

Warm Springs Fish Health Center

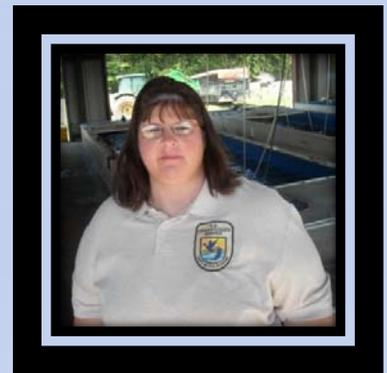
March-June 2012 Activity Report



Norm Heil, Project Leader
Brian Hickson, Fish Biologist
Devin Chappell, Fish Biologist
Allison Hernandez, Fish Biologist
Nikki Persons, Fish Biologist (below)



The Fish Health Center (FHC) is a component of the Warm Springs Regional Fisheries Center (RFC) and was developed to improve and enhance fisheries management. More specifically, the FHC provides a wide range of services from disease diagnostics to ploidy inspections.



Images are all courtesy of the US Fish and Wildlife Service unless noted otherwise.

Goals:

- Provide service, expertise and information that contributes to the health, survival, enhancement, restoration, and recovery of fish and other aquatic species in support of national and regional priorities.
- Supports hatchery operations to provide quality fish that contribute to ecosystem objectives.
- Assists in the development of management strategies through assessment and applied research to support the protection of wild stocks and recovery of threatened and endangered species.
- Educates key audiences about the elements of comprehensive fish health and its critical significance to healthy aquatic ecosystems.



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<http://www.fws.gov/warmsprings/FishHealth/index.html>

Fish Health Diagnostics



Brian and Devin assisted with lake sturgeon sampling on the Tennessee and Hiwassee Rivers in March. Eight boats trotlined over 40 miles of area throughout the one week period. The effort was conducted to monitor and evaluate the population status of the previously stocked lake sturgeon. Another member of the collaboration and seen in the images wearing blue, is the Tennessee Aquarium's Sustainability Coordinator, Ashford Rosenberg.



Fish Health Diagnostics



In March, the Warm Springs Fish Health Center sponsored the annual fish health meeting held at Callaway Gardens. Among the attendees were staff from fish health centers across the nation, Joel Bader from the national office, and Cindy Williams from the regional office. The meeting discussed recent fish health topics of interest and was an overall success. Following the meeting, the attendees were offered a team building experience by visiting the Georgia Aquarium for a unique and stimulating behind-the-scenes “fish health” tour given by the Aquarium’s head of research and lead parasitologist, Dr. Al Dove.



