



Fish Lines



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Region 3 - Great Lakes/Big Rivers

Leadership in Conserving, Enhancing, and Restoring Aquatic Ecosystems

Great Lakes Fish and Wildlife Restoration Act of 1998

(See the "Feature Article" on Page 5)



-(Top Row, Lt. to Rt.) USFWS, USFWS, D. Jackson (Bottom Row) USFWS, Council of Lake Committees, Marc Gaden

Series of photos depicting the Great Lakes Fish and Wildlife Restoration Act of 1998 (Act) provides essential resources to state and tribal management agencies to conserve, enhance, and restore Great Lakes fish and wildlife populations and their habitats; Native fish species such as the coaster brook trout in Lake Superior have benefited from rehabilitation efforts under the Act; The Act has supported fish population and community dynamics research in areas such as the near-shore habitats of Lake Erie; (Bottom Row) Basic information on fish and wildlife habitats and conditions impeding habitat restoration has been collected through Act programs; The Act has strengthened interagency partnerships and improved coordination of management activities in the Great Lakes; Tools for addressing conservation challenges are provided through the Act for the benefit of Great Lakes fish, wildlife, and habitat resources, and the people who depend on them.



Region 3 - Great Lakes/Big Rivers Region

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

Region 3 Focus Areas

1. Partnerships and Accountability

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

2. Aquatic Species Conservation and Management

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

3. Aquatic Invasive Species

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

4. Public Use

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

5. Cooperation with Native Americans

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

6. Leadership in Science and Technology

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

7. Aquatic Habitat Conservation and Management

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

8. Workforce Management

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

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

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

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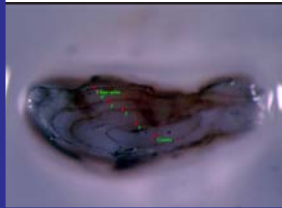
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Click here to visit our Fisheries Web Site

Great Lakes - Big Rivers Region Fisheries Field Offices

National Fish Hatcheries

The Region's National Fish Hatcheries primarily focus on native fish restoration/rehabilitation by stocking fish and eggs, such as pallid and lake sturgeon and by developing and maintaining brood stocks of selected fish strains, such as lake trout and brook trout. Hatcheries also provide technical assistance to other agencies, provide fish and eggs for research, stock rainbow trout in fulfillment of federal mitigation obligations and assist with recovery of native mussels and other native aquatic species.

Sea Lamprey Control Stations

Sea Lamprey Control Stations assess and control sea lamprey populations throughout the Great Lakes. The U.S. Department of State and Canadian Department of Fisheries and Oceans fund this program through the Great Lakes Fishery Commission.

Fishery Resources Offices

Fishery Resources Offices conduct assessments of fish populations to guide management decisions, perform key monitoring and control activities related to invasive, aquatic species; survey and evalu-

ate aquatic habitats to identify restoration/rehabilitation 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 Partners for Fish and Wildlife and the Great Lakes Coastal Programs; provide coordination and technical assistance toward the management of interjurisdictional fisheries; maintain and operate several key interagency fisheries databases; provide technical expertise to other Service programs addressing contaminants, endangered species, federal project review and hydro-power operation and re-licensing; evaluate and manage fisheries on Service lands; and, provide technical support to 38 Native American tribal governments and treaty authorities. In other Regions of the Service, FRO's are also referred to as Fish and Wildlife Management Assistance Offices.

Fish Health Center

The Fish Health Center provides specialized fish health evaluation and diagnostic services to federal, state, tribal and private hatcheries in the region; conducts extensive monitoring and evaluation of wild fish health throughout the region; examines and certifies the health of captive hatchery stocks; and, performs a wide range of special services helping to coordinate fishery program offices and partner organizations.

Great Lakes - Big Rivers Region Fisheries Field Offices



Feature Article - Great Lakes Fish and Wildlife Restoration Act of 1998

The Great Lakes Fish and Wildlife Restoration Act (Act) was enacted as Public Law 101-646 (16 U.S.C. 941) on November 29, 1990, with the purpose “to carry out a comprehensive study of the status, and the assessment, management, and restoration needs, of the fishery resources of the Great Lakes Basin; to develop proposals to implement recommendations resulting from that study; and to provide assistance to the Great Lakes Fishery Commission, states, Indian tribes, and other interested entities to encourage cooperative conservation, restoration and management of fish and wildlife resources and their habitat.” Public Law 105-265 reauthorized the Act in 1998 shifting emphasis toward the implementation of restoration projects.

During FY 1998-2004, the Act authorized \$4.5 million annually for State and Tribal sponsored restoration projects, and \$3.5 million annually for Service coordination activities and technical assistance through the Upper and Lower Great Lakes Fishery Resource Offices. Although only authorized through 2004, Congress appropriated \$500,000 for restoration projects and \$1.278 million for Service operations in FY 2005.

Accomplishments

From 1998-2005, 144 restoration project proposals have been received for Act funding, representing a total of over \$13.7 million in requested federal funds. Through Fiscal Year 2004, 58 projects have been funded totaling over \$2.8 million in federal funds and \$2.2 million dollars in non-federal matching funds. These projects are geographically distributed among the Great Lakes as follows: Superior- 12, Michigan- 10, Huron- 9, Erie- 15, Ontario- 7; while several projects address multiple basins and 10 projects are focused basin-wide.

