# Genoa National Fish Hatchery News and Notes

October/November 2015

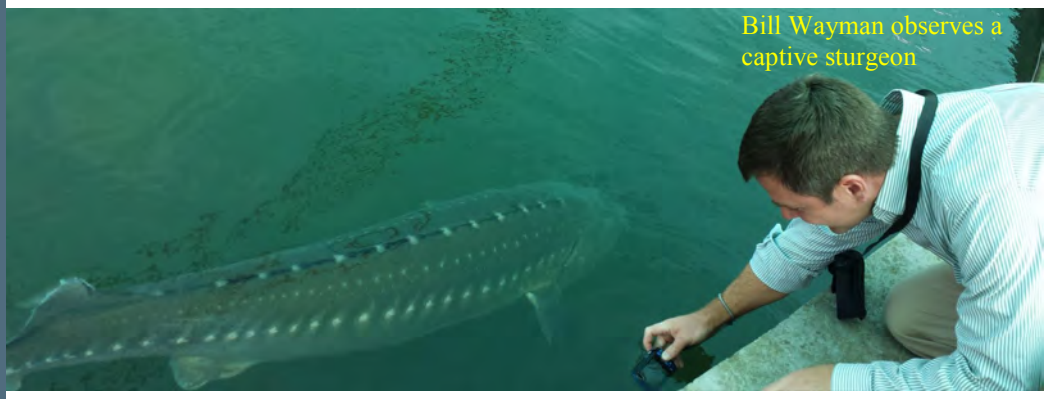
## About Genoa NFH

**Genoa NFH was established over 80 years ago by the Upper Mississippi River Fish and Wildlife Act. The mission of the hatchery has changed from providing sport fish for area waters to a conservation hatchery concerned with the recovery of endangered aquatic species.**

**The hatchery is open for tours during business hours. For large groups, please call for an appointment. You can reach the hatchery at 608-689-2605 from 7:30 am to 3:30 pm. You can also find us online at: fws.gov/midwest/genoa**

**And on Facebook at: facebook.com/GenoaNFH**

## USFWS Sends Sturgeon delegation to China



Bill Wayman observes a captive sturgeon

On November 10th a delegation of 6 fish biologists from across the US traveled to China to take part in an information exchange between the two countries concerning sturgeon conservation and propagation. The delegation was comprised of biologists with varying backgrounds, yet all working with sturgeon at their stations. From the Midwest Region 3, Beka McCann from the La Crosse Fish Health Center, Dave Hendrix from Neosho National Fish Hatchery and Angela Baran from Genoa National Fish Hatchery were selected for the group. China has eight species of sturgeon, three of which are now listed species. The Chinese sturgeon was listed as a protected species in 1994 and the country has been working to prevent extinction and restore it through habitat conservation, propagation and stocking, fishing regulations and commercial production to eliminate the need for harvest. There are less than 1,000 Chinese sturgeon left due to the same stressors experienced in US sturgeon populations; loss of habitat due to pollution or construction of dams and over fishing (or getting caught as bycatch in nets), recovery of the species is slow due to the life history of sturgeon: mature after 15 -20 years and only spawning every 3-5 years.

The Chinese sturgeon spawns only in the Yangtze River and has lost a large portion of their spawning route due to the construction of 2 dams as well as the loss of their staging grounds in the Yangtze River Estuary. The delegation trip followed the route of the sturgeon along the Yangtze River, visiting hatcheries, nature reserves and two dams as well as the commercial production facilities of Kaluga Queen. The Ministry of Agriculture has set up two critical Nature Reserves for the Chinese sturgeon, the Yangtze River Estuary Nature Reserve and the Hubei Sturgeon Reserve. The estuary serves as critical habitat used by fin-


Sturgeon in net pens

**Genoa National Fish Hatchery's** mission is to recover, restore, maintain and enhance fish and aquatic resources on a basin-wide and national level by producing over 35 aquatic species of varying life stages, participating in active conservation efforts with our partners, and becoming a positive force in the community by educating future generations on the benefits of conservation stewardship

