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Currents

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Fisheries Program Highlights

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Edited by Jeremy Voeltz, Arizona FWCO



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Biologists salvaged Arkansas River shiner and peppered chubs from isolated and drying pools in the Canadian River caused by record drought in Oklahoma and Texas

Read the complete story on page one

Native Fish Salvaged due to Historic Drought



In response to the worst drought in recorded history in Texas and parts of Oklahoma, staff from the Oklahoma FWCO, Oklahoma Ecological Services Field Office, and Texas Tech University collected threatened Arkansas River shiner and rare peppered chub from isolated and drying pools in the Canadian River. The fish were then transferred to the Tishomingo NFH where hatchery personnel will develop spawning and culture techniques for these rare species.

Biologists also took this opportunity to ground-truth satellite imagery obtained through the USGS's Earth Resources Observation and Science Center. The satellite imagery is used by the team to locate potential fish refuge areas during extreme drought periods. Biologists hope to use this satellite imagery to prioritize areas to focus on during future salvage operations.

Brent Bristow, Oklahoma FWCO

Water Wheel Restored at Tishomingo NFH

Tishomingo NFH staff, along with the help of YCC members and many volunteers over the past several years, finalized renovations to the historic water wheel this fall. Calcium deposits were carefully removed from the old wheel and a new cypress mill race and treated support posts were installed. The water wheel was originally constructed prior to the opening of Tishomingo NFH in 1929 when the site was a grist mill, and now offers hatchery visitors a glimpse back to the grain milling heritage of the area in the early years of Oklahoma statehood.

Mary Davis and Ralph Simmons, Tishomingo NFH



Restored water wheel at Tishomingo NFH

Over One Million Fish Stocked

In September, Dexter NFHTC cleared its annual fish health inspection and resumed fish stockings throughout the Southwest. A total of 1.2 million fish (six different species) were distributed to designated locations in Arizona, New Mexico, Nevada, Texas and Utah. The stockings helped meet augmentation requirements for the species in their native range. Recovery programs and state partners receiving fish included the Lower Colorado River Multi-Species Conservation Program, Middle Rio Grande Endangered Species Act Collaborative Program, San Juan River Basin Recovery Implementation Program, Virgin River Resource Management and Recovery Program, and the Wahweap State Fish Hatchery in Utah.



Staff from Dexter NFHTC prepare to stock Rio Grande silvery minnow near Socorro, New Mexico

William Knight, Dexter NFHTC

New Mexico FWCO Participates in “Fish in the Classroom”



Students are excited to raise native fish in their classrooms in New Mexico

Biologists from the New Mexico FWCO are working with several schools on “Native Fish in the Classroom” projects. Modeled after the national Trout in the Classroom program, but with an emphasis on New Mexico native fish species, the program focuses on environmental conservation and includes classroom activities, presentations, raising fish, and ultimately releasing fish back into their native habitat. Beginning 2012, one school will be raising red shiner, flathead chub, longnose dace, and river carpsucker, while the remaining three schools will raise Rio Grande cutthroat trout. Aquariums are up and running in the classrooms and fish will be delivered in January.

***Sara Blocker and Angela James,
New Mexico FWCO***

Research Programs Expanded at Dexter NFHTC



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Staff at Dexter NFHTC conduct research on the affects of handling stress on bonytail

Current research at the Physiology and Pathobiology Program at Dexter NFHTC includes the effect of temperature and salinity increases on native fish related to climate change, optimizing reproductive strategies for broodstock and nutritional needs of captive-reared aquatic species. The Dexter lab has the capability of conducting acute and chronic toxicity tests, molecular diagnostics for aquatic pathogens, identifying physiological responses of fish to handling and transport stress, and developing methods to aide in the control/management for aquatic invasive species. Dexter NFHTC is focused on providing science-based research to support partners involved with management of aquatic resources. The primary objective is to aid in the recovery of threatened and endangered species by testing and optimizing captive-rearing protocols through an improved understanding of the fish's physiological responses to its environment.

Catherine Sykes, Dexter NFHTC

Tishomingo NFH Attends Outdoor Expos in Oklahoma

The Tishomingo NFH set up informational booths for two different annual events in September: the Johnston County Fair, located in Tishomingo, OK; and the 7th annual Oklahoma Wildlife Expo located in Guthrie, north of Oklahoma City, OK. Both booths featured a pictorial display for a background, live turtles, a digital photo frame full of revolving hatchery pictures, and lots of information and handouts. Both events featured a "Kid's Day" which invited all school aged children from local areas to attend. More than 59,000 people attended these events, including an estimated 20,000 children.



