



## U.S. Fish & Wildlife Service

# La Crosse Fish Health Center *Winter 2013 Monthly Highlights*

The La Crosse Fish Health Center (LFHC) is located in Onalaska, Wisconsin and is responsible for fish health management within the Big Rivers/Great Lakes region of the upper Midwest. Primary responsibilities include inspection, certification and diagnostic services for federal hatcheries, providing inspection and laboratory services for state, federal and tribal agencies, surveillance of target pathogens as part of the National Wild Fish Health Survey, providing training in fish health management, monitoring use of drugs and chemicals for national fish hatchery use, researching fish health management and assisting in design and implementation of surveillance, and control of invasive aquatic pathogens in cooperation with state, tribal, federal and non-governmental agencies.

## Aquatic Species Conservation and Management

### **Neosho Inspection Gives Biologists a Break from Wisconsin Winter Weather**

By Beka McCann

Fish biologists Ken Phillips and Beka McCann travelled to Missouri the week after Thanksgiving to complete the fall inspection at the Neosho National Fish



*Ken Phillips taking fish health samples during Neosho National Fish Hatchery's Annual Inspection* USFWS B. McCann

Hatchery. With temperatures hovering in the mid 50's, it was a welcome break from the chilly Wisconsin weather back home. For Beka, this trip marked the first visit to the Neosho facility and she was treated to a grand tour by assistant hatchery manager, Roderick May. First established in 1888, the Neosho National Fish Hatchery is the oldest national hatchery still in operation. In December of 2010, an impressive LEED-certified remodel of the visitors center was completed and the building has since won awards for its use of energy-efficient design and materials.

As part of the inspection, Ken and Beka sampled tissue from six lots of rainbow trout and one lot of pallid sturgeon. These samples were then used in a variety of assays to accomplish our routine health screening for bacterial, viral, and parasitic pathogens. No pathogens were detected.

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# Whitney Genetics Lab eDNA Update

by Emy Monroe

The new eDNA lab construction was completed in November and we officially took occupancy on November 13, 2012. The next few weeks had everyone busy moving pallets of supplies from our garage into our newly finished laboratories. The laboratory supplies were stockpiled all summer as construction progressed, eventually occupying an entire garage bay. The labs are now fully functional and ready for use. The filtering lab has been used to prepare blind samples for executing our transition plan. Additionally, the



*Laboratory supplies stockpiled in the garage USFWS Lasee*



*From left to right: Nick Grueneis, Nick Berndt, Jenny Bailey, Kyle Von Ruden, Maren Tuttle-Lau, Emy Monroe USFWS Lasee*

eDNA team welcomed two more members, Nick Berndt and Kyle Von Ruden, in November and December, respectively. Our team of six is now complete.

We were able to move into our offices over the holidays and begin working in the lab. Training ensued on January 7<sup>th</sup> and everyone successfully processed small batches of samples

through the entire work flow: from DNA extraction and purification, amplification of target Asian carp DNA with polymerase chain reaction (PCR) and data collection with gel electrophoresis. The team will now embark upon the official transition process which includes analyst proficiency testing and lab validation steps. This ensures the data collected is reliable and accurate. As we work through the transition plan, the sampling plans are also coming together under the direction of the Asian Carp Regional Coordinating Committee and the Management and Rapid Response Work Group. We all look forward to spring and the 2013 sampling season when we'll be busy processing about 120 field samples each week.



*Our filtering facility has been used to prepare blind samples for executing our transition plan. Ultra-cold freezers are ready to store archived DNA extracts. USFWS E. Monroe*

