U.S. Fish & Wildlife Service - Midwest Region

Fisheries & Aquatic Resources Program

# Fish Lines

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# Fish Lines

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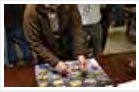
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## Fish Tails

"Fish Tails" refers to articles that are submitted by field staff that do not appear as a feature in the current edition of Fish Lines. These articles provide examples of the diverse work that the Service's Midwest Fisheries Program and partners perform on behalf of our aquatic resources and for the benefit of the American public.

## Field Notes

"Field Notes" is an online searchable database that showcases hundreds of employee-written summaries of field activities and accomplishments of the U.S. Fish and Wildlife Service from across the nation.

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# eDNA Trailer Shines in First Field Season

*BY CHRIS OLDS, ALPENA FWCO*

Staff utilizing eDNA trailer to process water samples for Eurasian Ruffe with the University of Notre Dame and Central Michigan University. Credit: USFWS

Despite the uncertainty associated with implementing the Alpena Fish and Wildlife Conservation Office's (FWCO) custom-built "mobile lab" trailer into the FWCO's eDNA Early Detection Program (Program) , Fish Biologist Chris Olds had high hopes that the trailer would prove to be an important asset to the Program.

These high hopes proved to be well founded during the trailer's first full field season. During May through September 2013, the trailer was hauled over 6600 miles, providing assistance to four Midwest Region Fish and Wildlife Conservation Offices and one partner agency. Approximately 2600 water samples were processed in the trailer during this time frame.

The trailer allowed staff to improve water sample processing efficiency by reducing the amount of time it takes to process one lot of 25 samples. Prior to utilizing the trailer, processing one lot took 3-4 hours (from collection to filtration). With the trailer, processing time was reduced to 1 ½ to 2 ½ hours for a single lot. This reduction allowed Program staff to increase the number of samples processed in a single day to 125-200, versus the 75-100 without the trailer.

The trailer has been a huge asset for the Midwest Region's Early Detection Program for Asian carps. The eDNA trailer has benefited not only the Great Lakes FWCOs, but also the River FWCOs as well. The eDNA trailer was utilized on the Chicago Area Waterway System (CAWS) for sample processing and in a Eurasian Ruffe screening project partnership with the University of Notre Dame. The eDNA trailer proved to be such an outstanding tool that the region has purchased two identical trailers to be used around the Midwest. As planning for the 2014 field season continues, we are confident these additional trailers will function as well as the Alpena FWCO trailer did in its first field season.

eDNA Trailer set up on the one of the many rivers sampled in 2013. Credit: USFWS

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# Juvenile Lake Sturgeon Gill Netting a Success!!

*BY KEVIN MANN, GREEN BAY FWCO*

On the afternoon of September 18th, 2013 a crew from the U.S. Fish and Wildlife Service's Green Bay Fish and Wildlife Conservation Office traveled to Little Bay De Noc in Michigan's Upper Peninsula in search of a small, elusive fish. The purpose of this trip was to conduct an exploratory assessment of juvenile lake sturgeon off the mouth of the Whitefish River, Michigan, one of 6 rivers around Lake Michigan where young sturgeon are being rearing in streamside rearing facilities and released into the wild to restore and rehabilitate populations. This survey was a pilot effort for the development of a juvenile lake sturgeon index survey that can track the abundance and demographics of this species over time in Lake Michigan using standardized gear.

Biologist Kevin Mann holding a juvenile lake sturgeon caught in Little Bay De Noc, MI. Credit: Rob Elliott, USFWS

Streamside rearing involves collecting eggs and/or larvae from the wild and raising them in a facility which pumps in water directly from the target river. Fish are raised in constant contact with their natal water source so they can imprint to that river. Once they're released, the imprinting should allow the young fish to return to the target river after they are mature enough to spawn. These facilities are part of multi-agency and stakeholder partnership to either supplement or reintroduce lake sturgeon populations within these six rivers. As part of a joint effort with the Michigan and Wisconsin Departments of Natural Resources and the Little River Band of Ottawa Indians, the Service is helping with these pilot gill net surveys in Lake Michigan near these six river mouths to locate juvenile lake sturgeon released from the facilities.

A left pelvic fin clip (as well as a PIT tag) indicating the fish was released from the Whitefish River streamside rearing facility. Credit: Kevin Mann, USFWS

During the Little Bay De Noc survey which used graded mesh monofilament gill nets, two juvenile lake sturgeon were captured in a single 1000 foot net. Both fish were measured for length, weight and girth and checked for a telltale signs of their streamside origin. Each fish was missing its left pelvic fin, and contained both a PIT (passive integrated transponder) and CWT (coded wire tag) that let biologists know both these fish were released from the Whitefish River facility in 2010.