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Tishomingo participated in the 7th annual Oklahoma Wildlife Expo

Ralph Simmons, Tishomingo NFH

New Mexico FWCO & Tribal YCC Fix Fish Passage Structure

Heavy monsoon rains and flash flooding washed out a low-water fish passage crossing on the Rio Paguete in New Mexico. The Geoweb crossing was originally constructed in June 2009 to allow cutthroat trout to disperse both upstream and downstream, and reduce sediment deposition caused by motorized vehicles. The Pueblo of Laguna, New Mexico FWCO, and Middle Rio Grande Tribal Youth Conservation Corp (YCC) reconstructed and repaired the fish passage crossing. Six Native American youth representing three tribes (Navajo Nation, Isleta Pueblo, and Santa Ana Pueblo) worked on the project for 4½ days with new Geoweb and liner placement, stabilization of the stream banks with large boulders, and filling spaces in the Geoweb with smaller rocks.



Tribal YCC repair a fish passage road crossing in New Mexico

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Chris Kitcheyan, New Mexico FWCO

Tishomingo NFH Helps Local Area Boy Scouts



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Boy Scouts visited Tishomingo NFH to work on merit badges

The Boy Scouts of America is one of the largest youth organizations in the U.S. with over 110 million members since its founding. Scouts from two camps in Oklahoma visited the Tishomingo NFH to learn about the hatchery's mission and to work on merit badges. This year, Scouts learned about different species of fish, fish culture techniques, and the importance of the hatchery's role in wildlife conservation. Merit badges were earned in Citizenship in the Nation, Federal Facilities, and Fish Anatomy. To show their gratitude, the Scouts presented the hatchery with a framed certificate of appreciation.

**Mary Davis and Ralph Simmons,
Tishomingo NFH**

San Marcos NFHTC Researches Trematodes Effects on Fishes



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A trematode-infected gill arch from a fish; showing distorted and displaced filaments

Since the discovery of an exotic gill trematode in Texas, attempts have been made to manage its spread to minimize its effect on fish populations, including endangered species cultured at the San Marcos NFHTC. The juvenile trematodes actively penetrate fish gill tissue, enflaming them as they grow. Large numbers infecting the gills can have harmful consequences, including mortality. San Marcos NFHTC staff conducted a survey to examine its distribution, quantify the prevalence, and determine the susceptibility of various fishes to the trematode. Though data analysis is still ongoing, the parasite does not appear to have spread. Darters seem to be the most susceptible, and coupled with additional stressors like the ongoing drought, high infection rates may negatively affect populations.

Daniel Huston, San Marcos NFHTC

YCC at Tishomingo NFH in 2011

The Tishomingo NFH hosted two summer youth workers through the Youth Conservation Corps program. Both young men proved to be valuable assets at the height of the warm water fish culture season. They gained specialized work experience with species such as paddlefish, channel catfish, bluegill, and alligator snapping turtles. They spent their summer learning how to spawn, care for eggs and fry, and harvest production ponds. Besides their fish work, they also learned about water quality, safety, and how to calculate stream flows.

***Mary Davis and Ralph Simmons,
Tishomingo NFH***

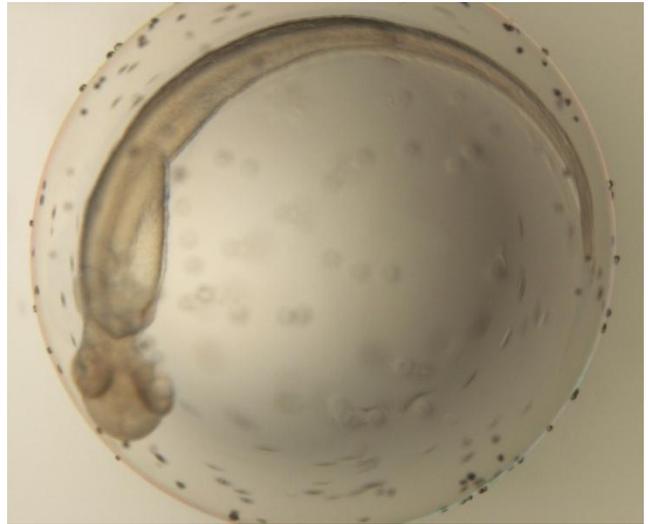


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YCC workers collect adult paddlefish from a pond at Tishomingo NFH

Salinity Research Initiated at Dexter NFHTC

Salinity tolerance of Rio Grande silvery minnow eggs was examined by staff from the Dexter NFHTC to help us understand how early life stages of this endangered species can survive various salinity levels which may aide in the selection of reintroduction sites along the Rio Grande River. Initial data showed that hatching of silvery minnow eggs was delayed or prevented following exposure to salinity equivalents of 2.4 to 9.6 parts per thousand, similar to what this species may encounter in sections of the Rio Grande and Pecos Rivers. Egg shells dissolved prematurely and embryos were deformed in eggs exposed to higher salinities. Additional experiments involving exposure of adult fish to selected salinity regimes will be conducted in spring 2012 to determine whether prior exposure of by adults enables the larvae to better adapt to higher salinity challenges.