Act funded projects have addressed recommendations to inform the following needs: fish community assessment and modeling; ecological monitoring; developing ecosystem management goals; developing and implementing plans for restoring habitats and species; fish health; and fish genetics. Research has contributed important information and actions toward meeting Great Lakes restoration needs as identified in the 1995 Great Lakes Fishery Resources Restoration Study and priorities of the Great Lakes Fishery Commission Lake Committees. The Act has also provided resources to support meaningful progress toward meeting the Service’s inter-program Great Lakes goals.

Building Partnerships

The Act has been extremely successful in building partnerships among state, tribal, federal and provincial management agencies for cooperative conservation, enhancement and restoration of Great Lakes fish and wildlife resources and their habitat. From 1998-2004, restoration projects were implemented in collaboration with 59 partner organizations providing funds, in-kind contributions and expertise. Interagency partnerships continue to grow and become more effective each year, as additional stakeholders join in Great Lakes Fish and Wildlife Restoration Act supported activities.

Looking to the Future

Much of the work completed during 1998-2004 focused on basic research related to the status of fish and wildlife populations and their habitat, on the conditions impeding restoration, and on establishing a framework, including geographic information systems and interagency databases, to help bring management authorities together as a combined force. This has been an important contribution in the ongoing process of establishing an adaptive, science-based approach in restoring Great Lakes resources.

Despite these accomplishments, most Great Lakes restoration goals remain unachieved and, in fact, the scale and complexity of restoration needs continue to grow. Increasing stress on the Great Lakes ecosystem from climate change, population growth, demand for water, pollution and contamination, habitat alteration and destruction, fish and wildlife diseases, and invading species, will result in increasing conservation challenges.

The Act provides powerful and effective tools for agencies and organizations to address these challenges together and help resolve the fish and wildlife conservation side of environmental restoration programs in the Great Lakes region. The authorities and interagency processes created through the Act could play an important role in implementing the newly established Great Lakes Regional Collaboration and addressing the Council of Great Lakes Governors’ priorities.

Continuing investment in the Act as an interagency strategy will yield direct benefits to Great Lakes fish and wildlife resources and their habitats and to the 34 million people living within this unique region.

Partnerships and Accountability

Fish and Wildlife Service and Partners host Great Lakes Lake Sturgeon Coordination Meeting

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

The focus of the 2004 meeting was to address three priority emerging issues identified by participants at the 2002 meeting: habitat classification (spawning, nursery, and juvenile), habitat restoration and enhancement, and fish passage. Presentations on each topic were given by participants including a panel discussion that focused on sturgeon passage issues. There were also follow-up presentations on two emerging issues covered at the 2002 meeting (use of stocking and genetic considerations to rehabilitate populations and development of standardized assessment techniques).

Facilitated small group discussions were held to discuss several topics and an evening potluck social gathering featured poster presentations that described a wide range of sturgeon work.

Personnel from the Marquette Biological Station represented interests of the sea lamprey management program, served as a

member of the steering committee of the Great Lakes Basin Ecosystem Team Lake Sturgeon Committee, welcomed presenters at the airport, and took digital photographs of the proceedings. Personnel of the Ashland Fishery Resources Office (FRO) coordinated the development of the agenda and led the meeting with assistance from other members of the steering committee and partner representatives. About 100 individuals from 30 entities (states/provincial, tribal/First Nation, Federal, academic, private, and a non-governmental organization) attended the meeting.

John Weisser, Marquette Biological Station

Henry Quinlan, Ashland FRO



-GLFC

Several Fish and Wildlife Service staff attended the Great Lakes lake sturgeon coordination meetings. About 100 individuals from 30 entities discussed lake sturgeon management in the Great Lakes.

Ohio Fish Passage Opportunities

Fish and Wildlife Service staff met with the Ohio Department of Natural Resources Division of Wildlife (ODOW) to discuss fish passage opportunities in Ohio. The primary focus of the discussion was removal of the Ballville Dam on the Sandusky River which remains the top priority for ODOW. Removal of this dam will

provide access to critical habitat and greatly enhance Ohio's management efforts for Lake Erie walleye. The Fish and Wildlife Service will continue to work with Ohio in pursuit of funding opportunities to address this critical project. Although Ballville Dam will remain the focus of collaborative efforts to secure fish passage funding in Ohio watersheds, smaller projects will also be identified and entered into the Fish and Wildlife Service's Fisheries Operational Needs System (FONS).

Fish and Wildlife Service staff that participated in the meeting includes Alpena Fishery Resources Office (FRO) Project Leader Jerry McClain, Assistant Regional Director Gerry Jackson, Regional Fish Passage Coordinator Mike Hoff, and Carterville FRO Project Leader Rob Simmonds. McClain is the primary point of contact for fish passage projects in the Lake Erie watershed and for collaborative efforts regarding the Ballville Dam.

Improving fish passage to critical habitat in the Sandusky River in Ohio will benefit Ohio's fishery management efforts for Lake Erie walleye. Coordination meetings and collaborative efforts such as this are consistent with "Partnerships and Accountability", "Aquatic Species Conservation and Management", and "Aquatic Habitat Conservation and Management" priorities of the Fish and Wildlife Service's Fisheries Vision for the Future.

