



# Fisheries Program

# fish lines



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## New Chiller Unit at Iron River NFH Produces “Cool” Results

BY CAREY EDWARDS, IRON RIVER NFH



By installing a new incubation chiller room and chilling the water to 35 degrees Fahrenheit, the hatch date was delayed by one month for these fry. Credit: USFWS

equates to larger fish in the spring when space is limited in both raceways and fish trucks.

This past fall, an egg incubation chiller room was constructed to combat this issue. The chiller room contains a small health incubator and two troughs capable of holding five egg jars each. A pump recirculates water through a chiller and UV unit before entering the system. Shortly after eye-up, the Klondike eggs were placed into jars and water chilled to 35 degrees Fahrenheit was used to incubate them (regular spring water is twelve degrees warmer). The chilled water had the desired effect we were looking for...delayed hatch by one month. The fry have just started to eat (also delayed by a month!) and will be monitored for any adverse effects that could be seen from the chilling process. The outcome has proven successful so far and the chiller is currently being used on another group of lake trout eggs to slow down development.

The Iron River National Fish Hatchery (NFH) produces 1.6 million lake trout and coaster brook trout annually for restoration purposes in the upper Great Lakes. The Klondike Reef strain of lake trout makes up 200,000 of our total number. These fish spawn in early September which is a month and a half earlier than most other strains of lake trout. The early spawn time has our eggs incubating in some of the warmest water temperatures the hatchery experiences, which leads to faster development of eggs and fry. This has a trickle-down effect that



Our chiller room is actually a walk-in cooler. It was installed by a local refrigeration company. Credit: USFWS



The chiller unit contains two troughs and a small health incubator. Our Klondike Reef lake trout eggs are happily rolling in the two jars pictured above. Credit: USFWS



These small fingerlings have just gone on feed -- which was delayed by one month using the new chiller unit at Iron River NFH. Credit: USFWS



## Cartersville FWCO 2014 Photo Contest...Best of the Best

BY ROB SIMMONDS, CARTERSVILLE FWCO



Larval paddlefish being identified from sampling on the Mississippi River. Credit: Brad Rogers, USFWS

We have always known that photos are a great way to tell a story...and we certainly have some stories to tell. Our challenge has always been taking the time to take a great shot of our work, sorting through hundreds of photos now that we are in the digital age, or just remembering to break out the camera when we are in the field. Of course there is also the question of what makes a great photo.

I decided that two things were needed. First, we asked Katie Steiger-Meister, our friendly neighborhood External Affairs photographer extraordinaire, for her thoughts on taking a great photo. She was kind enough to provide a presentation that helped us to better consider lighting, off-centering photos, getting up close, and other helpful tips. Second, as a manager I had to develop just the right blend of carrot and stick. All employees are required to participate (more for techs who are in the field most), but more importantly there is also an award for the best photo of the month (generally lunch on the boss's dime). The result was a great bunch of photos that had always been readily available to us, but are now being captured and catalogued for easy access. A few examples of the great work of our staff (and a contribution from a partner agency) are included!



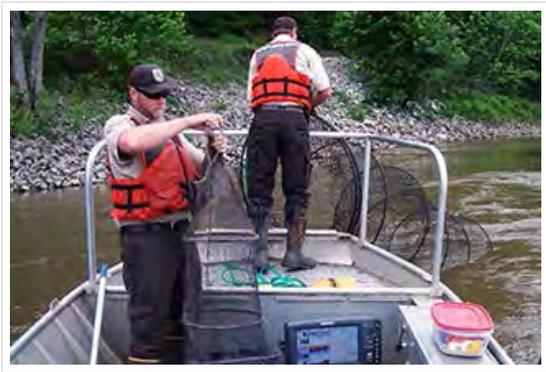
Invasive grass carp "behind bars" after being captured in the Mississippi River. Credit: Brad Rogers, USFWS



Wilderness stream in Southern Illinois. Credit: Jeremiah Davis, USFWS



A young girl takes a close look at her first fish during 2014 Kid's Fishing Derby on Crab Orchard National Wildlife Refuge.  
Credit: Rob Simmonds, USFWS



Donovan Henry (Biologist) and Peter Johnsen (Biologist) set hoop nets on the Middle Mississippi River while Ian Kennedy (Technician) operates boat. Credit: Ken Cook, USACE



Allie Lenaerts (Technician), Lucas Shea (Technician), and Jeff Stewart (Biologist) revive a paddlefish that was captured on the Ohio River while gill netting for Asian carp. Credit: Keith O'Loughlin, USFWS