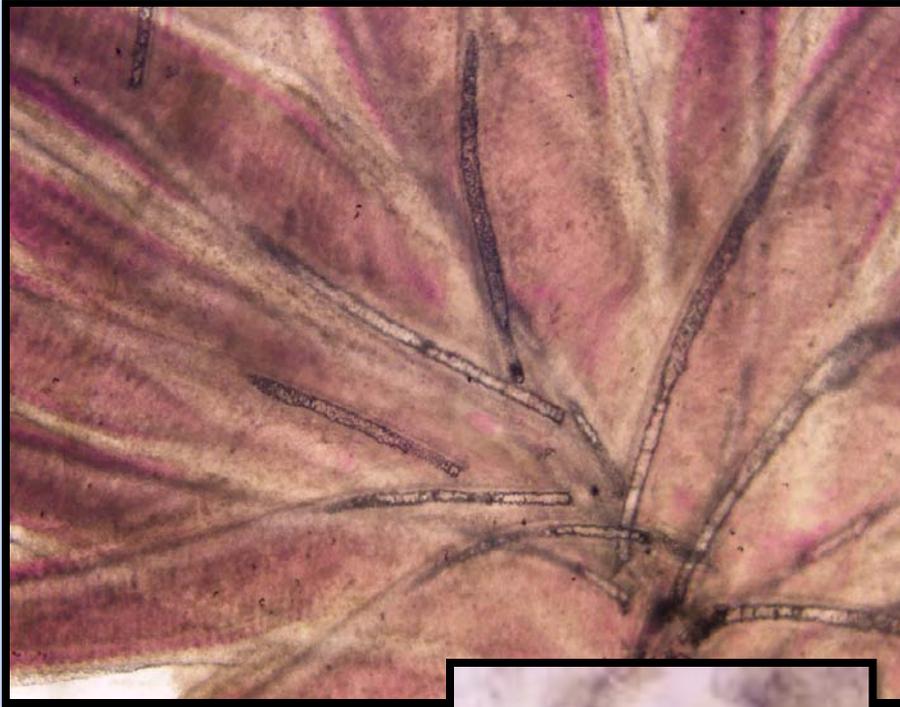
Fish Health Diagnostics



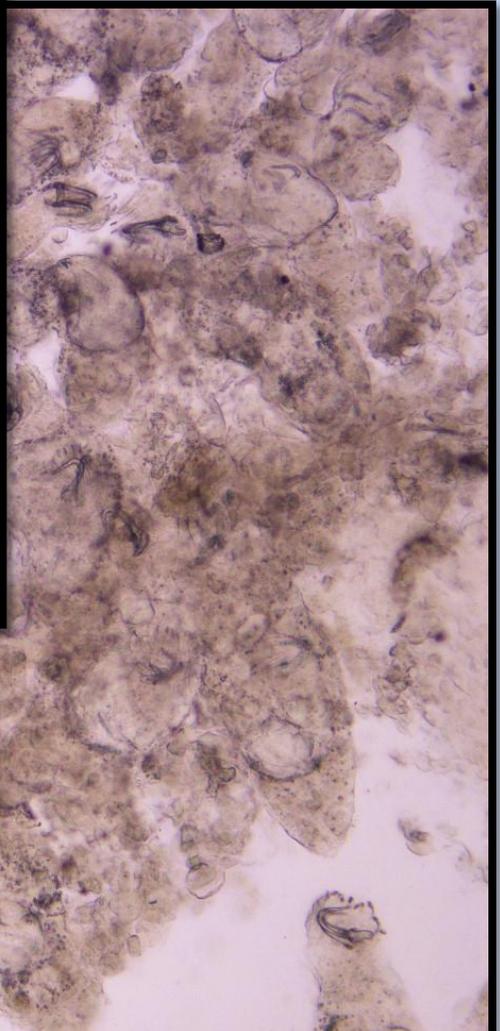
Devin helped with Gulf Sturgeon sampling at the Pearl River in Mississippi to assist NRDA's continued effort to examine oil spill impacts.



Fish Health Diagnostics



An extreme case of gas bubble disease (in the left image the supersaturation led to gas bubbles in the gills) and a case of a heavy gyrodactylus infestation (images below-scraped off the skin) was determined to be the cause of mortality for some fish sent in for analysis. You can see the distinct hook structures of the attachment appendage in the middle image.



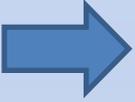
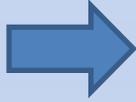
Fish Health Diagnostics



