

Tishomingo National Fish Hatchery

Monthly Report
March 2016



Aquatic Species Conservation and Management



Ralph Simmons carries paddlefish brood stock to holding tank.

for genetic evaluation. Both collections were made in the upper river channel where paddlefish were staging for spawning. Cooperators who assisted with paddlefish spawning included ODWC Biologists Richard Snow, Jeff Tibbits, Mike Hollie, Amie Robison, and Jory Bartnicki; Mora NFH

Two successful attempts collecting paddlefish brood stock occurred at Grand Lake O' the Cherokees, OK. Five females and six males were collected on the first trip, and six females and seven males were collected the following week. Both collections were made by Jason Schooley, Paddlefish Biologist with Oklahoma Department of Wildlife Conservation (ODWC) and his intern Willis Sontheimer, with assistance from Oklahoma Fish and Wildlife Conservation Office. During brood fish selection fin clips were taken to be sent to Michael Schwemm at Southwestern Native Aquatic Resource and Recovery Center

Pathways Intern Daniel Gallegos; Murray State College volunteer Matt Smith; and Oklahoma City Zoo Fish Technician Danielle Woolen.

Paddlefish are reared for the purpose of re-establishing populations in areas of their native range from which they have been extirpated.



Milt is poured over paddlefish eggs to fertilize.

Jeff Tibbits, ODWC, connects hatching jars to water system.



Leadership in Science and Technology

Dr. Day Ligon from Missouri State University and PhD candidate Denise Thompson from Oklahoma State University captured brood alligator snapping turtles from ponds at the Tishomingo NFH to collect blood samples for hormone analysis and to record egg follicle development. Female turtles were given a sonogram so that egg follicles could be measured and stage of development verified. The data will be used to determine the reproductive cycles of the turtles and how individual variation in stress levels may influence reproduction. This information can be used to estimate timing of mating and reproductive status of the species throughout the year.



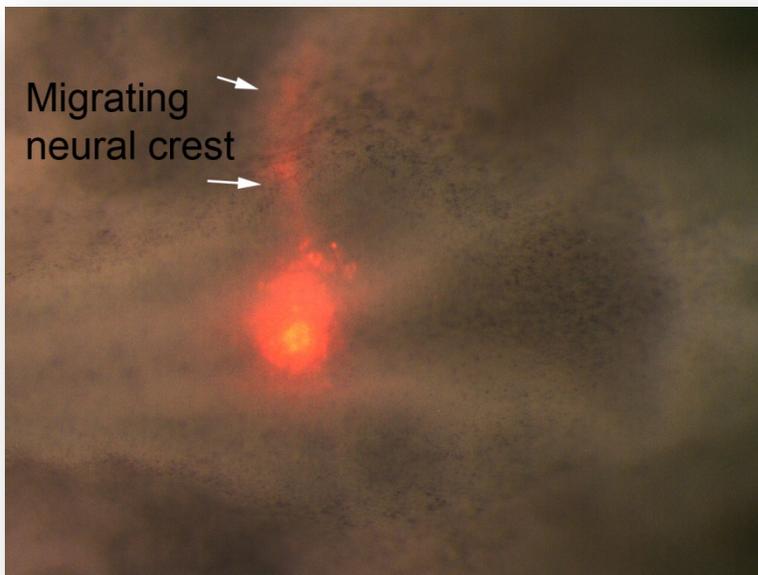
Female alligator snapping turtle undergoing sonogram.

Sarah Spangler, a graduate student from Missouri State University, compared the growth of alligator snapping turtle hatchlings reared in hatchery ponds and indoor tanks. Additionally, habitat selection and movement of hatchling turtles in ponds was monitored using small transmitters attached to the carapace of the hatchlings. Signals from the transmitters were monitored around the clock using an automated receiving unit and hand-held receivers.



Locating alligator snapping turtles with a radio transmitter receiver.

Dr. David McCauley from the University of Oklahoma Stephenson Cancer Center visited the hatchery to obtain paddlefish embryos and learn methods to fertilize paddlefish eggs in his laboratory. Dr. McCauley's research investigates the evolution of neural crest cells and their importance in generating morphological diversity such as the development of the rostrum in paddlefish. Researchers use dye injections and reporter genes to follow the migration of neural crest cells during the development of the rostrum.



Dye-labeled migrating neural crest cells in paddlefish embryo.

Drs. Borys and Viktoriya Dzyuba from the University of South Bohemia (USB), Czech Republic, and Dr. William Shelton, University of Oklahoma, visited the hatchery to procure samples of semen from adult paddlefish. The fish had been used for spawning purposes at the hatchery earlier in the week and were requested to be used for the collaborative study to investigate spermatozoan activation in paddlefish. In most freshwater bony fishes spermatozoa are activated by water contact outside the body of the male. However, other species of fish such as sturgeon require the addition of urine products as the sperm passes through tiny ducts in the kidneys before it can be activated by water. The study proposes to examine other closely related taxa such as paddlefish, gar, and bowfin which have similar reproductive anatomies by comparing samples of sperm taken directly from the testes to sperm that has passed through the kidneys.



Drs. Borys and Viktoriya Dzyuba with Dr. Bill Shelton study paddlefish.

Cooperation with Native Americans

A meeting was held with the Eastern Peoria Tribe at their headquarters in northeastern Oklahoma. They had requested assistance with smallmouth bass culture to enhance recreational fishing on tribal lands.

Facilities



Bernie Freeman and Robert Baca, engineers from the Regional Office, visited Tishomingo NFH for collaboration on the upcoming pond liner deferred maintenance projects and the demolition of Quarters 1, damaged from water pipe breaks in January 2014.

Quarters #1 damage January 2014.

Volunteers

The Oklahoma City Zoo has an interesting opportunity for their employees to volunteer at conservation locations. The zoo employee can choose a location and time for volunteering, while receiving their salary from the zoo. Danielle Woolen volunteered at Tishomingo NFH during paddlefish spawning this year, taking part in the Zoo's Conservation Partnership opportunity to learn about the spawning procedure.



Danielle Woolen, volunteer from Oklahoma City Zoo.

Visitors and Outreach

*Johnston County Emergency
Medical Services Egg Hunt.*



Tishomingo NFH participated in the annual Johnston County Emergency Medical Services (EMS) Easter Egg Hunt by displaying alligator snapping turtles for the visitors to view. There were approximately 150 adults and children present to ask lots of questions about turtles from our staff.

U.S. Department of the Interior
U.S. Fish & Wildlife Service
<http://www.fws.gov/southwest/fisheries/tishomingo/index.html>
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