur in subsequent years until the rice beds become established. The goal of a renewed local subsistence harvest may soon be a reality and this has given encouragement to Grand Portage Band members who have witnessed the decline of wild rice in the area. The project will also be of great benefit to migratory birds that utilize the area such as mallards, wood ducks, and teal. Osprey, eagles and other birds of prey will benefit from restored hunting grounds and moose will benefit from additional aquatic vegetation.

*Ted Koehler, Ashland FRO*



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**The Mount Maude Lake Wild Rice Restoration Project will reestablish rice beds on a 79 acre site on the Grand Portage Reservation.**

## Middle Mississippi River National Wildlife Refuge is Home for Sturgeon

Carterville Fishery Resources Office (FRO) is assessing habitat usage of shovelnose sturgeon along the Middle Mississippi River National Wildlife Refuge. Sampling for this on-going project was initiated March 1st. During the first two days of sampling, 172 shovelnose sturgeon were collected along with one lake sturgeon. All of the shovelnose sturgeon were weighed, measured, and tagged using PIT and Floy tags. Every other fish had a pectoral spine removed for age and growth analysis. Carterville FRO and Southern Illinois University will be working together this spring in an attempt to locate sturgeon spawning habitats in the Middle Mississippi River.

*Colby Wrasse, Carterville FRO*

## Field Season begins for Wetland Restoration Projects

Biologist Heather Enterline, Alpena Fishery Resources Office (FRO), checked post-construction responses of fall 2003 wetland restoration projects. Most wetland restorations were filled to capacity, and the spillways were in

use. Spring run-off was at its peak the last few days of March, and Enterline was able to evaluate a future road crossings project during the high water event. Sites were monitored in Alpena, Cheboygan, and Presque Isle Counties, Michigan. Five wetland restoration sites were observed, totaling 18 acres of wetlands. All sites were functioning properly, and there were no erosion problems observed at the spillways. Mallard ducks and Canada Geese were utilizing several of the sites. Two of the sites will be buffered with cool-season grasses and wildflowers that will be planted this spring. Post construction monitoring is essential for proper evaluation and fiscal accountability.

*Heather Enterline, Alpena FRO*

## Fletcher Pond Improvement Association Work Group Meeting

Alpena Fishery Resources Office (FRO) Biologist Anjie Bowen participated in a work group meeting of the Fletcher Pond Improvement Association held in Alpena, Michigan. The group discussed needs to evaluate the distribution and density of the Eurasian water milfoil population in Fletcher Pond, possible courses of action to reduce the population, and potential grant sources to fund a vegetation evaluation and education resources. The meeting was progressive and served to move current issues along. The Fish and Wildlife Service works to control aquatic invasive species in the Great Lakes and partnerships are important part of the our mission to conserve, protect, and enhance fish and wildlife and their habitats for the public.

*Anjanette Bowen, Alpena FRO*

# Workforce Management

## Recruiting a Talented and Diverse Workforce

During January, the Ashland Fishery Resources Office (FRO) began recruitment for summer Student Temporary Employment Program (STEP) positions by mailing announcements to the Northland College Minorities Coordinator, Fond du Lac Community College, Lac Courte Oreilles Community College, and Personnel Offices for the Bad River and Red Cliff Tribes. Recruitment for summer positions continued in February with Gary Czypinski and current STEP, Jessica Krajniak, attending the Job Fair at Northland College in Ashland, Wisconsin. In addition, during February, Gary Czypinski and Jessica Krajniak attended a career day at the Washburn Middle School, to show and tell students about careers in fishery biology.

*Joan Bratley, Ashland FRO*



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**The Student Temporary Employment Program (STEP) is utilized at many of our field stations to recruit for a talented and diverse workforce. Ashland Fishery Resources Office staff attend numerous job fairs to ensure that they reach the best candidates for the program.**

## Workforce Planning Team for Fish and Wildlife Management Assistance

The Fish and Wildlife Service's Workforce Planning Team for the Fish and Wildlife Management Assistance (FWMA) Program met in Phoenix, Arizona March 2-4 to begin a year long process to help identify skills and competency levels necessary for development of an effective workforce to better meet the challenges of an evolving program. Workforce planning has been identified by the Office of Management and Budget as an essential task for all federal agencies to improve efficiency and provide for improved fiscal accountability. The Workforce Planning Team (Team) is composed of representatives from each of the seven regions, the California/Nevada Operations Office, and the Washington Office. Alpena Fishery Resources Office (FRO) Project Leader Jerry McClain represents Region 3 on the team. A consulting firm, FMP Inc., has been hired to direct the effort with input from the Team. At the March meeting, FMP provided the Team with an overview of the process to be used for this planning effort and the Team provided FMP with an overview, both national and regional, of the FWMA program, the skills and competencies of the current workforce, and where we see the program moving in the future. A draft plan will be developed by FMP and provided to the Team for review in the next few weeks. This draft will be used as the starting point in a planning process that will lead to a series of recommendations to Fisheries Program managers to help guide the development of a workforce better able to meet the future

challenges of the FWMA program. The Team is expected to reconvene through conference calls and one or two more meetings over the next several months. Development and retention of an effective and efficient workforce is critical to the current and future operations of the Fish and Wildlife Management Assistance program. Planning efforts such as this are critical for the agency to address the increasing concerns for the nation's aquatic resources.

*Jerry McClain, Alpena FRO*

## Presentation given to Northland College Students about Fish and Wildlife Service Programs

On March 17, Mark Dryer and Pam Dryer spoke to more than 40 Northland College students in Ashland, Wisconsin about Fish and Wildlife Service programs and career opportunities. Mark and Pam spoke to students attending the College's Introduction to Natural Resources class. Mark described the organization of the Fish and Wildlife Service and the primary areas of responsibility for many of the major program areas including Fishery Management and Hatcheries, Migratory Birds, Law Enforcement, Ecological Services, Federal Aid, Realty, and External Affairs. Mark then brought the presentation to the local level and spoke about the areas of responsibility for the Ashland Fishery Resources Office (FRO). Pam Dryer spoke about Refuges and Whittlesey Creek National Wildlife Refuge. Students were also provided information about careers with the Fish and Wildlife Service and volunteer opportunities at local stations.

*Mark Dryer, Ashland FRO*



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## Windows in time

*A Glimpse into our Proud Past*

*Hatchery buildings at Cortland, New York*

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