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Fish Lines

Projects Big and Small to Benefit Monarch Butterflies

Lake Sturgeon Produced for Missouri DOC

Endangered Bat Research

Monitoring for New Aquatic Invasive Species

Motorboat Operator Certification Course

Conserving America's Fisheries

U.S. Fish & Wildlife Service

Fisheries, Midwest Region

Conserving America's Fisheries

Search

Fish Lines

Oct 8, 2015

In this Issue

Projects Big & Small to Benefit Monarchs

Each fall, millions of monarch butterflies migrate from the United States and Canada to overwintering sites in Mexico...Read More

Projects Big and Small to Benefit Monarch Butterflies

Lake Sturgeon Produced for Missouri DOC

Endangered Bat Research

Monitoring for New Aquatic Invasive Species

Motorboat Operator Certification Course

Field Focus

Genoa National Fish Hatchery

This summer, Genoa National Fish Hatchery became the first federal fish hatchery to house and propagate a federally endangered insect, the Hine's...Read More

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Archive

2015 2014 2013 2012
2011 2010 2009

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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.

Ashland FWCO

Implementing Projects Big and Small to Benefit Monarch Butterflies in Northern Wisconsin

BY TED KOEHLER, ASHLAND FWCO

A Monarch butterfly and bumble bee gather nectar from a milkweed plant in the USFWS, USNPS, USGS office complex rain garden. Credit: Ted Koehler, USFWS

Each fall, millions of monarch butterflies migrate from the United States and Canada to overwintering sites in Mexico where they wait until conditions favor a return flight in the spring. Due to a loss of habitat, the monarch butterfly population has been declining. The Ashland Fish and Wildlife Conservation Office (FWCO) has been doing its part this summer to help with monarch habitat and education. Multiple small and large projects are currently taking place to benefit monarch butterflies and other pollinators. On the habitat restoration front, we have been involved in everything from small scale rain gardens at our office to landscape level initiatives in partnership with the U.S. Forest Service (USFS). We have also helped educate many kids and adults through school monarch tagging events and educational habitat installation at the Northern Great Lakes Visitor Center.

When our building owner wanted to install rain gardens to catch runoff from parking areas, he asked staff from the federal agencies housed in our building to help. Ulf Gafvert from the National Park Service and Ted Koehler from the U.S. Fish and Wildlife Service (USFWS) helped through planning and installation assistance. The USFWS also provided additional milkweed seed to plant in the rain gardens to benefit monarchs. Later this summer, monarch butterflies, bumble bees and many other pollinating species used our new rain gardens. When multiplied by potentially millions of other small projects at business, private yards and other locations throughout the country, even small projects can make a difference.

Monarch butterfly flying over milkweed and other flowering plants in the USFWS, USNPS, USGS office complex rain garden. Credit: Ted Koehler, USFWS

Tagged monarch butterfly being released from the Washburn Wisconsin High School Monarch Oasis tagging event. Credit: Ted Koehler, USFWS

The office is involved in many other larger scale projects to benefit pollinators through our Partners for Fish and Wildlife, Coastal, and National Fish Passage Programs. Working with private and public landowners we are incorporating practices to benefit monarchs into our wetland and upland restoration projects. This includes planting common milkweed in upland locations and swamp milkweed in the wetlands. Also, where appropriate, swamp and common milkweed are being planted in disturbed soil on our fish passage projects.

The Ashland FWCO is also involved in a landscape scale

Planting native plants including milkweed to benefit monarch butterflies, migratory birds and other wildlife at the Northern Great Lakes Visitors Center near Ashland, Wisconsin. Credit: Ted Koehler, USFWS

restoration project with the USFS and the USFWS Iron River National Fish Hatchery. Working through the Coastal Program – Great Lakes, the Ashland FWCO is assisting the USFS to enhance 2,000 – 4,000 acres of pine-barrens and pollinator habitat in the Moquah Barrens Habitat Management Area. Funding has been provided from the USFWS to the USFS to hire two native seed collector contractors. The contractors are currently working under the direction of the USFS, Washburn Ranger District Botanist Matt Bushman during the months of September and October 2015. The native seed currently being collected will be planted in the Moquah Barrens in 2015 and 2016 in order to provide additional nectar sources to monarchs and other pollinators.

