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Fish Tails

"Fish Tails" refers to articles that are entered by field staff in the U.S. Fish and Wildlife Service's Field Notes website, but are not published 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. To view these articles, click on the links below. Enjoy!

1. Genoa National Fish Hatchery Upgrades Fish Distribution System

Last updated: December 21, 2012

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Outdoor Classroom Chronicles Part I

BY JORGE BUENING, GENOA NFH

Ms. Houlihan's 5th graders exploring the prairie during a nature hike. Credit: USFWS

The arrival of fall brought with it the excited young minds of students from Southern Bluffs Elementary School. These students Ms. Houlihan's 5th grade class, are participants in an ongoing partnership between the elementary school and the Genoa National Fish Hatchery (NFH). An element of this partnership introduces the 5th graders to the Outdoor Classroom program at the hatchery.

The Outdoor Classroom program at Genoa NFH is designed to move the parameters of a standard classroom setting out of doors, augmenting the school's current science curriculum and providing students with first hand experiences in nature. The students are enabled to experience things as they happen in a real-life and on a real-time basis, expanding their minds past video games and television shows.

During this first part of the Outdoor Classroom program the students received a tour of the hatchery and learned about the role that it plays in the restoration and preservation of various aquatic ecosystems. The program allows for unstructured time to explore nature and the students certainly took advantage of this time. While exploring the "Sense of Wonder Wetland" the students discovered wild animal bones, interesting caterpillars, they picked mint leaves and explored nature with their senses, up close and personal.

As part of this diverse program, together we read "Draba" from Aldo Leopold's Sand County Almanac. From this the students learned the importance of even the very smallest things. In another activity the 5th graders were assigned an area in the wetland and were asked to just sit there for 40 minutes (a tall order for any 5th grader) and document what they saw. However, this proved to be a bountiful activity resulting in a variety of drawings of birds, interesting branches, and prairie plants. Some students chose to tell stories about the various animals they saw and what they thought the animals were doing.

Another element of the partnership involves in-class lessons lead by hatchery staff. So a week later an aquarium in Ms. Houlihan's Classroom was set up with fish for the students to observe and care for during the school year. During this visit the students were introduced to fish anatomy, learning about the different fins that fish have and how a fish's gills allow it to breathe underwater. In another activity the class examined a water and muck sample from one of the hatchery ponds. They searched for bugs and were taught about what they found. Some of the bugs that were found included; dragonfly nymphs, mayfly nymphs, scuds, worms, and water scorpions. Hatchery staff will also be doing two more classroom visits to teach students about algae and mussels. And…this is only one-third of total outdoor classroom program experience. Ms. Houlihan's class will return to the Sense of Wonder Wetland two more times this year to experience the winter and spring seasons. So stay tuned for Part II of the Outdoor Classroom Chronicles.

Students from Southern Bluffs Elementary making observations during quiet time. Credit: USFWS

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Last updated:

December 19, 2012

The Gift of Sunshine

BY KAY HIVELY FRIENDS OF THE NEOSHO NATIONAL FISH HATCHERY

When the sun rises each morning in Neosho, Missouri, 24 large solar panels at the Neosho National Fish Hatchery seem to reach out to grab the sun's rays. The panels will soak up the sun's energy and transfer it into electricity which will be used to heat water in the large sturgeon building. This warmer water will allow the endangered sturgeon to put on more weight at a faster rate and then be stocked into the wild sooner.

The solar panels are the latest addition to the hatchery's effort to go "green."

"Having to pump well water and heat it is very expensive," said Dave Hendrix, hatchery manager. "We will save a lot of money with this solar project. The electric company probably won't like us as much when we get the system fully working."

This solar project began two or three years ago, when the hatchery received a fish and wildlife energy grant. The hatchery consulted with Crowder College since the local college has a history of work with solar projects.

The hatchery contracted Crowder College as the lead on the project, using contractors and subcontractors to actually do the work. Final work was completed on November 29th with a small test run. The next week the hatchery staff was trained by experts on how to operate the system. And, if all goes well, the system will go online soon.

Solar panels reach skyward at Neosho NFH. Credit: Kay Hively

Water entering the sturgeon building is now about 62 degrees, but when the solar project begins working, the water will be heated to 70 degrees, the perfect temperature for raising sturgeon.

While the solar panels cannot heat water for all the tanks in the sturgeon building, it will be enough for six important tanks. This will allow the staff to not only have warmer water, but they will use less water, which means the electric pumps won't have to work nearly as much or as hard. The end result will be a dramatic cost saving.

"We are happy we were able to work with Crowder College and many local contractors," Hendrix said. "All of Neosho will benefit, as will the federal government."

