U.S. Fish and Wildlife Service - Midwest Region

Fisheries & Aquatic Resources Program

Fish Lines

First Collection of Lake Huron Parry Sound Lake Trout Eggs

Net Guru Enlisted to Target Carp

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Fish Lines

Fisheries & Aquatic Resources Program - Midwest 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.

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.

Features

-USFWS
Fin Clipper Tony Wizauer collects milt from lake trout brood stock and then mixes it into a container full of lake trout stock eggs, to fertilize the eggs.

To view other issues of "Fish Lines," visit our website at:
http://www.fws.gov/midwest/Fisheries/library/fishlines.htm

Fish Lines

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Participants of the Midwest Natural Resources Group examine some silver carp.

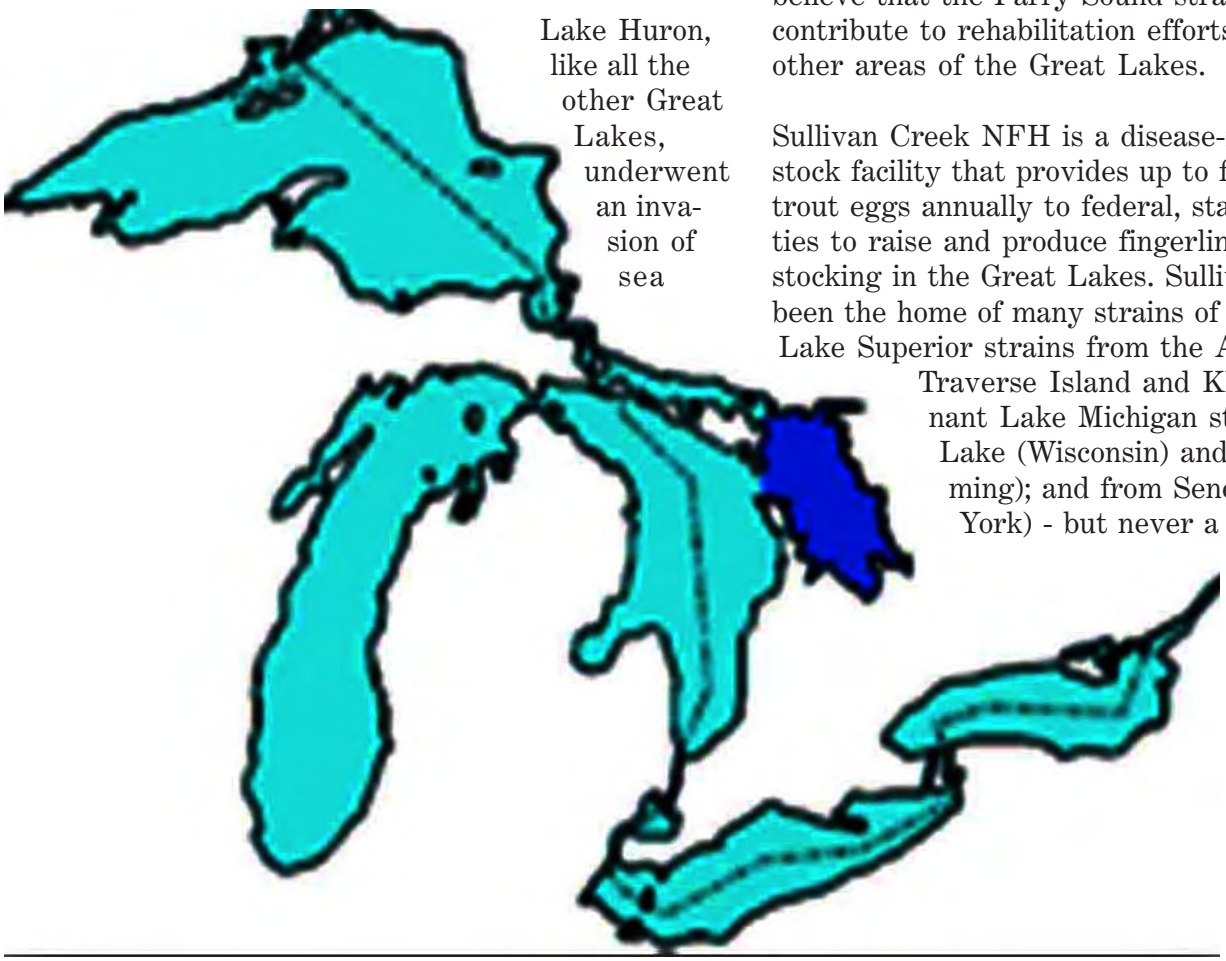
Fish Lines is produced by the Fisheries and Aquatic Resources Program, Region 3, U.S. Fish & Wildlife Service, Ft. Snelling, Minnesota. Items included are selected from monthly reports submitted by Region 3 fisheries offices. Photos included are used by permission and may be copyrighted.

Conservation Briefs 6-18

First Collection of Lake Huron Parry Sound Lake Trout Eggs

BY CRYSTAL LEGAULT-ANDERSEN, PENDILLS CREEK NFH

Three year classes of lake trout from wild parents in Lake Huron have entered the National Fish Hatchery System at Sullivan Creek National Fish Hatchery (NFH) in Brimley, Michigan. The new strain of lake trout brood stock, the Huron Parry Sound Wild, or HPW, arrived during September 2007, September 2008 and October 2009.



Georgian Bay (highlighted in dark blue) is located east of Lake Huron and is the source of the Parry Sound lake trout brood stock being held at the Sullivan Creek National Fish Hatchery.

Lake Huron, like all the other Great Lakes, underwent an invasion of sea lamprey which feed on larger predator fish such as lake trout and suffered the effects of over-fishing during the 1940s, which resulted in nearly total annihilation of lake trout populations. However, the Parry Sound strain of lake trout managed to thrive in an isolated pocket of Georgian Bay on the Canadian side of Lake Huron. Parry Sound lake trout have proven to be expanding their range, have reached self-sustaining levels, and in fact, have done so well that hatchery supplementation has stopped in Georgian Bay. Both Ontario Ministry of Natural Resources (OMNR) and Fish and Wildlife Service managers believe that the Parry Sound strain could significantly contribute to rehabilitation efforts for lake trout in other areas of the Great Lakes.

Sullivan Creek NFH is a disease-free lake trout brood stock facility that provides up to five million eyed lake trout eggs annually to federal, state and tribal facilities to raise and produce fingerlings for rehabilitation stocking in the Great Lakes. Sullivan Creek NFH has been the home of many strains of lake trout including Lake Superior strains from the Apostle Islands, Traverse Island and Klondike Reef; remnant Lake Michigan strains from Green Lake (Wisconsin) and Lewis Lake (Wyoming); and from Seneca Lake (New York) - but never a Lake Huron strain. For the first time, the Fish and Wildlife Service has a native Lake Huron wild stock to raise and stock back into Lake Huron as specified in rehabilitation plans.