An additional component to the Moquah Barrens landscape project is working with the USFWS Iron River National Fish Hatchery to restore and enhance approximately 250 acres of barrens and open pollinator habitat on hatchery land. The Iron River National Fish Hatchery property lies directly adjacent to the USFS Moquah Barrens management area. The USFWS is working cooperatively with the Forest Service to fold some of the hatchery's landholdings into their barrens landscape management activities. This action will benefit pollinators as well as many grassland dependent migratory birds by providing a better link to the open farm lands west of the USFS boundary.

On the education front we have been involved in educational plantings at the Northern Great Lakes Visitors Center as well as assisting with a monarch tagging event at the Washburn High School. Plantings at the visitor center will help educate the public on the plight of pollinators and offer on-the-ground examples of solutions every person can take, no matter the size of area they have to work with.

Monarch Oasis at the Washburn High School. Credit: Ted Koehler, USFWS

Monarch butterfly tagged during the Washburn High School tagging event. Credit: Ted Koehler, USFWS

Finally, the Ashland FWCO has recently partnered with the Washburn High School Ecology Club to build on efforts which they have undertaken on their own initiative for the last two years. The Washburn High School Ecology Club under the guidance of their teacher-advisor Vicki Aldritt has planted their own Monarch Oasis. According to Vicki "the inspiration for the garden came from watching the NOVA special Flight of the Butterflies. After I saw this program I thought that I should do something to help. I spoke to the superintendent of our school and asked if a butterfly garden could be installed at the edge of a field near the high school parking lot. The biology teacher and I worked preparing the site, a local native plant nursery, Wildflower Woods, donated all the plants and students planted the garden. Students now monitor larva and tag migrating monarchs". A tagging event was held September 11th in which elementary school students learned about the current plight of the monarch and participated with tagging and releasing many butterflies. Expansion of the school's garden and getting more kids involved will build on both the school's and USFWS's goals concerning monarch butterflies for years to come.

Lake Sturgeon Produced for Missouri Department of Conservation to Restore Upper Mississippi River Population

BY DOUG ALOISI, GENOA NFH

Exciting findings coming from Missouri this spring documented lake sturgeon spawning in Missouri for the first time since they had been nearly extirpated. Populations have been at record low levels since the early part of the last century due to over-fishing, pollution and habitat destruction. This year successful spawning was recorded, with resulting fry hatching successfully. Since the 1980's a lake sturgeon restoration and stocking program was carried out by our partners, the Missouri Department of Conservation. The Genoa National Fish Hatchery (NFH) began assisting in Missouri's stocking efforts in 2004 when the lake sturgeon propagation program received funding to increase lake sturgeon restoration efforts. Funding was initiated to increase sturgeon populations throughout the Midwest by building a sturgeon culture building at the Genoa NFH to produce fingerlings for targeted restoration efforts where sturgeon have been extirpated across their historic range. Through these efforts lake sturgeon fingerlings have been provided annually to support restoration efforts in the Mississippi River and lower Missouri Rivers in Missouri since 2004.

Lake sturgeon fingerlings ready to depart. Credit: USFWS

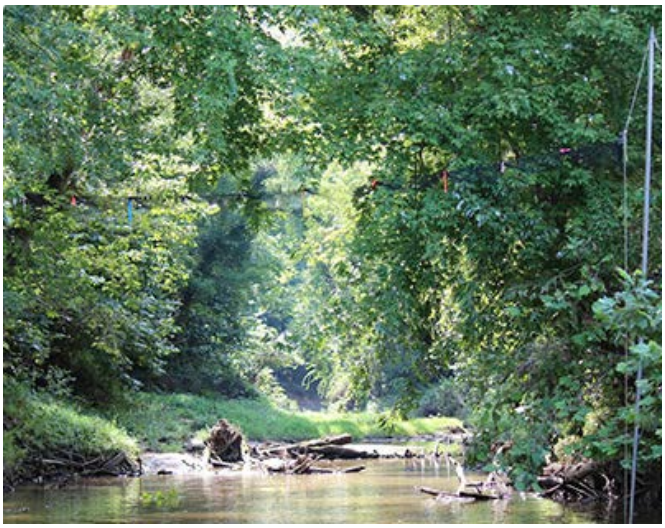
Adult lake sturgeon gathering to spawn. Credit: USFWS

