Warm Springs Fish Technology Center

June/July 2009 Activity Report

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Purple bankclimber, *Elliptoideus sloatianus*.
Credit: USFWS Photo.

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Warm Springs Fish Technology Center

The Fish Technology Center (FTC) is a component of the Warm Springs Regional Fisheries Center (RFC) and was developed to improve and enhance fisheries management. We provide consolidated technical operational support to regional fisheries operations and technical assistance to the public. The Fish Technology Center is comprised of a cryopreservation laboratory, conservation genetics laboratory, and the National Fish Strain Registry at Warm Springs, Georgia, and a field station in Wadmalaw Island, South Carolina.

Goals:

- Provide management support of interjurisdictional coastal and riverine fishes such as robust redhorse, shortnose sturgeon, Gulf sturgeon, and Gulf striped bass.
- Provide conservation genetics support for regional fishery programs.
- Maintain the National Fish Strain Registry for dissemination of information and support of private, state and federal broodstocks.
- Develop cryopreservation techniques for imperiled fish and mussels.
- Develop hatchery product evaluation techniques.

Cryopreservation

Cryopreservation is a process in which a living cell is frozen, stored, and thawed and remains viable. Cryopreserved sperm assists reproductive efforts by allowing spawning to take place whenever females are ready, reduces the need to hold males, and can increase flexibility and genetic diversity in spawning protocols.

Currently, the Warm Springs FTC is working on numerous species of fish, including threatened or endangered species. In the near future, the FTC will expand cryopreservation research to include other aquatic species (e.g., freshwater mussels, amphibians) for conservation efforts.

Juvenile pallid sturgeon, *Scaphirhynchus albus*.
Credit: USFWS Photo.

Conservation Genetics

The Conservation Genetics lab primarily works with biologists and managers of the region to design and implement genetic research on imperiled aquatic organisms.

Current Projects include estimating genetic diversity from: alligator gar, Gulf Coast striped bass, robust redhorse, freshwater mussels, and threatened and endangered species such as spotfin chub.

National Fish Strain Registry

The National Fish Strain Registry (NFSR) is an internet-based program that assembles information on life history, genetics, reproduction, and behavior of wild populations and domestic fish strains throughout the United States. The NFSR database is available for use by public and private producers as well as resource managers of federal, state, and tribal governments through a registration process. Once registered, users are able to search, create new records, edit records, and request information. The NFSR's vision is to provide a broad collaborative program that provides access to data and information on our Nation's aquatic resources. You must be a registered user to access the NFSR website; please contact chester_figiel@fws.gov or nicole_rankin@fws.gov to become a registered user.

Partnerships and Accountability

Ten-Year Partnership to Recover Pallid Sturgeon

Biologist extracting sturgeon milt for cryopreservation. Credit: USFWS Photo.

Since 1999, staff from the FTC have traveled yearly to Garrison Dam National Fish Hatchery in Riverdale, ND to conduct studies with the federally endangered pallid sturgeon, *Scaphirhynchus albus.* One tool being used to preserve and recover this species is the collection and cryopreservation of sperm. Sperm cryopreservation allows preservation of the current genetic diversity, transfer of genes from wild populations to hatchery broodstock, spawning of asynchronous populations, and better control of selective breeding. During this year's trip, studies were conducted to optimize the effectiveness of a large-scale cryopreservation technique for pallid sturgeon sperm. To date, sperm from over 100 males have been cryopreserved and stored in a repository for future use. Additionally, cryopreserved sperm has been used in the production of over 150,000 fry for restocking of the Missouri River. Long-term partnerships and cryopreservation are two tools that the FTC uses to assist resource managers in the recovery of these endangered fish.

Leadership in Science and Technology

Tagging and Notching for Age Validation of Mussels

Greg Moyer and Nicole Rankin in collaboration with biologists, Karen Herrington and Sandy Pursifull, and interns, Beth Bailey and Jeremy Johnson, from the Panama City Ecological Services and Fishery Resources Office surveyed for freshwater mussels in the Flint River Basin on July 1-2, 2009. A total of 21 *Elliptio crassidens* from Chickasawhatchee Creek and 52 *E. crassidens* from Ichawaynochaway Creek were collected, notched using a triangular file, and tagged with numbered and passive integrated transponder tags. Mussels were replaced in respective creeks and will be recovered one-year later for age determination and validation. Mussel shells were notched to create a known reference mark for validation. If a single annuli is examined beyond the notch mark, annual ring deposition will be considered validated for *E. crassidens.* The FTC and Panama City FRO are collaborating on numerous freshwater mussel projects including an age validation study on *Amblema neislerii* in the Apalachicola River.

Elliptio crassidens were notched and tagged with passive integrated transponder and numbered tags. Credit: USFWS Photo.

FWS Biologists identifying mussels for age validation and genetics studies.
Credit: USFWS Photo.

Leadership in Science and Technology

Invasive Species Funding

The FTC received invasive species funding to continue studies on the invasive chytrid fungus, *Batrachochytrium dendrobatidis* (Bd/chytrid), that impact amphibian populations. The FTC is working with the Warm Springs Fish Health Center to investigate Bd/chytrid. Using quantitative polymerase chain reaction (qPCR), protocols are being used to detect presence of the fungus on amphibian samples.

National Broodstock Meeting

Nicole Rankin attended the 2009 National Broodstock Meeting at the LaCrosse Fishery Resource Office and Fish Health Center in Wisconsin on June 9-11, 2009. This annual meeting is conducted to discuss broodstock egg requests, fish health and nutrition matters, and database concerns for each region. Each station gave an update on fish strains being raised for egg requests to production hatcheries. Nicole provided an update of the National Fish Strain Registry and received valued feedback from meeting attendees. Other presentations included a demonstration of the FIS egg/fish request module, a shared experience using moist egg incubation, and a viral hemorrhagic septicemia (VHS) briefing.

