

PERFORMANCE REPORT

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INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

2015 Fisheries Management Survey Report

**Lake Wood**

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TABLE OF CONTENTS

Survey and Management Summary ..... 1

Introduction..... 2

Reservoir Description..... 2

Angler Access ..... 2

Management History ..... 2

Methods..... 3

Results and Discussion ..... 3

Fisheries Management Plan ..... 4

Literature Cited..... 6

Figures and Tables ..... 7-9

    Reservoir Characteristics (Table 1) ..... 7

    Boat Ramp Characteristics (Table 2)..... 7

    Harvest Regulations (Table 3) ..... 7

    Stocking History (Table 4)..... 8

    Proposed Sampling Schedule (Table 5) ..... 9

APPENDIX A

    Number and Catch Rate for all Species from all Gear Types ..... 10

## SURVEY AND MANAGEMENT SUMMARY

Fish populations in Lake Wood (H-5) were surveyed in 2015 using electrofishing and trap netting and in 2016 using gill netting, yet these data will not be presented due to current reservoir conditions. In March 2016, the dam structure suffered a gate failure and dewatering of the reservoir occurred. A management plan for the reservoir has been prepared and will be initiated once the dam structure is repaired (scheduled summer 2017) and reservoir fills to conservation pool.

- **Reservoir Description:** Lake Wood (488 acres) is located on the Guadalupe River in Gonzales County, and was constructed in 1931 by the Texas Hydroelectric Commission. Its main purposes are for water supply, hydro-power production and recreation. Angler and boat access is adequate with two public boat ramps; however there are no handicap-specific facilities at either location. Primary habitat consisted of boat docks, rocks, floating-leaved vegetation, emergent vegetation, non-native vegetation, and woody debris. In spring 2016, the reservoir suffered a gate failure on the dam structure and dewatering ensued. Guadalupe Blanco River Authority (GBRA) has plans to repair the structure and is scheduled to be completed in the summer of 2017.
- **Management History:** Important sport fish include Channel and Flathead Catfish, Largemouth Bass, and crappies. Blue Catfish have been stocked in this reservoir but are not the dominant catfish species. The 2012 management plan focused on working with GBRA on the control of water hyacinth, monitoring water lettuce and East Indian hygrophila, and publicizing recreational fishing opportunity. Guadalupe Blanco River Authority controlled water hyacinth through contracted herbicide operations and winter lake drawdowns. Combined, these efforts were effective at controlling water hyacinth. Triploid Grass Carp were stocked in 2014 and were an effective control for hydrilla. TPWD monitored water lettuce and East Indian hygrophila, but neither plant was problematic. Reservoir fisheries were publicized through local media outlets.
- **Fish Community**
  - Due to reservoir conditions, fish community data are not presented. Historical fisheries data are available in the Lake Wood Fisheries Management Survey Report (Findeisen and Binion 2012).
- **Management Strategies:** Continue to manage sport fish populations with existing regulations. Work with GBRA on habitat enhancement initiatives. When reservoir refills, stock with sport fish and forage species. Maintain cooperative relationship with GBRA to monitor and control nuisance aquatic vegetation.

## INTRODUCTION

The document is a summary of conditions at Lake Wood in 2016. The purpose of this document is to provide fisheries relevant information and make management recommendations to protect and improve the sport fishery. Management strategies are included to address existing problems and/or opportunities. While fisheries independent data was collected in 2015-2016, these data are not presented due to current reservoir conditions. Historical data for reservoir fisheries can be referenced from Findeisen and Binion (2012).

### *Reservoir Description*

Lake Wood is a 488-acre impoundment on the Guadalupe River in Gonzales County and was constructed in 1931 by the GBRA. Its main purposes are for water supply, hydro-power production and recreation. Angler and boat access is adequate with two public boat ramps; however there are no handicap-specific facilities at either location. Lake Wood shoreline is highly developed; therefore public bank access and angling opportunities from the shoreline are limited to one location (Lake Wood Park). Littoral habitat consisted of piers and boat docks, rocks, floating-leaved vegetation, emergent vegetation, timber, and overhanging brush. Substrate included sand, clays, and deep loam soils. Historically, non-native aquatic vegetation has created access problems in the reservoir. Water hyacinth has been most problematic and typically has been treated annually with herbicides and winter water level drawdowns. In 2014, hydrilla became widespread in the reservoir and created access problems. In response, Grass Carp were stocked and subsequently effective in control. Over the current study period, the reservoir experienced a high flow event (> 6,000 cfs) which contributed to catastrophic failure of the dam structure and dewatering of the reservoir. The majority of sport fish in the reservoir were either flushed downstream or died in isolated pockets as the lakebed dried.

### *Angler Access*

Lake Wood has one public boat ramp and no private boat ramps. Additional boat ramp characteristics are in Table 2. Shoreline access is limited to the public boat ramp areas and the shoreline at Lake Wood Park operated by GBRA.

### *Management History*

**Previous management strategies and actions:** Management strategies and actions from the previous survey report (Findeisen and Binion 2012) included:

1. Maintain collaborative relationship with GBRA to manage, control, and prevent the spread non-native nuisance vegetation.