Additional gill netting has been occurring near the remaining five rivers. Earlier this summer, netting outside the Milwaukee River resulted in capturing multiple streamside reared lake sturgeon and netting outside the Kalamazoo River in recent years has recaptured fish released from that streamside facility in 2010 and also fish released into the Milwaukee River. Netting off the Cedar River and in Big Bay de Noc in recent years has also captured fish originating from area streamside rearing facilities. Finding streamside reared lake sturgeon is an important part of the monitoring process. It indicates that fish raised in these facilities are surviving and growing well after their release. With continued success, it is hoped that in 10-15 years, sturgeon from these rearing facilities will be returning to spawn in the rivers in which they were released.

Juvenile lake sturgeon captured in gill net outside the mouth of the Whitefish River, MI. Credit: Kevin Mann, USFWS

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## Partnerships Renovate Museum Fish Display

*BY STEVEN GAMBICKI, ALPENA FWCO*

Besser Museum, located in Alpena Michigan, has a large display of fish mounts for public viewing; however the current display is lacking life history and other information about the fish species present. Christine Witulski, the Executive and Education Director at the Besser Museum reached out to the Alpena Fish and Wildlife Conservation Office (FWCO) for assistance. Steven Gambicki, a fish biologist at the Alpena FWCO, agreed to assist the museum with reorganizing and improving the display.

Christine Witulski, Executive and Educational director for Besser Museum, explains the improvements she would like to see. Credit: USFWS

The current display is lacking information about the commercial fishery, sport fishery, and the impacts introduced and invasive species have had on the Great Lakes fishery. Steven Gambicki connected with Biology professor Brenda Kelley at Alpena Community College. She has agreed to enlist the help of her field biology class to research the fish species that are present. “The students are excited about the project and have some good ideas about the display” said Kelley. The information the students provide will be incorporated into new exhibit labels.

The new display will include information about invasive species and the impact they have had on native species and the commercial fishery. It will also highlight species that are threatening to invade the Great Lakes.

Reorganization of the Besser Museum fish display is a collaborative effort between the museum, Alpena Community College and the U.S. Fish and Wildlife Service. Witulski hopes the improved fish display will “… educate the public, and bring an awareness that will deepen their appreciation of the Great Lakes.” “It is a joy to have the opportunity to work with members of the local community,” said Gambicki, “we all have a common goal to help educate, and improve the community around us.”

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# Let Bivalves Be Bivalves: Attending the Freshwater Mussel Workshop

*BY RICK WESTERHOF, GREEN BAY FWCO*

On September 27th, Fish Biologists Joseph Gerbyshak and Rick Westerhof attended a Freshwater Mussel Workshop at the University of Michigan Biological Station in Pellston, Michigan coordinated by Tip of the Mitt Watershed Council. The session was taught by Dr. Renee Sherman Mulcrone, an adjunct instructor at Eastern Michigan University, and Joe Rathbun of Michigan Department of Environmental Quality, two of Michigan's leading freshwater mussel experts.

Participants work on their mussel identification skills at a Freshwater Mussel Workshop coordinated by Tip of the Mitt Watershed. Credit: USFWS

Participants learned basic mussel biology, ecology, and identification techniques of mussels found in Michigan.

Freshwater mussel identification can be challenging because many of the species have a similar appearance with limited color variation and shell shape. Participants learned key features to properly identify different mussel species. The newly acquired identification skills were put to the test in the lab identifying unknown shells. Following the lab session, participants looked for mussels in nearby lakes and streams. The first stop was just a few steps from the classroom, Douglas Lake. Few native mussel species were found, likely to the invasive Zebra Mussel. The next stop in the field was Betsie Creek, which had high densities of Eastern Elliptio, up to 20 per square foot. The last stop in the field was on Munro Lake, two species dominated the mussel species in this lake, Common Floater and Fat Mucket.

Two common mussel species, common floater and fat mucket, found in Munro Lake during the Freshwater Mussel Workshop. Credit: USFWS

It is important for fish biologists to have a background in mussel identification and biology as more dams and culverts are removed or replaced to reconnect rivers and streams in Michigan. Identification skills are essential in classifying the many state and federally-listed threatened and endangered mussel species in Michigan. These skills are useful in conducting mussel surveys and determining if threatened or endangered species are present and need to be relocated prior to a dam removal or culvert replacement project. A permit is required from the Michigan Department of Natural Resources to survey for mussels in the state of Michigan. If a federally-listed mussel could be or is known to be present in the body of water you want to survey, you must obtain a permit from the United States Fish and Wildlife Service.

