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REGION 2 – SOUTHWEST REGION

Fisheries Program Highlights

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Edited by Jeremy Voeltz, Arizona FWCO



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Gila trout were stocked into Frye Mesa Reservoir in Arizona in February, creating the first legal fishery in Arizona for Gila trout.

Read the complete story on page one

Record Number of Fish Health Cases Completed at Dexter NFHTC



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Staff from DNFHTC's Fish Health Unit assess viral plates in the laboratory

In March, Dexter NFHTC Fish Health staff completed the busiest month on record with one federal facility inspection, five wild fish health surveys in Arizona and Oklahoma, four Arizona refuge population diagnostics, four viral diagnostics from wild or farmed fish, and two diagnostic cases from annual razorback sucker and Gila trout spawning efforts. A total of 5,650 miles were traveled to collect 1,551 fish, representing 24 individual species. Numerous partners contributed to this effort, including the Arizona Game and Fish Department's (AGFD) Fish Health Laboratory, AGFD Gila River Basin Native Fishes Conservation Program, Arizona FWCO, New Mexico Department of Game & Fish, Oklahoma Division of Wildlife Conservation, and Oklahoma Department of Agriculture. This was a tremendous effort on behalf of the staff and cooperators to continue to gather up-to-date information about the fish health status of captive and wild populations in the Region.

Teresa Lewis, Dexter NFHTC

Gila Trout Angling Season Open in Arizona

In February, 500 Gila trout were stocked into Frye Creek on the Pinaleno Mountains in Southeastern Arizona to augment the population that was first stocked in November 2009. This project, funded through the 2009 American Reinvestment and Recovery Act, is focused on establishing three recovery populations of Gila trout on this mountain range in Arizona.

An additional benefit of the project was the stocking of excess brood stock into Frye Mesa Reservoir to create the first Gila trout fishing season in Arizona. Cooperators for this project include Mora NFHTC, AGFD, U.S. Forest Service, and several fishing organizations including Trout Unlimited.



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Staff from AGFD stock Gila trout into Frye Mesa Reservoir for angling

Jeremy Voeltz, Arizona FWCO

Bonytail Diet and Growth Study at Dexter NFHTC

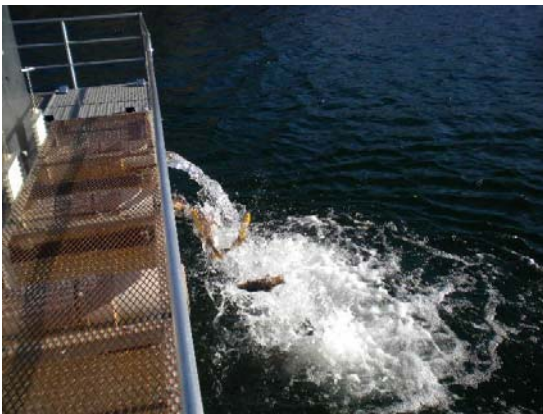
Manufactured diets exist for several native fishes currently being cultured at Dexter NFHTC, with the exception of bonytail. In an effort to enhance production and maximize growth of bonytail, staff completed a 131-day feed study for the species using five different diets (the current diet used plus four experimental diets). Variables measured at the end of the study were % body weight, total length increase, specific growth rate, feed conversion ratio, condition factor, and survival. There were no significant differences observed in the performance of the five diets. However, the equal performance of the chicken meal formulation offers a potential alternative to the use of fish meal in manufactured fish food. Partners in this collaborative project include the U.S. Geological Survey, New Mexico Cooperative Fish and Wildlife Research Unit, U.S. Department of Agriculture, Hagerman Fish Culture Experiment Station, and the Service's Bozeman Fish Technology Center.



An endangered bonytail at day 131 in the diet study

Catherine Sykes, Dexter NFHTC

Willow Beach NFH Grows and Stocks Razorback Suckers



Willow Beach NFH's stocking barge distributes endangered razorback suckers throughout Lake Mohave

Willow Beach NFH has an annual commitment of producing and stocking at least 6,000 endangered razorback suckers at least 300-mm in size to aid in recovery efforts for the species in the lower Colorado River. In FY10, Willow Beach NFH stocked 11,613 razorback suckers and in FY11 has already stocked 6,601. At the end of each fiscal year staff sort through the inventory, select fish greater than 300-mm in length, and hold these fish are held in flow-through raceways until they receive a passive integrated transponder tag by staff from the U.S. Bureau of Reclamation, Boulder City office. Once tagged, the fish are loaded onto the hatchery's barge and delivered to as many as 13 coves along the Colorado River in Lake Mohave where they can be tracked throughout the years by their tags.

