

PERFORMANCE REPORT

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INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

2012 Fisheries Management Survey Report

Delta Lake

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SURVEY AND MANAGEMENT SUMMARY

Fish populations in Delta Lake were not surveyed in 2012 and 2013 due to low water level as a result of extreme drought conditions. This report summarizes the history of the reservoir and contains a management plan.

- **Reservoir Description:** Delta Lake is a 2,261-acre reservoir located in Hidalgo County, 2.5 miles north of Monte Alto. The reservoir is divided into a public section (approximately 1,500 acres, east side) and a private section (approximately 761 acres, west side). The two sections of the reservoir are divided by State Highway 88 and are connected by concrete culverts. The reservoir is owned and operated by the Hidalgo-Willacy Counties Water Control and Improvement District No. 1 and used for irrigation and recreation. The lake is very shallow and turbid. Substrate is composed primarily of small rock, clay, sand and silt. Littoral habitat consists of periodically flooded terrestrial vegetation, large stands of bulrush and cattail, and standing timber.
- **Management History:** Important sport fish species included Channel Catfish, White Bass, Largemouth Bass, and White Crappie. Exotic species present include Grass Carp and Suckermouth Catfish. The previous fisheries management plan focused on using winter drawdowns and subsequent spring rises to increase habitat for improving spawning and recruitment success; use of winter drawdowns to control exotic flora and fauna by exposing them to temperatures below their lower thermal tolerances; and writing and distributing press releases concerning Blue Catfish angling opportunities.
- **Fish Community**
 - No fisheries surveys were conducted in 2012-2013.
 - 1. **Management strategies:** Continue managing the fish populations under current regulations. Remove Delta Lake from the 4-year rotation list of reservoirs because of its low fisheries potential.

INTRODUCTION

This document is a description and history of fisheries management at Delta Lake. The purpose of the document is to provide fisheries information and make management recommendations to protect and improve the sport fishery. No fisheries or habitat data was collected in 2012-2013 due to low water level as a result of extreme drought conditions.

Reservoir Description

Delta Lake is a 2,261-acre reservoir constructed in 1937 and located in Hidalgo County, 2.5 miles north of Monte Alto. The reservoir is divided into a public section (approximately 1,500 acres, east side) and a private section (approximately 761 acres, west side). The two sections of the reservoir are divided by State Highway 88 and are connected via a pipeline. The reservoir is owned and operated by the Hidalgo-Willacy Counties Water Control and Improvement District No. 1 and used for irrigation and recreation. Water is diverted from the Rio Grande River and travels through a gravity canal system to Delta Lake. From this canal system, water can be diverted to the Mesteñas Canal for distribution to land during the irrigation season or to a pumping station that lifts surplus water to the reservoir for storage. Water released from Delta Lake, flows back to the Mesteñas Canal for distribution during the irrigation season. The lake is very shallow and turbid and undergoes frequent water level fluctuations (Figure 1). Substrate is composed primarily of small rock, clay, sand and silt. Littoral habitat consists of periodically flooded terrestrial vegetation, large stands of bulrush and cattail, and standing timber. Angling access is limited to the bank; there is no public boat ramp on the reservoir. During summer 2004, the Delta Lake Irrigation District (DLID) drained the reservoir to complete a bank stabilization project and construct a canal on the east side of the reservoir for the purposes of bypassing water around the reservoir for irrigation needs during drought years. Both projects were completed in March 2006. Conservation pool for Delta Lake is 50 feet mean sea level (MSL), however, the reservoir's elevation fell below 44 feet MSL (approximately 300 acre-feet) during the initial stages of the bank stabilization and canal construction projects. The reservoir remained at this level throughout the duration of the projects. Other descriptive characteristics for Delta Lake are in Table 1.

