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Currents

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Fisheries Program Highlights

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Edited by Jeremy Voeltz, Arizona FWCO



Dexter NFHTC is collaborating with the New Mexico FWCO and Colorado State University to develop a larval fish key for fishes of the Middle Rio Grande in New Mexico, such as this bullhead minnow.

Read the complete story on page 1

Larval Fish Key for Middle Rio Grande River Fishes



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A flathead chub brood stock produced larval fish for use in a larval fish key

Staff from Dexter NFHTC are working in collaboration with the New Mexico FWCO and Colorado State University to develop a larval fish key for fishes of the Middle Rio Grande River in New Mexico. This will aid in the identification of larval fish during future monitoring efforts.

New Mexico FWCO staff collected brood stock of bullhead minnow and flathead chub from the wild, and transported them to Dexter NFHTC for spawning, incubation, and grow-out. Staff from Dexter then took larval fish samples over a three month period. The samples were provided to Colorado State University for inclusion in the development of the larval fish key. The work is funded through the U.S. Bureau of Reclamation and will help with future management of native fishes in the Middle Rio Grande.

William Knight, Dexter NFHTC

Robot Aides in Diagnosis at Willow Beach NFH

Facing reduced water flows into Willow Beach NFH, staff collaborated with the U.S. National Park Service to use their electronic dive robot to help diagnose the problem. All five of the hatchery pumps were stopped in 30-minute intervals to allow the robot to inspect the river/pump inlets to ensure staff safety and the safety of the high-dollar robot. The robot confirmed that the river/pump inlets were covered in various algae and aquatic plants, which caused the reduced flows.

The pumps at Willow Beach NFH not only provide water to the raceways and hatchery tank room, but also for the irrigation/fire suppression system and cooling of feed room/ and ice machines.



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The National Park Service robot helps to diagnose the cause for reduced water flow at Willow Beach NFH

Kurt Eversman, Willow Beach NFH

Quagga Veliger Toxicity Research Continues at Dexter NFHTC



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Staff from Dexter NFHTC pipette veligers from a water quality sample

As a quagga mussel-positive facility, Willow Beach NFH is restricted on areas where they can stock fish. Research conducted in 2009 demonstrated that the standard treatments for removing quagga mussel veligers from fish transport tanks were ineffective because of water quality conditions at Willow Beach NFH. Additional toxicity tests were conducted in 2010 with three alternative chemicals to determine their lethality to quagga mussel veligers: Cutrine®-Ultra (a copper compound), Peraclean® 15 (peracetic acid), and Spectrus™ CT1300 (a quaternary ammonium compound). Unfortunately, the lethality tests showed that quagga mussel veligers were resistant to concentrations of each chemical that could not be tolerated by larval fish in that time frame tested (6-7 hours).

Catherine Sykes, Dexter NFHTC

Tishomingo NFH Distributes Sportfish to Tribes and NWR's

In FY 2010, Tishomingo NFH stocked more than 277,000 channel catfish ranging from one inch to 15-inches. Most of the larger catfish were supplied for several fishing events that occurred this summer. In August, the Regional Distribution Unit based out of Inks Dam NFH hauled channel catfish from the Tishomingo NFH to four different Native American Tribes in Arizona. The Tishomingo NFH also supplied catfish to the Fort Sill military installation, Seminole Nation, Kickapoo Tribes of Oklahoma and Kansas, Tishomingo NWR public fishing ponds, Broken Arrow fishing derby, Dexter NFH&TC and three different state fish hatcheries for federal reservoir distribution. Largemouth bass were also provided to the Kickapoo Tribe of Oklahoma, a local Boy Scout camp and several public fishing areas at the Tishomingo NWR. Recreational fishing has been an important component of the USFWS for 140 years.



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Channel catfish are collected and sorted for transport and stocking into various locations in Arizona, Kansas, New Mexico, and Oklahoma

Rebecca Fillmore, Tishomingo NFH

Stress Tests for Bonytail Conducted at Dexter NFHTC

A standard treatment of potassium chloride (KCl) followed by exposure to formalin is recommended for removal of mussel veligers from transport tanks when moving fish from mussel-positive waters. After exposing bonytail to the treatment, researchers at Dexter NFHTC measured changes of plasma cortisol, glucose, and osmolality over 24 hours as well as 14 days post-handling. Exposure to the chemicals alone did not elicit a stress response but the netting protocol did produce elevated plasma cortisol and glucose concentrations, and reduced osmolality concentrations. In addition, reduced response to stimuli was noted up to 14-days post-handling, indicating bonytail may not have completely recovered from the physical stressors which may increase their susceptibility to pathogens, alter feeding, and affect their ability to evade predators following stocking in the wild.