Jerry McClain, Alpena FRO

Aquatic Species Conservation and Management

Mussel Survey at Rice Lake National Wildlife Refuge is a Bone Chilling Experience

When Refuge Manager Mary Stefanski asked if I brought my dry suit to wear for the mussel survey at Rice Lake National Wildlife Refuge (NWR) in July, I thought she was joking. Shortly after our first dive, Glenn Miller from the Ashland Fishery Resources Office (FRO) and I realized she was serious. Although it was after July 4th, the water temperatures were still in the low 60's which are quite cool for that time of year anywhere in Minnesota.

After several dives and a lot of shivering, we discovered that Rice Lake NWR has four species of native mussels with a possible 5th species, pending identification. The most common species found during the survey was the fat mucket followed by paper pondshell, giant floater, and strange floater. One other mussel species has not been identified. We also collected native fingernail clams. Native mussels were present in Rice River and Rice Lake; however, Mandy Lake did not have mussels due to the extensive aquatic plant beds. We thank the Rice Lake NWR staff and Tim Yager (Ecological Services) who assisted with water transports, data collections, and logistics.

Scott Yess, La Crosse FRO



-USFWS

Volunteer Jake Randa, Tim Yager (Ecological Services), and Michelle McDowell (Rice Lake National Wildlife Refuge) inspect native mussels that Glenn Miller (Ashland Fishery Resources Office) collected at Rice Lake National Wildlife Refuge.



-USFWS

These native mussels were collected at Rice Lake National Wildlife Refuge. Four mussel species were identified during the survey: fat mucket, paper pondshell, giant floater, and strange floater.

Coaster Brook Trout Work on Isle Royale National Park

Crews from the Ashland Fishery Resources Office (FRO), Iron River National Fish Hatchery (NFH), and Genoa NFH traveled to Isle Royale National Park to collect eggs and sperm (gametes) for the continued development of coaster brook trout brood stock. Coaster brook trout were once common across Lake Superior, but due to over fishing and habitat degradation, only a handful of spawning populations remain.

Development of Isle Royale coaster brook trout brood stock began in 1995 with collection of gametes from rivers in the Siskiwit Bay area. This brood stock is serving as an "insurance policy" for rare, wild populations in decline, and is a source of fish for rehabilitation stocking throughout Lake Superior.

Glenn Miller, Ashland FRO



-USFWS

This trap net is being set in a river on Isle Royale National Park. Crews from the Ashland Fishery Resources Office, Iron River National Fish Hatchery, and Genoa NFH collected eggs and sperm from native coaster brook trout for a captive brood stock program.

Lake Whitefish Distribution Study

The Alpena Fishery Resources Office (FRO) participated in a Fish and Wildlife Service Restoration Act funded Lake Huron lake whitefish distribution study. Staff included Treaty Unit Coordinator Aaron Woldt, Project Leader Jerry McClain, and biologists Adam Kowalski, Scott Koproski, Anjie Bowen, and Susan Wells. They conducted tagging operations on the commercial trap-net boat "Blonnie W" operated by Jim Presau Fisheries.

The goals of this study are to determine the spatial distribution and movement patterns of eight selected lake whitefish stocks in Lake Huron and to determine the contribution of each stock to commercial fishery yields. The stocks selected for this study are Detour, Alpena (Middle Island & Thunder Bay), Saginaw Bay, Burnt Island, South Bay mouth, the Fishing Islands, Douglas Point, and Sarnia. From 2004 to 2006, 1,500 lake whitefish will be tagged annually at each of the sites, except for Alpena and the Fishing Islands where 3,000 fish will be tagged annually at each site. Seven state, Federal, tribal, and provincial partner agencies are participating in this study.

Working in teams of three, Fish and Wildlife Service staff successfully Floy tagged and released 1,481 lake whitefish off Middle Island. Michigan Department of Natural Resources staff tagged approximately 1,500 fish in Thunder Bay in November. Tagged fish were measured for length, checked for invasive sea lamprey wounds, sexed, assessed for maturity, scale sampled for ageing purposes, fin clipped, and released. A random subset of fish was held briefly to measure short

term tag retention and handling mortality. Data from this study will be entered into a common database maintained by the Alpena FRO. Combined data will be distributed to partners.

Studying the spatial distribution and movement patterns of lake whitefish stocks will allow managers to determine if the borders of current management units are biologically meaningful and to determine the contribution of each stock to the commercial fishery. This will allow for better harvest management and protection of lake whitefish stocks. This outcome is consistent with the Fish and Wildlife Service's goal of maintaining self-sustaining populations of native fish species under the "Aquatic Species Conservation and Management" priority of the Fisheries Program Vision for the Future.

Aaron Woldt, Alpena FRO



-USFWS photo by Scott Koproski

Alpena Fishery Resources Office biologists Susan Wells and Aaron Woldt along with Partner Jim Presau tag lake whitefish captured from Northern Lake Huron in November in the first of a three year lake whitefish movement and distribution study funded by the Great Lakes Fish and Wildlife Restoration Act.

Chequamegon Bay surveyed for Coaster Brook Trout

An electrofishing survey was conducted in Chequamegon Bay by the Ashland Fishery Resources Office (FRO) to determine the presence and relative abundance of coaster brook trout. The survey was conducted during evening hours from Whittlesey Creek to Bono Creek in Bayfield County, Wisconsin. This near shore survey is part of the Lake Superior restoration plan to restore coaster brook trout in Lake Superior and the Whittlesey Creek National Wildlife Refuge (NWR).