## Barkhausen Preserve Coastal Fish and Wildlife Habitat Restoration-Phase I

BY TED KOEHLER, ASHLAND FWCO



Northern Pike Fry Produced at Barkhausen Wetland Project. Credit: Ducks Unlimited

Wisconsin DNR to restore and enhance degraded wetlands and waterways within and near the Barkhausen Preserve on the west shore of Green Bay. This first portion of an overall three phase multi-year project improved habitat and restored access to critical spawning areas for northern pike which annually migrate from Lake Michigan into coastal and inland wetlands. Phase 1 of the project also enhanced 40 acres of wet meadow; hemi-marsh and open-water habitats to benefit breeding and migratory waterfowl such as mallards and blue-winged teal as well as Coastal Program priority species such as black terns.

Most of the west shore of Green Bay, Wisconsin has been significantly altered by post-European settlement activities. Significant attempts to drain historic wetlands and convert the land to support farming activities were successful, with an estimated 70% of historic wetlands having been lost in the area. Current pressure to develop this landscape into subdivisions and commercial building development further threaten remaining wetlands. In addition, many native remnant emergent wetland plant communities have been replaced with expansive stands of invasive species, including non-native phragmites and reed canary grass. Despite these staggering losses, the west shore of Green Bay remains a critical and significant wetland resource that makes up approximately 50% of all remaining wetlands in Wisconsin's Lake Michigan basin.

The U.S. Fish and Wildlife Service's Coastal Program – Great Lakes and Partners for Fish and Wildlife Program provided funding and professional assistance to Ducks Unlimited and worked with many other partners including Brown County and



Wetlands enhanced to benefit migratory birds and northern pike at Barkhausen Preserve. Credit: Ducks Unlimited



Project meeting on site for the Barkhausen Restoration Project. Credit: Ducks Unlimited

Implementation of Phase 2 of this project is currently underway and planning for Phase 3 is taking place. Both the Service's Coastal and Partners for Fish and Wildlife Programs are again providing key funding and professional assistance roles to both remaining project phases, and these will result in over 150 acres of additional wetlands restored and enhanced to benefit Green Bay west shore migratory birds and fish.



## An Eight Year-Old's Reflections on Sea Lamprey Control

BY REBECCA NEELEY AND ETHAN RESZEWSKI, MARQUETTE BIOLOGICAL STATION

The question "What do you do?" is a very common conversation starter. Generally, after I have outlined the parameters of my work as a fish biologist with the Sea Lamprey Control Program to any adult who inquires, the response will almost certainly be "Oh, you work with those eels!" This response is assuredly different when explaining my job to a child.

Some might respond with "eeewww," another with "that's gross!," but the third might be very curious to learn more. My cousin Ethan is one of those children, he was born with a spark of wonderment.

At the age of eight, Ethan is already versed in asking questions about everything around him. He took a very special interest in the job I hold as a fish biologist asking questions like, "How many lamprey do you kill?" "Do they attack humans?" "How long do they live?" After thoroughly answering Ethan's questions, giving him a DVD on lampreys and a "cool" lamprey mouth rub-on tattoo, Ethan continued to be intrigued with lamprey.



Matt Lipps and Rebecca Neeley of the Sea Lamprey Control Program in a portable laboratory during a sea lamprey control treatment. Credit: USFWS



Ethan enjoying summer in Caseville, Michigan on the beaches of Lake Huron. Photo courtesy of Rebecca Neeley.

Ethan's third grade class wrote essays on the topic: "The World Would Be Better If...". Ethan chose to write about his thoughts on the shared responsibility of conservation and included information from our conversations about sea lamprey control. Here is an excerpt from his paper:

"There are problems in the Great Lakes. An example Sea Lamprey is a problem. My cousin Becky works with Sea Lamprey. Sea Lamprey are a predatory fish. They feed on fish blood. They kill 40 pounds of fish in their life. My cousin Becky attracts them with a scent and they say it smells and they say it's good. Yummy! Then they come up in a group on top of the water and then Becky releases the chemical in the water to kill them. They have gills so if they breathe in the chemical they die. The chemical kills them inside. Then they fall down to the bottom of the lake or river. That's people being RESPONSIBLE!!"



