PERFORMANCE REPORT

As Required by

FEDERAL AID IN SPORT FISH RESTORATION ACT

TEXAS

FEDERAL AID PROJECT F-30-R-29

STATEWIDE FRESHWATER FISHERIES MONITORING AND MANAGEMENT PROGRAM

2004 Survey Report

Delta Lake

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EXECUTIVE SUMMARY

Delta Lake was not surveyed during the 2004-2005 sampling year due to low water level conditions. This report summarizes the reasons for the low water level and contains a management plan for rebuilding the fisheries within the reservoir.

- **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 only connected via a pipeline. The reservoir is used for water supply, 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. During summer 2004, the Delta Lake Irrigation District began draining the reservoir to begin a bank stabilization project and construct a canal on the east side of the reservoir for the purposes of moving water through the reservoir for irrigation needs during drought years. Both projects should to be completed in March 2006. Conservation pool for Delta Lake is 50 ft MSL, however, the reservoir's elevation fell below 44ft MSL during the initial stages of the bank stabilization and canal construction projects. During the sampling season, the public section of the reservoir was drawn down to approximately 300 acre-feet of water.
- **Fish Community:** The current population status of prey species, channel catfish, white bass, largemouth bass, and white crappie is unknown.

- **Management Strategies**

- Continue to manage the reservoir with existing fish harvest regulations once the two projects are completed and the reservoir refills.

- Conduct non-standard (outside standard time periods) electrofishing, trap net, and gill net surveys to assess remaining fish populations after the reservoir refills. Stock bluegill, redear sunfish, threadfin shad, and imperial strain channel catfish after the completion of the two projects and the reservoir refills, if determined necessary by the non-standard surveys. Stock Florida largemouth bass for two consecutive years and white crappie (management stocking, adults) for one year following the stocking of prey species and channel catfish, if determined necessary by the non-standard surveys.

- Conduct additional electrofishing, trap net, and gill net surveys the fall following the stocking of largemouth bass and white crappie. Conduct standard electrofishing, trap net, and gill net surveys two years after the additional surveys.

- Work with the Delta Lake Irrigation District on introducing native aquatic vegetation into Delta Lake to enhance juvenile fish habitat.

- Continue to encourage the Delta Lake Irrigation District to apply for a Texas Parks and Wildlife Department boat ramp grant.

INTRODUCTION

The purpose of this document is to provide management recommendations to rebuild the sport fisheries. Management recommendations address existing problems or opportunities.

STATUS OF MANAGEMENT ACTIONS FROM 2000 (Findeisen and Elder, 2001) SURVEY REPORT

ISSUE 1 Very little is known about the anglers that frequent Delta Lake and the angler catch and harvest rates. Since Delta Lake reopened, park staff have constructed an entrance booth to collect park fees. Additionally, park staff are interested in the fisheries present in the reservoir.

Action: District staff developed an angler attitudes and opinions survey for Delta Lake and were ready to present the survey to the Delta Lake Irrigation District's Board of Directors for approval. However, despite numerous contacts with Delta Lake Park staff, district staff were never notified of upcoming board meetings.

ISSUE 2 Delta Lake has no improved boat ramp and shoreline access is limited.

Action: District staff forwarded a TPWD boat ramp application to Delta Lake Park staff.

Harvest regulations for Lake Delta.

Species	Bag Limit	Minimum-Maximum Length
Catfish, Channel	25	12 inches - No Limit
Catfish, Flathead	5	18 inches - No Limit
Bass, White	25	10 inches - No Limit
Bass, Palmetto	5	18 inches - No Limit
Bass, Largemouth	5	14 inches - No Limit
Crappie, White and Black	25	10 inches - No Limit

LITERATURE CITED

Findeisen, J. A. and H. S. Elder. 2001. Statewide freshwater fisheries monitoring and management Program survey report for: Delta Lake, 2000. Texas Parks and Wildlife Department, Federal Aid in Sport Fish Restoration, Grant F-30-R, Performance Report, Austin.

Physical and historical data for Lake Delta, Texas, 2004-2005.

Inland Fisheries water body code: 0237	IF District: IE - Mathis
Controlling authority: Delta Lake Irrigation District	Acres: 2,261 (maintenance pool)
Water Uses: Water supply, irrigation	Elevation: 50.0 ft MSL
Counties: Hidalgo County	Location: 20 miles Northeast of McAllen, Hidalgo County
Latitude: 26^{o} 25’	Longitude: 97^{o} 56’

Nearest major metropolitan area and distance: McAllen, 20 miles

Reservoir description: Reservoir/County Park: Manmade basin, supplied by water pumped from the Rio Grande River