Bonytail undergo stress handling tests at Dexter NFHTC

Catherine Sykes, Dexter NFHTC

Tribal Youth Visit Dexter NFHTC



Mescalero Apache Tribal youth learn about fish culture

Michael Montoya, Hatchery Manager for the Mescalero Tribal Hatchery, brought 18 Native American students and YCC staff for an extended exchange with Dexter NFHTC. Mescalero employees learned about the different equipment and technical capabilities necessary for imperiled aquatic species culture. Working side-by-side with Native American Tribes, Nations, and Pueblos is a central theme for the Service's Fisheries Program.

Connie Keeler-Foster, Dexter NFHTC

New Screens = Bigger Fish at Willow Beach NFH



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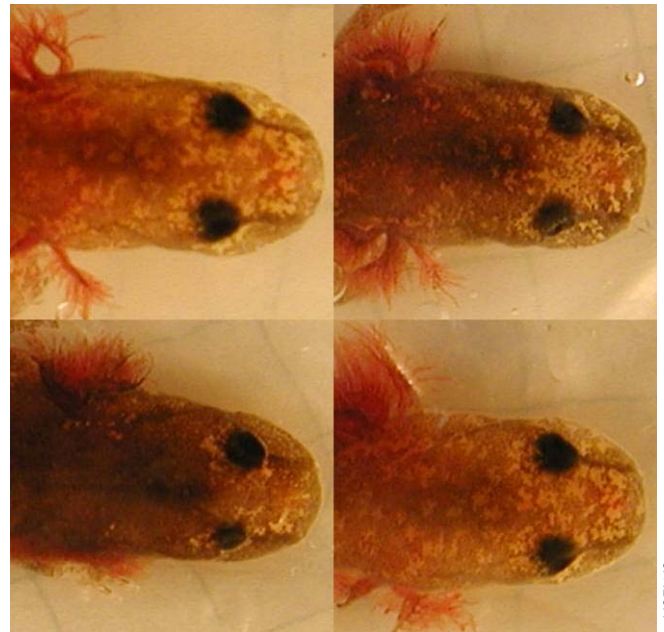
New raceway screens won't clog as easily and will allow more efficient fish growth at Willow Beach NFH

New raceway head screens provided by the Bureau of Reclamation are now in place at Willow Beach NFH. The fish at the hatchery are cultured in long rectangular raceways that receive water from a head box which at the end of each raceway. The old screen size and placement allowed debris to inhibit water flow and unevenly distribute water to the bank of raceways. The new screens have more surface area and have been placed in a different location allowing for an evenly distributed flow. This will ensure that the fish will receive the water required to reach their stocking size of twelve inches more efficiently.

Randall Shine, Willow Beach NFH

Using Skin Patterns to Identify Salamanders

Most traditional methods for marking salamanders for individual identification are invasive, puncturing or damaging the amphibian's skin, which could possibly lead to infections and mortality. Alternatively, one can use the non-invasive photographic identification method (PIM) to identify salamanders, a method traditionally used on mammals. At the San Marcos NFHTC, researchers have used the PIM technique by taking digital photographs of the unique skin patterns on salamanders' heads and assigning them an identification code. After two months of preliminary testing on 146 San Marcos salamanders, staff have been able to successfully distinguish the salamanders apart. This method could possibly be used in future studies to monitor the salamanders' growth, condition, gravidity, movement patterns, and survival in captivity and in the wild.



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Skin patterns are a non-invasive method of identifying individual salamanders

Joe Fries, San Marcos NFHTC

Emerging Fish Health Issues in the Southwest

The final quarter of FY2010 was an extremely busy and productive time for the Dexter's Fish Health Center. The lab's workload was significantly increased due to emerging issues relating to viral pathogens in the Southwest, including largemouth bass virus (LMBV), cutthroat trout virus (CTV), and viral hemorrhagic septicemia virus (VHSV). These findings helped raise awareness about biosecurity and pathogen transmission potential throughout the region. Two research projects were initiated, (LMBV quantitative PCR and a wild fish survey for CTV) and funding was secured to complete wild fish surveys for VHSV in Oklahoma.

Teresa Lewis, Dexter NFHTC



Tissue samples are processed at Dexter NFHTC

Dive Team Assists Willow Beach NFH



The intake for Willow Beach NFH's water supply, after being cleared of aquatic vegetation.

