

# Fisheries Program

# *fish lines*

**Outdoor Classroom Incorporates Milkweed Production**

**Sport Fish Management on Crab Orchard NWR**

**Grass Carp Management in the Midwest**

**Lake Sturgeon Return to Upstate New York**

**A New Weapon**





# U.S. Fish & Wildlife Service Fisheries, Midwest Region

Conserving America's Fisheries



Dec 18 2014  
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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.

Last updated: December 18, 2014



## U.S. Fish & Wildlife Service Fisheries, Midwest Region

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### Outdoor Classroom Incorporates Milkweed Production into Curriculum

BY JORGE BUENING, GENOA NFH



Students learn about the relationship between monarch butterflies and milkweed plants. Credit: USFWS

Over the past few years the Genoa National Fish Hatchery (NFH) has been establishing relationships with area schools. This was done with the objective of developing an environmental-based curriculum that can be incorporated into the already established educational plans that each grade level follows. Our focus is to teach about the purpose of the National Fish Hatchery system and provide a place that students can learn to interact with and experience the natural world around them. We also hope to facilitate the development of a bond with nature that will last for the rest of their lives.

Our Sense of Wonder Wetland provides the perfect place for just such activities to occur. This space offers students the chance to experience diverse ecological communities including: wetlands, prairies, and woods. In this area students find snakes, hear bird calls, chase mice, or indulge in many other activities that a simple nature walk can provide. Mixed into all this fun are hidden lessons that are forever sewn into their memory.



Students teaming up for Monarchs. Credit USFWS

Due to the decline in monarch butterfly populations the U.S. Fish and Wildlife Service is working toward increasing the acreage of established milkweed beds. Milkweed plants are the preferred food of monarch butterfly caterpillars and increasing the amount of suitable habitat for juvenile growth and development should increase adult populations.

Seizing on the available opportunity the Genoa NFH has decided to incorporate milkweed plantings and the lifecycle of monarch butterflies into the outdoor classroom curriculum. We have worked with students from Southern Bluffs Elementary School in doing fall plantings in the prairie area of our Sense of Wonder Wetland. These students will be back in to spring to see if there plants have emerged. The Summit Environmental School has also joined the fun, with them we are hoping to start some plants early in the school's greenhouses and plant them in the spring during their hatchery visit.



Student plants milkweed seeds. Credit: USFWS

The integration of these programs seems like a no-brainer. We are dealing with a real-world problem and the students are able to help us work toward making it better. Hopefully, they will see the results of their actions and grow-up remembering the impact that they can make and the importance of their decisions.



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### Sport Fish Management on Crab Orchard NWR

BY SAM FINNEY, CARTERVILLE FWCO

Historically, the Carterville Fish and Wildlife Conservation Office (FWCO) was almost solely dedicated to managing sport fish on federal lands including national wildlife refuges and military installations. Times have certainly changed, and now Asian carp management and large river fishery issues such as the recovery of pallid sturgeon take up the majority of our time. But thankfully we are still in the sport fish game, mainly in conjunction with Illinois Department of Natural Resources (DNR). And it makes sense. After all, we are located on Crab Orchard National Wildlife Refuge (NWR) and are in the same office as the Illinois DNR. We have the water, hatcheries, and biologists and technicians to share, and Illinois DNR has the jurisdictional authority over the fisheries and the expertise in the form of their district biologists. They scratch our backs and we scratch theirs. It's pretty nice.