Sea lampreys are known for their razor sharp teeth. Credit: Karla Bartelt, USFWS

It's inspiring to see how knowledge and information take hold in youth. Ethan chose to write about how all humans are responsible for the health of the planet and conserving our environment. Ethan's direct connection to someone in the natural resource field influenced his idea of how to make the world a better place, and what he came up with was: conservation and responsibility. If it only was that simple!



## Fifth Year Class of Great Lakes Chinook Salmon to be Mass Marked

BY JAMES WEBSTER, GREEN BAY FWCO



Green Bay FWCO Fish Biologist Kevin Mann works inside the tagging trailer during a Chinook salmon tagging project. Credit: Allen Lane, USFWS

In March, the Great Lakes Fish Tag and Recovery Lab will commence Chinook salmon tagging at state hatcheries throughout the region. This will be the fifth year that all Chinook salmon released into lakes Michigan and Huron receive a coded wire tag and adipose fin clip. The lab staff will use two of their four available automated fish tagging trailers to tag and clip more than 2.5 million Chinook salmon at seven hatcheries in the states of Michigan, Wisconsin, Illinois and Indiana.

Tagging will take place at the hatcheries when the fish are 3" to 4" long; about a month prior to the release of the fish. The tagging equipment automatically implants the 1.1mm long coded wire tag into the nose of the salmon, while simultaneously removing the adipose fin. The tags bear a unique number assigned to specific groups of fish, and the adipose fin clip identifies the fish as hatchery-reared and possessing a tag. When a tagged fish is recovered from the sport fishery, the head is retained and sent to the Lab in New Franken, Wisconsin for tag extraction and identification.

Information collected from the recovered tagged fish and their wild counterparts helps fishery managers understand levels of natural reproduction, movement, and the contributions of hatchery-reared fish to the regional fisheries. In addition, the tag recoveries also aid in the evaluation of the size and health of the population by providing a detailed understanding of growth and survival rates and the comparative successes of rearing and stocking practices. Management of the multi-million dollar Chinook salmon fishery centers on balancing the stocking of the predatory fish with the available prey; data from the recovery of tagged fish help with this cooperative effort to manage the fishery.



Tagging trailer operating at Indiana Department of Natural Resources, Mixsawbah State Fish Hatchery. Credit: Allen Lane, USFWS



## About the Columbia FWCO

COLUMBIA FWCO

Columbia Fish and Wildlife Conservation Office (FWCO), located in Columbia, Missouri, was established in 1991. The office is conveniently located just a few miles from the Missouri River, home of the federally endangered Pallid Sturgeon, a species that Columbia FWCO and our partners are working diligently to recover. However, Columbia FWCO's work extends well beyond the muddy banks of the Missouri River and includes a diverse array of fisheries work performed across the Midwest Region.

### Pallid Sturgeon Monitoring and Recovery

Since 1997, Columbia FWCO has been part of a basin-wide monitoring effort and is responsible for assessing the lower 250-miles of Missouri River for use by Pallid Sturgeon. This species of sturgeon is a relic from the dinosaur age; however, despite surviving millennia in the Missouri River the population succumbed to overfishing and habitat alteration. Pallid Sturgeon was listed as federally endangered in 1990. Throughout the duration of the long-term monitoring project, Columbia FWCO has led efforts to improve sampling methods and



A Pallid Sturgeon is released back into the Missouri River after data has been collected. Credit: USFWS

efficiency including developing new trawling techniques uniquely adapted for the challenges of sampling the Missouri River. Recovery efforts also include assisting our partners at Neosho National Fish Hatchery and Blind Pony State Fish Hatchery with propagation of the species. Columbia FWCO participates in broodstock collection, where wild Pallid Sturgeon are captured from the Missouri River and transported to hatcheries for spawning. Through this propagation program, nearly 159,000 young Pallid Sturgeon have been stocked into the lower Missouri River.

### Habitat Assessment and Monitoring Project

Columbia FWCO is working with U.S. Army Corps of Engineers (USACE) to evaluate the efficacy of existing shallow water habitats (natural and human made) to support early life history stages of the endangered Pallid Sturgeon in the lower Missouri River (LMOR) as part of the Habitat Assessment and Monitoring Program (HAMP). In addition to sampling for Pallid Sturgeon, crews are gaining a better understanding of how all fish species in the LMOR use of available shallow water habitat throughout the year. Shallow water habitats are hypothesized to be critical to the survival of larval and juvenile native fishes by providing nursery areas for them to escape the fast moving water and to feed and grow. The information collected from this project will facilitate adaptive decision making for future habitat construction action by the USACE.