A Rio Grande silvery minnow unable to break out of its shell at certain salinity levels

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Izhar Khan, Dexter NFHTC

Boy Scout Fishing Derby Held by Uvalde NFH



A young Scout tries to lure in the big one

Uvalde NFH held its first Boy Scout catch and release fishing derby in July 2011. Thirty-six Boy Scouts fished in the competition using traditional cane poles. They were accompanied by over 40 parents and guardians, around 20 volunteers, and numerous other children who were not in the competition. The event concluded with a prize drawing and a cook out. While lessons were learned for future events, over all, the derby was a success!

Karin Eldridge, Uvalde NFH

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Tishomingo Develops Rearing Methods for Imperiled Fish



Arkansas River shiner are propagated at Tishomingo NFH for research and recovery

Threatened Arkansas River shiners and peppered chub (a species not yet listed but thought to be even more rare than the Arkansas River shiner) were collected from the remaining pools of the Canadian River and transported to the Tishomingo NFH to develop captive rearing techniques. These actions were deemed critical to the survival of the species following months of extreme drought and complete drying of long stretches of critical habitat in the Canadian River, OK. Hatchery staff have successfully reared and spawned Arkansas River shiners from previous years, but techniques still need refining. Captive rearing of peppered chub has not been attempted but should be similar to the Arkansas River shiners. Partners in the project include Oklahoma State University and Texas Tech University which use fish produced at the hatchery for additional research.

Kerry Graves, Tishomingo NFH

Bonytail Travel from Uvalde NFH to Arizona to be Stocked

Uvalde NFH, in conjunction with the Arizona FWCO, delivered 91 bonytail to the Bill Williams River in Parker, Arizona to stock adult fish for on-going recovery efforts. The fish traveled 900 miles during 20 hours on the road before arriving at their destination in excellent condition, mainly because the dual insulated 550-gallon tanks on the distribution truck only gained 1°C during the trip. Because of the anticipated stress of hauling and extreme heat (air temperature of 116°F), fish were loaded onto a barge and taken offshore for tempering. Fish were then held in floating net pens for 24 hours prior to final release.



Adult bonytail were stocked into the Bill Williams River in Arizona

Grant Webber, Uvalde NFH

Bighorn Sheep Tour Group Visits Willow Beach NFH

In August, staff from Willow Beach NFH guided a tour group of 20 people that were near the facility for a Bighorn Sheep workshop. Rainbow trout and razorback sucker culture operations and purpose were discussed and the group seemed to be interested and asked some very engaging questions about hatchery needs and general fish culture questions.

Tom Kent, Willow Beach NFH



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A tour group visits Willow Beach NFH

Uvalde NFH Grows Razorback Suckers for Recovery Efforts



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Uvalde NFH stocks razorback suckers into the San Juan River as part of the recovery program

For several years, the Uvalde NFH has been actively involved with the captive rearing and recovery efforts for razorback sucker with the San Juan River Recovery Implementation Program. In an effort to minimize stress on the species during transport to the San Juan River, Uvalde NFH took a different approach in 2011 by tagging fish in the spring rather than immediately before transportation. Approximately four to five months later the 12,000 fish were harvested and held in raceways, scanned for each tag number, and lengths and weights were collected for each fish for tracking through future monitoring activities. Initial results have been positive, with numerous Uvalde NFH raised razorback suckers caught during follow-up monitoring showing survival and persistence. Future monitoring efforts should provide data on long-term survival of the “Uvalde” razorback suckers.

Grant Webber, Uvalde NFH

Warm Water Well Completed at Willow Beach NFH



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In August, construction of the new 300 gallon warm water well was completed at Willow Beach NFH. The well was installed as part of an experimental design, which looks at modifying the hatchery to be quagga mussel free, by using ground water rather than Colorado River water for hatchery operations. Additionally, the warmer water will narrow the day and night temperature swings observed in each of the razorback sucker rearing systems, ultimately increasing growth rates to achieve larger fish sizes prior to stocking.

The new water well at Willow Beach NFH will improve hatchery production and operations

Kurt Eversman, Willow Beach NFH

2011 Apache Trout Field Season Winding Down

During the summer of 2011, the Arizona FWCO employed 14 seasonal employees to work on Apache trout recovery. These dedicated employees were hired through a variety of Service youth-hiring initiatives, including 1040-seasonal appointees and S.T.E.P. program appointments.