Data collected will help develop management and stocking plans for the Whittlesey Creek NWR. The crew focused on netting only brook trout. Other fish species observed during the study were noted as rare in numbers (1-5 fish), few (6-10 fish), common (11-25 fish) or abundant (>26 fish). Although no coaster brook trout were collected during this survey, additional assessments will be scheduled to help determine if these fish are becoming re-established.

Frank Stone, Ashland FRO



-USFWS

An electrofishing survey was done in Chequamegon Bay, Lake Superior to determine the presence and relative abundance of native coaster brook trout.

Aquatic Invasive Species

Round Goby Age Determination

Biologist Scott Koproski is analyzing invasive round goby otoliths (bony structures found in the ear) collected from Thunder Bay, Lake Huron. From 2002 to 2004, samples were extracted from gobies captured during field activities for a study, funded through the Great Lakes National Program Office, to examine their predation on lake trout eggs at historic lake trout spawning reefs in Northern Lake Huron.

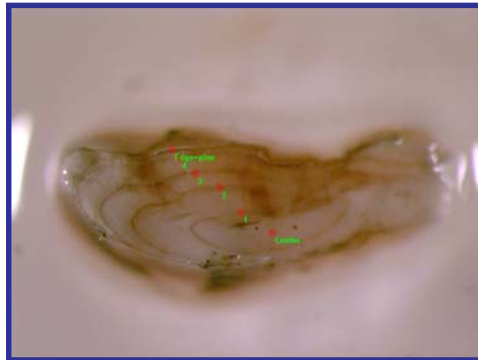
Koproski tried many different techniques (e.g. cross section, polishing, crack and burn) commonly used to analyze otoliths from various fish species. The technique that worked best to differentiate annuli formation was the “crack and burn” technique. The otolith was laterally cracked down the center, and the two cracked portions were inserted into an alcohol burner to highlight the different zonation within the structure. Other techniques such as cross-sectioning and polishing proved difficult to age with any degree of certainty.

A total of 154 pairs of otoliths were analyzed during November. Although staff from the Alpena Fishery Resources Office (FRO) captured their first round goby in 1997, preliminary results indicate that round gobies had their first strong year class in Thunder Bay in 1999. This is confirmed by the fact that otoliths viewed from 2002 did not have a single sample with more than three annuli (age 3), samples from 2003 did not have more than four annuli (age 4), and samples from 2004 did not possess more than five annuli (age 5). Very little is known about invasive round gobies, and work that the Alpena FRO is currently

conducting should provide valuable information regarding round goby age composition, diet preferences, and effects they are having on native species such as lake trout.

This is the final year of a three year study looking at the effects round gobies may be having on lake trout spawning success. This project is an example of Alpena FRO’s commitment to the Region 3 Focus Areas of “Aquatic Invasive Species” and “Leadership in Science and Technology.”

Scott Koproski, Alpena FRO



-USFWS by Scott Koproski

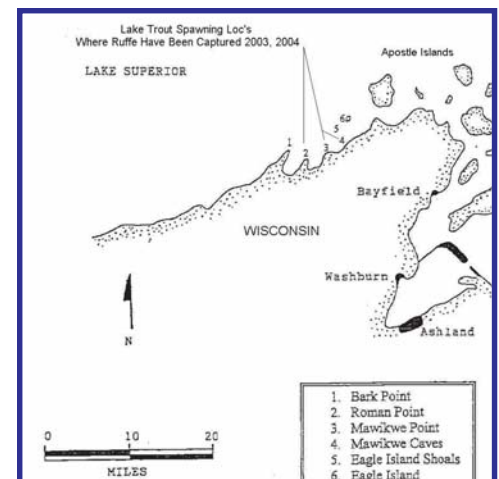
Biologist Scott Koproski determined ages for round goby captured from a nearshore reef in Northern Lake Huron by looking at the growth rings in the fish’s otoliths (ear bones). The inner red dots mark the annuli.

Twelve Invasive Eurasian Ruffe captured from Native Lake Trout Spawning Habitat

The Red Cliff Tribal Fisheries Department (Tribe) and the Ashland Fishery Resources Office (FRO) continued a project to capture the invasive fish Eurasian ruffe from native lake trout spawning habitat near the Apostle Islands in Lake Superior. This annual monitoring began in 2001 to determine at what level ruffe may be preying on lake whitefish eggs. In 2003, monitoring was expanded to assess ruffe predation on lake trout eggs. The Tribe performs

annual gillnet assessments on the local whitefish and lake trout spawning populations and has voluntarily included special ruffe gillnets along with their assessment gillnets since this monitoring began. An analysis of the contents from the ruffe stomachs is pending. In Lake Constance, Central Europe, ruffe predation on whitefish eggs was identified as the key factor in the decline of that whitefish fishery. This study was initiated to answer the concerns of the Chippewa Ottawa Resource Authority and the Red Cliff Tribal Fisheries Department on the potential impact of invasive ruffe to Great Lakes lake whitefish and lake trout recruitment.

Gary Czypinski, Ashland FRO



This map shows sites near the Apostle Islands in Lake Superior that are being monitored for invasive Eurasian ruffe. Of particular interest is sites 2 & 3 (Roman Point and Mawikwe Point) which are native lake trout spawning locations and where ruffe have been detected in 2003 and 2004.