The Neosho National Fish Hatchery is leading the way with green projects. The new visitor center is the only building in the hatchery system that received the GOLD LEED rating, noting the building was built with conservation in mind. The hatchery also received the Department of Energy's 2012 Energy and Water Management Award, and this solar project will add to the hatchery's energy conservation efforts.

The large panels are located on the south side of the hatchery grounds, facing south to catch the winter sun's rays. On days when the sun does not shine, enough energy is stored in the panels to provide steady service.

Sunrise in Neosho is always welcome at the hatchery, and now the big solar panels will be there each day, waiting to catch that first ray of free and clean energy.

(Edit reprinted from Neosho Daily News)

Last updated: December 19, 2012

The Great Lakes Fish Tag and Recovery Lab Completes Lake Trout Tagging for 2012

BY JAMES WEBSTER, GREEN BAY FWCO

Marking and tagging trailers set up at Iron River NFH. Credit: USFWS

The U.S. Fish and Wildlife Service Great Lakes Fish Tag and Recovery Lab concluded the lake trout tagging season in early October. This is the third consecutive year that the lab has tagged and marked all hatchery-reared lake trout to be released in lakes Michigan, Huron, Erie and Ontario. Using an automated fish tagging trailer that simultaneously clips the adipose fin and injects a coded wire tag, the team tagged and marked over six million lake trout at five different federal and state hatchery hatcheries in Michigan, Wisconsin and Pennsylvania.

The 2012 Great Lakes tagging project began on July 9th at the Michigan Department of Natural Resources Marquette State Fish Hatchery. In August, the team implemented tagging projects at three Service hatcheries. At Pendills Creek National Fish Hatchery (NFH) near Brimley, Michigan, 1,043,453 lake trout were tagged and marked during August 7th -14th. During the period of August 13th - October 3rd, 2,250,964 lake trout were tagged and marked at Jordan River NFH near Elmira, Michigan. All of the fish reared at Pendills Creek NFH and Jordan River NFH will be stocked into lakes Michigan and Huron.

Hatchery raised lake trout destined for lakes Ontario and Erie are now reared at the recently renovated Allegheny NFH near Warren, Pennsylvania. Nearly 900,000 fish were tagged and marked at Allegheny NFH this year between August 18th and September 10th.

The final project of the season started on September 18th at Iron River NFH near Iron River, Wisconsin, where almost 1.6 million fish bound for lakes Michigan and Huron were tagged and marked.

The U.S. Fish and Wildlife Service Great Lakes Fish Tag and Recovery Lab is headquartered at the Green Bay Fish and Wildlife Conservation Office. In addition to delivering tagging and marking services to state and federal fish hatcheries throughout the Great Lakes, the lab provides assistance in the recovery and processing of coded wire tagged fish specimens recovered during assessments and by sport fisheries.

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Alpena Fish and Wildlife Conservation Office Tests Mobile eDNA Filtering Trailer

BY CHRIS OLDS, ALPENA FWCO

eDNA Mobile Filtering Unit. Credit: USFWS

With the expected implementation of an environmental DNA (eDNA) program for the Great Lakes by 2014, Alpena Fish and Wildlife Conservation Office (FWCO) began exploring options during 2011 for field-based filtration of water samples. Biologist Chris Olds suggested a mobile filtering unit similar to the Lake Sturgeon Stream-Side Rearing Units employed by Genoa National Fish Hatchery. The concept was a self-sufficient trailer designed for use at remote sampling locations along Lake Huron that maintained the ability to utilize a plug-in power source if facilities were available. Brainstorming and design considerations started in October 2011. The final trailer concept was shared with the Regional Safety Department and the La Crosse Fish Health Center Staff in late 2011 to ensure that it would meet all safety requirements and quality assurance standards for the water filtering procedures.

The trailer contract was awarded to Featherlite Inc. on July 3, 2012, who then worked with Alpena FWCO to ensure that the internal trailer components would meet all of the filtering needs both at remote sampling locations and when hooked up to shore power. The trailer design included wet lab area and dry lab areas, two large entry doors, a built-in vacuum system (with backup) capable of running all six filter stations in the trailer, and a built-in heating and A/C system. The trailer design also included a fresh water tank and an on-demand de-ionized water system. With trailer design and specifications complete, Featherlite Inc. went to work building the unit. Upon completion the trailer was then transported from Cresco, IA to Alpena, MI for final inspection by FWCO biological staff.