There are three primary lakes on Crab Orchard NWR that are actively managed- Devil's Kitchen (810 acres), Little Grassy (1000 acres), and Crab Orchard Lake (6965 acres). Devil's Kitchen is a beautiful lake; it is deep, relatively clear, filled with

standing timber, and lies partially in a wilderness area. The fishery is quite unique. Anglers target the very good bluegill and red ear populations, trout are stocked annually, and a budding yellow perch fishery exists- the only one in the region. And if you want to catch a 10 pound bass, this is the place. Bass are generally numerous and small, but the occasional whopper exists. Little Grassy is also a fairly clear but not as deep as Devil's Kitchen. The shores are weedy and there is some standing timber. It has numerous camps (boy scouts, environmental groups, and church) along its shores and receives a lot of recreation. The fishery is well balanced with good opportunities for bass, bluegill, and catfish. Crab Orchard Lake is large, shallow, and muddy. You will find skiers, houseboats, and sailboats on Crab Orchard. Crab Orchard is known as a big bass lake, with numerous tournaments fished each year including one last year with a five fish stringer of over 30 pounds taking the win. Catfish, bluegill, and crappie are also popular on Crab Orchard. If you get a chance to make it down to Crab Orchard NWR, fishing opportunities abound.

Carterville FWCO has been active in managing the fisheries and aquatic habitats of Crab Orchard NWR. We help with the annual sampling of each lake, assist in fish habitat improvement projects (brush piles), and coordinate bass stocking efforts from U.S. Fish and Wildlife Service hatcheries. Recently we have been involved in public meetings concerning regulation change and have done some aquatic invasive species prevention activities. We are always happy to participate in annual outreach and kids fishing opportunities that arise. And of special note, we recently helped to coordinate a special stocking of surplus yellow perch from Genoa National Fish Hatchery to help jump start the yellow perch fishery in Devil's Kitchen.

Managing the sport fish on Crab Orchard is very rewarding for us. While we often receive positive feedback from the public in the field, it is rarely more offered than it is on Crab Orchard. This feedback is always welcome and appreciated. Anglers are happy that we are actively managing these important resources for them. Carterville FWCO staff not only enjoys this feedback, but also the break in the usual Asian carp and big river work. Some staff have even stumbled upon a few potential fishing holes through our sampling activities- a nice fringe benefit of being a biologist.



Illinois Department of Natural Resources fish biologist holds up a 10 and a 9 pound bass captured from Devil's Kitchen Lake Credit: Chris Bickers, Illinois DNR



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### Grass Carp Management in the Midwest: Carterville FWCO is Here to Help

BY SAM FINNEY, CARTERVILLE FWCO



Equipment and staff used for inspecting grass carp for ploidy. Credit: USFWS

and Inspection Program, which is run out of the Southeast Region. This program provides a service to the states that only allow triploid grass carp, by testing and certifying grass carp raised at commercial farms to be triploid. Over the past couple of years, the Service's program has certified more than 1 million fish for nationwide distribution. Several Carterville FWCO biologists are trained as inspectors and regularly certify grass carp from two farms in Illinois, but have inspected other farms in the past and may do so again in the future. In addition to performing certifications, Carterville has been involved in the review of the Memorandum of Agreement, and national rule making between the Service and participating grass carp producers in the program.

The second way that Carterville FWCO has been helping to control and manage grass carp is by being an integral part of the Mississippi Interstate Cooperative Resource Association's national review of grass carp. This comprehensive review has been focused on examining the production, triploid certification, shipping, regulation, and stocking of grass carp in the United States. The product of this review, out later this year, will be a report to the Service with recommendations for reducing the spread of grass carp in the United States. The report recommends a national policy strategy for grass carp management nationwide, and it is anticipated that this will be discussed among state agencies when the report is final.

Make no mistake about it, grass carp are a species not native to this country, that are better off not established in the wild. With this in mind though, there is a long history of some level of responsible use of grass carp as a biological control. As the Service, our state partners, and the public we serve become more aware of negative effects from introduced species, we owe it to ourselves to continue to grow as responsible users of these resources.

Although bighead and silver carps seem to get all the attention, another species of Asian carp is actively managed in the Midwest Region as well. Grass carp. Brought in to the United States in the 1960s as a biological alternative to controlling aquatic plants (as opposed to using chemicals), grass carp are more commonly accepted, and sometimes actively stocked by resource agencies. Grass carp have already become established in some waters of the United States, but there is active management to keep them from becoming established in areas where they currently are not. Some states allow stocking of grass carp that are able to spawn (diploid), others only allow fish that are spawned in hatcheries to be functionally sterile (triploid), while still others hold a complete ban on grass carp.