gerling lake sturgeon as they migrate out to sea and for the spawning adults who may stage there for 1-2 years before travelling up the river to the spawning site. The adults will also return to the estuary to feed, regain their strength and re-acclimate to saltwater after spawning before they go back out to sea. Construction of the Gezhouba Dam on the Yangtze River near Yichang shortened the spawning route of the Chinese sturgeon by eliminating any possible passage upriver. The Hubei Sturgeon Reserve was established in 1996 to preserve the critical spawning habitat now used by the sturgeon just below the dam. There are conflicts between protection of the species and development of the city. Protection of the site is now forcing developers to design and build in more sturgeon friendly ways, such as no construction structures in the river, so bridges must span the entire width of the river and while work is being done, lights and noise must not disturb the sturgeon. In addition to protection efforts, a hatchery in Jingzhou City was established in 2012 to propagate juvenile sturgeon for stocking efforts. To reduce the impact on native species and still support the demand for caviar and sturgeon, the Ministry has allowed commercial aquaculture to obtain gametes from wild fish several years ago to begin a brood line for captive rearing. The company is now using the second captive generation for production, no wild fish have been used in over 15 years. In exchange, the company provides juvenile fish for several other aquaculture companies and releases fish back into the wild for restoration efforts as well. The Kaluga Queen company uses both intensive (hatchery buildings) and extensive (net pens in lakes) to raise sturgeon for caviar, meat and leather. To minimize the possible environmental impact from the net pen culture in Qiandao Lake, the company employs a dual pen system and has created a cleaning system. The sturgeon are reared in the top pen with another species in a secondary pen to capture any waste feed. They have devised a collection system under the pens for the fish waste that can be siphoned out, filtered and then the water returned to the lake.


A commercial sturgeon hatchery

This trip highlighted both the similarities and differences between sturgeon restoration in the two countries, allowing both sides to share information and obtain possible new methods for culture or conservation efforts. Both countries hope to preserve the native populations and to educate the public to create a sense of stewardship for the resources, ensuring future generations continue the fight to preserve these great fish. By: Angela Baran

## Genoa's Isolation Building Home to Lake Trout and Future Coregonid Restoration


Excavation of the foundation begins

As lake sturgeon culture and pond harvest wrap up for the fall, Genoa National Fish Hatchery staff members begin to focus their attention on hatching cold water fish during the winter months. Currently lake trout eggs are beginning to hatch as we wait for new arrivals of coaster brook trout and rainbow trout eggs. Genoa staff member (Jeff Lockington) collected wild lake trout eggs from Cayuga Lake, New York. Genoa collects gametes from approximately 100 pairs of lake trout to maximize genetic contribution for future brood lines. Eggs collected from Cayuga Lake are shipped back to the hatchery for incubation in the current regional isolation facility. As the eggs begin to hatch, an equal representative sample of fry are transferred to culture tanks for grow out. Lake trout are held in the isolation facility until clearing three separate disease inspections by the La Crosse Fish Health Center (USFWS). Once the lake trout clear disease inspection (2 years) they are transferred to Iron River National Fish Hatchery (WI) and Sullivans Creek National Fish Hatchery (MI). These fish will serve as future bloodstock in the national fish hatchery system.

Construction is currently underway for a new addition to the isolation building. In the future this addition will be home to bloater chubs (*Coregonus hoyi)* and other species of coregonids. These fish are an important part of the prey fish community in the Great Lakes and serve an important role in many predator-prey relationships. In an effort to reestablish these species the USFWS has partnered with multiple agencies to create broodstocks to assist in the reintroduction of lake herring and whitefish in the Great Lakes. Bloater chubs have experienced a decline in the Great Lakes due to commercial fishing, habitat degradation and an invasion of non-native species such as invasive plankton, alewife, and zebra and quagga mussels. A top priority with Great Lakes managers has been to recover native species to provide a better balance in food-web structure and function.

The footprint for the new addition will be 30ft. x 30ft. Hatchery biologist will have the ability to recirculate at least 90% of the water. The building will be equipped with an incubation system, 12 circular tanks for fry and 2 rectangular tanks for juvenile and adult fish. Supply water will be fresh well water from the hatchery. In addition, there will be a drum filter, UV treatment system, injectable oxygen, and water temperature control systems for incubation of eggs and larvae and rearing of and quarantining of the new additions residents.

By: Orey Eckes


New lake trout fry in the quarantine building

## Genoa and Partners looking for the needle in a hay-stack of Mussel Conservation

Adult spectaclecase from the St. Croix River

The spectaclecase mussel is one of the Upper Mississippi River Basin's most endangered mussels. The mussel is so endangered, in fact that it was placed on the Federal Endangered Species List in 2012. This was due to its precipitous decline in numbers and its decline over its historic range. The spectaclecase mussel also likes to hold its secrets close to the vest, with no known host aquatic species being found after extensive studies by some of the most highly regarded malacologists around the country. Most mussel species spend a time living off a fish or aquatic animal for a time, in order to complete their life cycle. This is during their larval stage when they are not fully developed enough for exogenous feeding, and must live on the host animal. The larvae attach to the aquatic animals gills or skin, feeding off of the animal's blood and body fluid. Mussel biologists can take advantage of this life stage to further mussel populations by bringing hosts and mussels together in an artificial environment to increase the probability that larval mussels (or glochidia) are transferred successfully to the host. But to do this, they must know which animal successfully "transforms" the mussel species from larval stage to juvenile mussel. Many mussel species have a specific host that will only successfully transform their specific mussel larvae. Of course these studies take resources, time and money to complete. An opportunity to achieve all three of these requirements arose this past year. Nathan Eckert, mussel biologist at Genoa received a prestigious Rachel Carson Science Award from the Fish and Wildlife Service. This came with funding to commit to practicing good science that would further the recipients work. Nathan is matching his award with Science Support Proposal Funding, a cooperative grant process involving solving unmet research needs in cooperation with the Unites States Geological Survey (USGS). This will make both grants go that much further in order to attempt to finally close the door on what host the mussel uses. Once this can be determined, mussel propagation efforts can be initiated in order to ensure that this unique species can be brought back from the brink of extinction. These host fish trials will be completed cooperatively with the USGS's Upper Midwest Environmental Science Center in La Crosse, Wisconsin. The lab also played an important role in furthering endangered mussel conservation with the Fish and Wildlife Service, when the host fish species was discovered for the Winged Mapleleaf Mussel in the early 2000's. We are hoping to build upon this successful partnership again this year in hopes to finally crack the secrets of the spectaclecase mussel. By: Doug Aloisi