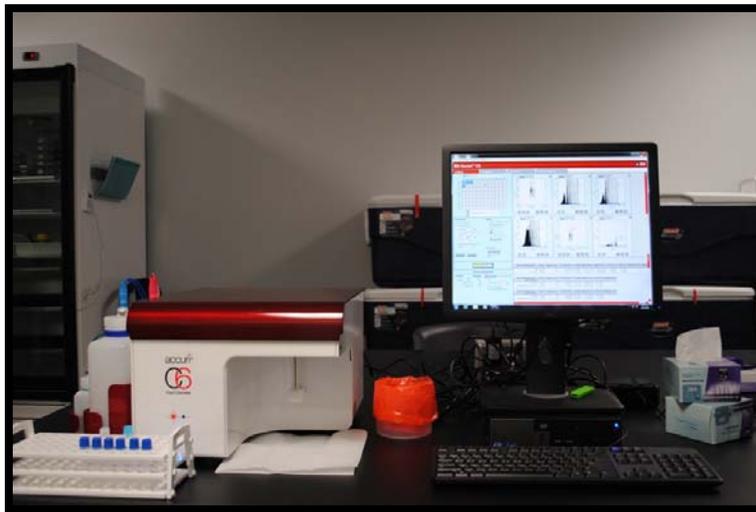
# Leadership in Science and Technology

## Asian Carp Ploidy Determination at Whitney Genetics Lab-La Crosse Fish Health Center

By Jennifer Bailey

Staff at Whitney Genetics Lab (WGL) is gearing up for a new program this winter. By the spring sampling season, biologists at WGL will use flow cytometry to determine the ploidy of grass carp or black carp caught in the wild. Asian carp species have established populations in some U.S. water systems either as a result of escape or stocking. In order to help manage these populations, it is important to know if these carp have potential for reproduction in the wild. This can be determined by ploidy verification. Stocked or escaped triploid grass carp and black carp may have little impact to river or lake ecosystems, and can be an important management tool for controlling vegetation and snails in aquaculture ponds. Triploid carp are produced at aquaculture farms and must undergo testing and certification to verify that they have undergone the sterilization process. Diploid carp, on the other hand, could reproduce in the wild and have negative impacts on habitat for native species.

Typically, ploidy determination requires analysts to be on site for the collection of blood from a live fish. This works well for triploid certification in a facility, but is not as applicable to field situations, where it is difficult to collect blood samples from fish recovered from rivers or lakes via nets, barges, fish kills, hook and line, or bowfishing. A recently developed technique allows ploidy to be determined from the vitreous fluid inside the eye and analysis can be done up to 8 days post-mortem. This will allow samples for ploidy determination of grass carp or black carp to be collected from field sites.



*Analysis of ploidy samples on a flow cytometer USFWS Bailey*

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## Ploidy continued

The flow cytometry method using the vitreous humor from fish eye was developed by Dr. Jill Jenkins of the U.S. Geological Survey – National Wetlands Research Center (NWRC) because of the increasing occurrence of Asian carp reported by commercial fishermen in rivers, and the need to assess their potential impacts to the system. Dr. Jenkins visited WGL in October and trained staff biologists on use of flow cytometry for ploidy analysis. Currently, wild-caught carp ploidy analysis is conducted by the NWRC. Because of growing interest in the program, and increasing reports of grass and black carp in the wild, the NWRC will be turning ploidy monitoring over to the WGL at the La Crosse Fish Health Center. Dr. Jenkins will focus more attention on research and development of methods. In December, Dr. Jenkins presented these methods at the National Triploid Grass Carp Inspector’s Meeting at the Warm Springs Regional Fisheries Center in Warm Springs, GA. Staff from WGL also attended to meet the inspectors, become familiar with the triploid grass carp program, and present ideas for the new program at WGL-La Crosse Fish Health Center.



*These eyeballs will help determine ploidy of wild grass carp*  
USFWS Bailey

In January, biologists refined cytometry skills, set up lab space to run samples, and secured a source of healthy, live tilapia to be used as a DNA size standard for comparison of Asian carp ploidy samples. WGL also explored ideas for a community of practice, which would standardize methods used by labs determining ploidy via flow cytometry, and identify partners for the program. A set of protocols for field collection of Asian carp samples and proper shipment methods will be distributed to partners before the 2013 field season begins.

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## **La Crosse Fish Health Centers Teaches Introductory to Fish Health Course**

by Sarah Leis

In February, staff at the La Crosse Fish Health Center taught the Introductory to Fish Health Short Course (taught in cooperation with the National Conservation Training Center). The course is designed to provide participants a basic understanding of fundamentals of fish health topics. Topics covered included fish anatomy, fish parasites, bacteriology, virology, fungal diseases, environmental & nutritional diseases, drug treatments, aquatic invasive species, and shipping. The course is 5 days, with lectures every morning and laboratory exercises in the afternoon. Upon completion of the Introductory to Fish Health Course participants should have an understanding of how to collect and ship fish health samples and primary knowledge about fish diseases. The class is a popular course and there is always a waiting list of participants that would like to take the course. The La Crosse Fish Health Center will offer the course again next year and if there are enough participants we will offer two courses.

## **Public Outreach**

### **La Crosse Fish Health Center assists at the Genoa NFH Kid's Ice Fishing Day**

by Eric Leis

On January 26th, staff from the La Crosse Fish Health Center assisted the Genoa National Fish Hatchery with their annual kid's ice fishing event. The Genoa NFH staff does a tremendous job hosting this event with participation growing every year. This year there were hundreds of children at the hatchery. The day started out with short presentations on ice fishing techniques, ice safety and fishing regulations. After the brief introductions, children are turned loose on a hatchery pond that had been stocked with large rainbow trout. Even the parents were exuberant about the big fish waiting to be caught, and were racing out to the fishing holes with their children in tow. Once the kids got their lures down the hole, the rainbow trout were more than eager to take the bait. I would guess that about 500 trout were caught in the first hour of fishing. Everywhere you looked kids were pulling fish onto the ice. After the children had their fill of fishing, they were welcomed back into a heated tent where a lunch (provided by the Friends of the Upper Mississippi River) was waiting for them. At the end of the day, the children left Genoa NFH with fishing stories, big trout and even bigger smiles.