Kurt Eversman, Willow Beach NFH

Arctic Blast Hits Dexter NFHTC



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Ponds at Dexter NFHTC completely froze over during a record cold spell in February

In early February, Dexter NFHTC set records for cold temperatures. Night time lows reached -15 F while daytime highs climbed only to upper 20s. Over a week period all outdoor ponds froze over with ice which was broken each morning to take water quality (temperature and dissolved oxygen) to ensure it remained adequate for fish survival. In addition, the extreme cold also froze all components of the main water supply to the fish culture building. Staff worked diligently to restore water to the building and monitor the well being of the 16 threatened and endangered species being maintained at the facility. During the cold temperatures water flow was gradually increased to the ponds to try and maintain pockets of warmer water and defrost small areas of the pond surfaces to allow for gas exchange. Staff, facilities and fish appear to have recovered from the event with minimal negative impacts.

William Knight, Dexter NFHTC

Volunteers Make a Difference at Inks Dam NFH

The Inks Dam NFH, with the help of the Balcones and Bosque National Wildlife Refuges, are developing a volunteer program that will bring together skills and knowledge for opportunities aimed at serving the specific needs of the hatchery and refuges. Two new volunteers have stepped into the part-time roles of Office and Maintenance assistants, adding 20-hours each week of valuable volunteer time. Inks Dam NFH also has many opportunities for volunteers to aid with events, education, and outreach; recently, nineteen volunteers teamed up to help hatchery staff to beautify the hatchery ground by tidying up and planting flowers.



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Volunteers help repair holes in seines and other nets

Paul Dorman, Inks Dam NFH

School Tours at Dexter NFHTC

As the weather finally warmed up in southeast New Mexico this spring, school tours resumed at the Dexter NFHTC. Groups from Valley Christian Academy, All Saints Catholic School, and Hagerman High School toured the Molecular Ecology, Physiology & Pathobiology, Fish Health labs, and Fish Culture facilities. Information was shared about Dexter's current research, diagnostics, genetics, fish culture, and conservation programs. Students were able to observe many of the species reared at Dexter. After the tour, the Hagerman High School FFA students were interested in learning more about culturing fish and plan to set up a culture system at their school.

Teresa Lewis, Dexter NFHTC



Staff from Dexter NFHTC discuss hatchery and tech center operations with 4th graders from a local school

Fisheries Assessments Completed at Oklahoma Refuge



Staff complete electrofishing surveys at lakes on the Wichita Mountain National Wildlife Refuge

The Oklahoma FWCO conducted a fisheries assessment of the waters of the Wichita Mountain Wildlife Refuge by electrofishing six of the refuge lakes which are popular fishing destinations. This refuge receives about 1.5 million visitors annually and the aquatic component is an integral part of many of the visitors' experience. The purpose of the monitoring was to determine the demographics of the bass population at a number of lakes on the refuge. The preliminary results show that the catch rates are good; however they indicate overharvest of largemouth bass over 12 inches which could cause an unbalanced population in the future.

Brent Bristow, Oklahoma FWCO

Salamander Research at San Marcos NFHTC



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More salamander embryos inside of eggs were viable at lower temperatures than at higher temperatures

San Marcos salamanders are restricted to pristine spring and cavernous aquatic habitats of the Edwards Aquifer in central Texas. Climate change models predict higher temperatures and frequency of droughts in Texas, which could reduce or completely diminish their habitats, including the San Marcos Springs. To examine effects of temperature on this species, researchers at the San Marcos NFHTC conducted 2-month temperature trials and observed effects on condition, survivorship, growth, weight, egg laying, and percent eggs hatched at three different temperatures.

Results showed that increased temperatures caused an increase in bacterial, fungal, or viral infections as well as increased mortality. Conversely, the number of salamanders laying eggs and percent of eggs hatch decreased with rising temperatures, while growth, weight, and condition appeared unaffected by different temperatures.