An adult and sub-adult spectaclecase found last summer. Local populations are showing recent recruitment, so the host species has to present.

## Monarch Recovery Effort


In response to declining monarch butterfly habitat the Genoa National Fish Hatchery has made it a priority to participate in a Monarch Joint Venture to conserve monarch butterfly habitat along their 3,000 mile migration route. Last fall, staff at Genoa collected hundreds of pods from two different types of milkweed containing thousands of seeds. Those seeds were planted around the hatchery grounds including the native prairie and notable increases in common milkweed and swamp milkweed plants were seen. Throughout this past summer adult monarchs and monarch caterpillars were seen all over the hatchery on the milkweed ensuring that the efforts taken were successful. Milkweed plants are an essential diet for monarch caterpillars and adults feed on the nectar of the flowers. Providing an area rich in milkweed will attract adults continuously to lay their eggs on the plants. This fall staff was at it again collecting even more seed pods than the previous year in hopes of providing even more essential habitat next summer for the migrating monarch butterflies. Genoa has also taken additional steps in monarch conservation in the form of information about monarchs available to the public, milkweed and monarchs in the classroom, as well as including information and trips around the wetland to explain monarch life history and habitat on guided tours. The staff at Genoa is looking forward to informing the public about the importance of monarchs and steps that can be taken to assist in recovery of these butterflies. Information can also be found on the internet for anyone who is interested in the status of monarch butterflies and steps that can be taken assist maintaining butterfly habitat as well as information on flower gardens to help attract them on their migration routes. By: Aaron Von Eschen

## Genoa to Co-host Annual Coolwater Fish Culture Workshop

The Genoa National Fish Hatchery is partnering with USGS Upper Midwest Environmental Science Center (UMESC) of La Crosse to host the annual Coolwater Fish Culture Workshop from January 11-13, 2016. The Iowa Department of Natural Resources (DNR) and Michigan DNR are also assisting with the planning and details of the workshop. This workshop provides a forum for the exchange of information among those actively involved in or interested in the propagation of coolwater fishes. Attendees are invited to present information at the workshop including the work and methods that have been done and tested. This meeting provides an excellent opportunity for fish culturist to share information and ideas to better improve fish culture methods. It also provides an opportunity for fish culturists to trade fish requests so stations can create and maintain partnerships among state and federal partners. For more information including attending the meeting please contact Genoa NFH Assistant Project Leader Angela Baran at 608-689-2605, angela_baran@fws.gov or UMESC Fish Culturist Steve Redman at 608-781-6249, sredman@usgs.gov.

USGS science for a changing world

CONSERVING AMERICA'S fisheries

U.S. FISH & WILDLIFE SERVICE

2016 COOLWATER FISH CULTURE WORKSHOP

## Genoa Partners with University of Wisconsin La Crosse on Dragonfly Research


A Hines Emerald Dragonfly

Genoa National Fish Hatchery continues to partner with the University of Wisconsin La Crosse (UWL) for graduate research. The university is in close proximity to the hatchery making it ideal for students to pursue graduate research while gaining valuable career related job experience. A research opportunity was presented due to recent extensive propagation of the federally Endangered Hines Emerald Dragonfly. The dragonfly is being experimentally reared at the Genoa hatchery through a cooperative effort with the Chicago Endangered Species Field Office, the University of South Dakota, and the Upper Mississippi River Wildlife and Fish Refuge. Because the dragonfly is being cultured in hatchery ponds over the summer months it is essential to research effects of common applied pond chemicals on growth and survival. In addition, research on effects of prophylactic and therapeutic treatments to control fungal growth during overwintering in an onsite rearing trailer. Since the Hines Emerald Dragonfly is listed as endangered the hatchery plans on researching effects of these chemicals on a similar species of dragonfly already inhabiting hatchery ponds. Prompt Elizabeth Hackner, a former volunteer of the hatchery since February of 2014 with over 855 hours of volunteer work, and current pathways student since July 2015. Liz graduates from UWL this December as an undergraduate and will be continuing graduate school at UWL pursuing a Master of Science degree in the aquatic science program. Liz will be working in collaboration with UWL, Genoa National Fish Hatchery and Upper Midwest Environmental Science Center (USGS) on her thesis research. The results of her thesis research will be applied to current propagation methods for the Hines Emerald Dragonfly on station in addition to being submitted for publication. By: Orey Eckes