During the fall of 2011, Sullivan Creek NFH spawned the 2005 and 2006 year classes to produce our first group of HPW eggs, which were shipped to Jordan River and Iron River NFHs as eyed eggs, and will eventually be stocked as yearlings in the spring of 2013.

For further info about the Pendills Creek NFH/Sullivan Creek NFH: http://www.fws.gov/midwest/Fisheries/library/StationFactSheets/pendills.pdf

Net Guru Enlisted to Target Carp

BY WYATT DOYLE, COLUMBIA FWCO

Columbia Fish and Wildlife Conservation Office (FWCO) hosted Innovative Net System's owner Greg Faulkner for a full week of carp gear trials. We have been working with Greg for over ten years in our efforts to design trawls for the Missouri River. This was the third trip Greg has taken to the Midwest to consult with our office. He is one of only ten "Master Trawl Builders" in the world.

-USFWS/HeatherCalkins

Greg Faulkner of "Innovative Net Systems" is working with the Columbia Fish and Wildlife Conserv ation Office staff to implement a new carp sampling net.

Greg has been instrumental in propelling our efforts forward by designing and building trawls for sturgeon sampling. We are now seeking to use his more than 25 years of experience in commercial and research fishing in the development of carp capture gears. Greg says it himself, "…these nets are nothing new to the world, they've just never been used at this scale and in this part of the country. In fact, we have to go back in time where few commercial fishermen (now using hydraulics and diesel engines) remember having been."

Replacing horses with hands, winches with gloves and bulk with technique, we hope to introduce new materials and old techniques to the war on invasive carp. In most developmental work, we live by the phrase "nothing ventured nothing gained" because the truth is nothing ever works the first time. This was true once again; in fact, after one short trip to the river, we spent two days cutting and sewing for round two. After round three, we had seen the future and have spent the last week building a new net and re-rigging our boat. We are never without a lack of respect for the savvy of the invasive Asian carp.

With all its senses, or at least its' use of a sixth sense, it has an incredible ability to evade capture, and anyone who has pursued these fish will tell you they learn quickly. We specifically tested the paupier net (AKA butterfly trap) which is similar to a shrimp skimmer operation. The idea being, if fish like to jump in your boat then put a big net off the sides of your boat and let them jump in the net. The concept worked! By using eight foot nets suspended off the sides of our boat and 150 horsepower, we chased down the carp with our nets despite their evasive maneuvers.

We are now tweaking our mesh size to target the average size fish, beefing up our rigging to be able to handle large catches, and making our nets wider (12 feet) to tackle open, shallow water. We've got more tricks in our bag and will be working in the coming weeks with Carterville FWCO and their DIDSON sonar camera to evaluate the behavior of carp when they encounter other trial nets, including a purse seine and lampara seine. If we understand how the fish react to a net (do they go deep or jump, do they scatter or school) we can build the net more effectively from the outset. With new markets coming available for Asian carp, we are hoping to quickly get these gears out to commercial fishermen and give them one more tool in their arsenal to remove these unwanted guests from our rivers.

For further info about the Columbia FWCO: http://www.fws.gov/midwest/columbiafisheries/

Bryan Arroyo: Assistant Director of Fisheries and Habitat Conservation Visits Neosho NFH

BY KAY HIVELY, *FRIENDS OF NEOSHO NFH*

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.

This week's neighbor came to Neosho, Missouri (Neosho) for the first time this week, but he has Neosho on his mind quite often. Bryan Arroyo, the Assistant Director of Fisheries and Habitat Conservation for the Fish and Wildlife Service, is taking part in a retreat at the Neosho National Fish Hatchery (NFH).

-Kay Hively, Friends of Neosho NFH

Assistant Director of Fisheries and Habitat Conservation Bryan Arroyo participated in a retreat at the Neosho National Fish Hatchery.

Bryan has been with the Fish and Wildlife Service for 20 years and has finally moved into the top fisheries slot. But even though he is on the top of the pile, he's kept his feet planted firmly on the ground. Born in Puerto Rico, he came to the United States in 1988 to attend the University of Arkansas. After college, he went to work for the Fish and Wildlife Service, and says he has loved every minute of his work.

Bryan took an interest in fish and wildlife in his native Puerto Rico because his dad always took him fishing. Now, he is paying back his childhood by working to protect fish and wildlife. He can talk all day about hatcheries and the wonderful work they do. He especially likes to mention the science that goes on at hatcheries and the work they do to protect not only fish but waters as well. He is quick to point out the importance of good clean water because he thinks this is the biggest challenge in fisheries—not only for fish, but for humans.

But Bryan has other interest besides fish. He and his wife have two daughters. One is a senior in college and one a senior in high school. He is willingly dragged along to dance recitals, contests and performances of his daughter. His youngest daughter is in rehearsals for "The Nutcracker" back in the Washington D. C. area. He has missed the rehearsals, but he'll be back for the performance.

Bryan is having a great time in Neosho. He is so proud of what has been done at the hatchery and is hoping to return in March to attend a fishing derby that is being planned for veterans.

"I hear they plan to put out 500 American flags," he said. "Count me in to help with the flags."

Like all agencies, the Fish and Wildlife Service is expecting funding cuts, but Bryan is hoping for the best. "There is much work to do in fisheries, but we will work with whatever we get and do the very best we can," he said. Bryan Arroyo is a positive guy, and that's why he's this week's Good Neighbor.

For further info about the Neosho NFH: http://www.fws.gov/midwest/neosho/

Information Sharing on Regional and National Levels

BY TED TRESKA, GREEN BAY FWCO

Biologist Ted Treska of the Green Bay Fish and Wildlife Conservation Office (FWCO) attended the national meeting of the American Fisheries Society (AFS) in Seattle, Washington, and the Midwest Fish and Wildlife Conference (Midwest) in Des Moines, Iowa, during the last few months. As president of the Wisconsin chapter of the American Fisheries Society, Treska contributed to the governing board meetings at the conferences and also attended a number of symposia pertaining to Asian carp, the Great Lakes, and sea lamprey among a number of other topics.

A good deal of research on control of Asian carp was presented at the Midwest, with results on projects aimed at specifically targeting and delivering rotenone to the carps based on their feeding habits. Other talks addressed possible outcomes, if Asian carp reach the Great Lakes, and other control techniques. The Great Lakes symposium included talks on movement of larval lamprey, the effectiveness of lake trout refuges and the impacts of river mouths on larval fish contributions.

The national AFS meeting was large, with over 25 concurrent sessions to choose from. While this schedule offered a lot of opportunity, it also limited the number of talks one could attend, for many sessions overlapped or were so far away from each other that one missed a few talks in transit.

Several topics pertained to the Great Lakes work being done by the Green Bay FWCO. These included advances in stock assessment modeling, predator/prey dynamics, adaptive management and invasive species.