**Action:** Assisted GBRA with meeting goals and objectives outlined in the nuisance aquatic vegetation management plan. District staff reviewed vegetation treatment proposals, conducted pre and post-vegetation surveys, participated in stakeholder meetings, and provided GBRA with cost-share funding.

2. Publicize increases in relative abundance and size structure of important sport fish populations.

**Action:** Press releases were disseminated to local media outlets.

**Harvest regulation history:** Sport fish populations in Lake Wood have always been managed with the statewide regulations (Table 3).

**Stocking history:** Triploid Grass Carp were stocked since the previous report. Other species stocked into the reservoir include Blue and Channel Catfish, Striped Bass, and Florida Largemouth Bass. A complete stocking history is in Table 4.

**Vegetation/habitat management history:** Water hyacinth has been a problematic species since the early 1990's. Prior to 1998, TPWD staff controlled water hyacinth through herbicide treatments. Since 1998, GBRA has secured private contractors to conduct herbicide applications. Initially, water hyacinth control efforts were limited to problematic sections of the reservoir and proved ineffective for long-term management and control. However, recent control efforts have focused on treating all areas of the reservoir and have substantially decreased surface coverage of water hyacinth. In addition to the herbicide treatments, GBRA has decreased water level during extended periods of freezing temperatures, further contributing to water hyacinth control. Historically, Water hyacinth weevils have been present, but provided little control. Water lettuce has been present in some years but had limited distribution and low abundance. Hydrilla had not been observed in the reservoir since 2004, but became widespread in 2014, creating recreational access problems. In response, Triploid Grass Carp were stocked at a rate of 5 fish/surface-acre and provided effective control.

**Water Transfer:** Lake Wood is primarily used for hydro-electric generation, water supply for the Gonzales County Water Supply Corporation, and recreation. Currently there are no plans to build additional pump stations on the reservoir. No inter-basin transfers are known to exist.

## METHODS

Methodology used for historical collections is presented in Findeisen and Binion (2012).

## RESULTS AND DISCUSSION

Results and species composition data from the 2015-2016 survey collections are presented in Appendix A. Results collected in historical surveys can be accessed in Findeisen and Binion (2012).

## Fisheries management plan for Lake Wood, Texas.

Prepared – July 2016

**ISSUE 1:** In March 2016, the GBRA dam gate structure on the reservoir failed during a high flow event leading to dewatering of the reservoir, leaving only the river channel bank full. The majority of sport and forage fishes were either flushed downstream or died in fish kills associated with several pools scattered among the lake bed as it dried.

### MANAGEMENT STRATEGIES

1. The GBRA has expressed interest in conducting a habitat enhancement project while the lake bed is exposed. Corpus Christi district staff will assist GBRA with development and execution of the habitat initiatives (artificial fish attractors).
2. Once the dam structure is repaired and the reservoir refills to conservation level, stock the reservoir with recreationally important sport fish (Largemouth Bass, Channel Catfish, and crappies) and prey species (Bluegill).
3. Execute objective-based sampling to monitor success of stocking program.
4. Write and distribute press releases to inform the public on status of management initiatives and condition of sport fish populations.

**ISSUE 2:** Many invasive species threaten aquatic habitats and organisms in Texas and can adversely affect the state ecologically, environmentally, and economically. For example, zebra mussels 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 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. Historically, water hyacinth and hydrilla have been problematic on the reservoir. Additionally, water lettuce and East Indian hygrophila have been present in the reservoir but have yet to become problematic species.

### 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.
6. Continue to assist GBRA in acquiring cost-share funding.

## **Objective-Based Sampling Plan for Lake Wood**

**2019 – 2020**

**Note:** Upon completion of dam structure repair, Lake Wood will undergo a rebuilding phase with the primary objective to reestablish sport fish and prey populations. Therefore, sampling described below will be exploratory in nature to document presence/absence of all fishes in the reservoir and to evaluate the success of stocking program.

### **Sport fish, forage fish, and other important fishes**

Sport fish in Lake Wood include Blue, Channel, and Flathead catfishes, Largemouth Bass, and Black and White Crappies. Important forage species include Gizzard and Threadfin Shad, and Bluegill.

### **Survey objectives, fisheries metrics, and sampling objectives**

**Blue Catfish:** An exploratory gill net survey will be conducted to identify presence/absence. Additional population level data (relative abundance, size composition, relative weight) will be collected for specimens sampled. A minimum of 10 gill nets set at randomly-selected stations will be used to collect Blue Catfish.

**Flathead Catfish:** An exploratory gill net survey will be conducted to identify presence/absence. Additional population level data (relative abundance, size composition, relative weight) will be collected for specimens sampled. A minimum of 10 gill nets set at randomly-selected stations will be used to collect Flathead Catfish.

**Channel Catfish:** An exploratory gill net survey will be conducted to identify presence/absence and to aid in evaluating stocking success. Additional population level data (relative abundance, size composition, relative weight) will be collected for specimens sampled. A minimum of 10 gill nets set at randomly-selected stations will be used to collect Channel Catfish. Exploratory use of baited tandem hoop nets will be conducted to determine utility of this sampling gear as compared to gill nets. A minimum of 8, randomly selected 3-night tandem hoop net sets will be deployed to document utility of the gear to collect Channel Catfish in the reservoir and to aid in evaluating stocking success.