Angler Access

There were no public boat ramps on Delta Lake and shoreline access is limited to the county park and pier as well as two bridge crossings. Native emergent vegetation further restricts shoreline access in these areas. DLID has no plans to construct a boat ramp due to liability concerns.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Findeisen and Binion 2009) included:

1. Despite stockings of Largemouth Bass and Bluegill, relative abundance of these fishes remained low as result of poor survival and limited natural recruitment. Timing of water level fluctuations, such as winter drawdowns and spring floods, may increase survival and recruitment. Additionally, stocking advanced fingerling Largemouth Bass may help increase survival of stocked fish. Routine electrofishing surveys would be used to monitor the success of these management strategies.
Action: After the last report, water level dropped below the launch area, prohibiting access to the reservoir.
2. Exotic flora and fauna are present in Delta Lake. Species such as Suckermouth Catfish had become overly abundant and Grass Carp and Water Hyacinth have the potential to become problematic in the reservoir. Winter drawdowns may be beneficial in helping control such species by exposing them to cooler temperatures (Suckermouth Catfish) or leaving them on

the bank (water hyacinth).

Action: After the last report, water level dropped as a result of water being diverted from the reservoir to the irrigation canal to meet irrigation needs under drought conditions. Water level was too low to launch a boat to monitor the drought's effect on the exotic flora and fauna.

3. Blue Catfish have become an import fish population in Delta Lake, surpassing Channel Catfish as the predominant catfish species. Prior to the 2008 report, Blue Catfish were non-existent in the reservoir. This new species appeared to be thriving.

Action: A press release was prepared and distributed to media outlets near Delta Lake, discussing the Blue Catfish angling opportunities.

Harvest regulation history: Sport fish in Delta Lake are currently managed with statewide harvest regulations (Table 2).

Stocking history: The most recent stockings included 119,455 fingerling Bluegill in September 2007, 118,617 fingerling Channel Catfish in June 2007, and 118,584 and 108,165 fingerling Largemouth Bass in April 2007 and April 2008, respectively. A complete stocking history is in Table 3.

Vegetation/habitat management history: No vegetation/habitat management history exists for Delta Reservoir.

Water transfer: Delta Lake is primarily used for irrigation and recreation. Water is diverted from the Rio Grande River and travels through a gravity canal system to Delta Lake.

METHODS

No fisheries or habitat/vegetation surveys were conducted in 2012 or 2013 due to low water level. An aquatic vegetation survey was conducted in 2008 and Tier classification of nuisance aquatic vegetation was determined in accordance with the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2011).

Source for water level data was the Delta Lake Irrigation District.

RESULTS AND DISCUSSION

Habitat: A habitat/vegetation survey was last conducted in 2008 (Table 4) (Findeisen and Binion 2009).

Fish community: No results are presented because the reservoir could not be surveyed in 2012 or 2013 due to lack of access caused by extreme low water levels.

Fisheries management plan for Delta Lake, Texas

Prepared – July 2013.

ISSUE 1: The combination of frequent and severe water level fluctuations (up to 40% reduction in volume within one week) and limited angling access (one pier, the shoreline at Delta Lake Park-both inundated with cattail and bulrush and two bridge crossings) preclude successful fisheries management practices and severely limit angling on this reservoir.

MANAGEMENT STRATEGIES

2. Remove Delta Lake from the 4-year rotation list of reservoirs because of its low fisheries potential.

SAMPLING SCHEDULE JUSTIFICATION:

Future sampling on this reservoir will be designed to address specific objectives.

LITERATURE CITED

Findeisen, J.A. and G. Binion. 2009. Statewide freshwater fisheries monitoring and management program survey report for: Delta Lake, 2008. Texas Parks and Wildlife Department, Austin.