In addition, Treska participated in a number of mentoring opportunities at each of the meetings, talking to students about fisheries and working for the Fish and Wildlife Service.

For further info about the Green Bay FWCO: http://www.fws.gov/midwest/Fisheries/library/StationFactSheets/greenbay.pdf

Fish Health and Technology Centers Gather Together

BY TERRY OTT, LACROSSE FHC

Fish Technology Centers sent their Project Leaders, or their representatives, to Burlington, Vermont, to discuss fishery issues of national significance. Some of the issues discussed or debated were the Wild Fish Health Survey and Database Index Sites; National Wildlife Refuge Inventory & Monitoring Program, environmental DNA update and discussion, propagated fish in resource management, science application team technical advisory committee update, National Aquatic Animal Health Plan and NAAPTN, Fisheries budget overview, Landscape Conservation Cooperative (LCC) partnerships and support, Fish and Wildlife Service Fish Health Policies; NAAPTN and lab validation testing and laboratory certification, and continuing education and training opportunities. Approximately 80 participants took part in the three day meeting. Many of the topics were presented by Washington Office staff and members of the LCC organization and included Bryan Arroyo - Assistant Director of Fisheries and Habitat Conservation, Gabriela Chavarria – Science Advisor to the Director, Joel Bader - National Aquatic Animal Health Coordinator, and Doug Austen - National LCC Coordinator. The most debated issue, or the one most talked about during the three day meeting, was how Fish Health and Technology Centers meet goals newly formed by Landscape Conservation Cooperatives. There seemed to be more questions than answers. Stay tuned.

For further info about the La Crosse FHC: http://www.fws.gov/midwest/LaCrosseFishHealthCenter/

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.

The Results are In…… Those Babies came from Genoa NFH

BY NATHAN ECKERT, GENOA NFH

In September during mussel surveys on the Iowa River, four mussels were collected and tentatively identified as Higgins' eye pearlymussels. Non-lethal genetic samples were taken and sent to Iowa State University where they were analyzed and compared to background samples of known specimens. It was important to confirm the species identification with genetic techniques because the Higgins' eye shell often closely resembles a locally common species called the hickorynut. The results came back that each individual was in fact a Higgins' eye. This is significant because it is the first indication that our restoration efforts in the Iowa River have been successful. In partnership with the Iowa Department of Natural Resources, Genoa National Fish Hatchery (NFH) has been releasing fish bearing larval mussels at Iowa City since 2002. Through seven stocking events, over 1.2 million juvenile Higgins' eye pearlymussels have been released in the Iowa River.

-LloydLorenz

Pictured is a Higgins' eye pearlymussel from the Iowa River at Iowa City, Iowa, indicating that our restoration efforts have been successful here.

It took a perfect storm of low water and a significant number of volunteers searching this fall to find the first living specimen after five years of searching unsuccessfully. Data from the survey revealed that 2,700 other mussels were collected for each live Higgins' eye. Hopefully, continued efforts will lead to a self-sustaining population of Higgins' eye pearlymussels in the Iowa River.

For further info about the Genoa NFH: http://www.fws.gov/midwest/genoa/

Fish Health Inspection at the Neosho NFH

BY KEN PHILLIPS, LA CROSSE FHC

Dustin Hart and Ken Phillips traveled to Neosho, Missouri, on November 15th to conduct a fish health inspection at the Neosho National Fish Hatchery (NFH), which included observing conditions at the hatchery and collecting tissue samples to screen for fish pathogens. Located in southwest Missouri, the Neosho NFH rears rainbow trout and the endangered pallid sturgeon. cultured rainbow trout are stocked into Lake Taneycomo as mitigation for the loss of fishing due to Federal dams built on the White River in Missouri. Pallid sturgeon reared at the hatchery are stocked into the Missouri River as part of recovery efforts on the river for this Federally endangered fish.

Tissue samples were collected from rainbow trout (5 groups) and pallid sturgeon (6 groups), The tissue

-USFWS/JamiePachecho

Ken Phillips takes fish health samples for Neosho National Fish Hatchery's semi annual inspection.

samples were screened for bacterial pathogens (*Aeromonas salmonicida*, *Renibacterium salmoninarum*, *Yersinia ruckeri*), viral pathogens (infectious hematopoietic necrosis virus, infectious pancreatic necrosis virus, viral hemorrhagic septicemia virus, pallid sturgeon iridovirus), and parasitic (*Myxobolus cerebralis*) pathogens at the La Crosse Fish Health Center's (FHC) laboratory facilities in Onalaska, Wisconsin.

For further info about the La Crosse FHC: http://www.fws.gov/midwest/LaCrosseFishHealthCenter/

New Fish Distribution Truck for the Lake Trout Program

BY NICK STARZL, IRON RIVER NFH

This summer the Iron River National Fish Hatchery (NFH) staff concluded an 18 month project which will leave its mark on the Great Lakes for the next several decades. A new state-of-the-art 3,600 gallon live fish haul tank atop a 2010 freightliner chassis pushed the infamous Ford LT9000 into backup status. Out with the old and in with the new, and in this case "new" means an increase of 300 gallons of fish hauling capacity, continuous dissolved oxygen readings from inside the cab, and a better overall tank design to discharge fish at the stocking site. "New" also means more comfort for the driver as well. Luxuries like air conditioning, cruise control and a quiet cab will make those long distribution runs more tolerable. However, all of these upgrades took backseat to the importance of making this regional distribution unit (RDU) the safest it could be. People are our greatest asset, so countless hours went into designing a piece of equipment which allows Fish and Wildlife Service personnel to perform their jobs safely and effectively. The new RDU was tested prior to the fall fingerling distribution season, and from there will be used extensively next spring during spring distribution, where it will be used to jointly haul over four million yearling lake trout annually to Lakes Michigan and Huron in cooperation with Pendills Creek NFH and Jordan River NFH. The RDU is expected to be in full service for the next 15 years, where it will cumulatively haul approximately 26 million lake trout in order to meet rehabilitation goals for the Upper Great Lakes.

-USFWS

A new Region 3 fish distribution unit is stationed at the Iron River National Fish Hatchery and has a tank capacity of 3,600 gallons.

For further info about the Iron River NFH: http://www.fws.gov/midwest/ironriver/

Asian Carp eDNA Snapshot Sampling in the Windy City

BY RYAN KATONA, LA CROSSE FHC

Rebekah McCann and Ryan Katona from the La Crosse Fish Health Center (FHC) traveled down to Chicago, Illinois, to assist the U.S. Army Corps of Engineers (USACE) with the eDNA snapshot Asian carp sampling event. This October event was organized in order to test numerous sites throughout the Chicago Area Waterway System for the presence and/or absence of invasive Asian Carp. A total of 720 water samples were collected throughout the week by staff from Carterville and Lacrosse Fish and Wildlife Conservation Offices. These samples were delivered to the U.S. Environmental Protection Agency lab for filtering. The filtering crew consisted of USACE and FHC staff. The filtering, which can be long and rigorous, gave us a perspective on how much work is involved in running an event like this and being able to pull it off successfully.

