PERFORMANCE REPORT

As Required by

FEDERAL AID IN SPORT FISH RESTORATION ACT

TEXAS

FEDERAL AID PROJECT F-221-M-3

INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

2012 Fisheries Management Survey Report

Buffalo Creek Reservoir

Prepared by:

Tom Lang, District Management Supervisor
and
Robert Mauk, Assistant District Management Supervisor

Inland Fisheries Division
District 2-E, Wichita Falls, Texas

Carter Smith
Executive Director

Gary Saul
Director, Inland Fisheries

July 31, 2013

TABLE OF CONTENTS

SURVEY AND MANAGEMENT SUMMARY

Fish populations in Buffalo Creek Reservoir were not surveyed in 2012-13 report year because of extremely low water elevations caused by prolonged drought. This resulted in the lone boat ramp being well above the waterline and unusable. This report contains a management plan for the reservoir.

- **Reservoir Description:** Buffalo Creek Reservoir is a 1,577-acre impoundment located on the North Fork of Buffalo Creek in the Red River Basin approximately 20 miles west of Wichita Falls. At full pool, it has a primarily rocky shoreline. Buffalo Creek water can be turbid at times.

- **Management history:** Important sport fish include Largemouth Bass, White Crappie, and catfish. Buffalo Creek has always been managed with statewide regulations.

- **Fish Community**

  - The 2012 electrofishing and trap net surveys, and the 2013 gill net survey could not be conducted because extreme low reservoir elevation made launching a boat impossible. As a result, the current status of the fish population is unknown.

- **Management Strategies:** Conduct general monitoring with trap netting, gill netting, and electrofishing surveys in 2016-2017. Continue habitat improvement along the dam by placing brush piles and half-felling trees beside the dam when reservoir elevation is adequate.

INTRODUCTION

The purpose of the document is to provide fisheries information and make management recommendations to protect and improve the sport fishery.

Reservoir Description

Buffalo Creek Reservoir is a 1,577-acre impoundment constructed in 1964 on the North Fork of Buffalo Creek. It is located in Wichita County, approximately 20 miles west of Wichita Falls and is operated and controlled by the City of Iowa Park. The primary use is for recreation. Mean depth is 10 feet when the reservoir is at conservation pool, but it has often been well below that during the fisheries surveys. The water level has been low since 2007, ranging from 6 to 19 feet below conservation pool (Figure 1). Other descriptive characteristics for Buffalo Creek Reservoir are in Table 1.

Angler Access

Buffalo Creek Reservoir has a single two-lane public boat ramp which is unusable when the reservoir is more than 14 feet below conservation pool. Boat access was impeded in 2012 because the end of the boat ramp was above the waterline. Extension of the ramp is not feasible. The dirt road leading to the ramp has become rutted in the past after precipitation events making it difficult for recreationists to trailer their boats to the reservoir. The City of Iowa Park, the controlling authority often shuts and locks the gates leading to the reservoir to prevent damage to the road when wet which results in a loss of access to the reservoir until the roads dry out. Additional boat ramp characteristics are in Table 2. Shoreline access is available for much of the reservoir.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Howell and Mauk 2011) included:

1. Access to the reservoir by vehicle after rainfall events is restricted by the City of Iowa Park which leads to a decrease in usage. To help alleviate the problem, we wanted to work with the city to improve the roads.

   Action: Worked with the City of Iowa Park which applied for support from the state boater access program. A matching grant from this program could potentially be used for paving the road and parking area. We are still awaiting a decision from the state boater access program.

2. During periods of reservoir elevations above 1,040 feet above mean sea level, we have annually placed brush piles and half felled trees in the water along the dam. This effort has been well received by the angling public.

   Action: Water elevations have been low so the practice has been suspended until reservoir elevations improve.

3. Many invasive species threaten aquatic habitats and organisms in Texas and can adversely affect the state ecologically, environmentally, and economically. Therefore, the district office would be vigilant for invasive species and would try to educate the public about them.

   Actions:
   1. The office tried to spread the message about invasive species through the use of television, new releases, and the internet.
   2. Made a speaking point about invasive species when presenting to constituent and

user groups.

3. Keep track of existing and future inter-basin water transfers to facilitate potential invasive species responses.

Harvest regulation history: Sport fish species in Buffalo Creek Reservoir are currently managed and have always been managed using statewide harvest regulations. Current regulations are found in Table 3.

Stocking history: Within the last decade, the reservoir received supplemental stockings of Channel Catfish, northern and Florida Largemouth Bass in response to increased water elevation from previous years. Florida Largemouth Bass were last stocked in 2008. The complete stocking history is in Table 4.

Vegetation/habitat history: Buffalo Creek has no significant aquatic vegetation management history. It has had habitat enhancement work completed in the past using mesquite trees growing on the dam that were cut and sunk as fish attractors. The resulting brush piles were popular with anglers. The work ceased a few years when the reservoir nearly dried up in 2004. This enhancement work started up again in late 2009 continuing into 2011 when the reservoir elevation started declining again.