The Carterville Fish and Wildlife Conservation Office (FWCO) has been helping to manage and control grass carp in two ways. First, Carterville FWCO is currently the sole station in the Midwest that participates in the U.S. Fish and Wildlife Service (Service) National Triploid Grass Carp Certification



Grass carp captured during a survey. Credit: USFWS

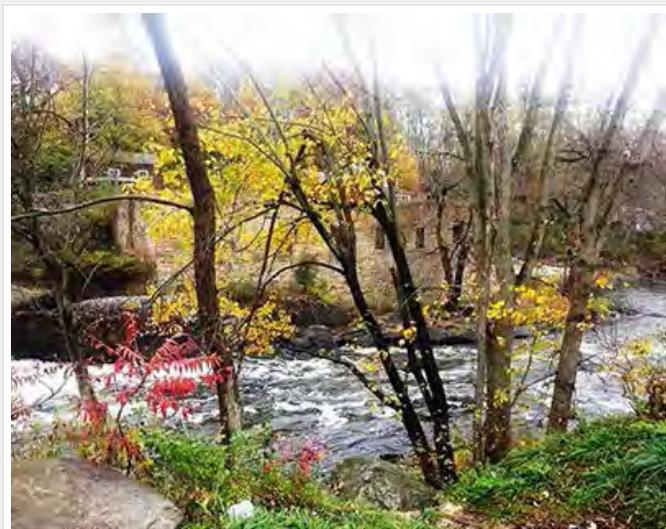


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### Lake Sturgeon Return to Upstate New York after Summering in Wisconsin

BY DOUG ALOISI, GENOA NFH



Sturgeon stocking location. Credit: USFWS

This usually causes this strain to be stocked out last in the fall, when autumn leaves and water temperatures are dropping at a rapid pace.

This fall 6900 six inch lake sturgeon were placed on a truck and trailer in Wisconsin to make the 24 hour trip. The fish handled well, hauled with no problems and were anxious to get out of the tanks and into their natal waters. Sturgeon stocking is only one of a handful of conservation tools in the toolbox, with habitat and water quality improvements, dam mitigation to minimize impediments to migration and harvest controls also being important tools to consider and employ. The New York Department of Environmental Conservation (DEC) also raises an equal portion of the egg take from St. Lawrence River Operations in their hatchery system to advance restoration. This was actually Genoa's second trip east with sturgeon in 2014, with 6,500 four inch fish being stocked out in September. Many thanks go to Scott Schlueter of the Cortland Endangered Species office for coordinating the partnership between the Service and the NYDEC, and providing supportive funding through the Fish Enhancement, Mitigation and Research Outreach fund, a mitigation funding avenue of the Eisenhower Locks of Massena.

Lake sturgeon fingerlings reared in America's heartland of Genoa Wisconsin this summer made the long trek back to upstate New York to be released in historical sturgeon waters of the Empire State. Sturgeon were historically common in the St. Lawrence, Niagara, and Genesee Rivers, as well as throughout the Great Lakes but overharvest, pollution, habitat destruction and barriers to spawning grounds caused large population declines by the early 20th century.

Lake sturgeon are on New York's state Endangered Species list and are a species of concern for the U.S. Fish and Wildlife Service due to their low population numbers and unique life history that requires females to reach 20-24 years of age before reaching maturity. Genoa National Fish Hatchery was asked to participate in this restoration effort in 2011 due to its past experience in lake sturgeon egg collections and propagation. New York's St. Lawrence River population of lake sturgeon typically spawns the latest in the spring due to the water source being the cold outflow of the Great Lakes.