Public Use

Great Lakes Basin Ecosystem Team Website

Anjanette Bowen from the Alpena Fishery Resources Office (FRO) updated the Great Lakes Basin Ecosystem Team website (<http://greatlakes.fws.gov>) with new fact sheets, plans, links, information, and images in November. The site supplies outreach for the Great Lakes Basin Ecosystem Team which provides cross-program focus and collective teamwork for Fish and Wildlife Service activities in the Great Lakes watershed. The site has had up to 32,700 hits per month and has been featured on the Great Lakes Information Network website. The Great Lakes Basin Ecosystem Team website provides outreach on Fish and Wildlife Service activities and responsibilities in the Great Lakes. Public education of this type is a priority of the "Public Use" component of the Fisheries Program Vision for the Future. *Anjanette Bowen, Alpena FRO*

The screenshot shows the website's layout. At the top, there's a navigation bar with links like 'Home', 'About Us', 'Programs', 'Tools', and 'Help'. Below that is a banner for 'US Fish & Wildlife Service Great Lakes Basin Ecosystem Team'. The main content area is divided into several sections: a map of the Great Lakes Basin, a text block about restoring and protecting resources, and a 'Great Lakes News' section with recent updates. A sidebar on the right contains 'Team Links' and 'Great Lakes Links'.

The Great Lakes Basin Ecosystem Team Website located at <http://greatlakes.fws.gov> was updated in November.

Genoa National Fish Hatchery provides Fisheries Coloring Books to the Children of the 107th Maintenance Company

Genoa National Fish Hatchery (NFH) was happy to donate 75 coloring books to the 107th Maintenance Company of the Army National Guard based in Viroqua, Wisconsin. After seeing the Fisheries coloring books at our booth during the Vernon County Fair this past September, the station was contacted by members of the 107th inquiring about the coloring books for their Christmas activities. The educational coloring books will be added to gift bags given to the children of the soldiers of the 107th and to a local Boy Scout troop. Any left over coloring

books will be shipped to members of the 107th stationed in Iraq. *Tony Brady, Genoa NFH*

Columbia Fishery Resources Office Biologist interviewed for Natural Resource Conservation Class

Two undergraduate students from the University of Missouri interviewed Louise Mauldin, Biologist at the Columbia Fishery Resources Office (FRO) for their Natural Resource Conservation class. The standard class assignment for non-biology majors is to interview a professional in a natural resource field. Two sophomores, majoring in business, chose to learn more about the discipline of fisheries by interviewing a fishery biologist. Questions about the general job duties of a fishery biologist, education, experience, and current job market were just a few items discussed. The Fisheries Program relies on a broad range of professionals to accomplish its mission. Without their skills and dedication the Fisheries program could not succeed.

Louise Mauldin, Columbia FRO

Cooperation with Native Americans

Lake Whitefish Survey in Northern Lake Michigan

The Green Bay Fishery Resources Office (FRO) completed an annual lake whitefish survey in Whitefish Management Unit 1 (WFM-01) of Lake Michigan near Escanaba, Michigan. The survey utilized graded mesh gill-nets, ranging between 2" and 6" mesh, to sample lake whitefish, lake trout, and other species. Biologists collected information on relative abundance, size and age structure, reproductive potential, and invasive sea lamprey induced mortality. This information is used to manage the lake whitefish and lake trout fisheries in Great Lakes waters within the jurisdiction of the Consent Decree of 2000 (Decree). The Decree outlines a cooperative management program between the Fish and Wildlife Service, five Native American Tribes, and the Michigan Department of Natural Resources to set harvest guidelines for parts of lakes Michigan, Superior, and Huron. The information collected from this survey is combined with data from other whitefish management units collected by biologists from cooperative agencies. An inter-agency team of biologists then use statistical catch-at-age models to assess the status of fisheries stocks and project safe harvest quotas that protect the fishery from over-exploitation.

Dale Hanson, Green Bay FRO

Fish and Wildlife Service Biologist attends Modeling Sub-Committee meeting

John Netto attended the fall meeting of the Modeling Sub-Committee (MSC) of the Technical Fisheries Committee to the 2000 Consent Decree in Roscommon, Michigan. At this meeting, the MSC reviewed the status of the lake whitefish models and discussed other business related to the stock assessment process in the treaty waters. John presented the modeling results for whitefish management unit 2 (WFM-02) in

Lake Michigan, the estimates of abundance and fishing mortality and the calculated quota for 2005, and the results of diagnostic procedures performed on the model including an automated procedure for running retrospective analyses he developed for all of the whitefish models. Every year, the Modeling Sub-Committee meets prior to setting white fish harvest limits to allow peer review and discussion of the data analysis and modeling that is required to set a quota each year.

John Netto, Green Bay FRO

Lake Whitefish

Coregonus clupeaformis



Features: Silvery color with greenish-brown back. Clear or lightly pigmented fins. Heavy amount of slime over the scales.

Size: Avg. weight in the Great Lakes: 2-4 pounds (1-2 kg); approx. 18-22 inches (46-56 cm).

Spawns: November and December over rocky shoals in lakes.