The trailer arrived at Alpena FWCO the week of October 22, 2012 and was outfitted with all necessary gear and field tested in late November, 2012. The mobile filtering unit exceeded all expectations and was able to handle all necessary functions concurrently. The dry lab is 8 feet in length, while the wet lab is 14 feet in length. The wet lab has stainless steel countertops that run the length of the trailer on the outside walls and two sinks located at the front and back of the wet lab. There are seven vacuum line valves to accommodate the filter manifolds, with the vacuum pumps located below the bottom shelves in the dry lab area. The dry lab has floor-to-ceiling lockable cabinets that can store all necessary filtering consumables and enough 2-liter bottles to collect over 300 water samples. The trailer's capabilities are endless-it can be utilized as a mobile eDNA filtering lab, a mobile field station, or even a mobile classroom. Alpena FWCO is very pleased with their new trailer and is anxious to use it in the spring collecting water samples.

Biologist Steve Hensler (front) along with other Service biologists filter water samples during trailer testing. Credit: USFWS

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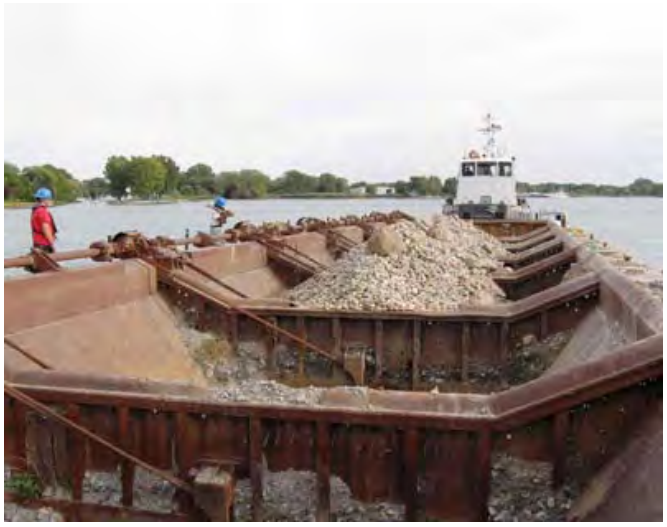
Alpena FWCO Evaluates Habitat Enhancement Projects in the St. Clair River and Detroit River

BY JUSTIN CHIOTTI, ALPENA FWCO

This fall, fish biologists from the Alpena Fish and Wildlife Conservation Office (FWCO) have been busy deploying gill nets and bottom trawling in the St. Clair and Detroit Rivers monitoring the fish communities near two habitat enhancement projects.

Much of the historic fish spawning habitat in these rivers has been removed as a result of dredging. In an effort to reestablish lost habitat the Service and many other partners are in the process of adding rock reefs to remove the "Loss of Fish and Wildlife Habitat" Beneficial Use Impairment in this area.

Construction of the "Middle Channel Reef" took place in the St. Clair River in the spring of 2012. Even before the final rock could be placed in the river, lake sturgeon, one of the species targeted for restoration were videotaped spawning on the reef by scientists from the USGS Great Lakes Science Center. Fish biologists from the Alpena FWCO have been monitoring the adult fish community before and after reef construction to evaluate the success of this new habitat.



A dump barge ready to release rock to create a spawning reef in the Detroit River. Credit: Bruce Manny - USGS

Fish Biologist Eric Stadig holding a lake whitefish captured in the Detroit River near the future Fort Wayne Reef location. Credit: USFWS

The "Middle Channel Reef" project was funded by an $890,323 grant received by the USEPA – Great Lakes Research Initiative in 2010. The "Fort Wayne Reef" project is scheduled to be constructed in the fall of 2013. This reef will be placed in the Detroit River, where scientists from the USGS Great Lakes Science Center have predicted a highly suitable area for restoration based on the physical characteristics of the river. It is estimated that nearly two acres of rock habitat will be created as a result of this work. The "Fort Wayne Reef" project is being funded by an $800,000 grant received from the National Fish and Wildlife Foundation Sustain our Great Lakes Funding Initiative.

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All Hail King Pallid!

BY JEFF FINLEY, COLUMBIA FWCO

Columbia Missouri Fish and Wildlife Conservation Office

Pallid Sturgeon the "King" of Columbia FWCO Credit: USFWS

Columbia Missouri; an all American town lying in the heartland of America, a stone's throw from the longest river in the United States, home to the Mizzou Tigers, and right smack dab in the middle of the native range of the pallid sturgeon. While Columbia Fish and Wildlife Conservation Office (FWCO) is engaged in various other projects like aquatic habitat improvement, fish passage, invasive species control, fish management and pretty much anything aquatic; the majestic pallid sturgeon has consistently sat on the thrown of focus at our office for 20 years. At 80 years old, he out lives most any other fish swimming the river, travels thousands of miles covering up to two thirds of the United States, and has a blue-blood pedigree linking modern Earth with dinosaurs.