Genoa National Fish Hatchery propagates a number of brood species including coaster brook trout. Credit: USFWS Photo.

Aquatic Species Conservation and Management

Kinchafoonee Creek Fish Passage Survey

Bill Bouthillier and Roman Crumpton, biologist from Bears Bluff National Fish Hatchery, conducted fish passage surveys at 35 sites in the Kinchafoonee Creek watershed on July 21-23, 2009. While surveying 145.8 miles of the watershed, they encountered several American alligators that typically occur below the fall line in Georgia. No biologists or alligators were harmed during the surveys and when encountered, each gave a wide berth to the other. Based on criteria from the National Inventory and Assessment Procedure, no crossings surveyed were determined to be barriers to small stream fish or other aquatic organisms in the Kinchafoonee Creek watershed. However, several potential hazards to threatened and endangered species were discovered and reported to staff of the Ecological Services office at Ft. Benning, Georgia.

American alligator sunning on a bank at one of the survey sites. Credit: USFWS Photo.

Concrete bridge over Kinchafoonee Creek. Credit: USFWS Photo.

Public Use

Kids' Fish for Fun Day

Four FTC employees and one SCA intern helped staff the Kids' Fish for Fun event at the Warm Springs National Fish Hatchery (WSNFH) on June 6, 2009. The USFWS and Friends of the Warm Springs National Fish Hatchery (Friends Group) joined forces to show residents the enjoyment of fishing. This yearly event is hosted to give children ages 3-12 a chance to catch and take home five catfish. Over 200 children participated, 80 children fished for the first time, and approximately 750 catfish were caught during this event. As an exciting addition, the FTC provided four touch tanks with American alligators, crayfish, small turtles, salamanders, frogs, and common snapping turtles for children to touch and see. The touch tanks provided children and their parents an opportunity to learn more about wildlife found in streams and ponds in Georgia.

Bill Wayman teaching two excited children about turtles. Credit: USFWS Photo.

Proud kid holding his catch. Credit: USFWS Photo.

Father watching his daughter reel-in a big catfish. Credit: USFWS Photo.

Junior Ranger Camp at Warm Springs

Nicole Rankin, Rosla Plant (RFC), Jaci Zelko (WSNFH), and Frida Powers (Friends Group) along with staff from Franklin D. Roosevelt State Park and Roosevelt's Little White House Historic Site offered three-day Junior Ranger Camps on July 7-9 and July 21-23, 2009. Children from across the Southeast came to Warm Springs and Pine Mountain, GA to participate in this program. The junior rangers experienced historical education at Roosevelt's Little White House, scientific education at the Warm Springs RFC, and recreational education at FDR State Park. Eleven rangers participated in the first session, and eighteen participated in the second session. While at the RFC, junior rangers learned about fish identification, aquatic food webs, and stream and pond habitats. Other camp activities included a geology walk, stamp camp, aquatic life in streams and ponds, nature walks, firetruck shower, t-shirt painting, and sailboat racing. Junior rangers received patches and certificates during a ceremony held at the FDR State Park on the last day.

Designing a fish t-shirt. Credit: JRC Camp, USFWS.

Stream collection using nets and a kick seine. Credit: JRC Camp, USFWS.

American alligators are top predators in aquatic food webs. Credit: JRC Camp, USFWS.

Public Use

Nature hike at FDR State Park.
Credit: JRC Camp, USFWS.

JRC Camp Week One Group.
Credit: JRC Camp, USFWS.

JRC Camp Week Two Group.
Credit: JRC Camp, USFWS.

- Nicole Rankin gave a tour of the aquarium and wetland boardwalk to 20 children and parents from West Point 1st United Methodist Church on June 16, 2009.

- Jaci Zelko, biologist from WSNFH, conducted a Biologist in Training Facilitator training for some leaders of Junior Ranger Camp on June 25, 2009. Nicole Rankin and Sam McDuffie, FDR State Park Interpretive Ranger, attended the training and learned to promote stewardship and teach different methods of acquiring, organizing and assessing biological information.

- Bill Bouthillier and Greg Moyer gave a tour of the FTC facilities and discussed cryopreservation and conservation genetics with an Auburn University Introduction to Fisheries class on July 7, 2009.

- Bill Wayman gave a tour of the FTC facilities and talked about current research programs with an Auburn University Aquaculture class on July 23, 2009.

Workforce Management

Good Luck Allison FP

Allison Fritts-Penniman
Credit: USFWS Photo.

Allison Fritts-Penniman completed her Student Conservation Association internship with the FTC on June 8, 2009. Her responsibilities included working on genetic studies of many fish and mussel species, assisting with striped bass spawning, and travelling to Bears Bluff and Private John Allen National Fish Hatcheries for cryopreservation experiments. She learned a great deal about population genetics and laboratory techniques for working with DNA. The experience has deepened her interest in genetics, so everything learned here will serve her well in the future. Allison's next step is unknown but will undoubtedly involve travel and adventure. Good Luck and Thanks Allison! We appreciate your hard work and wish you good luck in future endeavors.

Chester Figiel, Jr. was detailed to the Washington Office from June 1 - June 27, 2009. He developed a risk assessment model to assess the vulnerability of federal hatcheries to climate change and climate-driven water shortages. While at the Washington Office, he also participated in the kickoff of National Fishing and Boating Week at a pond on the National Mall. Chester along with other volunteers helped several hundred children learn techniques, safety, and ethics of fishing and how to fish for largemouth bass, bluegill and crappie in the Constitution Gardens Pond.