New York DEC biologist moving Lake sturgeon. Credit: USFWS



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### A New Weapon for Battling Invasive Carp

BY JEREMIAH SMITH, CARTERVILLE FWCO



Water gun discharge in test pond at UMESC. Credit: Mark Steingraber USFWS

confined space. The beauty of the water guns is their simplicity. To maintain only takes the removal of a few nuts and bolts, inspection of the working components, lubrication of a few parts and O-rings, changing one or two O-rings and putting everything back together.

I was able to observe the force and intensity that these water guns can deliver and the practicality of implementation for use in deterring invasive carp. Many of the invasive carp were mortally wounded when the force of the 200 cubic inch water gun ruptured the anterior swim bladder. It was evident that the folks with USGS and La Crosse Fish and Wildlife Conservation Office were impressed when ten of the 16, eight inch Silver and Bighead carp were floating after the treatment. We are looking forward to seeing how this method of deterring invasive species will pan out in the future battle against invasive carp species.

This fall, I had the opportunity to visit US Geological Survey (USGS) Upper Midwest Environmental Sciences Center in La Crosse, Wisconsin for a water gun training and demonstration for invasive carp. During the two day training session, I had an opportunity to learn about the history of the water guns (100 cubic inch and 200 cubic inches) and 100 cubic feet per minute diesel compressor. This type of technology has been around for a few decades in the oil and natural gas exploration and now has been modified for use as a weapon in the war against aquatic invasive species.

The process to set-up the water gun was fairly simple given that you are running a heavy duty air hose and electrical line to the water gun. From there, the airline is connected to the diesel compressor that delivers compressed air, which releases the piston forcing water from the muzzle of the gun. The electrical line runs to the control box that is used to operate the entire water gun system. The control box allows the users to control a multitude of water guns on a boat or within a



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### Whitney Genetics Lab Goes Robotic

BY NICHOLAS BERNDT, WHITNEY GENETICS LABORATORY



384 Well plate.

Credit: [http://www.appletonwoods.co.uk/acatalog/384\\_well\\_q\\_PCR\\_plate.html](http://www.appletonwoods.co.uk/acatalog/384_well_q_PCR_plate.html)

each sample as outlined in the QAPP (Quality Assurance Project Plan). Some steps take longer than others, some require minute amounts of reagent or sample to be dispensed by pipette, and some are highly sensitive to variations in these amounts. The biologists and technicians at WGL are experts in dealing with the high levels of precision and accuracy required to work with such sensitive materials. However there is a limit to how fast one can do this work. The EpMotion machines can do the same work we can, but faster. Take a 384-well plate for example (pictured).



Going Robotic at WGL. Credit: USFWS

The Whitney Genetics Laboratory (WGL) has some new high-tech help on the way. These are in the form of two Eppendorf EpMotion 5075 automated pipetting systems. The machines specialize in performing repetitive lab tasks such as pipetting, mixing, and polymerase chain reaction (PCR) plate loading. Though these tasks are simple, they are some of the most important steps in our eDNA workflow.

Each machine has a flexible array of accessories that can be tailored to many lab tasks. These include pipetting from tubes or reagent reservoirs, loading the plates with a sample, and various mixing functions. Protocols for each analysis step can be uploaded and run unsupervised to repeat thousands of times, leaving time for biologists to perform other tasks, such as extraction of DNA.

Each eDNA sampling season, WGL processes thousands of samples through DNA extraction, PCR, and in some cases gene sequencing and gel electrophoresis. In each one of the processing steps, biologists follow the same set of directions for



384 Well plate. Credit:

[http://www.arrayit.com/Products/Microarray\\_Tools/384-Well\\_Microplates/384-well\\_microplates.html](http://www.arrayit.com/Products/Microarray_Tools/384-Well_Microplates/384-well_microplates.html)

Each well has a tiny diameter of 3.3 millimeters. Now imagine the dexterity and patience it would take to precisely pipette a sample into each of the 384 wells over and over. The EpMotion machines do it very quickly and offer high levels of consistency. This is only one example of how we can apply these machines to our current workflow. We are excited to explore all ways these machines can help us with current protocols and in other applications as we expand our repertoire.



