# ALPENA FWCO NEWSLETTER

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*U.S. Fish and Wildlife Service, Fish and Wildlife Conservation Office, 480 W. Fletcher St., Alpena, MI 49707*
*http://www.fws.gov/midwest/alpena Alpena@fws.gov 989-356-5102*


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# Construction Completed on Fuller Creek, Funded in Part by the Partners for Fish and Wildlife Program

By Heather Rawlings

The Thunder Bay River drains an area of northeast Lower Michigan encompassing about 1,250 square miles. The headwaters generally support coldwater fisheries populations, while the many dams along the river's path warm the water quickly and only allow for cool and warmwater populations to exist in the middle and lower reaches. Hunt Creek, a Blue Ribbon Trout Stream (Michigan DNR), supports healthy brook trout populations. A coldwater, high gradient tributary of Hunt Creek, Fuller Creek, is crossed by one road (Halberg Road). The culvert at this crossing was perched 2ft. high, which blocked fish passage, and the dirt road contributed 6.13 tons of silt and sediment into the creek annually. The culvert was a 48" wide, round, steel culvert. This culvert was replaced with an arched bottomless culvert 8 ft. wide, 4 ft. high, and allows for fish passage as well as natural stream processes to occur. The road approaches to the creek were improved from a sand/dirt base to thick gravel layers and ditches and sediment basins were installed to direct precipitation run-off into sediment basins, not into the creek. Construction began August 20 and was completed by Aug 30, 2013.

Benefits of the project were: 1) improved fish passage, allowing access to approximately 2 miles of the headwaters of Fuller Creek; 2) reduction of adverse fish habitat impacts from erosion at the crossing, benefiting approximately 2 stream miles of fish habitat downstream to another degraded road crossing; and 3) benefits to non-fish species currently suffering the impacts of sand loading.

*Top: Fuller Creek at the Halburg Road crossing before construction. The culvert was perched, undersized, and causing stream erosion above and below the culvert. Bottom: The arched, bottomless culvert allows for the stream to rise and fall naturally with no constriction, provides for fish passage at al life stages, and has eliminated an estimated 6.13 tons of sediment loading annually from road run-off. Photo credits: USFWS.*

The U.S. Fish and Wildlife Service Partners for Fish and Wildlife (PFW) biologist provided review of permits, assisted in the sizing and placement of the culvert by conducting a stream survey, was present during the construction phase, and will conduct post-construction monitoring. The project benefitted brook trout, a species of concern for the PFW Program in Northern Michigan, as well as improving a coldwater ecosystem for all species in the Thunder Bay Watershed.

# Alpena Returns to Lake Erie After Positive eDNA Detections

By Chris Olds

After a sample collected during the June 24th, 2013 early detection sampling event came back positive for silver carp DNA, staff from Alpena Fish and Wildlife Conservation Office (FWCO) returned to Lake Erie to re-sample areas of Maumee Bay, the Maumee River, and other areas of interest for the presence or absence of Asian carp DNA. Crews lead by Alpena FWCO fish biologist Chris Olds collected and filtered water from these areas during the week of October 20th, 2013 and then sent them to the Whitney Genetics Lab for analysis. One hundred- fifty samples were collected during the latest sampling event. Sample collection was a challenge this time around since the rivers were lower than they are in the spring and a strong westerly wind was pushing water to the Eastern shore of Lake Erie, making certain sites unnavigable. The use of Alpena's eDNA Trailer was essential in completing this work since samples were collected along a span from Toledo, OH to Sandusky, OH. The trailer was moved from site to site to reduce travel time, allowing for more efficient processing of samples. The use of local marinas allowed the eDNA trailer to be positioned right next to the where the boat was launched to collect the samples. The Ohio Department of Natural Resources assisted with sample collection and allowed us to position the trailer at the Lake Erie Research Unit Office. Despite the cold, rainy, windy week, and low water levels, the work was completed and everyone returned home safely.