Course instructors look for mussels in Betsie Creek, Michigan during a Freshwater Mussel Workshop. Credit: USFWS

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# "CAST" of Partners and Volunteers Provide a Day of Fishing and Fun on Crab Orchard Lake

*BY TIM SMIGIELSKI, MIDWEST REGION FISHERIES PROGRAM*

"Catching a Special Thrill" aboard one of the many vessels donated and piloted for the day by the partners. Credit: Jim Owen, CAST

Catch a Special Thrill (CAST), the United Special Sportsman Alliance (USSA), the Marion Illinois Kiwanis and Chamber of Commerce along with local bass clubs and other partners and volunteers provided some special kids and their families with a day of fishing on Friday, September 27, 2013. This family fishing event was held on Crab Orchard Lake in cooperation with the U.S. Fish and Wildlife Service's Carterville Fish and Wildlife Conservation Office and Crab Orchard National Wildlife Refuge.

Fourteen disabled and critically ill children participated, alongside their siblings and guardians, to focus on fun and fishing for the day. The families registered for the event through USSA, a charity that has provided more than 3000 outdoor oriented wishes to families and their critically ill and disabled children.

CAST provided all families with hats, t-shirts, fishing rods and tackle boxes to use for the day and to take home for future fishing adventures. Local bass fishing clubs and recreational fishing enthusiasts provided their time, their boats and their expertise. A local bait producer provided all the bait that was necessary to produce a lot of smiles.

CAST kid and mentor are rigged and ready for a fun day of fishing on Crab Orchard Lake, Illinois. Credit: Jim Owen, CAST

Boat captains and mentors helped the kids celebrate the day. Here they are receiving a photo plaque. Credit: Jim Owen, CAST

The families were assigned a boat captain who guided them on a three hour tour. Participants fished for bass, bluegill, crappie and catfish and anything else that would bite. The families returned to the boat access with big smiles, many stories and even a few stringers of fish. All were treated to a picnic lunch served up by volunteers and organized by the local Kiwanis Club.

However, the real "take home" for the families and all who participated is the memories that were made, the time that was shared and the wishes that came true. Thanks to ALL who participated.

And...this young lady landed a whopper! Credit: Jim Owen - CAST

# Carterville FWCO Continues Use of Multiple SONAR Tools to Evaluate Fish Behavior and Abundance at an Electric Fish Barrier

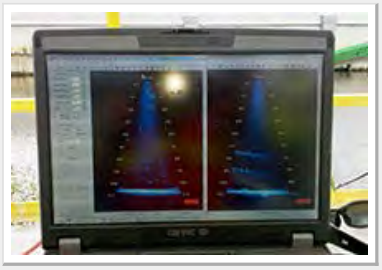
*BY AARON PARKER, CARTERVILLE FWCO*

Since I began working at the Carterville Fish and Wildlife Conservation Office (FWCO) last year, my job has mainly consisted of running various wires through boats and analyzing fish images on a computer screen, as opposed to deploying nets and actually holding real fish. That's because our office has been tasked with evaluating the behavior and abundances of feral fish that are currently present at the World's largest electrical fish barrier.

Two separate DIDSON units mounted off the end of a telescopic boom lift about to be deployed into the CSSC. Credit USFWS

This electrical fish barrier is located in the Chicago Sanitary and Ship Canal (CSSC), near Romeoville, Illinois. The primary purpose of this barrier is to prevent the upstream movement of bighead carp (*Hypophthalmichthys nobilis*) and silver carp (*H. molitrix*) (collectively referred to as Asian carp) from entering Lake Michigan. By evaluating the behavior and abundances of feral fish that are presently near the barrier system (mostly common carp [*Cyprinus carpio*] and gizzard shad [*Dorosoma cepedianum*] based on field sampling). Inferences can be made about how Asian carp may react to the barrier if they encounter it.

To assess the behavior and abundances of fish throughout the barrier system, we have used both direct and indirect methods of evaluation. Our indirect methodology consists of using 2 200 khz SONAR transducers and 1 1200 khz side-scan SONAR unit to perform three scans before a brief barrier maintenance shutdown, and three scans after a shutdown. Once the before-and-after scans are completed, we post-process the raw SONAR echograms back at the office and compare the number of fish above the barrier both before and after the maintenance event. By comparing these numbers, we can indirectly assess the behavior of the fish that were immediately below the barrier to see if they opportunistically moved upstream.



Two DIDSON images on one computer screen ensonifying the entire width of the strongest barrier. Credit USFWS

Now for the direct observations of fish behavior within the barrier, this was definitely a harder nut to crack! Last year, we spent some time positioning a boat over the strongest part of the barrier and observed fish using a one dual-frequency identification SONAR (DIDSON) unit. While the data that we obtained were useful, we also decided that we really needed to use two separate DIDSON units and that we also needed to mount them onto something that was stable, unlike the boat, which we had to constantly try to maintain position in.