-USFWS/EricLeis

A two liter water sample from the Chicago Area Water System is filtered for Asian carp DNA detection.

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.

For further info about the La Crosse FHC: http://www.fws.gov/midwest/LaCrosseFishHealthCenter/

Carterville FWCO Personnel Introduce the Public to the Flavor of Carp

BY JEFF STEWART, CARTERVILLE FWCO

During the annual Southern Illinois Hunting and Fishing Days held in September at John A. Logan College in Carterville, Illinois, fisheries personnel from the Carterville Fish and Wildlife Conservation Office (FWCO) took the opportunity to introduce the public to the tasty flesh of invasive Asian carp. This is a huge event that attracts thousands of outdoors folks from around the region. It is billed as the largest celebration of Hunting and Fishing Day in the country; and judging by the amount of camouflage clothing present, that may be right. The event includes numerous activities and demonstrations, from an archery contest to a youth goose calling contest.

At the 2010 Hunting and Fishing Days, Carterville staff demonstrated Asian carp cleaning techniques which were very popular with the public. This year, we thought it would be a good idea to step up our outreach effort a notch and introduce the public to eating carp. We traveled to Pearl, Illinois, and picked up 70 pounds of fresh bighead carp fillets which were donated by Rick Smith of Big River Fish, a commercial fish plant that specializes in Asian carp. Bighead carp flesh is firm, white, flakey, and has a very mild and tasty flavor (as is silver carp).

Throughout the day on Saturday, biological technicians Teresa Campbell and Brad Rogers trimmed and cut up filets, and biologist Jeff Stewart breaded and fried carp. Biologist Nate Caswell and Project Leader Rob Simmonds handed out samples of fried fish along with literature on Asian carp, and answered numerous questions from the public. Most people were eager to try the carp; a few took a little arm twisting but everyone who tried it loved it! Many people couldn't believe the fish was from a carp and compared it with crappie and walleye. Several women stated "I don't even like fish and this is delicious". In the end, despite intermittent rain during the day, the attendance was excellent and the public's response to eating Asian carp was overwhelmingly positive. We were happy with the results and hope that they will translate into more folks consuming Asian carp on a regular basis.

For further info about the Carterville FWCO: http://www.fws.gov/midwest/Fisheries/library/StationFactSheets/carterville.pdf

Sea Lamprey in the Great Lakes: The Battle Continues

The sea lamprey is a destructive invasive species in the Great Lakes that contributed to the collapse of lake trout and other native species in the mid twentieth century. Sea lampreys attach to large bodied fish, like lake trout, and extract the blood and bodily fluids from its host. It is estimated that each parasitic lamprey will kill up to 40 pounds of fish during its life time.

Sea Lamprey Mouth, T. Lawrence, USFWS

Although sea lampreys were first spotted in Lake Ontario in the 1830's, they were not found in the remaining lakes until the 1930's. Niagara Falls served as a natural barrier to their expansion. Once the Welland Canal was built, so that ships may bypass the falls, the sea lamprey found their way into the remaining Great Lakes. Along with the introduction of sea lamprey and over harvesting by commercial fisheries the lake trout population rapidly declined. Before lampreys were established in the Great Lakes approximately 15 million pounds of lake trout were harvested annually in lakes Huron and Superior. By the 1960's the average harvest was down to around 300,000 pounds. The lake trout fishery was almost decimated.

In 1955, the Great Lakes Fishery Commission was founded to find a way to minimize or eliminate sea lamprey populations within the Great Lakes and to organize research programs throughout the Great Lakes. The Sea Lamprey Management Program (SLMP) was then created and charged with facilitating the rehabilitation of important fish stocks within the Great Lakes by reducing mortality caused by sea lamprey. The SLMP is in turn implemented by two control agents, the Department of Fisheries and Oceans Canada and the U.S. Fish and Wildlife Service. There are currently three offices within the SLMP: Ludington Biological Station, Mich., Marquette Biological Station, Mich. and the Sea Lamprey Control Centre, Sault Ste. Marie, Canada.

The first step in the fight against the sea lamprey was to understand their life cycle. Adult sea lamprey will swim upstream into rivers and build horseshoe shaped nests. Once a lamprey has spawned they die. Their tiny worm- like larvae bury themselves in the sand and sediment where they feed on plant material and debris for an average of 3 to 6 years. The larvae then go through a metamorphosis where they develop eyes and an oral disc with teeth. The lamprey is now in its parasitic phase at which point it will head out to the Great Lakes to begin feeding. Lamprey will spend anywhere from 12-20 months feeding before the cycle is once again started. This whole process takes on average 5 to 8 years to complete.

Scientist found that the most vulnerable stage in their life history is the larval stage. After testing over 5,000 compounds, a chemical known as TFM (3-trifluoromethyl-4-nitrophenol) was found. TFM is monitored into streams in small quantities (parts per million) and disrupts the sea lampreys ability to metabolize oxygen, thus killing sea lampreys.

With over 5,000 tributaries to the Great Lakes, of which 450 have contained sea lamprey and only 267 have been treated in the past, knowing their distribution and abundance is vital. To do this, employees use backpack electro-fishers, in shallow areas, to stimulate larval sea lamprey out of their burrows. In deeper bodies of water, assessment technicians will use a granular Bayluscide which again stimulates lamprey from their burrows. Data collected, length and frequency, is used to decide which streams or section of streams will be treated for sea lamprey during the next field season.

Once abundance and distribution have been determined and a treatment list has been decided on the chemical control unit takes the reigns and treatments begin. Prior to treatment the streams are surveyed and data is collected on the volume of flow and the chemistry of the water. Treatment units, both US and Canadian, then apply and analyze the TFM concentration throughout the treatment. A typical treatment will typically take between 48 to 72 hours. During the 2011 field season, 96 streams throughout the Great Lakes Basin were treated for sea lamprey.

Several alternative control methods have been developed including: trapping of spawning-phase sea lamprey, release of sterilized males to reduce reproductive success, and the operation and construction of low-head barriers which block migrating lamprey. New alternative control methods are currently being investigated. These new control methods include sterile-female release, use of lamprey pheromones, and trapping technologies.

The Service and Department of Fisheries and Oceans are constantly involved in outreach activities to inform the public of the benefits and operations of the SLMP. These efforts educate the public about sea lampreys and the devastating effect they have on Great Lakes fishes. Employees frequently attend boating and sports shows where a large display and live lamprey draw the crowds. Regular visits to local schools and conservation groups inform children and adults on the need to protect the Great Lakes from all aquatic invaders.