Lake sturgeon have a unique life history, which includes a very long life span sometimes reaching over 100 years, and a long period of time before they reach reproductive age. Most females are over 18-25 years before spawning for the first time. Although fingerlings stocked in 2004 have not yet entered reproductive age, due to the high survival rate of stocking fall fingerlings the confidence of these fish to make a strong contributing year class of spawning age fish is high. This past week trucks from the Missouri Department of Conservation arrived at Genoa NFH to pick up this year's production of 13,000 fingerlings to stock in tributaries of the Mississippi River. They were placed in the tributaries in hopes that the fish will migrate down to the big river to feed and grow and return to the tributaries to spawn and use as nursery areas for the small fry and fingerlings. Cooperative restoration efforts such as these that include habitat conservation and improved water quality are necessary to ensure that these unique fish will last another century as part of Missouri's, and subsequently our nation's native fauna.

Crab Orchard National Wildlife Refuge
Endangered Bat Research

BY KJETIL HENDERSON, CARTERVILLE FWCO

Bats are fascinating creatures. There are 1,240 bat species worldwide, representing approximately 20% of all known mammal species. Bats are the only mammals capable of sustained flight. While there are some very notable exceptions, they have a wingspan of approximately 10 inches and most weigh less than an ounce. Typically, bats mate in the fall and females produce (via live-bearing) a single pup the next spring. Most bat species reach maturity in their first year, and live approximately five to ten years.



Mist nets were hung each night near overhanging canopy. Credit: Matt Mangan, USFWS

One bat species native to the eastern United States, the Indiana bat, was listed as federally endangered in 1967. Several major issues have led to the decline of this species. Clearcutting summer bat roosting and foraging habitat has contributed to its' decline. Pesticides used for insect control have reduced forage availability in some localities. Also, Indiana bats hibernate in caves, and are extremely dependent on very specific caves for winter survival. When humans develop or disturb these caves, the winter habitats for thousands of bats may be lost. Identified in 2006, white nose syndrome is considered another threat to Indiana bat conservation. To protect this species, federal personnel are working to identify and preserve critical habitats for the Indiana bat. These projects are conducted mainly on public lands, including National Wildlife Refuges and U.S. Forest Service property.

Indiana bats typically spend summer days hiding inside the loose bark of dead trees. This species has been documented to roost in a number of tree species, including: shagbark hickory, elm, beech, birch, oak, maple, ash, sassafras, sycamore, pine, aspen, cottonwood, locust, and hemlock. Like most other bat species, this species leaves the roost at night to forage on flying insects in upland and riparian habitat. This species eats up to half their body weight in insects every night.

Male Indiana bat captured at Crab Orchard National Wildlife Refuge. Credit: Megan B. York-Harris, USFWS

In order to address some bat-related questions here in southern Illinois, federal biologists conducted a telemetry project last month to learn about bat movement and habitat use in Crab Orchard National Wildlife Refuge (NWR). Relatively little is known about the summer roosting locations of Indiana bats, and habitat use information will determine future habitat restoration projects in the Crab Orchard NWR. Each night, mist nets were set directly below the canopy to catch bats. After capture, epoxy was used to attach a small transmitter. These transmitters allowed biologists to track the tagged mammals. The majority of the 28 bats caught during this brief project were captured over a single creek. Six bat species were caught including; Indiana bats, Eastern red bats, Big Brown bats, Eastern Pipistrelles, Evening Bat, and Little Brown Bat. Some roosting locations were also identified.