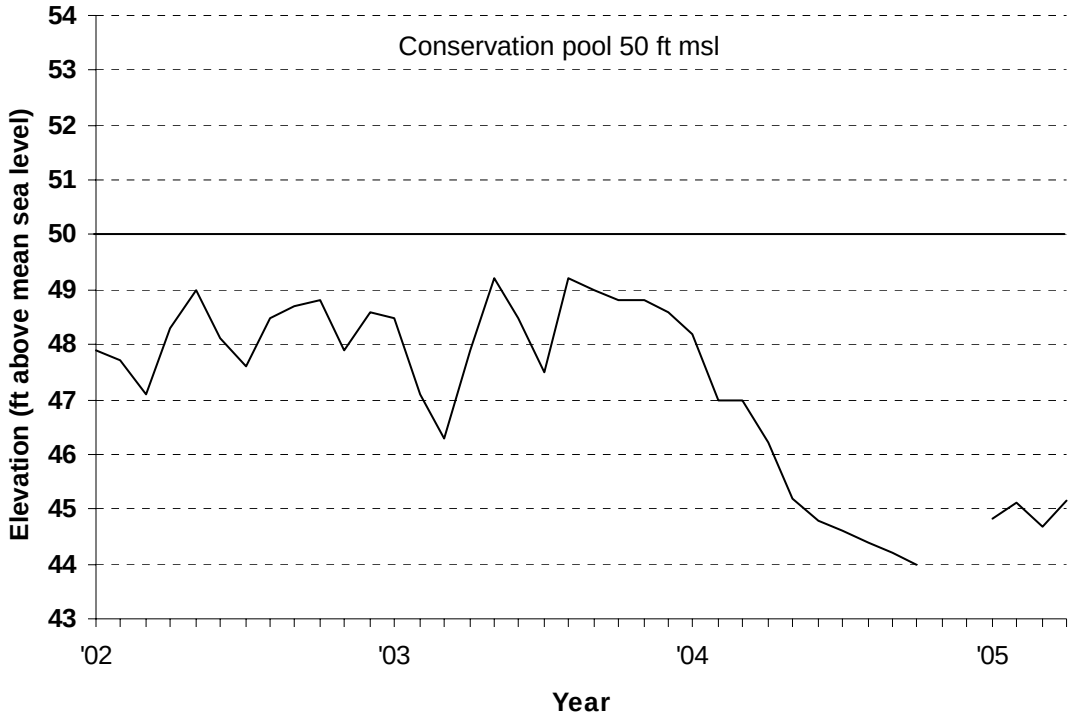
Mean depth (ft): 4	Maximum depth (ft): 14
Shoreline development ratio: 1.27	Watershed (mi^2): none – pumped storage
Secchi disc (ft): 1.2	Conductivity (umhos/cm): 1366

Constructed: 1937

Access:	Boat:	Inadequate - no facilities
	Bank:	Limited - within county park
	Handicap:	Inadequate – no facilities

Stocking history of Lake Delta, Texas. Size categories are FGL for fingerling and FRY for fry.

Year	Number	Size
	Channel catfish	
1967	10,000	FGL
1973	12,350	FGL
1990	24,778	FGL
1991	24,000	FGL
Species total	71,128	
	Largemouth bass	
1966	10,000	FGL
1967	22,200	FGL
1971	2,500	FGL
Species total	34,700	
	Striped X White bass	
1978	11,000	FRY
1979	35,933	FRY
Species total	46,933	



Mean monthly water level elevations recorded in feet above mean sea level (msl) for Delta Lake Reservoir, Texas, January 2002 through October 2004 and January 2005 through April 2005. Mean monthly water level data for November 2004 and December 2004 was not available due to the water level being below the bottom of the gauge, 44 feet msl.

Fisheries Management Plan
Lake Delta, Texas

Prepared - June 2005.

ISSUE 1 Delta Lake was drained, beginning April 2004, to conduct a bank stabilization project and construct a canal on the east side of the reservoir for the purposes of moving water through the reservoir during drought conditions. The reservoir was reduced to approximately 300 acre-feet of water by the winter 2004.

MANAGEMENT STRATEGIES

1. Conduct non-standard (outside standard time periods) electrofishing, trap net, and gill net survey, as soon as water level allows, to assess condition of remaining fish populations.

2. Stock bluegill (50/acre) and threadfin shad (management stocking, as many as possible), and Imperial strain channel catfish (advanced fingerling, 50/acre) after the completion of the two projects and the reservoir refills, if determined necessary by the non-standard surveys.

3. Stock Florida largemouth bass (50/acre) for two consecutive years and white crappie (management stocking, adults) for one year following the stockings bluegill, threadfin shad, and Imperial strain channel catfish, if determined necessary by the non-standard surveys.

ISSUE 2 The success of rebuilding the fisheries will depend on the survival, recruitment, and reproduction of fish species stocked.

MANAGEMENT STRATEGIES

1. Conduct an additional gill net survey the first spring following the stocking of imperial strain channel catfish. And conduct additional electrofishing and trap net surveys the fall following the first stocking of largemouth bass and white crappie to monitor survival and recruitment.

2. Conduct standard electrofishing, trap net, and gill net surveys two years following the additional sampling surveys to monitor recruitment and reproduction.

ISSUE 3 Delta Lake has a vast amount of flooded timber, yet, only the trunks of the trees remain as habitat. While this may provide adequate habitat for larger fish, it is of poor quality for most juvenile fishes. Native aquatic vegetation introductions could provide better juvenile fish habitat. However, one concern would be the selection of native aquatic plant species to use so as not to impede the movement of water through this relatively shallow reservoir.

MANAGEMENT STRATEGIES

1. Meet with the Delta Lake Irrigation District to discuss native aquatic vegetation species to use.

2. Introduce agreed-upon native aquatic vegetation species.

Fisheries Management Plan Continued
Delta Lake, Texas

ISSUE 4 Delta Lake still does not have a boat ramp.

MANAGEMENT STRATEGIES

1. Encourage Delta Lake Irrigation District to apply for a Texas Parks and Wildlife Department boat ramp grant.

Appendix A

Table 1. Proposed survey schedule for Lake Delta, Texas. 'S' denotes standard sampling will be conducted and the annual report is due. 'A' denotes additional sampling will be conducted. Trap net and electrofishing surveys are conducted in the fall and gill net surveys are conducted in the spring.

Sampling Year	Electrofishing	Trap net	Gill net	Report
Fall 2005 – Spring 2006				
Fall 2006 – Spring 2007	**A***	**A***	**A***	
Fall 2007 – Spring 2008				
Fall 2008 – Spring 2009	**S**	**S**	**S**	**S**

* Indicates additional sampling will occur if both projects are completed on time and the reservoir refills.