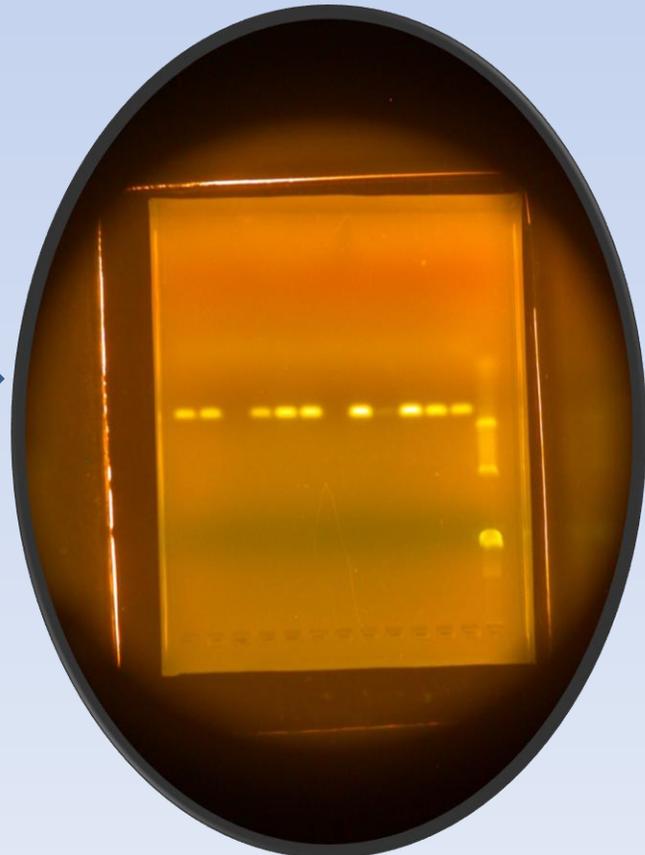
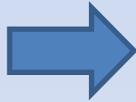
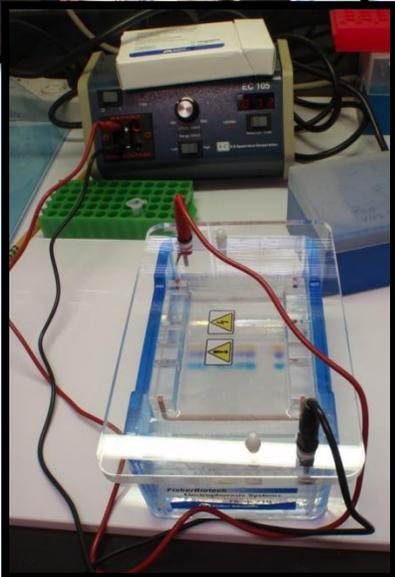
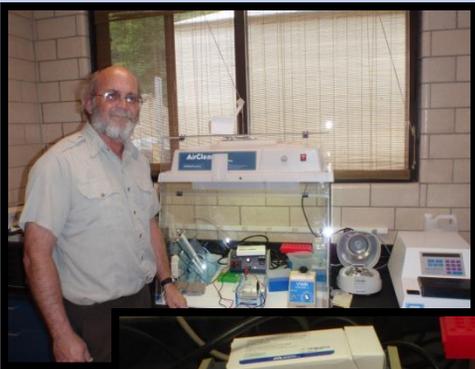
Brian performed necropsies to remove an otolith (ear bone) from the skulls of wild-caught adult striped bass. Some juvenile striped bass were marked before stocking into West Point Lake. The otoliths that Brian removed will subsequently be checked for OTC marking.



Fish Health Diagnostics



Brian and Devin worked on PCR and qPCR techniques this quarter. Genetic analysis is used for confirming viral pathogens that have been identified in cell culture assays. During the confirmation process shown in the images starting top left: the DNA was extracted, then they used PCR for amplification and finally gel electrophoresis for visualization.



Fish Health Diagnostics



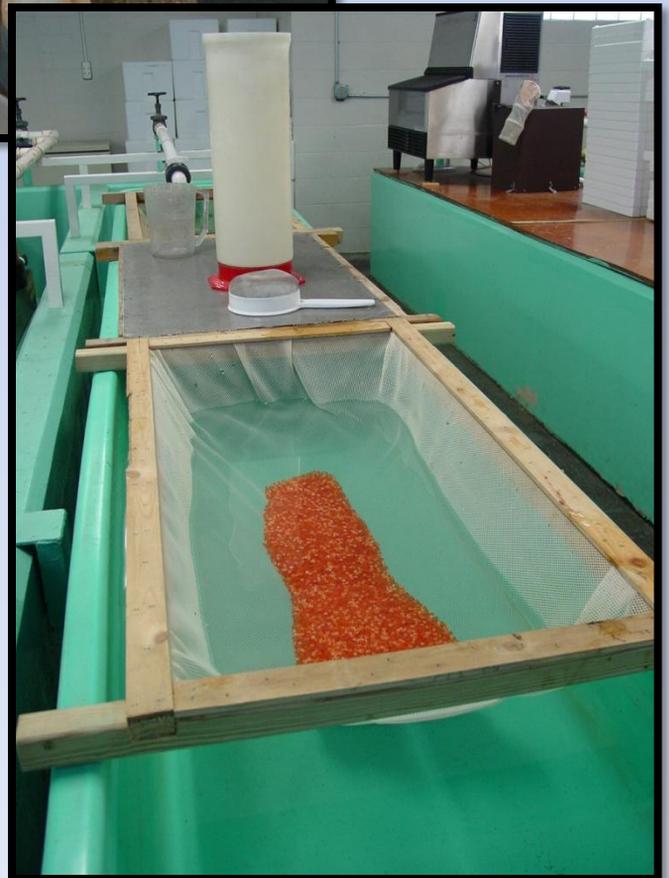
Norm went to Erwin National Fish Hatchery in May to conduct a fish health inspection.