M. Gaden, USFWS

For more information on Sea Lamprey and the Sea Lamprey Management Program please visit http://www.glfc.org

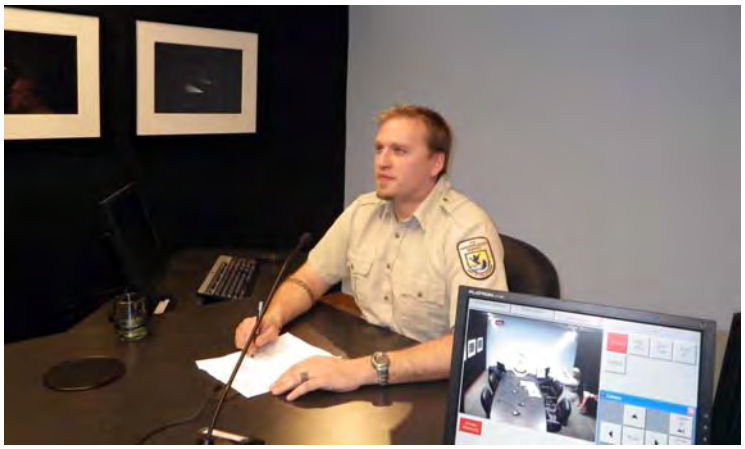
Story by Rebecca Gannon, Ludington Biological Station

Green Bay FWCO Biologist put "On the Spot" about Careers

BY STEWART COGSWELL, GREEN BAY FWCO

The Green Bay Fish and Wildlife Conservation Office (FWCO) participated with a program called Student Career Info, which is a production of Students & Leaders Network, Incorporated. This 501(c) 3 nonprofit organization is dedicated to providing career information for students, educators, parents and the public.

Career speaker sessions are delivered from a video conferencing studio in Madison, Wisconsin. Each program features a live Q&A video discussion with up to eight high schools at a time. Biologist Stewart Cogswell provided an energetic discussion on the importance of fish in our ecosystems and how they can be an indicator of environmental health. Time was also spent discussing basic fish biology and the need for properly functioning aquatic systems. Students asked numerous questions relating to jobs in the biology field involving pay rates, education requirements and daily activities.



-AndreaNovotny

Fish and Wildlife Service Biologist Stewart Cogswell is pictured in a studio for a live question and answer session with several Wisconsin high schools.

The program has a digital library of additional topics that provide information and insight on other careers and life challenges for students. Additional video sessions of experts explaining their careers are continually added (http://www.studentcareerinfo.com).

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.

For further info about the Green Bay FWCO: http://www.fws.gov/midwest/Fisheries/library/StationFactSheets/greenbay.pdf

Spring Arbor University Students Canoe and Learn About the Jordan River

RICK WESTERHOF, GREEN BAY FWCO & DAN AND ALICE GRIMES, CEDAR BEND FARM

Every fall, the freshman class at Spring Arbor University treks north to Cedar Bend Farm near Mancelona, Michigan, to learn about the great outdoors. One of the highlights for the students is canoeing the Jordan River from Graves Crossing to Webster's Bridge - approximately a three hour trip. This year, Cedar Bend Farm contacted Rick Westerhof of the Green Bay Fish and Wildlife Conservation Office (FWCO) (stationed in Elmira, Michigan) to lead one of the weekly Jordan River canoe trips and teach the students about the Wild and Scenic river and natural resource careers.

-CedarBendFarms

Students start a canoe trip down Michigan's Jordan River at Graves Crossing.

So, on October 21st, Rick led a group of approximately 16 students down the cold (water temperature in the upper 40's) and mighty Jordan River. Many of the students have never canoed before and were provided a quick paddling and safety lesson by the owner of Swiss Hideaway Canoe Livery. The paddling lesson includes how to "steer the canoe" and "oh darn, here comes the emergency tree stroke". Several safety tips are provided that include "don't grab the tree limb", "don't stand up in the canoe", and everyone must have a personal floatation device.

-CedarBendFarms

Spring Arbor University students regroup below the Old State "twin tubes". The twin tubes is a major site of erosion and sediment entering into the river, impounds water above the undersized culverts, doesn't span bankfull, creates a scour pool at the downstream end, and Old State Road's structural integrity is being compromised.

The students are put to the test immediately as the toughest section (fastest and tree laden) of the river begins at Graves Crossing down to the Old State Road culverts, which typically should take 45 minutes. However, there always is one canoe that dumps, loses a paddle and needs assistance emptying the water out of the canoe or is bouncing from bank to tree to bank and tree again and apparently forgets the paddling lesson. It's not uncommon for the 45 minute trip to take one and half hours.

Once the canoeists go through the ever imposing and entertaining "twin tubes (culverts)" at Old State Road, they pull out and enjoy a short rest, warm up and lunch – if they remember to put lunch in the canoe. The "twin tubes" is one of the most exciting aspects of the trip because if you turn too sharp after going through the left tube, you can easily be swimming or collecting a "little water" in your canoe. Plus, several brave students will go back through one of the tubes with a personal floating device, which I think is a rite of passage or slightly crazy given the water temperature. Most canoeists enjoy the challenge of the "twin tubes", but it unfortunately has adverse impacts on the river. At low and high flows, it becomes a barrier for many fish species (weak swimmers and non-jumpers), is a major site of erosion and sediment entering into the river, impounds water above the undersized culverts, doesn't span bankfull, creates a scour pool at the downstream end, and Old State Road's structural integrity is being compromised, as the Antrim County Road Commission (ACRC) has reinforced the embankments with concrete. The Conservation Resource Alliance, in partnership with the *Friends of the Jordan River*, Antrim Conservation District, ACRC and the Green Bay FWCO has submitted a proposal to the National Fish Passage Program for the Old State Road engineering and feasibility design project to replace the "twin tubes".

The rest of the trip from Old State Road to Webster's Bridge is slower, wider, less tree-laden in the river; and by now, the students have semi-mastered the art of canoeing, so there are less delays and canoeists tipping over. The river winds through areas of private property and then through public property before the canoeists pull out at Webster's Bridge. Transportation is waiting in the parking lot to take the students back to Cedar Bend Farm. On the way back, the heater is cranked and the students are telling their adventures.

The Jordan River canoe trip is a great opportunity to connect students with nature. It provides an opportunity for the students to learn how to experience and enjoy the outdoors via a canoe, learn about the wildlife and fish that use the river (see ducks, birds, maybe an otter and coho and chinook making their spawning run up the Jordan River), see adverse impacts from undersized culverts, develop teamwork, and learn about natural resource careers. Maybe in a few years the students will see a new road stream crossing at Old State Road that provides for improved fish passage, eliminates adverse impacts on the river and still provides recreational enjoyment.