Leadership in Science and Technology

Ultrasonic Transmitter recovered From Lake Sturgeon

Alpena Fishery Resources Office (FRO) Biologist James Boase worked with Bruce Manny (U.S. Geological Survey Great Lakes Science Center in Ann Arbor, Michigan), Mike Thomas (Michigan Department of Natural Resources Lake St. Clair Research Station in Mt. Clemens, Michigan), and Purdy Fisheries Ltd. (Point Edward, Ontario) to continue to collect information from lake sturgeon captured in the Upper St. Clair River near Port Huron, Michigan. The initial focus of the research was to identify habitats used by lake sturgeon during spawning and where the fish move after the spawning season. In the study, adult lake sturgeon were implanted with ultrasonic transmitters and followed using underwater listening gear. In 2002, eight fish were implanted and in 2004 six more fish were implanted. Of the 14 fish implanted, ten moved out into Lake Huron following the spring spawning period.

In addition to each fish having a transmitter, all of the fish are marked with an external Floy tag and an internal passive integrated transponder (PIT) tag. The purpose of the tags is to allow the fish to be identified if captured by a commercial or recreational angler. The Floy tag provides a number to identify the individual fish along with a phone number to contact the Alpena office. PIT tags provide a unique number but no contact information. It is injected under the skin of the fish and can only be read by an electronic reader.

In November, Purdy Fisheries captured one of the lake sturgeon implanted in 2002. Having noticed the Floy tag, they decided to bring

the fish back to their facility at Point Edward, Ontario and contact the Alpena FRO. Personnel from Alpena FRO were dispatched to the facility to collect information about the fish. The fish was healthy, having gained a few pounds and grown a few inches since its release in the spring of 2002. Following its initial capture and implanting of a transmitter in 2002, that particular sturgeon was released and, following the spawning period in the spring of 2002, moved out into Lake Huron. Since that time, the fish was not relocated until now. Pictures were taken of the surgery area, biological information was collected to determine growth, and the ultrasonic transmitter was removed.

This effort is just one example of the Fish and Wildlife Service working with states, other Federal agencies, and non-governmental organizations to achieve common Great Lakes' management objectives. Maintaining these collaborative relationships allows for the most efficient use of limited human and fiscal resources, ultimately resulting in faster rehabilitation of lake sturgeon in the Great Lakes. This project addresses the "Aquatic Species Conservation and Management" and "Partnerships and Accountability" components of the Fish and Wildlife Service's Fishery Program Vision for the Future.

James Boase, Alpena FRO



-USFWS

Biologist James Boase from the Alpena Fishery Resources Office removes an ultrasonic transmitter tag from a lake sturgeon captured from the Upper St. Clair River. The focus of the research is to identify sturgeon spawning habitats and where the fish go after spawning.

Workshop examines Current Scientific Information pertaining to Coaster Brook Trout Status and Rehabilitation Efforts

Henry Quinlan, Jonathan Pyatskowitz, and Lee Newman from the Ashland Fishery Resources Office (FRO) spoke at a series of regional workshops hosted by the University of Wisconsin-Superior, University of Wisconsin Extension, Minnesota and Michigan Sea Grant programs, Trout Unlimited, and Trout Unlimited Canada with support from state, Federal, tribal, and university cooperators. Workshops were held in Duluth and Grand Marais, Minnesota and in Ashland, Wisconsin. They focused on current scientific information pertaining to coaster brook trout status and

rehabilitation efforts, and interaction with stakeholders on the topic of coaster brook trout rehabilitation. A key point for the workshops was discussion about what it will take to bring back populations of this magnificent fish in Lake Superior. Coaster brook trout are linked to the lake and tied to the past. Efforts to rehabilitate coaster brook trout have been underway for many years, but a collaborative effort over the past year has brought together many agencies, tribal organizations, university members, and private partners to bring a new focus to the effort.

Henry Quinlan, Ashland FRO

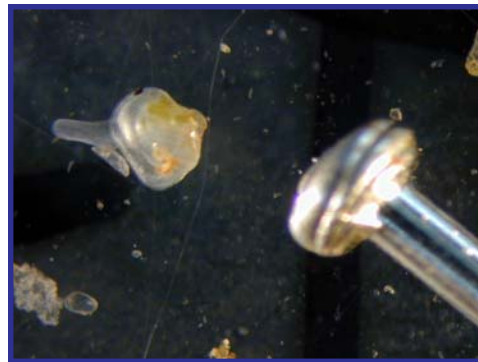
Genoa National Fish Hatchery assists Geneticist in Advancing Mussel DNA Information and Technology

In order to carry out restoration and recovery programs for aquatic species, fish hatcheries strive to use the best practical scientific advances and methods. As hatchery systems and programs expand and begin working with endangered and other non-traditional species such as freshwater mussels, application of current technologies, especially advances in genetic marking, prove invaluable. All genetic studies currently done on freshwater mussels have been conducted from tissue samples from adult mussel donors with little attention to larval or early life stages (newly transformed mussels). This methodology does not adequately reflect the genetic make-up of progeny propagated in the field or in an aquaculture facility. This poses questions for resource managers and propagation biologists which rely on providing adequate genetic variation in stock enhancement, restoration, or

recovery programs. The ability to understand parental contributions of wild harvested larval mussels, which are used in various propagation strategies, gives managers a powerful tool to ensure adequate genetic variation in augmentation or created populations.

Genoa National Fish Hatchery (NFH) has become involved in the investigation into the ability to detect genetic markers in larval mussels through a cooperative effort with scientists at the University of California at Santa Barbara. The NFH has provided early life stage mussels to investigators who will attempt to determine if enough genetic material is available in these tiny organisms to detect known markers. The facility will continue to provide early life stage mussels throughout the coming months to aid in these and other investigation efforts at the University of California at Santa Barbara and also Iowa State University.