*Alpena FWCO's eDNA trailer set up for an early start on Maumee Bay. Photo credit: Chris Olds, USFWS.*

*Fish biologist Steve Gambicki got an early start on Maumee Bay to watch the sun rise. Photo credit: USFWS.*

# USFWS National Fish Passage and Partners for Fish and Wildlife Programs Partner to Remove a Dam in Northeastern Michigan

By Joseph Gerbyshak

The Black River, part of the Cheboygan River Watershed, has been the target of many habitat improvement projects in the past decade. The latest project is a dam removal in the headwaters of this premier coldwater fishery. It has been a long time goal of resource professionals to remove Saunders Dam, a dilapidated dam on this Blue Ribbon Trout Stream exclusively managed for brook trout. Saunders Dam, named after a former landowner, was built in the early 1900s for power generation, but the decaying dam no longer served a purpose and was causing many negative environmental impacts. The obvious solution for resource professionals was dam removal.

Saunders Dam, like most dams, had many harmful effects on the aquatic ecosystem. After only 10 miles of headwater stream, Saunders Dam impounded 12-acres of water with its four feet of head. The dam impounded both the main branch of the Black River and a portion of Saunders Creek, a coldwater tributary. The impoundment increased the amount of water exposed to the sun, increasing stream temperatures by an average of three degrees Fahrenheit. In addition, the impoundment slowed flows, causing the stream to drop its sediment load and blanketing substrate vital to stream health. The dam also created a barrier for aquatic organism passage for many species in the Black River, including native brook trout. The fragmentation of habitat impeded migration to critical spawning and nursery habitat.

Until recently, the dam and surrounding property was privately owned and the owner had no interest in removing the dam. However, the Michigan Department of Natural Resources recently purchased a 517-acre parcel of the property, which included the dam, and the property was added to the Pigeon River Country State Forest. The purchase created the opportunity for dam removal.

Many local groups collaborated to accomplish the long anticipated task of Saunders Dam removal. The U.S. Fish and Wildlife Service National Fish Passage Program and

*Saunders Dam was located on the Black River, one of Michigan's premier trout streams, in Otsego Co., MI. The removal process was captured with a time-lapse camera. Top: Dam before removal. Middle: During removal a water control structure was constructed to lower the head in a controlled manner, reducing the amount of sediment that was mobilized. Bottom: After removal, brook trout now have access to 10 miles of headwater habitat. Photo credits: USFWS.*

Partners for Fish and Wildlife Program provided the majority of the funding for the dam removal. The Service partnered with Huron Pines, Michigan Department of Natural Resources and the Upper Black River Watershed Council, along with numerous local businesses and private donors to remove the dam and open up fish passage to 10 miles of headwater habitat.

# Lake Sturgeon Highlight Wildlife Weekend at Indian Springs Metropark

By Andrew Briggs

Fish biologists from the Alpena Fish and Wildlife Conservation Office – Waterford Substation attended Wildlife Weekend at Indian Springs Metropark in White Lake, Michigan. The event took place September 14 and 15 and allowed the public the opportunity to learn about and view wildlife. Exhibits present at the event included coyote researchers, live salamanders, turtles, an eastern massasauga rattle snake, a monarch butterfly watch, giant silk moths, skulls and furs, children's author and illustrator Lori Taylor, live birds of prey, and live lake sturgeon with the U.S. Fish and Wildlife Service. There also were numerous activities available to children.

Fish biologists Eric Stadig, Justin Chiotti, Margaret Hutton, and Andrew Briggs taught the roughly 100 attendees about lake sturgeon, aquatic invasive species, and the techniques that they utilize in their research. Aside from the live juvenile lake sturgeon, attendees could view examples of gear used by the fish biologists in the field, bighead and silver carp mounts, and a picture slide show showcasing the field work conducted by the Waterford Substation. Additionally, there were handouts available for attendees to take home highlighting invasive species identification and lake sturgeon.

Wildlife Weekend offered another opportunity for the U.S. Fish and Wildlife Service to team up with many partners to reach out to the public and communicate the importance of conserving and protecting our natural resources. Building and maintaining partnerships is an important aspect of the Fisheries and Aquatic Resources Program of the Service, along with inspiring an appreciation for the environment to the public.

*Fish biologist Eric Stadig demonstrates how a light trap is used to collect larval fish during Wildlife Weekend at the Indian Springs Metropark in White Lake, Michigan. Photo credit: Justin Chiotti, USFWS.*

The next meeting of the Friends of the Lake Huron Watershed group will be held December 18 at the USFWS–Alpena FWCO office in Alpena, Michigan at 4:30 p.m. The November meeting is cancelled. Hope to see you in December!