For further info about the Green Bay FWCO: http://www.fws.gov/midwest/Fisheries/library/StationFactSheets/greenbay.pdf

Lake Sturgeon Transferred for Cultural Needs

BY ANN RUNSTROM, LA CROSSE FWCO

The Menominee people have lived in what is now known as Wisconsin longer than any other human inhabitants. They have done so alongside the lake sturgeon, known to them as *Namao*' and "Keeper of the Wild Rice".

-ThomSkelding

Keshena Falls on the Wolf River within the Menominee Indian Reservation is a historical spawning site for lake sturgeon.

The current Menominee Indian Reservation, established in 1854, was originally chosen by the people because of the large numbers of lake sturgeon that congregated here during the spring spawning migration.

But events that took place over the past 150 years, including the construction of two dams and a series of insults to the Menominee people, have resulted in the prolonged absence of lake sturgeon from tribal ceremonies and a decline in the people's practice of their traditions, particularly those related to this culturally significant species.

In the early 1990s however, tribal elders with a vision to bring back cultural traditions took action to make a change. As a result, several offices of the Menominee Tribal government, Fish and Wildlife Service and the Wisconsin Department of Natural Resources have implemented various management strategies in the last 17 years to return lake sturgeon to the Menominee people.

The most recent efforts took place September 15th and October 22nd when 65 lake sturgeon were tagged with sonic transmitters and released into reservation waters of the Wolf River, Wisconsin. An array of sonic receivers, deployed throughout the river system, will allow resource managers to track these fish and determine whether or not they migrate downstream beyond the dams (i.e., off the reservation).

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.

-ThomSkelding

Wisconsin Department of Natural Resources biologists, assisted by Menominee Tribal Chairman Randal Chevalier, unload a lake sturgeon from the hatchery truck for reintroduction into Menominee Reservation waters of the Wolf River.

Plans call for a similar transfer of as many as 35 more fish early next year in an effort to have up to 100 lake sturgeon at Keshena Falls, the historic site of sturgeon spawning, for the 2012 spawning season.

For further info about the La Crosse FWCO: http://www.fws.gov/midwest/lacrossefisheries/

Recommended Harvest Levels for Lake Whitefish in 1836 Treaty Waters of the Great Lakes

BY STEPHEN J. LENART, ALPENA FWCO

During September and October, Stephen Lenart, biologist with the Alpena Fish and Wildlife Conservation Office (FWCO), participated in activities of the 1836 Treaty water Modeling Subcommittee (MSC). The technical group is charged with developing and updating statistical catch-at-age (CAA) models for lake trout and lake whitefish stocks in the 1836 Treaty waters of the Great Lakes. The MSC is comprised of biologists from five Native American governments, the State of Michigan, and Great Lakes FWCOs. Each fall, the MSC uses the most recent data collected during fishery monitoring and fishery-independent surveys to update the CAA models and produce estimates of abundance and mortality for 13 lake whitefish management zones in the 1836 Treaty waters of lakes Superior, Huron and Michigan. These estimates are then used to develop recommended lake whitefish harvest limits for each zone consistent with the harvest policies defined in the 2000 Great Lakes Consent Decree (2000 Decree), which is an agreement between five Tribes, the State of Michigan, and the Department of Interior that governs the allocation of lake trout and lake whitefish stocks in the 1836 Treaty waters. The MSC provides these model-generated harvest levels to the Technical Fisheries Committee of the 2000 Decree, the committee responsible for developing final harvest recommendations to the Parties of the 2000 Decree. Alpena FWCO biologist Stephen Lenart was the lead modeler for two management zones and has acted as co-chair of the MSC since 2009. In addition, Lenart is coeditor of the annual "Status of Stocks" report produced each fall by the MSC and published on the Michigan DNR website at: http://www.michigan.gov/dnr/0,1607,7-153-10364_36925---,00.html

For further info about the Alpena FWCO: http://www.fws.gov/midwest/alpena/index.htm

Grand Portage Tribal Fish Hatchery Inspection

BY RYAN KATONA, LA CROSSE FHC

Ryan Katona of the La Crosse Fish Health Center (FHC) conducted an annual fall fish health inspection at the Grand Portage Tribal Fish Hatchery, Minnesota. Two groups of brook trout were screened for viral and bacterial pathogens. The two lots were also screened for the parasite *Myxobolus cerebralis*, which can cause whirling disease which is found in salmonids.

For further info about the La Crosse FHC: http://www.fws.gov/midwest/LaCrosseFishHealthCenter/

Ashland FWCO Initiates eDNA Marker Development for Invasive Ruffe

BY HENRY QUINLAN, ASHLAND FWCO

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.

The Ashland Fish and Wildlife Conservation Office (FWCO) lab was transformed into a water filtration station this November to obtain eDNA from water samples taken from Chequamegon Bay and the Bad and White Rivers in Wisconsin. The eDNA will allow testing of genetic markers for ruffe, one of a dozen invasive fish species targeted by the Fish and Wildlife Service, for which the University of Notre Dame is developing markers for Great Lakes eDNA application. The work is supported by Great Lakes Restoration Initiative funds, and is identical to the process of eDNA marker development that was used to detect Asian carp eDNA in the Chicago Area Waterway System (CAWS).

-USFWS/HenryQuinlan

Dr. Chris Jerde, University of Notre Dame, holds an invasive ruffe captured in the Bad River, Wisconsin.

Dr. Chris Jerde of the University of Notre Dame worked closely with Jessica Zakovec of the Ashland FWCO and Chris Olds of the Alpena FWCO, to sterilize the lab and set up the water filtration operation using equipment provided by Dr. Jerde. Biologists from Ashland FWCO and Alpena FWCO collected water samples from Chequamegon Bay and the Bad and White rivers in Wisconsin. Chequamegon Bay and the Bad River are known to contain ruffe, whereas the White River sample collection was upstream of a dam from waters believed to be uninhabited by ruffe. Upon completion of water sample collection, bottom trawl tows were made throughout the area from which water samples were obtained in an attempt to capture ruffe specimens.

Over the course of three days, Jessica, Chris and Glenn Miller (Ashland FWCO) filtered 75 two-liter bottles of water through 150 individual filter papers. The filter papers which may contain ruffe DNA were immediately frozen and transported to the lab at the University of Notre Dame for polymerase chain reaction (PCR) marker testing. The capture of 95 ruffe from one of the trawl tows provides a positive indication that ruffe were present in one of the water bodies at the time of sampling. Tissue from the ruffe captured during the week, as well as tissue from frozen ruffe which were captured this past summer by the Ashland FWCO in the St. Louis River (Minnesota/Wisconsin border water) was gathered by Dr. Jerde for genetic marker testing.

-USFWS/HenryQuinlan

Biologist Chris Olds of the Alpena Fish and Wildlife Conservation Office (FWCO) filters water to test for invasive ruffe eDNA at the Ashland FWCO laboratory.