After discovering the blockage to Willow Beach NFH's river pump intakes by the Park Service's aquatic robot, we requested assistance from the U.S. Bureau of Reclamation's dive team. Within days, the dive team removed various algae and aquatic plants (also know as the river monster) that were blocking the intake. During the clean-up, the staff shutdown all hatchery pumps and supplemented water using three portable pumps. Staff also used an air manifold in the raceways to supplement oxygen loss. While clearing the intake, the dive team discovered that one of the main intake pipes had a huge hole, a problem that will be addressed in FY11.

Kurt Eversman, Willow Beach NFH

Youth Education Clinics at Tishomingo NFH



Staff from Tishomingo NFH recently adopted curriculum for two new classes focused on environmental education for youth. The first class, “Native Fish ID”, focused on proper identification and collection of common native fishes. Children learned to net and seine fish from a display pool then participated in hands on activities related to proper fish identification. The second class applied the “Biologist-in-Training” (BiT) program developed by the Region 4’s Fisheries Program. Staff guided kids and participating parents on a tour of the hatchery, followed by activities and games that focused on conservation of aquatic resources. At the end of the course, kids received BiT completion certificates and stickers. Both clinics were set up outdoors alongside beautiful Pennington Creek, the hatchery’s source of water.

**Rebecca Fillmore and Ralph Simmons,
Tishomingo NFH**

New Fish Distribution Truck For Transporting “T&E” Fish

Dexter NFHTC staff redesigned and outfitted a new fish distribution truck and goose neck hauling trailer to replace the previous unit that provided 23 years of reliable fish stocking service. In collaboration with partners from the San Juan Recovery Implementation Program and the Bureau of Reclamation, a new double compartment fiberglass tank was purchased and installed on a new Ford F-750 truck, along with oxygen systems, lighting, and electronic aerator controls. The old tank was refurbished and installed on a new gooseneck flatbed trailer. The new hauling units allow staff to double the hauling capacities and provide for safety and security of the fish during transport.



Dexter NFHTC’s new fish distribution truck and trailer

Bill Williams, Dexter NFHTC

New Nature Trails Open at Inks Dam NFH

Inks Dam NFH is fortunate to have a wide variety of habitats that a visitor can enjoy; now with four new hiking and walking trails. The Overlook Trail is a rugged mile long hike to a spectacular view of the hatchery ponds, Inks Dam, the Colorado River, and Inks Lake. The Ashe Juniper Trail with its interpretative guide showcases Texas native plants and trees, as well as a bird blind. The Pecan Grove Trail is the hatchery's longest trail, at two miles, that guides the visitor on a tour of ponds, wetlands, Peter's Creek, pecan grove, and a red tail hawk nesting site. The final trail is the Riverwalk Trail that includes a handicapped accessible portion along the pecan tree-lined banks of the Colorado River, picnic tables, and fishing area.



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A view from one of the nature trails at Inks Dam NFH

Cindy Fronk and Marc Jackson, Inks Dam NFH

New Wildlife Pond in Development at Uvalde NFH



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The new wildlife pond at Uvalde NFH

Staff from Uvalde NFH are developing a new wildlife pond that will be accessible to people interested in watching wildlife. To date, over 1,000 dump truck loads of soil have been removed from the pond bottom, which also allowed for the removal of an invasive species of sedge. An area of deep water habitat was created that will benefit wildlife as well as a refuge for fish. Water from the effluent slough will be pumped into the pond to maintain consistent depth. The added capacity will allow staff to periodically pump down the slough to cause separation from downstream waterways which will allow better control of unwanted fish, aquatic vegetation, and possible pathogens.

Rick Echols, Uvalde NFH

Education Center Nearing Completion at Inks Dam NFH



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The new Education Center at Inks Dam NFH nears completion

The Education Center is rapidly nearing completion, thanks to the Friends of Inks Dam NFH and volunteers; with over 216 volunteer hours contributed this quarter. The inside work resulted in a wide open foyer (that will double as a meeting room), a storage room, a new office, galley kitchen, and a double bathroom. Friends and volunteers worked hard to reuse as much of the existing materials as possible to avoid waste. Outside, the Education Center received native trees and plants from local nursery Backbone Valley. The Friends' landscape committee made short work of beautifying the outside. The first event at the Education Center was a going away party on November 12, 2010 for Inks Dam NFH's departing project leader Marc Jackson.

Cindy Fronk, Inks Dam NFH

Record Turtle Hatch at Tishomingo NFH

This year's alligator snapping turtle production at Tishomingo NFH doubled the previous record production, resulting in 320 hatchlings with a hatch success of 70%. Each year turtle eggs are collected from nests in late May and placed in an environmental chamber set at 28°C. During the 90-day incubation period moisture and temperature are monitored daily to increase hatch success. Turtles began hatching in August and are usually completely finished by September. Hatch success results should continue to improve as incubation techniques improve. The hatchling alligator snapping turtles will be reintroduced into their native habitat in Oklahoma, Kansas, and Missouri once they reach 3-4 years old. When Tishomingo NFH first brought alligator snapping turtles on station, little was known about the species life history.