Fish Health

Unique information page

Erwin National Fish Hatchery (NFH) in Tennessee is one of the largest national trout egg producers along with White Sulfur Springs NFH in West Virginia and Ennis NFH in Montana. Following spawning season, they ship eggs to many other agencies and hatcheries across the country.



After eggs are collected and fertilized (above), they are “shocked” in cold water. This process, seen in the image on the right, makes all of the unfertilized eggs turn white so that they can be sorted.

Fish Health Unique information page (contd.)



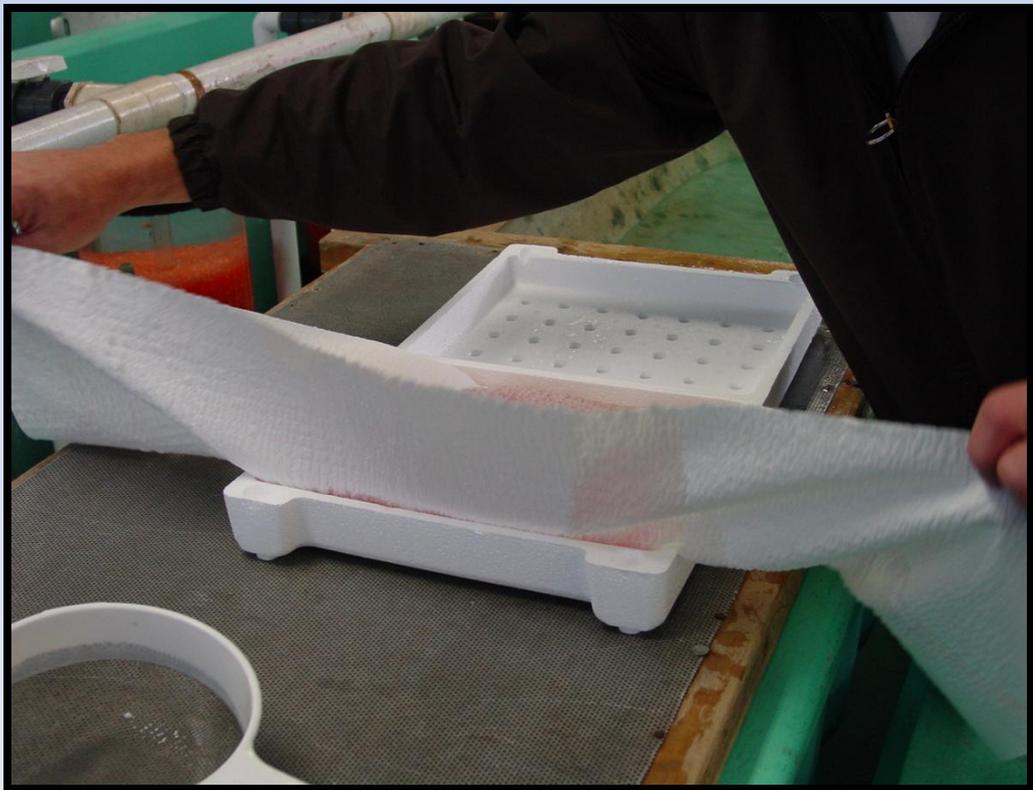
Trout eggs (above) are sorted using a machine called a jensorter (below), which shines a light beam through the eggs to separate the white, opaque unfertilized eggs from the orange, transparent viable eggs.



Fish Health Unique information page (contd.)



Sorted eggs are carefully packed for shipment to other hatcheries.