In the coming weeks, researchers at the University of Notre Dame will test the samples collected for ruffe DNA. Their results will shed light on whether or not the approach used to detect Asian carp in the CAWS can also be used to detect ruffe in the Great Lakes, or whether modification to the methodology

(e.g. bottom grab water sample) is required for ruffe. If successful, the Fish and Wildlife Service and other fishery agencies will be armed with another tool to determine if invasive ruffe have expanded beyond their current distribution in Lake Superior to other Great Lakes.

For further info about the Ashland FWCO: http://www.fws.gov/midwest/ashland/

Recirculating Water for Catfish

BY ANGELA BARAN, GENOA NFH

The mussel culture program at Genoa National Fish Hatchery (NFH) is constantly evolving, and the fish culture program must adapt to meet these changing needs for host fish. Research has shown that the endangered winged mapleleaf mussel transforms juveniles at a much higher rate if the channel catfish host fish are greater than eight inches, so Genoa staff needed to figure out how to grow three inch fish over the winter in 52 degree F. well water.

-USFWS

A recirculating system for catfish is being used at the Genoa National Fish Hatchery in efforts to minimizie heating costs for the culture water.

In 2010, the large scale boiler used for sturgeon culture in the spring was used over the winter months to attempt to warm the fish up enough to grow. This was moderately successful with a portion of the fish reaching the desired size by the end of the summer pond season, and beginning of the winged mapleleaf season. This moderate growth was achieved at the great expense of several tanks of propane.

In an effort to continue the success of the program without having to limit resources to other programs, the staff at Genoa NFH is setting up a temporary recirculating water system for the small catfish this winter. Two tanks will be used, one for the fish and one to warm and treat the water. The empty tank will be filled with well water to be warmed up to at least 72 degrees F. by a large heater in the top of the tank and will have a bio-filter installed at the tail end. The bio-filter is a section of the tank with Koch rings, (small plastic rings) that will serve as a surface for bacteria to grow. Normally in the hatchery system, we are looking to avoid any bacteria growth… but the bio-filter will grow a type of bacteria that actually breaks down the ammonia from the fish waste. Two pumps will have to be used to move the water since we will be testing the system to see how it performs this year before permanent changes are made to any tanks. The water will be pumped out of the tail end of the fish culture tank into the empty tank, to flow through the bio-filter, over air stones to re-oxygenate the water, and past the heater. The water will then be pumped back into the front of the fish culture tank. This water will recirculate for several days, being replaced only as needed, minimizing the need to heat large amounts of water several degrees.

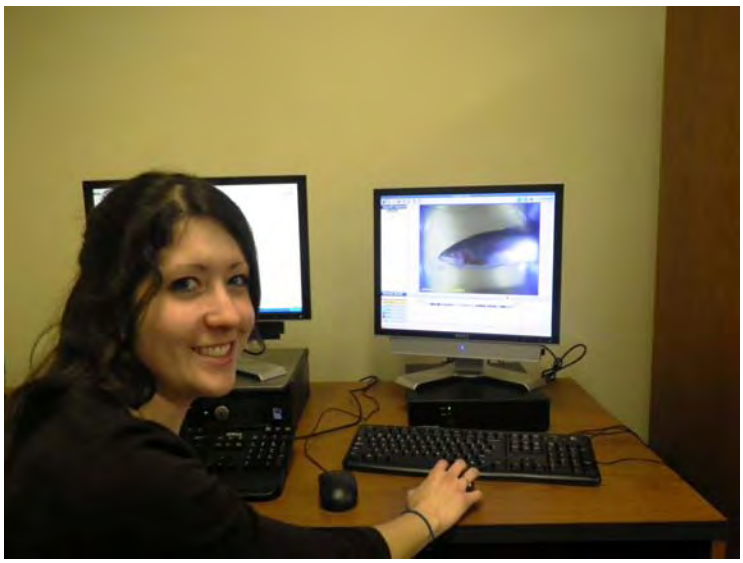
In addition, both tanks are insulated with foam to prevent large losses of heat to the colder air in the building, and the water will only be exposed in the small sections of the hoses from the pumps. Stay tuned for the results this spring… hopefully we will have bigger catfish to transform many more juvenile winged mapleleaf mussels next fall!

For further info about the Genoa NFH: http://www.fws.gov/midwest/genoa/

Green Bay FWCO Welcomes a new STEP Student

BY RACHEL VAN DAM AND STEWART COGSWELL, GREEN BAY FWCO

Rachel Van Dam joined the Green Bay Fish and Wildlife Conservation Office (FWCO) staff in late August as a STEP (Student Temporary Employment Program) student. Students can participate in this program while they are enrolled in an undergraduate or graduate program. Rachel is a junior in the undergraduate program at the University of Wisconsin-Green Bay, and is studying environmental science and field biology. Rachel grew up in New Richmond, Wisconsin, and has always had a love for the outdoors and an interest in the environment and how it works. Prior work experience includes an internship at the Como Park Zoo and Conservatory, working in the butterfly house and the Tropical Encounters exhibit.



-USFWS

Rachel Van Dam is a new STEP (Student Temporary Employment Program) at the Green Bay Fish and Wildlife Conservation Office.

While working as a STEP student, Rachel hopes to gain experience in as many areas as possible. She is currently compiling and analyzing data for the recently completed Upper Middle Inlet stream restoration project. Other activities include repairing, stripping and sanitizing nets; making posters to summarize various FWCO projects; and analyzing data from the Mequon-Thiensville Fishway fish camera. Rachel has participated with several field projects including the Upper Middle Inlet stream restoration project and with lake sturgeon surveys on the Peshtigo River. Rachel says, "This is a wonderful opportunity for me, and I am excited to have already had so many different experiences!"

For further info about the Green Bay FWCO: http://www.fws.gov/midwest/Fisheries/library/StationFactSheets/greenbay.pdf

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.

Congressional Actions

S. 1201 (is) To conserve fish and aquatic communities in the United States through partnerships that foster fish habitat conservation, to improve the quality of life for the people of the United States, and for other purposes. [Introduced in Senate]

S. 52 (is) To establish uniform administrative and enforcement procedures and penalties for the enforcement of the High Seas Driftnet Fishing Moratorium Protection Act and similar statutes, and for other purposes. [Introduced in Senate]

H.R. 2373 (ih) To establish a regulatory system and research program for sustainable offshore aquaculture in the United States exclusive economic zone, and for other purposes. [Introduced in House]

S. 1401 (is) To conserve wild Pacific salmon, and for other purposes. [Introduced in Senate]

S. 1494 (is) To reauthorize and amend the National Fish and Wildlife Foundation Establishment Act. [Introduced in Senate]

H.R. 1160 (rh) To require the Secretary of the Interior to convey the McKinney Lake National Fish Hatchery to the State of North Carolina, and for other purposes. [Reported in House]

H.R. 2325 (ih) To direct the Secretary of the Interior to establish a program to build on and help coordinate funding for restoration and protection efforts of the 4-State Delaware River Basin region, and for other purposes. [Introduced in House]