This project determined that Crab Orchard NWR provides habitat for at least six bat species. Future sampling may identify other bat species that use the refuge. The telemetry work allowed researchers to identify species-specific roosts. This information will enable personnel to protect existing habitat, and manage for more roosting habitat in the refuge. Ultimately, this project will lead to better habitat management for an endangered species known to be present at the refuge.

Monitoring for New Aquatic Invasive Species in Lake Superior

BY JOSHUA SCHLOESSER, ASHLAND FWCO

Fish biologists had to sort through this fyke net catch to determine if any non-native species were hiding among the abundant emerald shiners. Credit: USFWS

The summer of 2015 was busy for the Ashland Fish and Wildlife Conservation Office (FWCO) conducting early detection monitoring for new aquatic invasive species (AIS) in Lake Superior, which has been occurring since 2006 with partner agencies. The goal of this monitoring is to detect a new non-native species early in its arrival, so that a rapid response action(s) can be taken to prevent the species from establishing and becoming invasive. This monitoring is part of the larger U.S. Fish and Wildlife Service Great Lakes comprehensive early detection and monitoring program, and also supports goals and objectives in the Great Lakes Water Quality Agreement (Annex 6) and the Lake Superior Aquatic Invasive Species Complete Prevention Plan. Put into perspective, the search for a very rare species (probably a handful of individual organisms) in the largest freshwater lake in the world is truly like looking for a needle in a haystack. Except in our case, we are not even sure if there is a needle in the haystack!

To increase the probability of detecting a new non-native species, sampling efforts were focused at four key locations; St. Louis River in Duluth, Minnesota and Superior, Wisconsin (WI), Upper St. Mary's River in Sault Ste. Marie Michigan and Ontario (ON), Chequamegon Bay, Wisconsin, and Thunder Bay, ON. These embayment areas were designated for sampling because they exhibit factors such as prevalence of commercial shipping, recreational boating traffic, urbanization, and hospitable habitats, which all increase the risk of non-native species establishment.

The target organisms were fish, mollusks (e.g., snails and clams), and amphipods (a small shrimp-like invertebrate), but other aquatic invertebrates were also collected. With each of these groups of creatures, we targeted multiple habitat types and even different life stages. For example, adult and juvenile fish surveys were done with fyke nets, electrofishing, and trawling, but larval fish sampling was done with a benthic sled, night time neuston net on the water's surface, and a tucker trawl pulled near the bottom in deep water. In addition to fish, aquatic invertebrates were collected in shallow water using sweep nets and in deep water with a bottom grab (known as a ponar grab). Colonization samplers (Hester Dendy) were also placed near boat docks in marinas in the St. Louis River and Bayfield peninsula, WI near Chequamegon Bay to monitor for snails and clams that may have attached to boat hulls.

Now that all the samples have been collected, the task of identifying the organisms begins. Over the winter months, Ashland FWCO will work with professional taxonomists and the US Environmental Protection Agency to identify all the organisms to species using a combination of taxonomic keys and DNA analysis. So at this point right now, we can't really answer the popular question of "did you find anything new?" Although, one interesting catch was an adult white bass in the St. Louis River when the last confirmed report was in 1988 from 12 individuals all three to four inches in length. This demonstrates the ability of our AIS surveys to detect rare species and potentially new non-native species, should any arrive.

Motorboat Operator Certification Course Prepares Students for Handling Boats and Emergencies on the Open-Water

BY ADAM KOWALSKI, ALPENA FWCOO

Motorboat Operator Certification Course (MOCC) instructors Adam Kowalski (Alpena FWCO), Dave Wedan (Regional Watercraft Safety Coordinator, Lacrosse FWCO), Steve Witt (National Park Service (NPS)), Thomas Richardson (NPS), Mark McCool (NPS), and David Cooper (NPS) put on a three day Open-Water Module in Bayfield, Wisconsin the week of September 14, 2015. The Open-Water Module is designed to give Department of Interior employees additional safety training, over and above the standard MOCC training, for operating larger vessels on the open waters of the Great Lakes and large inland waters.