Jeremiah Smith with a silver carp captured in the electrified butterfly skimmer (Paupier) boat – a gear being developed by Columbia FWCO. Credit:USFWS

### Aquatic Invasive Species

Columbia FWCO is part of the massive effort underway to prevent invasive carp from spreading into the Great Lakes. The primary focus for the office is to develop new gears to monitor and capture Bighead and Silver carps, as well as other aquatic invasive species. Columbia FWCO continues to develop and improve the electrified and non-electrified butterfly trawl (Paupier) and the Lampara purse seine that target fast swimming adult carp. Our gear development efforts also include nets and techniques for capturing the young-of-year and juvenile carps. Mamou and scalene trawls have shown great success for sampling these elusive early life history stages of Bighead and Silver carps. As part of the invasive carp monitoring in the Illinois River and Chicago Area Waterway System, a project is planned to study the early life history stages and habitat use of these invasive species. Columbia FWCO is also working with state and federal partners to design and implement novel detection gears and sampling methods to monitor the invasive Round Goby and Northern Snakehead, two species that are poised to invade

Missouri.



Heather Garrison displays a Shovelnose Sturgeon, – a species commonly present in our lower Missouri River samples and a close relative of the Pallid Sturgeon. Credit: USFWS

### **Fish Habitat Program**

National efforts continue in an attempt to mitigate impacts from past anthropogenic activities and prevent further degradation of aquatic habitats. The Columbia FWCO administers funds for projects supported through the National Fish Passage Program and the National Fish Habitat Action Partnership. These programs fund projects that remove or replace structures and barriers which impede natural passage of aquatic organisms and assist landowners in adopting best management practices that add value to their property while restoring aquatic habitat.

Through these programs, Columbia FWCO works closely with state, county and private partners in Missouri and Iowa providing technical and financial assistance. The focal area for our passage projects has been the historic range of federally threatened Niangua Darter, although projects have also been funded in Iowa, in the range of the federally endangered Topeka Shiner and in Meramec River tributaries. The Meramec River Basin is recognized at the state and national level for its vast diversity of organisms, both terrestrial and aquatic, and unique habitats

making it a conservation priority for many organizations and agencies including the Columbia FWCO and its partners. Much of our habitat work has been focused in this basin and being that these resources are privately owned, lends perfectly to the mission of this partnership.

### **Federal Lands**

Columbia FWCO has long been committed to servicing the fisheries needs of Federal Lands including the Forest Service, U.S. Fish and Wildlife Service Refuges and U.S. Army military bases. We also work with the USACE to assess habitat creation projects on the Missouri River. Perhaps the most rewarding aspects of our work comes through numerous outreach events designed to reach out to the public and children to introduce them to conservation and appreciate the fish we work so hard to protect.



## Fish Tails

Articles submitted by field staff that do not appear as a feature within Fish Lines. These articles provide examples of the diverse work that is performed on behalf of aquatic resources.

### A New Adventure

BY MICHAEL WILSON, COLUMBIA FWCO

Please allow me to introduce myself. I'm a man of (little) wealth and taste. I haven't been around quite since Jesus died, but sometimes it feels that way. You see, I am new to this game. I began my fisheries career just slightly over four months ago. Prior to this, I was, as my family likes to say, a "career student." Let me explain.

I received my Bachelor's degree in 1988 at the age of 25. A year later I married a budding sociologist and we moved to Champaign, Illinois, so she could earn her Master's and PhD at the University of Illinois. Having no real interest to work in the field I had trained for as an undergrad, I walked into a local TV station and asked if they had any openings. I was lucky. The following day, I began what would turn into a career in television broadcasting. And it was a LOT of fun! Every day I went to new places and met new people. Aside from working on stories and meeting deadlines, the atmosphere in the newsroom was that of a party. Everyone was young, eager, and energetic.

I knew there was no real money in broadcasting. Unless one is lucky enough to land a job in a big market like Chicago, Indianapolis, or St. Louis, the pay is sufficient to pay the bills, but that's about it. So I started taking night classes, sampling different fields and trying to find something that interested me. As time went by, I accepted positions further up the ladder and took on more responsibility at the station. Then one day I looked up and realized that I was sitting behind a desk anywhere from 8 to 12 hours a day. It was time for a change. After all, I had been doing this for nearly 15 years and there was little chance for further advancement. But I still hadn't found the "right" career field to go into. I had taken countless night classes, spoken with family members, and even consulted career counselors. Then I had an epiphany—for the better part of my early life, I was always around water doing something with fish. Why not make a career out of it?! The very next term, I quit my job and went back to school full time.