Luckily I work with a pretty smart group of people who are no strangers to unconventional fisheries work (see past entries about our fish-barge interaction work!). After many discussions and meetings with partners, the day finally came where, using a contracted telescopic boom lift, we were able to deploy two separate DIDSON units into the strongest part of the barrier from the shore. By using the two different units we were able to view the entire width of the barrier, and by not using a boat anymore, the images were rock solid. The first deployment off of the boom lift was a success and future work using the lift again is being planned.

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## 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.

### Carterville FWCO Completes Another Summer of Fish-Barge Interaction Evaluations

*BY AARON PARKER, CARTERVILLE FWCO*

Beginning last summer the Carterville Fish and Wildlife Conservation Office (FWCO) took on the task of performing some rather unconventional fisheries work involving custom-made fish pens, live fish, hired barge vessels and the world's largest electrical fish barrier. This year was no exception as we performed three separate weeks of "fish-barge interaction evaluations". The electrical barrier system where work occurred is located within the Chicago Sanitary and Ship Canal (CSSC) and operates with the primary purpose of inhibiting the movement of Asian carp upstream towards Lake Michigan. Because barge vessels routinely use the CSSC, which requires traversing the barrier, our office has been evaluating the potential effects that the barges may have on nearby fish. Last year we were faced with the daunting task of physically mounting custom-made fish pens to various parts of a contract barge. After this was done, the fish were moved through the barrier system and their behavior was recorded with a camcorder. This year the work was slightly easier since we did not use the fish pen. Instead, locally caught gizzard shad were attached to a brightly-colored float and deployed either in front of the oncoming barge or in between the various barge junctions before it traversed the barrier.

Like last year, the three rounds of barge-fish evaluations were a success and could not have been done without everyone giving 110% effort. Performing this work required a three person crew to start collecting gizzard shad first thing in the morning. Once the fish were a collected, a two-person crew spent the entire day tirelessly tagging the fish before they were deployed in the water, the electro-fishing crew had to transition to being the fish deployment/collection crew, and finally, one person served as a shore look out. All of our work also had to be done within the five hour canal closure window that we were allotted. When all was said and done, valuable data were collected safely and effectively. Special thanks go out to the US Army Corps of Engineers (USACE)-Chicago District and the USACE Construction Engineering Research Laboratory-Champaign for their continued support of our research efforts.

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### Alpena FWCO Assists St. Marys River Fishery Task Group Conduct a Fish Community Assessment of the St. Marys River

*BY ADAM KOLWALSKI, ALPENA FWCO*

During August 2013, the St, Mary's River Fishery Task Group (SMRFTG) conducted a coordinated fish community survey of the St, Mary's River. The Michigan Dept. of Natural Resources, Ontario Ministry of Natural Resources, Department of Fisheries and Oceans Canada, Chippewa Ottawa Resource Authority, Bay Mills Indian Community, and US Fish and Wildlife Service Alpena Fish and Wildlife Conservation Office (FWCO) surveyed 45 sites from the upper River to Potagannissing Bay with 1000 foot variable-mesh gillnets. Ageing structures, length, weight, diet, sex, maturity, and lamprey wounding were recorded for all target species. Species diversity and relative abundance indices will be calculated from the data collected. Alpena FWCO conducted its part of the survey during the week on August 26, 2013. Alpena FWCO staff surveyed seven sites in Lake Nicolet, which is downstream of the main shipping locks.

Alpena FWCO staff surveyed seven sites in Lake Nicolet, which is downstream of the main shipping locks.

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### Alpena FWCO Conducts 2013 Fishery Independent Lake Whitefish Survey in Northern Lake Huron

*BY ADAM KOLWALSKI, ALPENA FWCO*

During July and August, staff from the Alpena Fish and Wildlife Conservation Office (FWCO) and volunteers conducted the annual fishery independent lake whitefish survey in 1836 Treaty waters of northern Lake Huron. The purpose of this survey is to collect fishery independent abundance and biological data on lake whitefish stocks in treaty waters for use in statistical catch-at-age population models that are updated annually to determine harvest regulations for commercial fisheries in 1836 Treaty waters of the Great Lakes. During the survey, 24 variable mesh gill nets (two to six inch) were set at randomly selected sites in lake whitefish management unit WFH 04 (Hammond Bay to Presque Isle) and lake whitefish management unit WFH 05 (Presque Isle to Alpena). All whitefish and lake trout collected were measured, weighed, sexed, assessed for maturity and visceral fat content, and checked for sea lamprey wounds, fin clips, and tags. Scales and otoliths were collected

for age determination. Similar biological data were collected from non-target species. Five lake whitefish were collected from unit WFH04 and 19 were collected from unit WFH05. Although catches of juvenile whitefish were still low, more were sampled this year than in the past eight years.

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## 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.

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