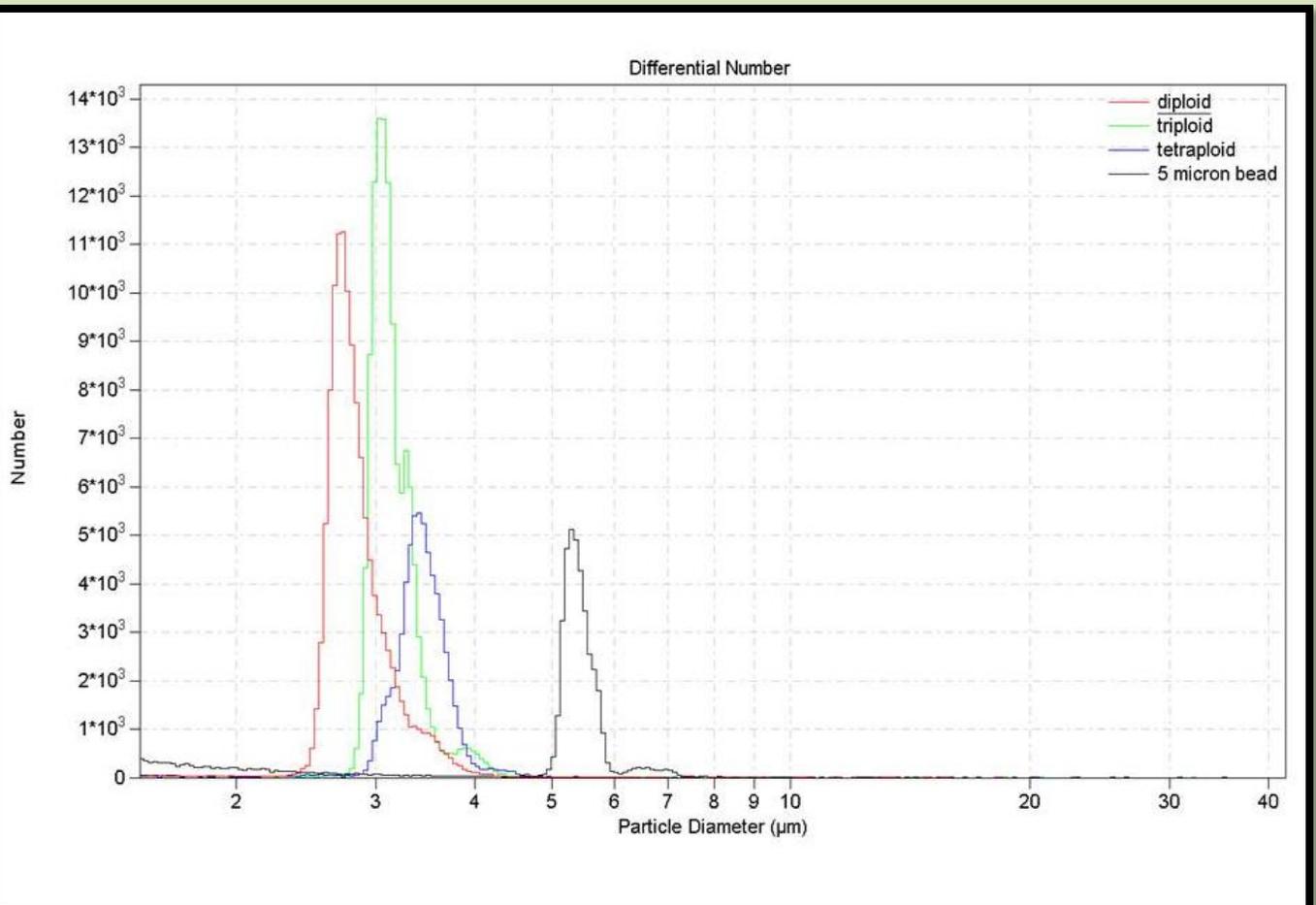




Triploid Grass Carp Program



Allison found a potential tetraploid grass carp during one of the triploid grass carp inspections. The fish was brought back to Warm Springs Fish Health Center for further examination. It was found to have a larger nucleus size than diploid or triploid grass carp as displayed on the graph readout from the Multisizer 3 coulter counter below. You can see the “tetraploid” peak in blue.