Roger Gordon, Genoa NFH



-USFWS

A juvenile mussel shown next to the head of a pin. Genoa National Fish Hatchery staff is working with scientists to detect genetic markers in tiny juvenile mussels.

Columbia Fishery Resources Office works with Iowa State University on Data Analysis

The Columbia Fishery Resources Office (FRO) has collected four years of fish community assessment data from three side channels and associated main channel habitats on the Lower Missouri River. These side channels are managed by the Big Muddy National Fish and Wildlife Refuge (NF&WR) and vary in morphology, hydrology, and management. Through cooperation with Iowa State University Cooperative Unit and Statistics Department, habitat use by native fishes within these side channels and respective main channel habitats will be analyzed using multivariate techniques. Knowledge of how these habitats are used by juvenile and adult fishes will enable the FRO to make recommendations to Big Muddy NF&WR staff to adaptively manage these side channels to increase habitat diversity for the benefit of native fishes. Sound science is the foundation of successful aquatic resource management. Work on this project is an example of how the Columbia FRO is working with partners to conserve and manage self-sustaining populations of native fish.

Louise Mauldin, Columbia FRO

Aquatic Habitat Conservation and Management

Lenawee Creek Horse Power Habitat Restoration

A series of engineered log jams are restored and enhanced approximately 700 feet of brook trout habitat on Lenawee Creek in Bayfield County, Wisconsin. They were installed this fall using only horse power and strong backs. Lenawee Creek is a Lake Superior tributary which supports a native brook trout fishery as well as seasonal runs of steelhead trout and coho salmon. Past logging practices in the 1800's and early 1900's have significantly altered the site. The landowner and concerned conservation groups led by Trout Unlimited have now come together to restore other areas of Lenawee Creek and its fish community.

Historic accounts of Bayfield area streams indicate that it was nearly impossible to traverse upstream due to the tremendous density of log jams and large fallen wood. This is no longer the case due to watershed disturbances such as stream channel clearing and repeated timber harvests. Because of a lack of channel roughness which is naturally provided by the large wood, native fish habitat has been severely degraded and stream power during flood events has greatly increased. Engineered log jams are designed to emulate natural jams and large woody debris and provide native fish and wildlife habitat, channel stability, decrease bank erosion pressure, and decrease sediment which impairs fish spawning.

The partners on the project consisted of the Ashland Fishery Resources Office (FRO), Whittlesey Creek National Wildlife Refuge, Trout Unlimited, Wisconsin Department of Natural

Resources, National Fish and Wildlife Foundation, Trout and Salmon Foundation, and the Ashland Bayfield Douglas and Iron Counties Land Conservation District. Inter-Fluve Incorporated of Lake Mills, Wisconsin provided the engineering and construction oversight.

The combination of draft horses and laborers from the Fish and Wildlife Service, Trout Unlimited, and Inter-Fluve worked wonderfully, and the series of log jams and large woody debris installation was pulled off with only a minor hitch or two. Block and tackle was needed to move logs into places where the horses could not maneuver and adjustments were made using cant-hooks and pry-bars. The large wood was secured with cables and earth anchors. The partners involved in the restoration are proud to have provided a practical, low impact approach to fish and wildlife habitat restoration in this remote and important part of Northern Wisconsin.



-USFWS

The addition of a series of engineered log jams, which restored and enhanced 700 feet of native brook trout habitat on Lenawee Creek in Bayfield County, Wisconsin, was accomplished with only horse power and strong backs.

Ted Koehler, Ashland FRO

Construction through the Holidays

Wetland enhancement was completed on a two-acre site in Alpena County, Michigan the last week of November through the Alpena Fishery Resources Office (FRO) Partners for Fish and Wildlife (PFW) program. Although the snow had started to fall, the ground was not frozen, so construction could proceed to officially finish up the construction field season in Northern Michigan.

Biologist Heather Enterline will continue to survey new sites until the snow becomes too deep (usually the end of December). Eight site visits were completed in November, and seven proposals were submitted by Alpena's PFW program. Wetland restoration/enhancement contributes toward the "Aquatic Habitat Conservation and Management" component of the Fish and Wildlife Service's Fisheries Program Vision for the Future.

Heather Enterline, Alpena FRO



-USFWS photo by Heather Enterline

The Alpena Fishery Resources Office Partners for Fish and Wildlife Program completed wetland enhancement on a two acre site owned by John Westenbarger in Alpena County, Michigan in November.

Large Woody Debris Project on the Manistee River, Michigan

Large trees that fall into rivers and streams are a natural part of the ecosystem that have become less common due to timber management techniques and river navigation projects. The Manistee River watershed, located in Northern, Lower Michigan, provides a home to many species of fish and wildlife including lake sturgeon, bald eagle, salmon, and trout. Fisheries professionals have identified a lack of woody debris in the Manistee River as a factor contributing to decreased fish abundance. Early surveys of the area report huge log jams in the river, all of which were removed when the surrounding uplands were logged off.