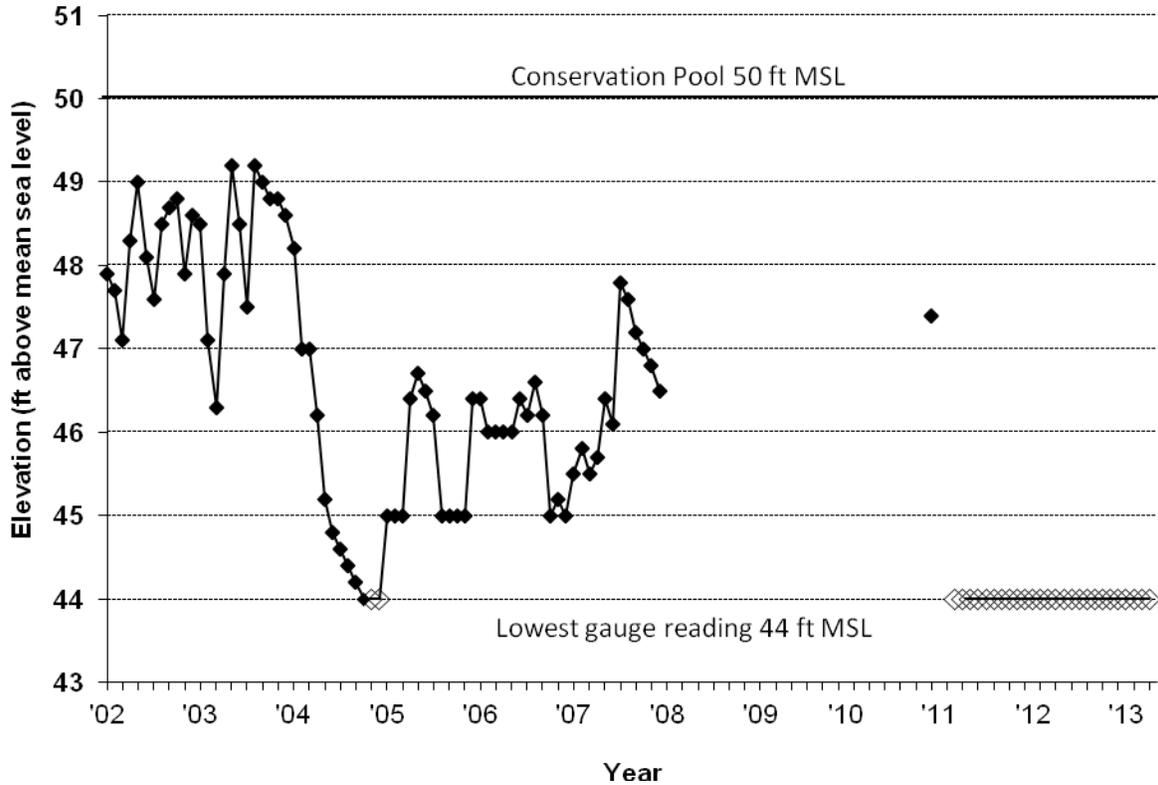


Figure 1. Mean monthly water level elevations recorded in feet above mean sea level (msl) for Delta Lake Reservoir, Texas, January 2002 through December 2008 and December 2010 through April 2013. Hollow diamonds indicate water level was below the bottom of the gauge, 44 feet MSL.

Table 1. Characteristics of Delta Lake, Texas.

Characteristic	Description
Year constructed	1937
Controlling authority	Delta Lake Irrigation District
County	Hidalgo
Reservoir type	Reservoir/County Park
Shoreline Development Index	1.3
Conductivity	896
Access: Boat	Prohibited
Bank	Adequate
Challenged	Inadequate – one short pier

Table 2. Harvest regulations for Lake Delta, Texas.

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

Table 3. Stocking history of Delta Lake, Texas. FRY = fry; FGL = fingerling.

Year	Number	Size
<u>Channel Catfish</u>		
1967	10,000	FGL
1973	12,350	FGL
1990	24,778	FGL
1991	24,000	FGL
2007	<u>118,617</u>	FGL
Species total	191,745	
<u>Palmetto Bass</u>		
1978	11,000	FRY
1979	<u>35,933</u>	FRY
Species total	46,933	
<u>Bluegill</u>		
2007	119,455	FGL
<u>Largemouth Bass</u>		
1966	10,000	FGL
1967	22,200	FGL
1971	<u>2,500</u>	FGL
Species total	34,700	
<u>Florida Largemouth Bass</u>		
2007	118,584	FGL
2008	<u>108,165</u>	FGL
Species total	226,749	

Table 4. Survey of structural habitat types, Delta Lake, Texas, 2008. Shoreline habitat type units are in miles.

Habitat type	Estimate	% of total
Bulkhead	0.1 miles	1.6
Natural shoreline	5.4 miles	62.9
Rocky shoreline	3.0 miles	35.5

Table 5. Survey of aquatic vegetation, Delta Lake, Texas, 2008. Surface area (acres) is listed with the percent of total surface area in parentheses. Tier classification for nuisance aquatic vegetation is listed in brackets.