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Alligator snapping turtle hatchlings at Tishomingo NFH

Brian Fillmore, Tishomingo NFH

Tishomingo NFH Attends Johnson County Fair

The Tishomingo NFH set up informational booths for two different annual events in September. Biologists provided outreach materials and information at the Johnston County Fair, located in Tishomingo, OK, and the annual Oklahoma Wildlife EXPO located in Guthrie, north of Oklahoma City. Both events featured a “Kid’s Day” which invited all school aged children from local areas to attend. A pictorial display of hatchery projects provided a background for the live alligator snapping turtles display. Another show stopper included a three-month old alligator gar that kids and adults loved to watch through aquaria glass. Biologists received many questions about the fish pointing out differences between the alligator gar and the three other native species of gar found in Oklahoma.



Kids observe a juvenile alligator gar

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***Rebecca Fillmore and Ralph Simmons,
Tishomingo NFH***

Population Estimates Completed for Young Humpback Chub



A young-of-year humpback chub is marked using colored visible implant elastomer tag

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During September and October 2010, Arizona FWCO biologists and volunteers conducted annual fall monitoring of the endangered humpback chub population in the Little Colorado River (LCR). This year, along with the usual mark-recapture effort using PIT tags to estimate adult and juvenile abundance, young-of-year chubs were tagged using visible implant elastomer (VIE) tags. These colored tags leave unique marks on the fish which is a less invasive technique than a PIT tag injected in the body cavity. The young-of-year chub were marked dorsally with a unique code for each sampling trip. About 1,200 chubs were tagged between the trips resulting in a preliminary population estimate of 6,882 young-of-year humpback chubs. This information will be important to natural resource managers along the Colorado River as they make decisions that may influence the future of the species in the Grand Canyon.

Michael Pillow, Arizona FWCO

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.

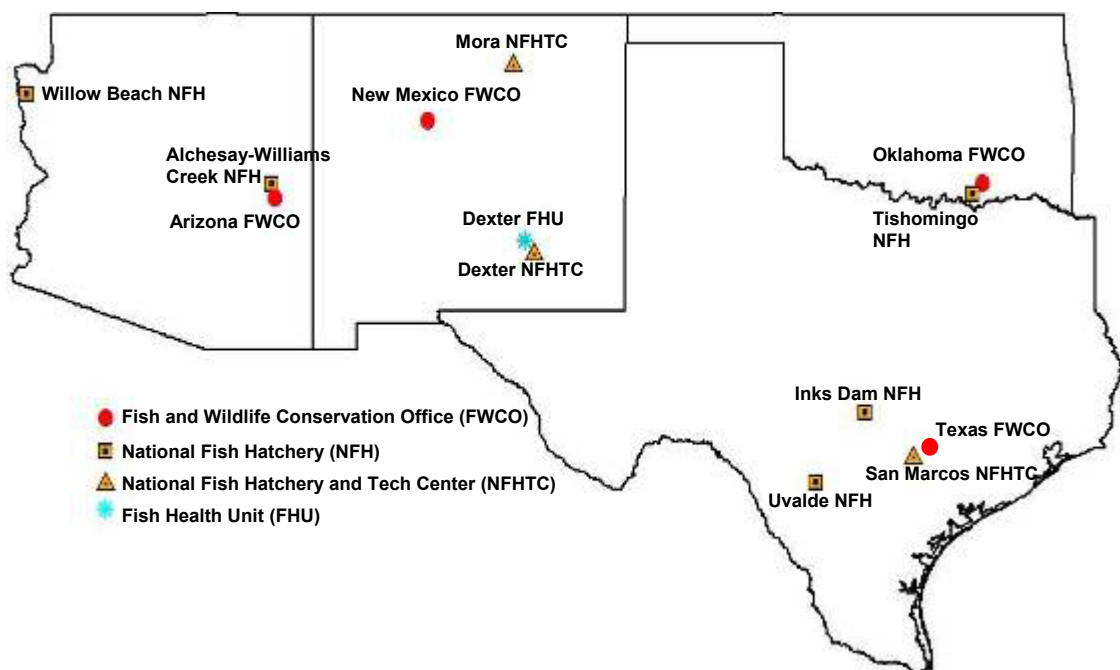
Fish Technology Centers

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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