# Wetland Restoration on Private Lands through the Partners for Fish and Wildlife Program

By Heather Rawlings

Two earthen berms were constructed on the property of a private individual in Alpena County, MI to enhance wetlands by flooding hydric soil areas. These projects created a variety of wetland types conducive to providing waterfowl migration and nesting habitat. Minimal excavation occurred, only enough to provide for mineral soils for dike construction. A rock or grass spillway (rock was used on one wetland and grass was used on the other) were constructed to allow for controlled drainage during high precipitation events.

The U.S. Fish and Wildlife Service's Partners for Fish and Wildlife (PFW) biologist reviewed, designed and oversaw construction of the wetland projects, and conducted a full inspection of the projects with the landowner at completion. The PFW biologist will additionally monitor the projects for the duration of the partnership agreement (10 years). Completion of these projects created five acres of wetland. Eighty percent of the wetlands are shallow, less than two feet deep, and provide a wide variety of habitats for nesting and migratory waterfowl, amphibians, and reptiles. Construction began August 19 and was completed by August 22, 2013.

The goal of the Partners for Fish and Wildlife Program is to improve habitat on private land for the benefit of fish and wildlife. Creation of these shallow-water wetlands will improve habitat for migratory birds, amphibians, reptiles, and some water-dependent insect populations. The goal for these wetlands is to create a partial open-water, partial emergent wetland.

The landowner owning the property where the wetland is constructed is responsible for maintaining all aspects of the wetland. Maintenance requires mowing the spillway at a minimum of once a year (preferably in the late summer/fall in case nesting ducks are present), and may require trapping or removal of muskrat or beaver.

*Top: A ditched swale on private land was converted to a restored wetland through the Partners for Fish and Wildlife Program. Bottom: Immediately following construction the site started to fill in with water. Although it won't be completely filled until next spring, this site will provide benefits to migratory birds this fall. Photo credits: USFWS.*

# Partnerships Renovate Museum Fish Display

By Steve Gambicki

Besser Museum, located in Alpena, MI, 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 (Alpena FWCO) for assistance. Steven Gambicki, a fish biologist at the Alpena FWCO, agreed to assist the museum with reorganizing and improving the display.

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.

*Christine Witulski, Executive and Educational Director for Besser Museum, explains the improvements she would like to see in the museum's fish display. Photo credit: USFWS.*

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."

# Elementary Students Explore the Fish Community of the Thunder Bay River

By Steve Lenart

On September 20, 2013 Alpena Fish and Wildlife Conservation Office (FWCO) biologist Stephen Lenart spent the morning exploring the fish community of the Thunder Bay River (River) in Alpena, MI with four groups of 4th and 5th grade students from Au Gres Elementary School. Lenart began by asking questions of the students regarding their knowledge of local fish species. Many of the students had a favorite and some were able to share their personal knowledge of invasive fish species and why they are a threat to our native fish populations. The students also demonstrated knowledge of when and why different species use the River during part of their life cycle.

Students then put on their "field biologist" hats and used minnow traps to collect fish from different habitat types within the River. Students were given field notebooks and asked to record information on the number of each species captured and the size of individual specimens. The importance of accurate data recording was emphasized, since each of the four groups was to contribute to the experiment. The fisheries experiment was only part of the fun, as students were rotated between a variety of activities that included water quality and macroinvertebrate stations. The idea behind the event was to provide a broad overview of the connections between the biotic and abiotic components of the local ecosystem.

This outreach initiative was hosted by our neighboring federal partner, the National Oceanic and Atmospheric Administration's (NOAA) Thunder Bay National Marine Sanctuary (TBNMS). The Alpena FWCO has a documented history of success in partnering with the TBNMS outreach staff and this most recent event was an excellent example of how we can leverage our combined resources to help educate the next generation of citizen stewards.

# EDNA Trailer Shines in First Field Season

By Chris Olds

Despite the uncertainty associated with implementing the Alpena Fish and Wildlife Conservation Office's custom-built "mobile lab" trailer into the U.S. Fish and Wildlife Service's eDNA Early Detection Program, I 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 traveled over 6,600 miles, providing assistance to four Midwest Region U.S. Fish and Wildlife Conservation Offices, and one partner agency. Approximately 2,600 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 to 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 to 200, versus the 75 to 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 Service offices based around the Great Lakes, but also offices located around rivers 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 Midwest Region has purchased two identical trailers to be used in future field seasons. As we plan for the 2014 field season, I am confident these additional trailers will have as much success as the Alpena Office's trailer did in its first field season.