Open Water Students stay together and await rescue during their abandon ship drill during a recent Open Water Course held in Bayfield, WI. Credit: National Park Service

Students were provided the tools, resources, and knowledge required to safely operate a vessel on a large water body. Focusing on the “Know Before You Go” risk assessment concept, the course stresses checking weather conditions and where to find local weather, marine information, and updates while planning and conducting any mission. Crew supervisors and operators (crew leader) must assess and prepare the crew they may be working with, confirming that crews’ abilities, training, experience, and fitness level is equal to the task to be completed, while being prepared for all environmental and mission evolution challenges and situations. The course also offers experience in navigation, using a chart and charting tools with and without the aid of electronics, and how to operate and navigate using GPS and radar units. Students get the chance to operate larger-sized vessels on one of the Great Lakes, in open-seas, and possibly out of sight of land - conditions not usually seen on smaller inland lakes and rivers. Vessel maintenance addresses minor breakdowns at sea, such as fouled spark plugs, how to replace them, and how to troubleshoot and deal with other mechanical issues. The students also experience “hands-on” experience in what to do in case of an emergency, such as a crew member overboard, vessel sinking, change in sea or weather conditions, in-water survival, and rescues.

Open Water students Darren and Dusty plot their next course on a chart during a recent Open Water Course held in Bayfield, WI. Credit: National Park Service

The Great Lakes Open-Water Module mandates the need to always file a float plan, how to fill out a float plan, who should receive the float plan, and how to use the risk assessment Green-Amber-Red (GAR) model. The GAR model is a Coast Guard designed process used to calculate the risk of each mission from planning to completion. During this course an abandon ship drill was also completed, in partnership with the NPS search and rescue team. Students were informed that their vessel was sinking, and they were required to don their immersion or dry suits in preparation for abandoning the vessel. After radioing a mayday call, the students entered the water and awaited rescue. While in the water, the students accounted for everyone, checked for injuries, stayed together, and continue to check on the condition of each person at regular intervals. Instructors were with the students at all times to facilitate proper communication and ensure the safety of everyone. A NPS vessel staffed with three instructors was within sight and communication for the duration of the drill.

All students successfully completed the course and reported that they felt the Open Water Module was a great addition to the regular MOCC because it prepared them for open water boat handling and emergency situations.

Genoa National Fish Hatchery

Hines Emerald Dragonfly Recovery Program

BY ANGELA BARAN, GENOA NFH

Hines Emerald Dragonfly larva in the cage. Credit: USFWS

This summer, Genoa National Fish Hatchery (NFH) became the first federal fish hatchery to house and propagate a federally endangered insect, the Hine's Emerald Dragonfly (HED). HED larvae arrived on station at Genoa NFH on June 2, 2015. This marked the beginning of a collaborative effort, funded through the Cooperative Recovery Initiative, between Genoa NFH, U.S. Fish and Wildlife Service Chicago Ecological Services Office, Upper Mississippi National Wildlife and Fish Refuge and University of South Dakota (USD). USD has been working with the dragonfly for several years and has studied their growth, tracked their genetics, and has developed the first captive rearing techniques for the species.

Genoa NFH began employing these rearing techniques and working with USD to adapt them to a larger scale production and to our site specific variables. It was decided that we would begin work developing culture methods for this new species on-station using larvae from the more stable HED population along the Wisconsin River. Once the methods are and tested and proven, Genoa NFH will employ the best of those methods to begin raising the more imperiled population from Chicago, Illinois.

Genoa NFH staff worked with USD to develop an initial rearing plan for the hatchery. In accordance with the plan, HED larvae were placed in cages and have been checked each week to ensure that the cages were free of debris and remained undamaged. Then the larvae were spot checked, by opening one cage per grouping. Each month, the cages were removed from the water and the larvae placed in a holding container overnight to allow them to empty of food. The next day the larvae were weighed and measured before being returned to the water. To determine the best conditions for the larvae, cages were placed in both deep and shallow water at two locations, a wetland area and a hatchery pond.

