

FLEUR DE LIS FISHERIES

US Fish and Wildlife Service

NATCHITOCHEES, LA



National Fish Hatchery OPEN HOUSE



Sponsored by:
F.I.S.H.
Friends in Support of
the Hatchery
Cypress Knee
Outdoors
Provençal Bass Club
International Paper



**New Time
Fishing Derby
8:30-10:30 am**

- Fishing Derby (ages 2-15)
- Flip, Pitch & Cast Contest (ages 7-14) Prizes – Hosted by the Provençal Bass Club
- Boating Safety Workshop
- Casting Contest (Bring your own pole or supplies can be purchased)
- Hands-on Activities
- Kids of all ages invited
- Kiddie Train Ride
- Inflatable Jumper
- Live animal displays

**Official Natchitoches
Humane Society Pet
Adoption Day**

Saturday

JUNE 2

8:00 - 11:30 am



Children Activities

Natchitoches Fish Hatchery - 615 South Drive

For more information (318) 352-5324

Florida Bass Harvest at Natchitoches NFH, Spring 2012

By: Jan Dean

Last fall, we were in a drought situation which prevented us from filling the hatchery ponds, so we were hoping for spring rains to replenish our water source, Cane River Lake. The rains began in December, and Cane River went, in a matter of weeks, from being closed because of record low water to being open for awhile to being closed for high water. We had our annual fish production planning meeting with the Louisiana Department of Wildlife and Fisheries (LDWF) on January 12, which we reported on in the January newsletter. The FWS has a Memorandum of Understanding with the LDWF in which we are to provide recreational fish species for stocking in Louisiana waters. During the meeting, we were asked to accept one million Florida largemouth bass fry and rear them to fingerling size, which typically is one-two inches in length. That number of fry equates to about 17 ponds. We indicated during the meeting that we could rear more than the request, so they later gave us 1.3 million bass fry which we stocked into 22 ponds. The ponds were filled and managed for zooplankton production as food for young bass. In April, we

drained the ponds and harvested the bass fingerlings. Our records indicate a harvest of approximately 612,000 fingerlings which weighed 1228 pounds, for an average count of 498 per pound. The overall return was 46 percent and would have been higher except that we didn't harvest one pond because the fish were mixed with so many tadpoles that we couldn't effectively separate the fish. Several of the ponds had abundant tadpoles or crawfish, or both, which had to be separated in our holding house.

Most of the fingerlings went to public water bodies in Louisiana according to the LDWF priority list. Some of the bass were stocked into five small lakes operated by the US Forest Service and a few were stocked into local Soil and Water Conservation District ponds which had been engineered by the Natural Resource Conservation Service, formerly known as the Soil Conservation Service. Natchitoches NFH is pleased to use hatchery ponds for rearing these fish in support of the missions of the LDWF, the Forest Service and the local Soil and Water Conservation District.



Hatchery staff, a volunteer and staff from Louisiana Wildlife and Fisheries work to harvest these Largemouth bass from one of our ponds.

Louisiana Pearlshell Mussel Host Fish Remains a Mystery

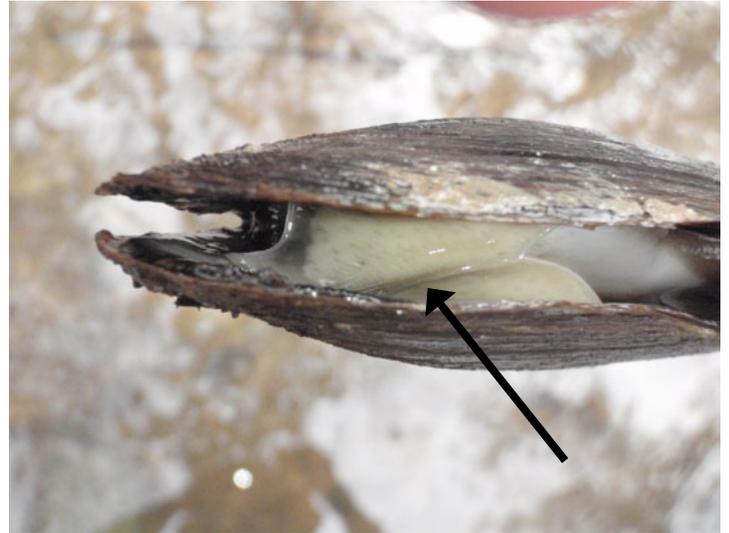
By: Tony Brady

When research begins on a mussel species, like the Louisiana pearlshell *Margaritifera hembeli*, some of the first questions that are researched are, “What time of year can females be found with glochidia”, and “What fish species does the mussel use as its host fish?” The term host fish as it relates to freshwater mussels means the species of fish that is required by a mussel species to complete its life cycle. The larval form of mussel called glochidia must attach to the gills or fins of a fish where it undergoes a metamorphosis that when complete will allow the newly transformed juvenile mussel to break free from the fish and start living in the river bottom. Some mussels can use several different fish species as hosts, while others are limited to a single fish species. Over the past two years, Natchitoches National Fish Hatchery has been conducting the research to answer these questions for the Louisiana pearlshell. In 2011, our research determined that the Louisiana pearlshell spawns in late February and into early March with viable glochidia being found in mid to late March.