*Top: The eDNA trailer set up on one of the many rivers sampled in 2013. Photo credit: USFWS. Bottom: Staff utilizing the eDNA trailer to process water samples for Eurasian ruffe with the University of Notre Dame and Central Michigan University. Photo credits: USFWS.*

Learn more about the science of eDNA!
http://youtu.be/xXwply6ahQ8

# Let Bivalves Be Bivalves: Biologists Attend Freshwater Mussel Workshop

By Joseph Gerbyshak

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 learned basic 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 due 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 Munro Lake. Two mussel species dominated this lake, common floater and fat mucket.

It is important for fish biologists to have a background in mussel identification and biology as more dams and culverts are removed or modified 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 U.S. Fish and Wildlife Service.

*Top: Participants work on their mussel identification skills at the Freshwater Mussel Workshop. Middle: Course instructors look for mussels in Betsie Creek. Bottom: Two common mussel species, common floater and fat mucket, found in Munro Lake. Photo credits: USFWS.*

# Partner for Fish and Wildlife Program Funds Fish Habitat Improvement in the Black River

By Heather Rawlings

The Black River in Northern Michigan is renowned throughout the state as an excellent brook trout fishery. As with many Michigan rivers, logging and development (primarily road building) have altered the dimension, pattern, and profile of several reaches of the Black River. These reaches of the Black River are devoid of large woody debris (LWD) and carry excessive sediment loads due to human activity. The Upper Black River Council, a non-profit non-governmental organization (NGO), worked in conjunction with numerous partners (including the Montmorency Conservation District, Michigan Department of Natural Resources, U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program, and private landowners) to place large woody debris in the Black River, which provides improved fishery (specifically brook trout) habitat without negatively altering the river.

Strategic placement of large woody debris structures is designed to flush sediment downstream, which will uncover riffle and pool habitat previously clogged by large amounts of sediment. Sediment is captured in sand traps located downstream of the sites and maintained by the Michigan Department of Natural Resources (MDNR) and Canada Creek Ranch. Funding from the Partners for Fish and Wildlife Program (PFW) provided for labor (work crew) and a minimal amount of materials.

The large woody debris benefits brook trout and coldwater aquatic habitat in the Black River for approximately 5 river-miles. All structures placed were subject to approval (both design and placement site) by the Michigan Department of Environmental Quality (MDEQ) permit process and the PFW coordinator. A MDEQ permit was received for the 2013 field work season. The 2013 work crew completed fabrication and placement of 156 large woody debris structures in the main branch of the Black River, Canada Creek (within Canada Creek Ranch), and the East Branch of the Black River (within Black River Ranch). Additionally they removed three inactive beaver dams and cleared fallen trees in navigable parts of the river (allowing for wading and recreational boat traffic) in Otsego and Montmorency Counties where a late winter storm downed many trees into the river. The crew worked from late May through the end of August 2013.

*Top: Before the addition of large woody debris this section of the river was sandy and shallow with little structure for fish. Bottom: After the addition of large woody debris the river gained diversity (became deeper and narrower) and now has some structure for fish to use for shelter. Photo credits: Montmorency County Conservation District.*

This work has been on-going in the watershed since 2001 and has proven to be beneficial to the brook trout populations with increases in number and size of brook trout found in restored areas. These fishery improvements have been documented through multiple-year MDNR electrofishing surveys.

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

By Adam Kowalski

In October, staff from the Alpena Fish and Wildlife Conservation Office (Alpena) conducted an adult lake trout survey at two reefs (Spectacle and Raynolds) in 1836 Treaty waters of northern Lake Huron. Raynolds Reef (Raynolds) has been stocked annually with approximately 48,000 yearling lake trout since 1973. By contrast, nearby Spectacle Reef (Spectacle) has a very limited stocking history in recent years: two unmarked experimental fry-stocking events in 1999, and one yearling stocking event in 2004 (127,000 fish). The close proximity of the two sites and divergent stocking history offered a good opportunity to evaluate 1) the effectiveness of the stocking efforts at Raynolds and 2) hatchery and wild fish spawning dynamics. Fishery-independent abundance and biological data on adult lake trout was also collected for use in statistical-catch-at-age population models that are updated annually.