Wild Fish Health Survey

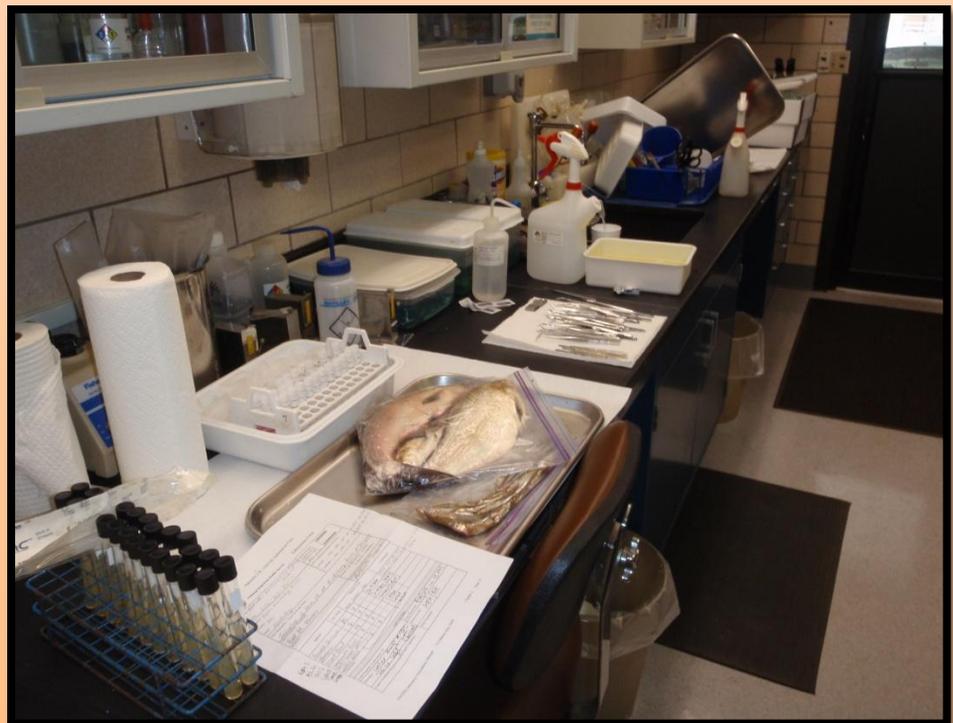


The Warm Springs Fish Health Center sponsored the User Acceptance Team (UAT) meeting held on station over four days during March. The team was started to examine the Wildfish Health Survey Database needs and evolved into conducting a functional analysis for the development of a comprehensive fish health database system (i.e., AQUIS), which will include the incorporation of wildfish health survey data.

Wild Fish Health Survey



We continued to receive coolers of fish through March from the state of Kentucky Department of Natural Resources (KY DNR) that sampled populations from various site locations to look for Viral Hemorrhagic Septicemia (VHS). This was a collaborative project with KY DNR, US Department of Agriculture APHIS program and the US Fish and Wildlife Service. Kentucky DNR staff have a short window for sampling when water temperatures are 3-12 degrees Celsius.



Wild Fish Health Survey



Devin travelled to Loxahatchee National Wildlife Refuge in April to assist the refuge with population sampling while also collecting for the wildfish health survey.



Other FHC Activities



BEFORE



AFTER



Carnivorous Plants display

In April, Allison discovered that the carnivorous plants display that was cleaned up last quarter had come back beautifully with at least three different species of pitcher plants displayed.

Other FHC Activities



Norm and Allison conducted a coldwater fish health workshop at Buford Trout Hatchery for several offices from the Georgia Department of Natural Resources on 20 March 2012. Following the morning presentations, there was an afternoon hands-on session for several necropsies and parasite identification. Allison previously worked for Buford Trout Hatchery for a brief period after her undergraduate studies.



FHC volunteer/intern work



The Fish Technology Center's Student Conservation Association (SCA) Intern, Ashley Zrubek, assisted Allison with whirling disease assays this quarter.