The crews worked on several Apache trout recovery projects, including multi-pass electrofishing to remove brown trout from recovery streams, barrier evaluations to determine effectiveness of artificial barriers, and population spot check surveys to document persistence and reproduction in several Apache trout recovery populations.

Jeremy Voeltz, Arizona FWCO



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After a long's days work, several members of the Apache trout field crew demonstrate team work

Southwest Region Fisheries Division

National Fish Hatcheries

The National Fish Hatcheries (NFH), at Willow Beach, Alchesay-Williams Creek, Uvalde, Tishomingo, and Inks Dam develop and maintain brood stocks of important fish species, both sport fishes and critically imperiled non-game fishes. The hatcheries are the source of fish and eggs distributed to partners with similar aquatic conservation missions, such as native fish restoration or fulfilling federal mitigation responsibilities. Hatcheries are often called upon to provide a place of refuge for imperiled aquatic organisms, such as aquatic plants and amphibians.

Fish and Wildlife Conservation Offices

The Fish and Wildlife Conservation Offices (FWCO) in Arizona, New Mexico, Oklahoma, and Texas evaluate wild native fish stocks and their habitats, and work with partners and other Service programs to restore habitats and fish populations.

These offices provide technical fish and wildlife management assistance to tribes and other partners with a primary focus on native aquatic species.

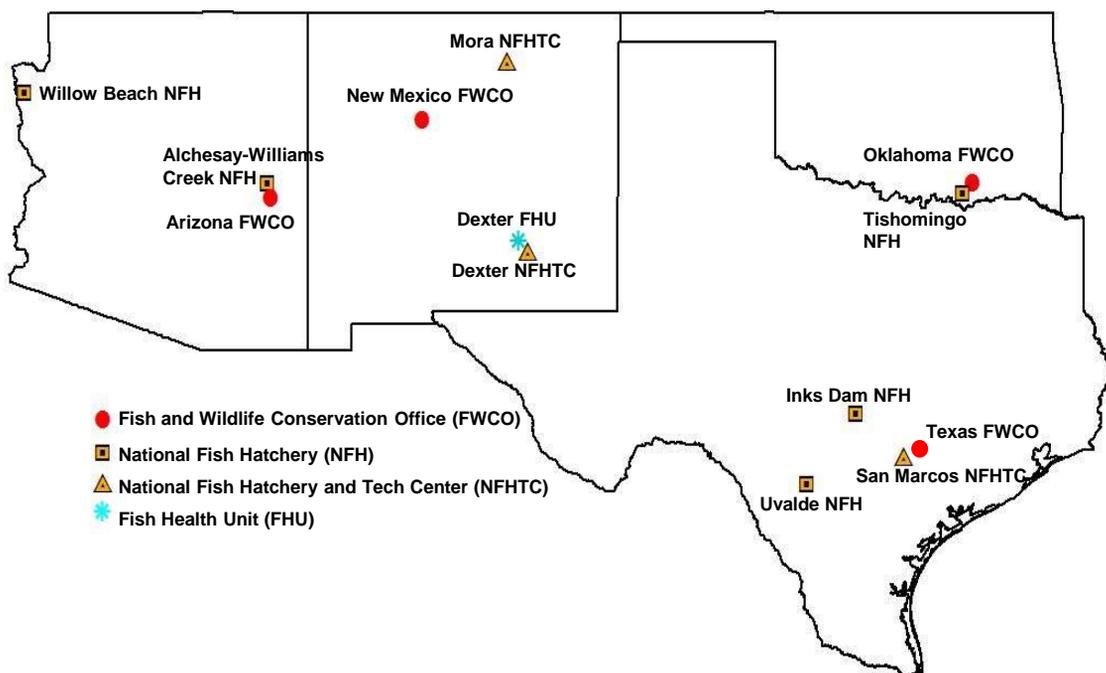
Fish Technology Centers

The Fish Technology Centers (NFHTC) at Dexter, Mora, and San Marcos; develop leading-edge technology for use by tribal, state, and federal fish hatcheries and fishery biologists to make fish culture more productive, cost-effective, and scientifically sound.

Technology improves hatchery efficiency, helps assure the genetic integrity of fishes, at the same time minimizing the effects of hatchery fish on wild fish stocks.

Fish Health Unit at Dexter

The Fish Health Unit (FHU) at Dexter assesses the well-being of fish that live in the wild or are raised at hatcheries. Fish health biologists are highly trained in various scientific disciplines, like immunology, epidemiology, toxicology and genetics. They apply that knowledge in fish health assessments that might lead to early detection of potentially devastating diseases, prescribing preemptive measures.



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