

PERFORMANCE REPORT

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INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

2011 Survey Report

Baylor Creek Reservoir

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TABLE OF CONTENTS

Survey and management summary	2
Introduction.....	3
Reservoir description	3
Management history.....	3
Methods.....	4
Results and discussion	4
Fisheries management plan.....	5
Literature cited	6
Tables	7- 8
Reservoir characteristics (Table 1)	7
Harvest regulations (Table 2).....	7
Stocking history (Table 3)	8
Proposed sampling schedule (Table 4)	8

SURVEY AND MANAGEMENT SUMMARY

Fish populations in Baylor Creek Reservoir were not surveyed in 2011 and 2012 due to extreme drought conditions. This report summarizes the history of the reservoir and contains a management plan.

- **Reservoir Description:** Baylor Creek Reservoir is a 600-acre impoundment constructed in 1950 on Baylor Creek, a tributary of the Red River, located 9 miles west of Childress, Texas. There are no official water level records. Water level in the reservoir has declined since 2000 due to drought conditions and the reservoir was inaccessible in 2008-2011. Habitat features consisted primarily of silt shoreline. The reservoir has been severely impacted by golden alga (*Prymnesium parvum*) blooms and related fish kills annually since 2003.
- **Management History:** Important sport fish have included largemouth bass, white crappie, and catfish. The sport fish populations have only been managed with statewide harvest regulations, but the reservoir had previously been known as a trophy largemouth bass fishery prior to 2003. Crappie and catfish were popular secondary species.
- **Fish Community**
 - No fisheries surveys were conducted in 2011-2012.
- **Management Strategies:** Reduce sampling to the minimum level required until water levels and chlorides return to levels that allow sampling access and *Prymnesium parvum* blooms abate.

INTRODUCTION

This document is a description and history of Baylor Creek Reservoir. The purpose of the document is to provide information and make management recommendations to protect and improve the sport fishery. No fisheries data was collected in 2011 and 2012 due to extreme drought conditions.

Reservoir Description

Baylor Creek Reservoir is a 600-acre impoundment constructed in 1950 on Baylor Creek, a tributary of the Red River, located 9 miles west of Childress, Texas. In winter 2011/2012 the reservoir covered approximately 20 surface acres. The reservoir is owned by the City of Childress and maintained for recreation. The reservoir was completely renovated in 1969 to eradicate a stunted white crappie population. There are no official water level records. Water level in the reservoir has declined since 2000 due to drought conditions and the reservoir was inaccessible in 2008-2011. Baylor Creek Reservoir experienced fish kills caused by golden alga (*Prymnesium parvum*) blooms beginning in spring 2003 and repeated in subsequent years. Conductivity has increased from an average of 1,150 $\mu\text{mhos/cm}$ in the 1980's to over 10,000 $\mu\text{mhos/cm}$ by 2007. At the time of sampling, the habitat was primarily silt shoreline. There were two boat ramps with minimal handicap specific facilities. By spring 2008, neither boat ramp was usable. Other descriptive characteristics for Baylor Creek Reservoir are in Table 1.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Munger 2008) included:

1. Baylor Creek Reservoir has been repeatedly impacted by *Prymnesium parvum*. Repeated blooms have decimated the fish populations.
Action: Stocking has been halted until *Prymnesium parvum* issues abate.
2. Baylor Creek Reservoir has been impacted by a long-term drought and has very low water levels. Conductivity was over 10,000 $\mu\text{mhos/cm}$ and precluded effective sampling.
Action: Sampling has been reduced to the minimum level required until water levels and chlorides return to levels that allow access and sampling.

Harvest regulation history: Sport fishes in Baylor Creek Reservoir are currently managed with statewide regulations (Table 2).

Stocking history: Baylor Creek Reservoir was stocked in 2005 with channel catfish, bluegill and Florida largemouth bass following *Prymnesium parvum* fish kills. The complete stocking history is in Table 3.

Vegetation/habitat history: The previous habitat survey conducted on Baylor Creek Reservoir was by Munger and Henegar (2004) where aquatic vegetation was deemed limited due to turbid water. Silt shorelines were the dominant habitat feature in this reservoir..

Water Transfer: Baylor Creek Reservoir is currently used only for recreation and no water transfers are planned for the reservoir.

METHODS

No surveys were conducted in 2011 or 2012 due to extreme low water levels.

RESULTS AND DISCUSSION

Habitat: A habitat survey was last conducted in 2003 (Munger and Henegar 2004).

Fish community: No results are presented because the reservoir could not be surveyed in 2011 or 2012 due to extreme low water levels.

Fisheries management plan for Baylor Creek Reservoir, Texas

Prepared – July 2012.