Starting in February 2012, our research resumed with the collection of possible host fish followed by the weekly sampling of Louisiana pearlshell mussels from four streams for glochidial development. In March, female mussels were found with developing



Biologists check the the output of the backpack electrofishing unit before collecting for potential host fish.



The gills of this Louisiana pearlshell mussel are charging with glochidia. You can tell because of the whitish color in the gills.

glochidia resulting in a total of 40 gravid female mussels being brought back to Natchitoches National Fish Hatchery where they were placed in aquaria with the potential host fish. Glochidia were allowed to finish developing at the hatchery and the females released the glochidia into the aquaria exposing them to the fish. The mussels were returned to their home stream after the glochidia were released. The aquaria were checked every couple of days looking for transformed juveniles through the month of April. Unfortunately, no transformers were recovered from this experiment. Because there is only a narrow window of opportunity to conduct such studies for the Louisiana pearlshell, we will have to wait until next year to attempt another host fish trial. However, while we are waiting for next March to roll around, the staff at Natchitoches NFH will be consulting with malacologists in Europe who are currently working with the Freshwater pearl mussel *Margaritifera margaritifera* to learn from their research methods that may aid in answering the host fish question for the Louisiana pearlshell mussel.

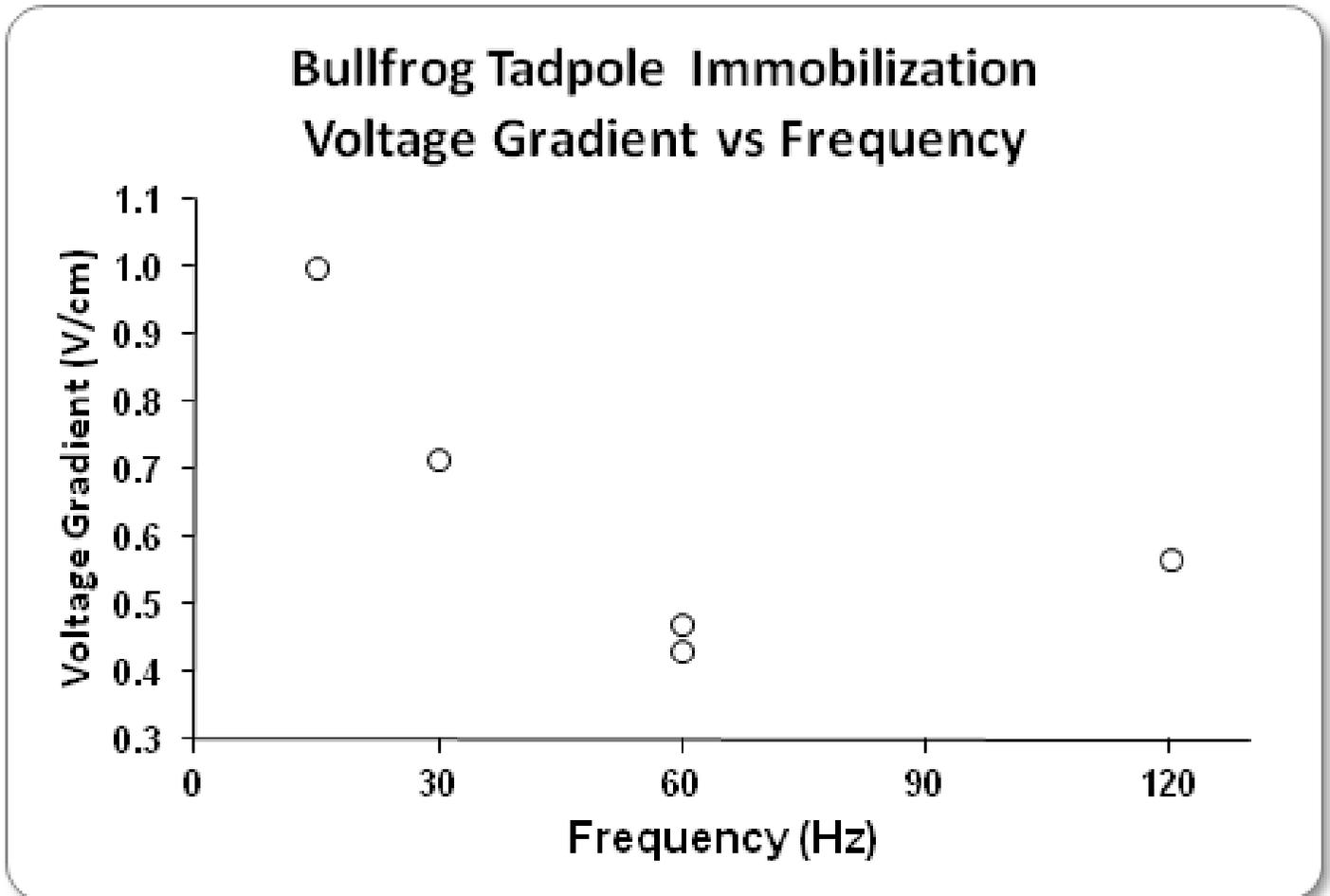
What's Happening to Frogs is Shocking

By: Jan Dean

Okay, I admit that title may be a little lame, but I've always enjoyed terms, phrases or titles with double meanings and books, etc. with double titles. For example, Charles Darwin's famous book known as *The Origin of Species* had a double or expanded title. It is well known that amphibians, including frogs, have experienced a dramatic – dare I say shocking – decline in recent years. The purpose of this article is not to document or speculate on the causes of this worldwide reduction in amphibian populations. For now, let it be said that many species are considered threatened, endangered or even extinct.

As one interested in all things electrofishing, it has come to my attention that biologists are beginning to consider the use of electrofishing for frog capture. A related and even larger issue, however, may be the growing concern about the effects of electrofishing on