The Green Bay Fishery Resources Office (FRO) recently assisted the U.S. Forest Service and other local partners with a project designed to return some of these large trees to the Manistee River. The goal of the project was to replicate a natural condition that has not existed on the Manistee since the logging era. Whole trees were selected from upland areas on Federal lands near the river and pushed over keeping their large root wads intact. Each tree was then lifted by a helicopter to the river and placed to provide maximum benefits for fish and to buffer erosion sites.

A total of 170 trees were placed in the river during the two-day project. Tree placement was designed to minimize interference with river navigation. Partial funding for this project was provided by the Fish and Wildlife Service's Fish Habitat Restoration program.

Stewart Cogswell, Green Bay FRO



-USFWS

A helicopter was used to place 170 trees into the Manistee River, Michigan to improve fish habitat. The project is intended to replicate historical habitat which has not existed since before the logging era.

Tomahawk Creek

The Presque Isle County Road Commission completed a culvert replacement at a Tomahawk Creek road crossing which is located in the headwaters of the Black River in Northern, Lower Michigan. The project identified two undersized and failing culverts that negatively impacted native brook trout passage. In addition to impeding fish movement, the aging and undersized culverts contributed to large amounts of sediment entering the system during high water events when the water would back up and flood the gravel road.

The project was completed by replacing the failing culverts with a bottomless culvert constructed from a railroad tanker car. This design was utilized to reduce the cost of the structure while preserving the durability and allow for unimpeded fish access to upstream habitat. Replacement of the culvert with this design will decrease the sediment load entering the system. Oversight for the project was provided by biologists Susan Wells and Heather Enterline, and Project Leader Jerry McClain from the Alpena Fishery Resources Office (FRO).

Funding for this project was provided by the Fish and Wildlife Service's Fish Passage Program and the Presque Isle County Road Commission. Additional partners include the Black River Restoration Committee and Huron Pines Resource Conservation and Development (RC&D). This is an example of collaboration between Federal, state, and local agencies along with watershed groups to enhance aquatic habitat which will benefit fish and wildlife resources including native brook trout.

Susan Wells, Alpena FRO



-Presque Isle County Road Commission

Alpena Fishery Resources Office provided project coordination for the removal of an undersized culvert on Tomahawk Creek in Presque Isle County, Michigan. One half of a railroad tanker car was used as a bottomless culvert providing uninhibited fish passage to upstream areas.

Workforce Management

Genoa National Fish Hatchery lands a new Administrative Assistant

The staff at the Genoa National Fish Hatchery (NFH) is pleased to have a new administrative assistant on board. Darla Wenger of Alma, Wisconsin joined the staff in November. Darla comes to us from the Regional 3 Office Division of Human Resources. Darla's area of expertise, personnel actions, is expected to be put to use throughout the summer with the station's temporary employment programs.

Genoa NFH has been practicing catch and release with its administrative assistants. While this is a sound conservation principle to practice during fishing, it does tend to put the station's administrative function behind the eight ball! Genoa's administrative assistant of 23 years retired last January. Diane Zittel filled in after Karen from January 2004, and received a new position in the Regional Office Fisheries Division at Fort Snelling in August. We hope you all will welcome Darla to her new duty station when contacting the hatchery, and know that you will enjoy getting to know her as much as we will.

Doug Aloisi, Genoa NFH



-USFWS

Darla Wenger is the new administrative assistant at the Genoa National Fish Hatchery.

New Fisheries Academy Courses

A subgroup of the National Fisheries Training Committee met at the National Conservation Training Center (NCTC) in November. The subgroup was charged to work with Chris Horsch, Chief of Aquatic Resources at NCTC to plan the material and time frame for two new Fisheries Academy courses. The first course is the "Fisheries Academy" course for GS-5/7/9 new biologists (400 series) in Fisheries. The second course is the "Advanced Fisheries Academy" course for GS-9/11 journey-level biologists (400 series) in Fisheries.

The goals of the program are to equip biologists with a wide range of specific technical skills and competencies as well as many general ones common to all 400 series positions within the Fish and Wildlife Service. In addition to these, the biologist must also have a working knowledge of the program within which they conduct their work. They need a thorough understanding of the legislation, policies, and directives that frame the daily work they perform. The proposed courses will provide a foundation in Fisheries Program operations by exploring the Fisheries and Department of the Interior strategic plans, by making linkages between these plans and their annual work activity guidance set forth by the program each year, and by helping the participants form their Communities of Practice network which they will continue to build upon and expand throughout their career.

Rick Nelson, La Crosse FHC

The "Eagle" has landed at Jordan River National Fish Hatchery

This past October a group of Boy Scouts from East Jordan, Michigan participated in an Eagle Scout qualification project on the grounds of the Jordan River National Fish Hatchery (NFH). The scouts placed boulders to build a water diversion device in Six Tile Spring. Six Tile Spring is one of two water sources for the hatchery. The water diversion device is working well, as the purpose was to increase water velocity and move sediment to an area that is more accessible for removal with the hatchery backhoe. The materials for the project were purchased with challenge cost share grant funds and the match was provided with the labor from the Boy Scouts. Maintenance Mechanic Bob Peterson coordinated the project and was assisted by Volunteer Dan Sutherland. Another Eagle Scout project is in the works for 2005.

Tim Smigielski, Jordan River NFH



-USFWS photo by Bob Peterson

Volunteer Dan Sutherland positions a chute used to place boulders in the Six Tile Spring at Jordan River National Fish Hatchery. The diversion structure will direct sediment deposits where they can be easily removed from the spring.

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