Water transfer: Buffalo Creek Reservoir is primarily used for recreation. It was originally used as a municipal water supply for the city of Iowa Park. There is a functional water pumping station on the reservoir, which can transfer water to other locations; but it is seldom operated, only enough to keep the pumps in operational condition. When the pumps are operated, water is primarily pumped to Gordon Lake, a community fishing lake in Iowa Park. Water could also be pumped to Iowa Park Lake. These two reservoirs would be intrabasin transfers. There are no interbasin transfers of water.

METHODS

No survey work was completed as scheduled because of extremely low water elevations that made launching a boat impossible.

Source for water level data was the United States Geological Survey (USGS).

RESULTS AND DISCUSSION

Habitat: Very little or no manmade changes to the physical habitat occurred during the two-year period since the last habitat survey was completed (Howell and Mauk 2011). A physical habitat survey was not conducted in 2012 because extremely low water elevations would not allow boat launching.

Fish species: The 2012 electrofishing and trap net surveys, and the 2013 gill net survey could not be conducted because extreme low reservoir elevation made launching a boat impossible. As a result, the current status of the fish population is unknown.

Fisheries management plan for Buffalo Creek Reservoir, Texas

Prepared – July 2013

Issue 1: After rainfall events, the City of Iowa Park closes the Burnet Ranch Road and the Harmony Road access gates to prevent vehicle damage to the dirt roads. These are the only access points to the reservoir for anglers.

MANAGEMENT STRATEGY

1. Work with the city of Iowa Park to continue road access improvements to include participation in the state boater access program. A matching grant from this program could potentially be used for paving access road and the parking area. This would likely increase use in a significant way.

Issue 2: During periods of reservoir elevations above 1,040 feet above mean sea level, we have annually placed brush piles and half felled trees in the water along the dam. This effort has been well received by the angling public.

MANAGEMENT STRATEGY

1. When water levels allow, continue placing fish attracting structure on an annual basis to enhance littoral habitat. The cover provided should help concentrate white crappie and enhance angler catch rates. The most suitable and available materials are a combination of donated cinder blocks and mesquite trees cleared from the dam.

Issue 3: Many invasive species threaten aquatic habitats and organisms in Texas and can adversely affect the state ecologically, environmentally, and economically. For example, Zebra Mussels (*Dreissena polymorpha*) can multiply rapidly and attach themselves to any available hard structure, restricting water flow in pipes, fouling swimming beaches and plugging engine cooling systems. Giant Salvinia (*Salvinia molesta*) and other invasive vegetation species can form dense mats, interfering with recreational activities like fishing, boating, skiing and swimming. The financial costs of controlling and/or eradicating these types of invasive species are significant. Additionally, the potential for invasive species to spread to other river drainages and reservoirs via watercraft and other means is a serious threat to all public waters of the state.

MANAGEMENT STRATEGIES

1. Cooperate with the controlling authority to post appropriate signage at access points around the reservoir.
2. Contact and educate marina owners about invasive species, and provide them with posters, literature, etc… so that they can in turn educate their customers.
3. Educate the public about invasive species through the use of media and the internet.
4. Make a speaking point about invasive species when presenting to constituent and user groups.
5. Keep track of (i.e., map) existing and future inter-basin water transfers to facilitate potential invasive species responses.

Issue 4: The state hatchery system is always looking for new locations to acquire northern Largemouth Bass broodstock. While Buffalo reservoir has historically been stocked with both, Florida and northern strains, it is probably better suited for the northern strain. As the reservoir continues to lose water from evaporation, it is likely that when it refills it will

need to be stocked with Largemouth Bass. However, we are unsure as to the genetic composition of Largemouth Bass in Buffalo Creek at present. Once the reservoir elevation increases to where we can launch a boat, we will electrofish for Largemouth Bass. If the genetic composition is high for northern Largemouth Bass, attempt to stock northern Largemouth Bass and create another source of northern Largemouth Bass broodstock.

MANAGEMENT STRATEGY

1. Sample Largemouth Bass population and have genetic analysis conducted as soon as reservoir elevation allows for boat launches.

SAMPLING SCHEDULE JUSTIFICATION:

There are no special concerns at this point regarding the fishery besides the declining reservoir elevation. Standard sampling will be conducted in 2016-2017 to monitor the fish populations (Table 5).

LITERATURE CITED

Howell, M. and R. Mauk. 2011. Statewide freshwater fisheries monitoring and management program survey report for Buffalo Creek Reservoir, 2010. Texas Parks and Wildlife Department, Federal Aid Report F-30-R, Austin.