various life forms of frogs inadvertently exposed to the electric field during fish surveys. One important question is, "Does fish sampling using electrical current cause harm to frogs?" Biologists in California have shown interest in such a question and, more recently, biologists in New Mexico expressed the same concern. While in New Mexico in March to teach the FWS Electrofishing class, Dr. Alan Temple of NCTC and I met with fisheries biologists who plan to study that very question for the threatened Chiricahua leopard frog. Evidently, there is little to no quantitative information in the scientific literature on the effect of various electrical waveforms on frogs. While collecting stream fish for a class demonstration, we captured a few bullfrog tadpoles, so we subjected them to low voltages in an aquarium fitted with plate electrodes at each end. Such an arrangement produces an electrical



Minimum, or threshold, voltage gradient (V/cm) required to cause immobilization of bullfrog tadpoles at various frequencies of pulsed direct current.

current which is uniform throughout the tank, and that is the situation, called a homogeneous electrical field, which is needed for quantitative electrofishing research. A backpack electrofisher was used to power the plate electrodes for the test. We used a 20 percent duty cycle (the percent of time in which the electrical current is flowing or turned on) and frequencies of 15, 30, 60 and 120 pulses per second of pulsed direct current. We observed the response of the tadpoles as the voltage was adjusted, and the objective was to determine the minimum, or threshold, voltage required for immobilization. The most voltage was required at the lowest frequency, 15 pps, and the lowest voltage to induce immobilization was required for the 60 pps frequency, whereas 120 pps required slightly more voltage than at 60 pps. The typical results for fish are similar to these, and there often is little difference in the voltage required for immobilization at 60 and at 120 pulses per second.

There is more to the story. It seems reasonable that a better surrogate for the Chiricahua leopard frog than a bullfrog might be another leopard frog. While inspecting hatchery ponds at Natchitoches NFH, several Southern leopard frog tadpoles were observed and collected. These were exposed to the same electrical waveforms as had been used in New Mexico. As the tadpoles developed into froglets and then young frogs

over the next two weeks, they were used for more testing of electrical waveforms. Without giving specific details here, it can be said that their responses were similar to those seen for the bullfrog tadpoles and for fish. The highest voltage was required for the lowest frequency, and the lowest voltages were required for the highest frequencies. This information has been provided to a biologist in New Mexico as preliminary to a more formal study which will be conducted by others for the protection of this threatened frog. We wanted to help in the overall conservation effort to prevent yet another amphibian species from going extinct.



Aquarium setup at Natchitoches National Fish Hatchery for testing electrical waveforms on Southern leopard frog tadpoles, froglets and young frogs.



Young Southern leopard frog resting in the test aquarium.