In the summer of 2014 I received a Master's degree in fisheries management and aquatic ecology from the University of Illinois. Two weeks prior to graduation I accepted a position as a biological science technician with the Columbia Fish and Wildlife Conservation Office (FWCO) and it has been a non-stop thrill ride ever since. In the four months that I have been with this organization, I have worked in Illinois, Indiana, Missouri, Ohio, Tennessee, and Wisconsin. I have handled juvenile salmonids within a stone's throw of Lake Superior. I have caught sturgeon on the Mississippi River and I have filled boat decks with Silver Carp on the Illinois River using experimental gear. With a track record like this, I can't wait to see what's waiting for me around the bend. Thank you Columbia FWCO for such a wonderful opportunity.

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### Spreading the Word: Fish Biologist Speaks to Local Aquarium Society

BY ANDREW BRIGGS, ALPENA FWCO - WATERFORD MI-SUBSTATION

Presenting to local groups allows the U.S. Fish and Wildlife Service (Service) to inform the public on the important work being conducted in their area. Not only do the members of these groups build an appreciation for the nature and the work being done right in their backyards, but they often spread the word or even volunteer to help conserve nature on their own. Fish biologist Andrew Briggs of the Alpena Fish and Wildlife Conservation Office (FWCO) – Waterford substation was recently invited to speak to one of these groups, the Greater Detroit Aquarium Society (GDAS). The mission of the GDAS is to further the study of all forms of aquatic life, to promote interest, to exchange ideas, to distribute information concerning the hobby and to encourage the breeding and displaying of aquatic life. Members of the GDAS take part in raising and even breeding tropical and native fish species.

During his presentation, Andrew discussed the research and restoration involving lake sturgeon in the St. Clair – Detroit River System (SCDRS). After a brief introduction on lake sturgeon life history, the presentation focused on the work being done by the Service and partners to combat the loss of habitat in the SCDRS. This includes the construction and evaluation of artificial reefs to increase native fish species spawning habitat that was removed in the 1900's to facilitate commercial shipping traffic. Five artificial reefs have been constructed since 2004, two in the Detroit River (Belle Isle and Fighting Island) and three in the St. Clair River (Middle Channel, Marine City, and Algonac). The construction of these reefs has been identified as restoration targets for the "Loss of Fish and Wildlife Habitat" and "Degradation of Fish and Wildlife Populations" Beneficial Use Impairments

(BUIs) in these two Areas of Concern (AOCs). Andrew also discussed other projects the Alpena FWCO is conducting involving lake sturgeon, including a lake sturgeon movement study and utilizing ultrasound to determine the sex of lake sturgeon.



## Midwest Region Fisheries Divisions

### National Fish Hatcheries

The Region's National Fish Hatcheries (NFH) focus on native species recovery and restoration. Primary species include: lake trout, endangered pallid sturgeon, and endangered, threatened, and native mussels. Other major programs include coaster brook trout and lake sturgeon restoration, fulfilling tribal trust responsibilities for native aquatic species, and cost reimbursed rainbow trout production for recreational fishing. Hatcheries also provide technical assistance to other agencies, provide fish and eggs for research, and develop and maintain brood stocks of various species and strains.



### Fish and Wildlife Conservation Offices

Fish and Wildlife Conservation Offices (FWCO) conduct assessments of fish populations to guide management decisions, play a key role in targeting and implementing native fish and habitat restoration programs; perform key monitoring and control activities related to aquatic invasive species; survey and evaluate aquatic habitats to identify restoration/rehabilitation opportunities; work with private land owners, states, local governments and watershed organizations to complete aquatic habitat restoration projects under the Service's National Fish Passage Program, National Fish Habitat Partnerships, 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. The Whitney Genetics Lab serves as a leading edge genetics laboratory and conducts environmental DNA (eDNA) sample processing for early detection of invasive species.

### Whitney Genetics Lab

The Whitney Genetics lab provides environmental DNA (eDNA) surveillance for the early detection of invasive Silver and Bighead carp as part of the Asian Carp Regional Coordinating Committee's plans to detect, monitor, and respond to the threat of invasive carp in the Great Lakes. The lab also provides analysis for determining the ploidy of wild-caught Black and Grass carp, two more invasive carp species.



## Midwest Region Fisheries Contacts

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### Neosho National Fish Hatchery

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