Liz Hackner joins the staff

## SUPSY trial shows promising results

Initial (T) and final size (B)

This summer we tested a culture unit known as a SUPSY for rearing sub-adult mussels to a size suitable for stocking. SUPSY stands for suspended upwelling system and is made from a pair of 2 gallon buckets nested together with window screen cutouts to allow water flow through the unit. Air flow provided by a blower creates lift that continually circulates water through the system. A total of 8 SUPSY units were placed in the Ice Harbor at Dubuque Iowa this spring in cooperation with the National Mississippi River Museum and Aquarium. The 8 units consisted of 6 sets of fatmucket and 2 sets of Higgins' eye. The mussels were monitored from late May through early October. During that time they were visited on a two week schedule for routine cleaning and data collection. The trial proved to be successful, growth and survival were both good (481% and 95.7% for fatmucket: 210% and 80.6% for Higgins' eye), and more importantly they exceeded growth rates that could be expected using methods available at the hatchery. The Museum and Aquarium was able to incorporate the SUPSY maintenance with their summer outreach programs providing a valuable benefit for both stations. We wish to thank the Museum and Aquarium for their assistance on this project and we look forward to continuing the partnership in the future. By: Nathan Eckert

**Lake Sturgeon Return to New York**

A cooperative effort among the U.S. Fish and Wildlife Service – New York Field Office, Genoa National Fish Hatchery (GNFH), New York State Department of Environmental Conservation, the St. Regis Mohawk Tribe, the New York Power Authority and the U.S. Geological Survey is leading to the restoration of lake sturgeon to the St. Lawrence River and its tributaries. 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.

Mike Weimer stocks sturgeon in a St. Lawrence tributary

Since 2012 GNFH has been assisting with the collection of lake sturgeon eggs from wild caught spawning fish below the New York Power Authority dam in Massena, New York. After fertilization, eggs are transported to Genoa National Fish Hatchery in Genoa, Wisconsin and New York Department of Environmental Conservation's Oneida Hatchery for grow out. This fall GNFH reared 20,330 lake sturgeon for stocking into the St. Lawrence River and its tributaries. In August Genoa staff members stocked 10,000 (4") sturgeon and later in October stocked an additional 10,330 (7.5") lake sturgeon. Since October 2012 GNFH has stocked 45,621 lake sturgeon in New York waterbodies in support of restoration efforts. This multi-agency cooperative effort is leading to successful stocking and management of St. Lawrence River strain lake sturgeon. In addition to these partnerships, supportive funding is provided through the Fish Enhancement, Mitigation and Research Outreach fund, a mitigation funding avenue of the Eisenhower Locks of Massena. By: Orey Eckes

Jeff and Doug stocking lake sturgeon in the St. Lawrence River

## Genoa National Fish Hatchery Lake Sturgeon Production 2015

In fiscal year 2015 partnerships among federal, state, and tribal entities led to the stocking of 126,510 lake sturgeon. Hatchery volunteers and staff coded wire tagged 95,600 of these prior to stocking. Juvenile lake sturgeon reared at Genoa are stocked at lengths of 4-8 inches to many locations from Northern Minnesota to Southern Tennessee and west to South Dakota and east as far as New York. Genoa currently collects eggs in the spring each year from adult lake sturgeon from four river systems (Wisconsin-Yellow River, Rainy River, Wolf River and St. Lawrence River) to rear for fall stocking. Advances in lake sturgeon culture techniques, expansion of larval and juvenile tank rearing space and addition of new partnerships has led to increases in production from previous years. With continued partnerships and the help of volunteers Genoa is hopeful for another successful year in 2016 toward the reestablishment of lake sturgeon populations By: Orey Eck-

Young lake sturgeon

# Upcoming calendar of events

## January 2016

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|
| | | | | | 1 New Years Day | 2 |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 Coolwater Fish Culture Workshop La Crosse, WI | 13 FUM meeting | 14 Outdoor Classrom | 15 | 16 |
| 17 | 18 Martin Luther King Day | 19 | 20 | 21 | 22 | 23 |
| 24 31 | 25 Intoduction to HVAC | 26 Fish Health Short Course, La Crosse Fish Health Center Training, Madison, WI | 27 | 28 | 29 | 30 |