Valentin Cantu and Joe Fries, San Marcos NFHTC

Dexter NFHTC Goes Solar

With an average of 310 sun days per year, Dexter NFHTC is an ideal choice for using solar energy to offset a portion of its electrical power requirements. The 15KW photovoltaic system will intertie with the existing electrical infrastructure, allowing the generated power to be used throughout the facility. The array is comprised of 66 solar panels and three 5KW inverters. The inverters provide online capability to monitor real-time production of electricity, as well as providing reports of peak production times and seasons, CO2 reductions, and diagnostics, along with notification of a system failure.



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New solar array at Dexter NFHTC

Bill Williams, Dexter NFHTC

Refurbished Fish Display Pond at Uvalde NFH

After a year indoors, the razorback sucker, gar, channel catfish, and koi that make up the Uvalde NFH's fish display finally returned home to their refurbished observation pond. Finding a cheap and effective fix to the nearly 75-year old cement, rock, and mortar pond proved to be a difficult task. Leaking and pooling of water outside of the pond caused the slick walkway around the pond to become a safety hazard. Larger cracks were filled with a flexible epoxy by staff. A local car dealership was contracted to apply a spray on bed liner material after research showed the material to be safe for fish. So far, the liner has been effective and the new surface allows for easy cleaning to keep the pond pristine for visitors at the hatchery.



The refurbished fish display pond at Uvalde NFH

Rick Echols, Uvalde NFH

Paddlefish Spawning Research at Tishomingo NFH



An adult paddlefish is injected with a hormone to induce spawning

Tishomingo NFH conducted an efficacy study to determine the actual amount of hormone needed for injections during paddlefish spawning. Each spring, Tishomingo NFH uses luteinizing hormone-releasing hormone (LHRH) to stimulate spawning activity in the paddlefish broodstock. The hormone induces paddlefish to release their respective gametes at predictable times which helps to reduce labor costs and maximizes genetic diversity. Using side by side dosage comparisons over the past few years, researchers have concluded that 25% of the recommended .1 milligram LHRH per kilogram of fish body weight dosage can be used with no observable difference in drug performance. Reducing the amount of LHRH used not only saves the hatchery money, but also reduces handling stress to the fish, which helps them to remain healthy until they can be returned to their native waters.

Ralph Simmons, Tishomingo NFH

Native Fish Harvest and Stocking at Achii Hanyo



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Biologists move fish into an area for capture and relocation

Staff from the Willow Beach NFH, Arizona FWCO, and U.S. Bureau of Reclamation harvested endangered bonytail and razorback sucker at the Achii Hanyo Native Fish Rearing Facility. A total of 3,093 bonytail over 300-mm were released into Lapaz County Park and Bill Williams River, and 504 razorback sucker over 300-mm were released into Lake Mohave at Willow Beach. Achii Hanyo is a facility jointly operated by the USFWS and the Colorado River Indian Tribes.

Mark Yost, Willow Beach NFH

Big River Fishes Coordination Meeting

Dexter NFHTC is maintaining captive broodstocks of endangered bonytail, Colorado pikeminnow, razorback sucker, and humpback chub. These broodstocks serve as the primary, and in several cases, the only, genetic reserve populations available to produce individuals for use in recovery efforts.

In March, to better coordinate and facilitate future projects, Dexter hosted a meeting with managers and biologists from the Bureau of Reclamation, Upper Colorado Endangered Fish Recovery Program, Lower Colorado River Multi-Species Conservation Program, San Juan River Recovery Implementation Program, Colorado Department of Wildlife, Utah Division of Wildlife Resources, New Mexico Fish and Wildlife Conservation Office, and the Phoenix Ecological Services Field Office.

Manuel Ulibarri, Dexter NFHTC



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Dexter NFHTC maintains a broodstock of endangered razorback sucker

Quagga Mussel Veliger Research at Willow Beach

Colorado State University is partnering with Willow Beach NFH to conduct research on invasive quagga mussel. The focus of the research is to analyze survival of quagga mussel veligers at different water temperatures over time. The veligers were counted and then placed into several different temperature baths for up to 72-hours. At that time, the samples were analyzed to establish a relationship between survival and temperature. Ultimately, the goal is to figure out how to sterilize fish eggs in quagga-positive waters for use in hatchery production. Research will continue this summer.