Vegetation	2001	2008	2012
Native emergent	9.9 (0.7)	328.0 (17.2)	Water level too low
Non-native Water Hyacinth [Tier III]		0.1 (<0.1)	Water level too low

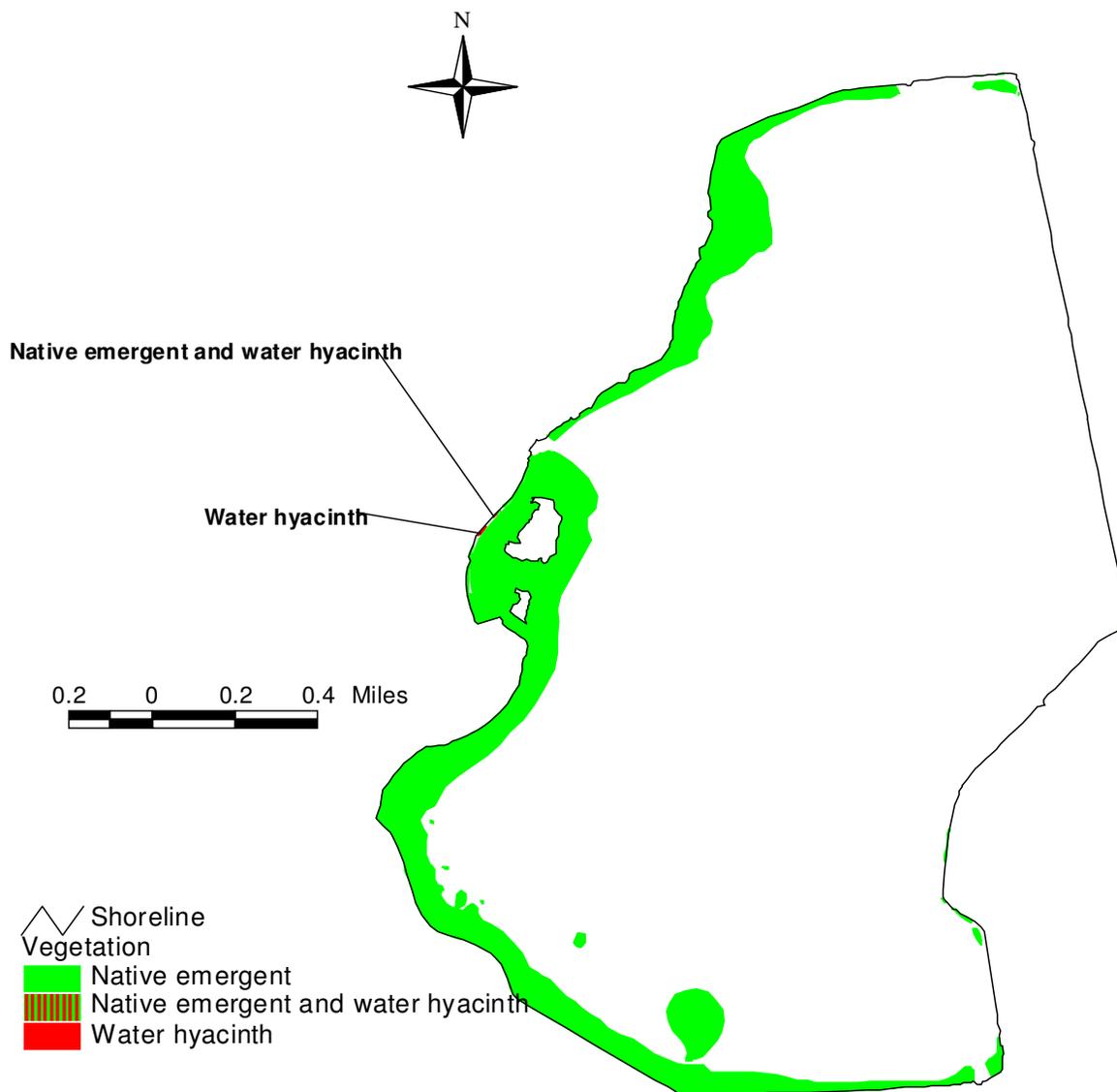


Figure 2. Aquatic vegetation map for Delta Lake, Texas, 2008.