During the survey, staff from Alpena FWCO set 5 graded-mesh (4.5-6" mesh) gill nets at randomly selected sites on the two reefs. Three nets were set on Raynolds and two nets on Spectacle. Biological data were collected from all lake trout encountered, including length, weight, sex and maturity, visceral fat index, lamprey wounding, aging structures, and notation of fin clips. Additionally, coded-wire tags (CWT) were recovered from fish possessing a CWT. Tissue samples were taken from wild fish for DNA analysis. Similar biological data were collected from non-target species.

Ninety-seven adult lake trout were captured at Raynolds Reef, 16 of which were of wild origin (based on the absence of fin clips) 15 or the 97 were females.

*Adult lake trout were brought on board the R/V Artedi during Alpena's fall spawner survey. Photo credit: Joseph Gerbyshak, USFWS.*

Catch-per-unit effort (CPE) of adult lake trout was 81 fish per 1000 ft. of net and percent wild was 16. Fifty-one adult lake trout were captured at Spectacle Reef, 22 of which were of wild origin 10 of the 51 were females. Catch-per unit effort of adult lake trout was 64 fish per 1000 ft. of net and percent wild was 43. Survey numbers (see table below) indicate a larger number of wild adult lake trout are using Spectacle Reef compared to Raynolds. Visual observations suggest Spectacle Reef may have better spawning habitat, resulting in higher egg survival that would account for the larger wild component at the site. Densities of adult lake trout at these reefs are comparable to those at off- shore reefs (Six Fathom and Yankee), suggesting some level of rehabilitation at these sites.

**Catch summary for the week of October 28, 2013**
**400' of 4.5-6.0" nylon gill-net set at each site**

| | | # of lake trout | # wild | # of females | # female_ripe/spent | % wild |
|---|---|---|---|---|---|---|
| **Raynolds** | | | | | | |
| | Site 1 | 16 | 0 | 6 | | 0 |
| | Site 2 | 49 | 9 | 3 | 0 | 0.183673 |
| | Site 3 | 32 | 7 | 6 | 1 | 0.21875 |
| | *overall* | *97* | *16* | *15* | *1* | *0.164948* |
| **Spectacle** | | | | | | |
| | Site 1 | 33 | 16 | 4 | 0 | 0.484848 |
| | Site 3 | 18 | 6 | 6 | 0 | 0.333333 |
| | *overall* | *51* | *22* | *10* | *0* | *0.431373* |

*Results for the 2013 lake trout fall spawner survey. Image credit: Steve Lenart, USFWS.*

# Keeping It Clean: The Challenge of Maintaining Gear in a Disinfected State in an Environment Full of Contamination

By Joseph Gerbyshak

Preventing the spread of pathogens, bacteria and invasive species is an essential element in maintaining natural, healthy ecosystems. Inhibiting unwanted organism transfer between watersheds is a crucial task for anyone venturing into aquatic systems; however, it is especially important for staff from Alpena Fish and Wildlife Conservation Office (FWCO) considering the vast area they work, which stretches from the St. Marys River to western Lake Erie.

After disinfecting gear, maintaining gear in a disinfected state is not as simple as it may seem. Alpena FWCO has two storage areas, a large garage mainly used for housing boats and a net repair room where nets and trawls are stored. Both of these areas are considered contaminated because gear used in various watersheds is periodically transferred in and out, creating the possibility for contamination to occur. Before using gear in a different watershed, disinfection must occur immediately prior to leaving the field office because there is not an area free of contamination to store it. This can be a laborsome and time consuming process, especially when numerous gear types are in need of disinfection and a long day in the field is scheduled.

In order to house disinfected gear in a contamination free area, a storage shed was purchased to serve as a clean environment. The 10x14ft storage shed was placed next to Alpena FWCO's current storage facilities and alleviates the need for disinfecting trawls, gillnets and trap nets immediately prior to departure into the field. Having various types of gear disinfected and ready to be mobilized is beneficial if field work unexpectedly arises, such as assisting partners or in a rapid response situation.