Pathways Student Liz Hackner checking cages. Credit: USFWS

The first cage assessment was completed on June 30th, with staff from USD demonstrating proper handling techniques for the larvae, ensuring correct identification of the larvae and evaluating the food available in the cages. This first assessment exhibited news of two extremes; the great news was excellent growth of the larvae in the hatchery pond system, some growing 400% in just one month! At the wetland site the news was not as good. During the last week before the cage check, a large number of the larvae were lost. While it was initially thought the wetland site would be the most ideal location for the larvae, heavy rains led to prolonged flooding conditions and deeper than normal water levels with temperature and dissolved oxygen levels that could not be controlled as well as at the hatchery pond location. Temperatures in the pond ranged between 70 - 87 degrees Fahrenheit (F) throughout the month, with daily temperatures only varying by 3 - 4 degrees F. Temperatures in the wetland however, ranged between 65 - 92 degrees F with daily temperatures varying by 10 – 15 degrees F. The final check at some of the wetland sites, prior the first assessment, revealed low dissolved oxygen levels, with some levels as low as 1.2 milligrams per liter. After the first assessment, it was decided to transfer the remaining larvae from the wetland to the pond location, shelving the wetland as a possible rearing location.

USD has completed studies showing larvae can be reared together without cannibalism as long as they are approximately the same size, which was the logic behind attempting to raise two newly hatched fry together in one cage. During the assessment, it was found that both larvae survived in only a few cages, most cages only had one surviving larva. The theory is that the growth of the smallest larvae was so great in the first month; one grew faster than the other and consumed the other. After these adjustments to the rearing practices at the hatchery, the larvae continue to grow well and survival is on par or slightly better than

the field locations. The larvae will remain in the pond until late fall, when a portion of them will be brought into a newly constructed trailer, where the colder winter pond water will allow them to go dormant for the winter. For the 2016 growing season, modifications will be made to the cages and newly hatched larvae will be kept individually in the cages. Genoa NFH is also looking forward to receiving their first batch of HED eggs to hatch and grow on station to be placed in next summer's cages.

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.

High Water Surprises on the Missouri River

BY PATRICIA HERMAN, COLUMBIA FWCO

One never knows what might be found in the Missouri River after a high water event. Missouri River flood waters bring with them food, nutrients, sediment and trash. Hidden in the murky waters are treasures just waiting to be discovered – even new species! Okay, well not new species but new to us species. In 2012, after record water releases from Gavin's Point Dam, Columbia FWCO crews captured some unusual species in the lower 250 miles of the Missouri River. A Rainbow Trout and a Muskellunge represented new species records for our segments of the river as part of Pallid Sturgeon Population and Monitoring in 2012. With river levels at action stage or above from May through July, crews wondered what might be discovered this year.

One such treasure was discovered in a mini-fyke net near river mile 219. Sarah Ettinger-Dietzel was removing small fish from the net and noticed one that looked different from the other silvery minnows.
" A Sauger?...no, not a Sauger. What is this thing?" said Sarah as she showed the fish to Cal Yonce. "Looks like a stickleback," Cal said casually." I responded incredulously without looking up from the field computer. "Nope, we don't have sticklebacks here…"
Then I looked up – and sure enough. The tiny, spiny fish was a stickleback measuring in at just under and inch; a Brook Stickleback, to be exact. Cal graciously accepted my humble apology for being doubtful and hasty to judge.

The native range for Brook Stickleback includes sections of the upper Missouri River and large tributaries, like the Niobrara River, in the middle Missouri River. Though small bodied, sticklebacks are recognized as aggressive; known to eat eggs and larvae of other native species. It is unclear if this diminutive predator drifted hundreds of miles downstream or if spawning occurred locally. It will be interesting to see if more are captured in future. Reports have been made of sticklebacks being introduced outside of their native ranges, mostly incidences of bait bucket introductions. Given the location of this capture and little likelihood that small bait fish were used recreationally, there is low probability that our Brook Stickleback was an accidental introduction. Though literature has referred to the Brook Stickleback as "pugnacious," it was exciting to catch one in our part of the Missouri River and to add a new species record to our database.