Beginning in 1992, just a few short years after the pallid was federally listed as endangered, our office was established. Since then we have been working with our partners to prevent a catastrophic crumbling of the pallid's kingdom resulting from dam construction and habitat degradation in the Missouri and Mississippi rivers. For early projects, Biologists gleaned what little pallid data existed from historical sampling efforts and anecdotal information from commercial fishers.

Not until 1999 did Columbia FWCO capture a pallid sturgeon in the wild. Despite a very small staff, we continued focusing efforts to find this elusive creature and learn its ways. On average the small crew of the 1990's was lucky to capture five pallid sturgeon in a year. Today it is common to capture five in a week and even five in a day when crews are targeting brood fish for the stocking program. The increase in pallid sturgeon collections is due to several factors. First, the vast majority of the pallid sturgeon we capture are a result of an aggressive stocking program that has steadily stocked fish into the river system since 1994. Secondly, with two decades of efforts we have learned what habitats to sample and when to target them. Thirdly, gear developments, an increased fleet of boats and advancements in technology have vastly contributed to our efficiency. Lastly, manpower; early on, we had one crew of three people sampling intermittently six months out of the year. In recent years we have had no less than two crews working year-round under the direction of a protocol designed specifically to target pallid sturgeon.

A "much younger version" of Fish Biologist Jeff Finley weighs the first pallid sturgeon collected by Columbia FWCO March 2, 1999. The fish was collected in a gillnet on the Missouri River near Rocheport Missouri on the Big Muddy National Fish and Wildlife Refuge. Credit USFWS

The primary contributing factor to advancements in pallid sturgeon research and monitoring is a direct result of the U.S. Fish and Wildlife Service's *2000 Biological Opinion on the Operation of the Missouri River Main Stem Reservoir System, Operation and Maintenance of the Missouri River Bank Stabilization and Navigation Project, and Operation of the Kansas River Reservoir System* and the *2003 Amendment to the 2000 Biological Opinion.* (Understandably referred to as "The BiOp" in casual conversation.) The BiOp used the best available scientific data to direct the U.S. Army Corps of Engineers' (CORP) operation and maintenance of the Missouri River system

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Range of the Pallid Credit: W.D. Ruckelshaus Institute of Environmen t and Natural Resources, University of Wyoming

in a manner that reduced jeopardy to the continued existence of least terns, piping plover and pallid sturgeon.

As a result of listing, the pallid sturgeon recovery plan was written and, under the auspice of adaptive management, is continually updated based on scientific findings. The recovery plan recommends the population is closely monitored under a protocol derived from the Pallid Sturgeon Population Assessment and Monitoring Program administered by the CORP. This program has our crews sampling for pallid sturgeon and the fish community associated with pallid sturgeon year round.

Beginning in the fall when waters cool, crews begin looking for pallids with gillnets and trot lines. As winter river conditions allow we collect fish under the “sturgeon season” until spring. As the ice melts and days get a little longer, pallids begin their spawning migrations and we then shift our focus to collecting brood fish for the stocking program. Wild pallids in reproductive condition (at least 7-15 years old and not previously used for the stocking program) are extremely rare because existing individuals spawn only every 2-5 years. A collective effort throughout the Missouri River Basin typically yields only a couple of pallids that can be selected for spawning in each designated management unit. Although they are all pallid sturgeon, the Missouri and Mississippi river systems are so vast that scientists have detected slight genetic differences in populations across their native range (Yellowstone River in Montana to the Gulf of Mexico), hence referred to as management units. The hatchery and stocking programs take great care to maintain this natural genetic diversity with stocked fish and ensure that fish are placed into the area of the river they best genetically fit. Reproductively fit pallids that

Techniques developed at Columbia FWCO, like the push trawl pictured here, have advanced river science in recent years. Credit: USFWS

The Return of the "King" Pallid Credit :USFWS

cannot be used for brood fish (i.e., a progeny of the stocking program) have been outfitted with radio transmitters and tracked by the U.S. Geological Survey. Use of DIDSON cameras and cutting edge fish tracking telemetry technology have led to tremendous advancements in understanding of habitats used by, and behavior of, spawning pallids.

Summer signals a shift in sampling efforts to “fish community season” which entails sampling the fish typically associated with pallids (either forage or shared habitats) and evaluating the ecology and survival of recently hatched pallid sturgeon. Work during the fish community season has led to improvements in our understanding of sturgeon nocturnal behavior. For this crews use benthic trawls (both deep water stern trawls and shallow water push trawls), miniature fyke nets and drifted trammel nets, again, as river conditions allow.

Whether slugging through knee deep silt in the sultry summers on the Big Muddy or chipping ice from the gunnels in the winter, our mantra is “Conserving big river ecosystems in America’s heartland” and in Columbia, the Pallid Sturgeon is King.