ISSUE 1: Baylor Creek Reservoir has been repeatedly impacted by *Prymnesium parvum*. Repeated blooms have decimated its fish populations. This is a continuation of the previous management plan.

MANAGEMENT STRATEGY

1. Delay stocking until conditions improve to where *Prymnesium parvum* blooms are less likely.

ISSUE 2: Baylor Creek Reservoir has been impacted by a long-term drought and has very low water levels. Conductivity data collected during electrofishing surveys were over 10,000 $\mu\text{mhos/cm}$ and precluded effective sampling. This is a continuation of the previous management plan.

MANAGEMENT STRATEGY

1. Reduce sampling to minimum levels every four years until water levels recover to allow access and conductivity declines enough to allow effective electrofishing.

ISSUE 3: Habitat evaluation and enhancement is typically conducted when the habitat area is flooded which makes accurate surveys difficult and enhancement efforts more expensive and difficult. Current extreme low water conditions provide the opportunity to evaluate existing habitat with the potential for lower cost enhancement activities

MANAGEMENT STRATEGY

1. Evaluate the exposed reservoir basin for potential habitat enhancement projects.
2. If enhancement possibilities are identified, coordinate potential action with the controlling authority.

ISSUE 4: 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. 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. Current low water conditions and high chlorides have reduced the risk of infestation, but inflows could return the reservoir to high risk.

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.

SAMPLING SCHEDULE JUSTIFICATION:

The proposed sampling schedule includes electrofishing and trap net sampling in 2015 and gill netting in 2016 (Table 4). Sampling has been reduced due to continued drought conditions and persistent *Prymnesium parvum* blooms. Sampling will only be resumed if reservoir conditions improve enough to be able to launch a boat.

LITERATURE CITED

- Munger, C. 2008. Statewide freshwater fisheries monitoring and management program survey report for Baylor Creek Reservoir, 2007. Texas Parks and Wildlife Department, Federal Aid Report F-30-R, Austin.
- Munger, C. and J. Henegar. 2004. Statewide freshwater fisheries monitoring and management program survey report for Baylor Creek Reservoir, 2003. Texas Parks and Wildlife Department, Federal Aid Report F-30-R, Austin.

Table 1. Characteristics of Baylor Creek Reservoir, Texas.

Characteristic	Description
Year constructed	1950
Controlling authority	City of Childress
County	Childress
Reservoir type	Main stream
Shoreline Development Index (SDI)	2.39
Conductivity	10,400 μ mhos/cm

Table 2. Harvest regulations for Baylor Creek Reservoir, Texas.

Species	Bag Limit	Minimum-Maximum Length (inches)
Catfish: channel and blue catfish, their hybrids and subspecies	25 (in any combination)	12 - No Limit
Bass: largemouth	5	14 - No Limit
Crappie: white and black crappie, their hybrids and subspecies	25 (in any combination)	10 - No Limit

Table 3. Stocking history of Baylor Creek Reservoir, Texas. Size categories are fingerlings (FGL), adults (ADL) and unknown (UNK). Average total length (TL; mm) of each species stocked is given by size category and year.

Species	Year	Number	Size	Species	Year	Number	Size
Blue catfish	1981	15,682	FGL	Flathead catfish	1975	2,000	UNK
Channel catfish	1965	6,000	ADL	Largemouth bass	1967	20,000	FGL
	1966	4,000	ADL		1968	9,400	FGL
	1967	3,500	ADL		1970	20,000	FGL
	1967	500	UNK		1971	24,000	FGL
	1968	5,000	ADL		1972	10,000	FGL
	1969	5,000	ADL		1973	5,000	FGL
	1971	5,000	ADL		2002	11	ADL
	1972	10,000	ADL		Total	88,411	
	1973	10,000	ADL				
	1975	5,000	ADL	Florida largemouth bass	1981	32,000	FGL
	1976	6,000	ADL		1999	280	FGL
	1977	6,000	ADL		2000	60,069	FGL
	1978	6,000	ADL		2002	61,000	FGL
	2005	17,151	FGL		2004	72,668	FGL
	Total	89,151			2005	61,222	FGL
					Total	287,239	
Bluegill	2005	66,101	FGL				
Coppernose bluegill x green sunfish	1981	60,000	FGL				
	1982	60,000	FGL				
	Total	120,000					

Table 4. Proposed sampling schedule for Baylor Creek Reservoir, Texas. Gill netting surveys are conducted in the spring, while electrofishing and trap netting surveys are conducted in the fall. Standard surveys are denoted by S and will only be conducted if water levels and conductivity return to levels that will allow access and use of the gear.

Survey Year	Electrofishing	Trap Net	Gill Net	Access and Habitat	Report
Fall 2012-Spring 2013					
Fall 2013-Spring 2014					
Fall 2014-Spring 2015					
Fall 2015-Spring 2016	S	S	S	S	S