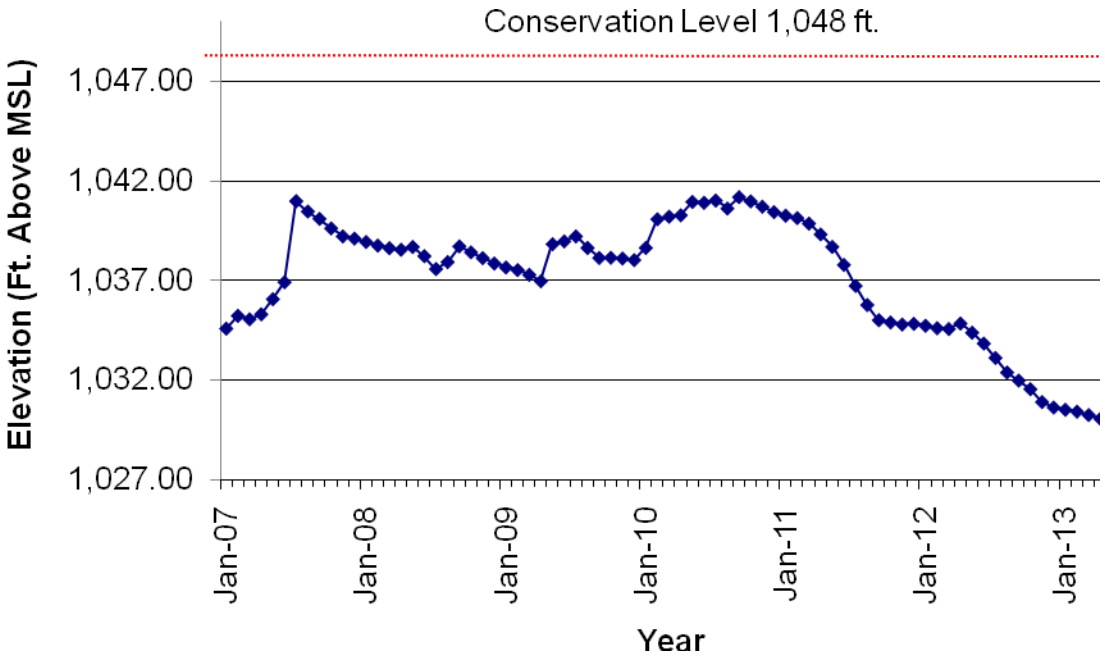

Figure 1. Monthly water level elevations in feet above mean sea level (MSL) recorded for Buffalo Creek Reservoir, Texas.

Table 1. Characteristics of Buffalo Creek Reservoir, Texas.

Characteristic	Description
Year constructed	1964
Controlling authority	City of Iowa Park
County	Wichita
Reservoir type	Tributary
Shoreline Development Index (SDI)	3.7
Conductivity	588 μS/cm

Table 2. Boat ramp characteristics for Buffalo Creek Reservoir, Texas, August, 2012. Reservoir elevation at time of survey was 1,033 feet above mean sea level.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
Buffalo Creek boat ramp	33.98715 -98.76006	Y	30	1,034	Out of water. Extension is not feasible

Table 3. Harvest regulations for Buffalo Creek Reservoir, Texas.

Species	Bag limit	Length limit
Catfish: Channel and Blue Catfish, their hybrids and subspecies	25 (in any combination)	12-inch minimum
Flathead Catfish	5	18-inch minimum
Largemouth Bass	5	14-inch minimum
White Crappie	25	10-inch minimum

Table 4. Stocking history of Buffalo Creek, Texas. Life stages are fingerlings (FGL), advanced fingerlings (AFGL). Life stages for each species are defined as having a mean length that falls within the given length range. For each year and life stage the species mean total length (Mean TL; in) if known is given (UNK=unknown). For years when there were multiple stocking events for a particular species, the mean TL is an average for all stocking events combined.

Species	Year	Number	Life Stage	Mean TL (in)
Blue Catfish	1969	25,000	FGL	UNK
Channel Catfish	2005	24,059	AFGL	9.9
	Total	24,059		
Florida Largemouth Bass	1993	139,987	FGL	1.2
	1999	141,148	FGL	1.4
	2008	165,989	FGL	1.7
	Total	447,124		
Northern Largemouth Bass	2005	38,460	FGL	1.6
	2006	48,070	FGL	1.9
	Total	86,530		

Table 5. Proposed sampling schedule for Buffalo Creek Reservoir, Texas. Survey period is June through May. Gill netting surveys are conducted in the spring, while electrofishing and trap netting surveys are conducted in the fall. Standard survey denoted by S and additional survey denoted by A.

Survey year	Electrofish Fall(Spring)	Trap net	Gill net	Habitat		Access	Creel survey	Report
				Structural	Vegetation			
2013-2014								
2014-2015								
2015-2016								
2016-2017	S	S	S		S	S		S

Figure 2. Photograph of Buffalo Creek boat ramp.