Quagga mussel veliger temperature tolerance experiments conducted at Willow Beach NFH

Kurt Eversman, Willow Beach NFH

Graduate Research Projects at Dexter NFHTC



NMSU students using facilities at Dexter NFHTC for graduate research projects

The Molecular Ecology Laboratory at Dexter NFHTC is working with several graduate students from New Mexico State University (NMSU). The most recent is Rene Galindo (pictured) who is a first year Masters student of Dr. Colleen Caldwell at NMSU. Rene is using the facilities at Dexter to conduct population genetic studies on Rio Grande chub from New Mexico, southern Colorado, and Texas. Dexter is also working with Krista Heideman, a Ph.D. student of Dr. Michele Nishiguchi, in the Department of Biology at NMSU. Krista is conducting genetic research at both the population and taxonomic levels on several different species of chub (*Gila* spp.) that occur in the Colorado River Basin. Both students are working to finish research products that will help in the conservation of their respective species.

Wade Wilson, Dexter NFHTC

Southwest Texas College Visits Uvalde NFH



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Southwest Texas Junior College's zoology class toured Uvalde NFH in late March. Students were excited to complete a report based on the tour and asked many questions during the tour to help with their assignment. We discussed basic fish husbandry, disease prevention, and why it became necessary to keep and propagate the specific species we have on station. In part due to the tsunami and nuclear exposure concerns in Japan, we also discussed benefits and health advisories concerning fish consumption. Students were enthusiastic and seemed to really enjoy the experience. The class presented the hatchery with a framed picture signed by the students. The College's microbiology class will be the next to tour the hatchery.

Rick Echols, Uvalde NFH

Students visit Uvalde NFH for a tour of the facilities

Dexter NFHTC Participates in High School Career Fair

Dexter NFHTC participated in the annual POS-i-Tive Change Career Fair at the Dexter High School. Staff members met with students (grades 8-12) in a round table discussion of multiple career opportunities and answered student's questions concerning training required for the different professions represented. The feedback from the students was superb, and many students inquired how to apply for upcoming Youth Conservation Corps positions available at the Dexter NFHTC during the coming summer months and how they could help conserve, protect, and enhance natural environments for future generations.



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Dexter NFHTC staff interact with students from Dexter High School

Jason Nachtmann, Dexter NFHTC

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.

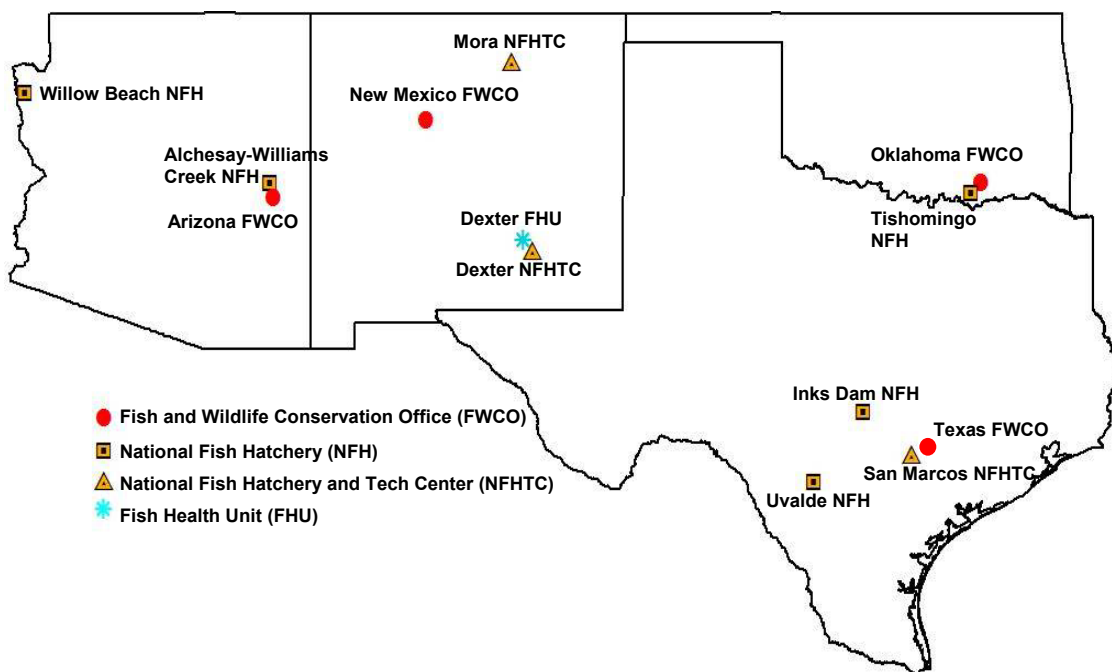
Fish Technology Centers

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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