H.R. 1160 (eh) To require the Secretary of the Interior to convey the McKinney Lake National Fish Hatchery to the State of North Carolina, and for other purposes. [Engrossed in House]

S. 651 (is) To require the Secretary of the Interior to convey the McKinney Lake National Fish Hatchery to the State of North Carolina, and for other purposes. [Introduced in Senate]

H.R. 1160 (ih) To require the Secretary of the Interior to convey the McKinney Lake National Fish Hatchery to the State of North Carolina, and for other purposes. [Introduced in House]

S. 1266 (is) To direct the Secretary of the Interior to establish a program to build on and help coordinate funding for restoration and protection efforts of the 4-State Delaware River Basin region, and for other purposes. [Introduced in Senate]

H.R. 2834 (ih) To recognize the heritage of recreational fishing, hunting, and shooting on Federal public lands and ensure continued opportunities for these activities. [Introduced in House]

H.R. 1160 (rfs) To require the Secretary of the Interior to convey the McKinney Lake National Fish Hatchery to the State of North Carolina, and for other purposes. [Referred in Senate]

S. 1224 (is) To amend Public Law 106-392 to maintain annual base funding for the Upper Colorado and San Juan fish recovery programs through fiscal year 2023. [Introduced in Senate]

S. 632 (is) To amend the Magnuson-Stevens Fishery Conservation and Management Act to extend the authorized period for rebuilding of certain overfished fisheries, and for other purposes. [Introduced in Senate]

H.R. 521 (ih) To amend the Federal Food, Drug, and Cosmetic Act to prevent the approval of genetically engineered fish. [Introduced in House]

S. 230 (is) To amend the Federal Food, Drug, and Cosmetic Act to prevent the approval of genetically-engineered fish. [Introduced in Senate]

S. 1657 (is) To amend the provisions of law relating to sport fish restoration and recreational boating safety, and for other purposes. [Introduced in Senate]

H.R. 520 (ih) To amend the Federal Food, Drug, and Cosmetic Act to require labeling of genetically engineered fish. [Introduced in House]

H.R. 3069 (ih) To amend the Marine Mammal Protection Act of 1972 to reduce predation on endangered Columbia River salmon and other nonlisted species, and for other purposes. [Introduced in House]

H.R. 1646 (ih) To amend the Magnuson-Stevens Fishery Conservation and Management Act to preserve jobs and coastal communities through transparency and accountability in fishery management, and for other purposes. [Introduced in House]

Source is http://www.gpoaccess.gov/bills/index.html
Searched database by keyword = "fish"

Midwest Region Fisheries Divisions

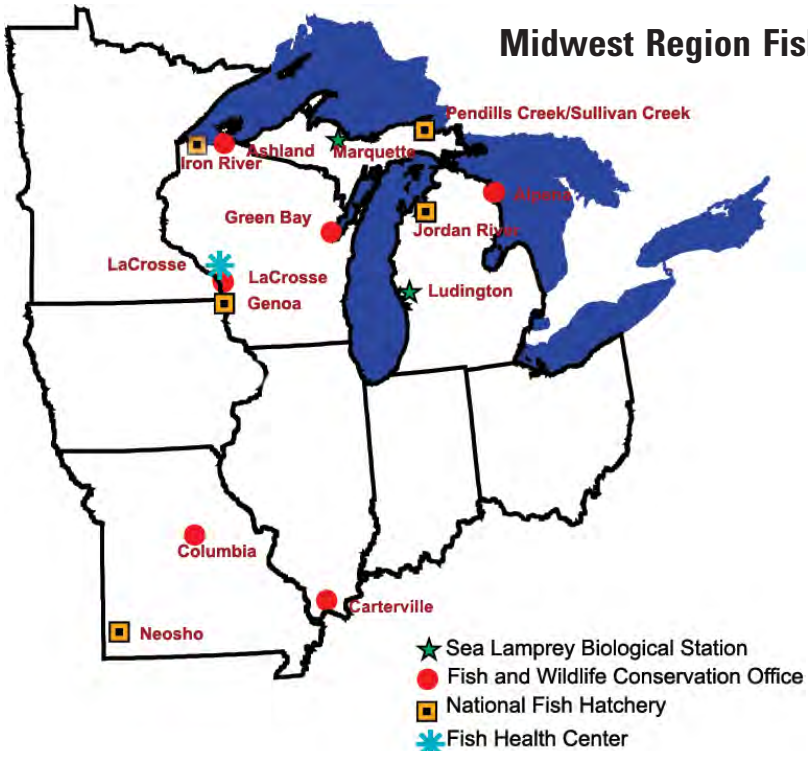
National Fish Hatcheries
The Region's National Fish Hatcheries primarily focus on native fish restoration/rehabilitation by stocking fish and eggs, such as pallid and lake sturgeon and by developing and maintaining brood stocks of selected fish strains, such as lake trout and brook trout. Hatcheries 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.

Fish and Wildlife Conservation Offices
Fish and Wildlife Conservation Offices conduct assessments of fish populations to guide management decisions, perform key monitoring and control activities related to invasive, aquatic species; survey and evaluate aquatic habitats to identify restoration/rehabilitation 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 relicensing; evaluate and manage fisheries on Service lands; and, provide technical support to 38 Native American tribal governments and treaty authorities.

Sea Lamprey Biological Stations
The Fish and Wildlife Service is the United States Agent for sea lamprey control, with two Biological Stations assessing and managing sea lamprey populations throughout the Great Lakes. The Great Lakes Fishery Commission administers the Sea Lamprey Management Program, with funding provided through the U.S. Department of State, U.S. Department of the Interior, and Fisheries and Oceans Canada.

Fish Health Center
The Fish Health Center provides specialized fish health evaluation and diagnostic services to federal, state and tribal hatcheries in the region; conducts extensive monitoring and evaluation of wild fish health; 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.

Midwest Region Fisheries Field Offices



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Fish Tails

"Fish Tails" includes articles that are included in field station reports that are not published in the "Conservation Briefs." These articles are categorized by focus area and includes the article title, author and field station. The website link, where the full article can be viewed, is highlighted in blue type.

Partnerships and Accountability

- **Friends Celebrate the Holiday Season**
  - **Curt Friez, Pendills Creek NFH**

Aquatic Species Conservation and Management

- **Whirlwind Mussel Tour**
  - **Jorge Buening, Genoa NFH**

Aquatic Invasive Species

Public Use

Cooperation with Native Americans

Leadership in Science and Technology

Aquatic Habitat Conservation and Management

Workforce Management

-USFWS

Project Leader Rob Simmonds of the Carterville Fish and Wildlife Conservation Office hands out a sample of fried Asian carp at the Southern Illinois Hunting and Fishing Days. Staff also demonstated how to prepare Asian carp fillets.