New system will aid in precision, consistency and speed. Credit: USFWS



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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.

### Columbia FWCO "Phoenix" Floats Again

BY CAL YONCE, COLUMBIA FWCO

Since the 19th century the festivities of homecoming have been a part of alumni football games held at colleges and universities across the United States. Missouri University (aka Mizzou) has the distinct honor of being one of the first universities to practice this tradition. On homecoming day the festivities began with the largest annual parade in Columbia, Missouri.

For the past ten years the Columbia Fish and Wildlife Conservation Office (FWCO) has joined forces with Mizzou's School of Natural Resources alumni and students to bring a little bit of nature to the streets of downtown Columbia and the Mizzou campus. The Columbia FWCO's largest fisheries research vessel the "Phoenix", a 26' boat, is loaned each year to the School of Natural Resources. Alumni then transform it into one of the most unique floats in the parade.

This year employees from the Columbia FWCO arrived with vessel in tow homecoming morning at the agricultural center on Mizzou's campus. Before sunrise, employees and alumni loaded props, float decorations and candy onto the boat. Alumni mounted wildlife and fish decoys in various places on the hull of the boat. Once everyone had arrived we started off the event by heading to our position in the parade line. Maneuvering such a float through the parade streets would have been a daunting task but Jeff Finely, a Supervisory Fisheries Biologist was at the helm. Jeff, also a Missouri University alumni himself, has been participating in the parade since the Columbia FWCO began volunteering its staff and equipment to help out the School of Natural Resources. As we traversed the streets of the campus and downtown area, Mizzou alumni handed out candy to spectators. Cane fishing poles were used to dangle candy within arm's reach of excited children as the float went by. Some of the alumni accentuated the outdoor experience by using wildlife calls to simulate the sounds of the animal decoys.

This was truly a unique experience for all involved and brought laughter and awe to the Mizzou homecoming parade. Reaching out to community members allows the U.S. Fish and Wildlife Service to provide leadership, education and existing knowledge to our partners and local citizens. This will help us in our unabating mission to conserve, protect, and enhance fish, plants and their habitats for the continuing benefit of the American people.

### Carterville FWCO Introduces Kids to Fishing and Some Tasty Asian carp

BY JEREMIAH DAVIS, CARTERVILLE FWCO

This summer staff from the Carterville Fish and Wildlife Conservation Office (FWCO) provided outreach to children who attended the Crab Orchard NWR kids fishing derby by setting up a fish observation tank. Specimens of different fish species were collected from Crab Orchard Lake and held in a large pool so that children could observe the variety of fish found in the lake and notice the different characteristics of each species. Examples of largemouth bass, white crappie, flathead catfish, and bluegill were popular with the young anglers. Some adventurous youngsters even took an opportunity to "pet" some of the friendly fish. Children learned how fish species differ from one another. At the conclusion of the event the children assisted staff biologists with returning the fish to the lake unharmed. Although the children were sad to see the fish go, they were excited to know that they could return to Crab Orchard Lake with their new found fishing and fish identification skills and try to "catch up" with their fish friends.

The Carterville FWCO does conduct some work with the sport fish the children enjoyed during the kids fishing derby; however, our mainstay is endangered species recovery and Asian carp control efforts. During the John A. Logan Southern Illinois Hunting and Fishing Days expo, staff from Carterville teamed up with the Missouri Department of Conservation to perform public outreach work that is more closely aligned with our objectives at the office. We fried up a mess of tasty Asian carp for visitors to experience. The Southern Illinois Hunting and Fishing Days expo is the largest of its kind in the country, attracting over 46,000 visitors. We made it our mission to introduce as many of them as possible to eating the invasive Asian carp. They are delicious and they are good for you. Showing people how good the invasive fish is to eat is actually a step toward conservation. If people try it once they will certainly aim to harvest more from local waterways.



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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.

### 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.



## U.S. Fish & Wildlife Service Fisheries, Midwest Region

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