As a fun post script, we also catch some weird trash in our mini-fyke nets. The day before catching the Brook Stickleback, we "caught" G.I. Joe®'s backside in one of our nets. Curiously, in researching the registered trademark, websites dedicated to "The Many Butts of G.I. Joe." were discovered (used for determining a manufacturing date for the doll). Ah, curiosities of the Big Muddy…the treasure hunt never gets old.

Green Bay FWCO Technicians Lead Aging Workshop at Summer Lake Michigan Management Meeting

BY PARKER KILSDONK, GREEN BAY FWCO

During the summer of 2015, staff at the Green Bay Fish and Wildlife Conservation Office (FWCO) replicated a study focusing on the greatest keystone predator to ever wander the depths of the Great Lakes, the lake trout. The original study, conducted by the Michigan Department of Natural Resources (MDNR), examined the accuracy of aging structures of Lake Huron lake trout and the staff of the Green Bay FWCO wanted to test the validity of the results on Lake Michigan lake trout. Each year Lake Michigan management staff interpret ages on thousands of lake trout otoliths, or ear bones, by counting "rings" or annuli that are laid down annually, analogous to rings on a tree, but the annuli are much harder to interpret . Subjectivity in annuli interpretation and the lethality of this aging method have led management agencies to explore reliable alternative to otolith aging. Thoughts turned to the maxilla, the lake trout's upper jaw bone, as a possible alternative?

The objectives of the replicated study were to compare maxillae and otoliths as reliable aging structures for lake trout and present the findings at the summer session of the Lake Michigan technical committee (LMTC). The original study of this type conducted by the MDNR used 89 lake trout from Lake Huron. For the replication study, aging structures from Illinois, Indiana, and Wisconsin angler caught Lake Michigan lake trout were collected by staff working with the mass marking program at the Green Bay FWCO. All 45 lake trout used in the replicated study were stocked fish and ages were known at recovery.

Thin cross-sections of both the maxillae and otoliths were obtained using a low speed jeweler's saw. Thin-sections were then mounted on glass slides and illuminated under a microscope to bring out the annuli and make them easier to read. Images of the otoliths obtained during microscopy were cataloged using image analysis software. A macro application within the software created microscopy images under known magnification and used a system calibration created by the user to accurately measure the distance of each annuli from the center of the structure to aid in age estimation.

Three technicians took on the task of preparing and independently aging the 90 structures (two from each fish) collected for the study. Once completed, the technicians compared their age estimates of each structure with the known age of each fish. The goal of this comparison is to calculate the average percent error (APE) for each ager thus evaluating the effectiveness and reliability of the maxillae and otoliths, with a lower APE representing more accurate age estimates. Another consideration is that random error is more acceptable than systematic error which would indicate a tendency to either over age or under age. Of the 45 lake trout examined, 32 were between four and eight years old. Thirteen fish represented ages nine to 23 and this distribution created strong definition within the study for younger fish and lack thereof for older. The first ager's results showed a higher accuracy with otoliths whereas; the other two agers had a much more negligible outcome but were still slightly more accurate aging otoliths as seen in the calculated accuracy table. The staff concluded that maxillae provide more consistent visualizations leading to lower standard deviations when compared to less than amiable otoliths but are vulnerable to under aging. With the information generated from the study there was not enough evidence to justify the conversion to the use maxillae rather than otoliths, which are the more commonly used structure in fish aging. Results were presented at the LMTC committee meeting in July. Technicians followed up the presentation with a hands-on workshop explaining the process of preparing and analyzing otoliths and maxillae and techniques to coax better definition out of aging structures. The presentation was a success that generated some great conversation about aging techniques between offices.

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.

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Area of Responsibility (IL, IN, MI, WI)

Iron River National Fish Hatchery
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Jordan River National Fish Hatchery
6623 Turner Road
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LaCrosse Fish & Wildlife Conservation Office
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Marquette Biological Station
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