**Largemouth Bass:** An exploratory electrofishing survey will be conducted to identify presence/absence and to aid in evaluating stocking success. Additional population level data (relative abundance, size composition, relative weight) will be collected for specimens sampled. A minimum of 12 randomly-selected electrofishing sites will be sampled to collect Largemouth Bass.

**Crappies:** An exploratory trap net survey will be conducted to identify presence/absence and to aid in evaluating stocking success. Additional population level data (relative abundance, size composition, relative weight) will be collected for specimens sampled. A minimum of 8 subjectively-selected trap net sites will be sampled to collect crappies.

**Gizzard and Threadfin Shad and Bluegill:** Sampling with electrofishing per Largemouth Bass will be sufficient to identify presence/absence of forage fishes. Additional population level data (relative abundance, size composition) will be recorded on specimens collected.

## LITERATURE CITED

Findeisen, J. A. and G. R. Binion. 2012. Statewide freshwater fisheries monitoring and management program survey report for: Lake Wood, 2012. Texas Parks and Wildlife Department, Federal Aid Report F-221-M, Austin.



Table 1. Characteristics of Lake Wood, Texas.

Characteristic	Description
Year constructed	1931
Controlling authority	Guadalupe-Blanco River Authority
County	Gonzales
Reservoir type	Mainstream
Shoreline Development Index	2.46
Access: Boat	Adequate – 1 pay-to-use ramp and 1 free ramp
Bank	Fair – public bank access at GBRA park
Handicapped	Inadequate – no handicapped access

Table 2. Boat ramp characteristics for Lake Wood, Texas, June, 2016. Reservoir elevation at time of survey was 321 feet above mean sea level.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
Lake Wood Park	29.47124 -97.49457	Y	12	UNK	Currently out of water
Cost Ramp	29.45254 -97.52600	Y	10	UNK	Currently out of water

Table 3. Harvest regulations for Lake Wood, 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 <sup>a</sup>	14-inch minimum
Bass: Spotted and Guadalupe	5 <sup>a</sup>	None
Crappie: White and Black crappie, their hybrids and subspecies	25 (in any combination)	10-inch minimum

<sup>a</sup> Daily bag for largemouth Bass, Spotted Bass, and Guadalupe Bass = 5 fish in any combination.

Table 4. Stocking history of Lake Wood, Texas. FGL = fingerling; ADL = adult.

Year	Number	Size
<b>Blue Catfish</b>		
1985	4,620	FGL
1986	4,500	FGL
1988	16	ADL
1994	45,638	FGL
1995	44,800	FGL
1997	44,800	FGL
1998	<u>44,960</u>	FGL
Species Total	189,334	
<b>Channel Catfish</b>		
1972	35,000	FGL
1991	<u>60</u>	ADL
Species Total	35,060	
<b>Striped Bass</b>		
1978	<u>4,225</u>	FGL
Species Total	4,225	
<b>Florida Largemouth Bass</b>		
1978	<u>17,900</u>	FGL
Species Total	17,900	
<b>Triploid grass carp</b>		
1996	11	ADL
2014	<u>2,300</u>	ADL
Species Total	2,311	

Table 5. Proposed survey schedule for Lake Wood, Texas. Survey period is June through May. Trap netting and electrofishing surveys are conducted in the fall, gill netting surveys are conducted in the spring, and hoop netting surveys are conducted in the summer. Standard surveys are denoted by S and additional surveys are denoted by A.

Survey year	Electrofishing Fall(Spring)	Trap net	Hoop net	Gill net	Habitat			Creel survey	Report
					Structural	Vegetation	Access		
2016-2017									
2017-2018									
2018-2019			A						
2019-2020	S	S		S		S	S	S	

## APPENDIX A

Number (N) and catch rate (CPUE) of all species collected from all gear types from Lake Wood, Texas, 2015-2016. Sampling effort was 10 net nights for gill netting, 14 net nights for trap netting, and 1 hour for electrofishing.

Species	Electrofishing		Gill Netting		Trap Netting	
	N	CPUE	N	CPUE	N	CPUE
Spotted Gar			7	0.7		
Longnose Gar			15	1.5		
Gizzard Shad	125	125.0	172	17.2	5	0.4
Threadfin Shad	77	77.0			3	0.2
Common Carp			13	1.3		
Golden Shiner	6	6.0	4	0.4		
Bullhead Minnow	9	9.0				
Inland Silverside	6	6.0				
Smallmouth Buffalo			31	3.1	1	0.7
Blue Catfish			3	0.3	1	0.7
Channel Catfish			28	2.8	14	1.0
Flathead Catfish			5	0.5	3	0.2
Mexican Tetra	5	5.0				
Warmouth	8	8.0			10	0.7
Bluegill	551	551.0			358	25.6
Longear Sunfish	33	33.0			2	0.1
Redear Sunfish	122	122.0	4	0.4		
Largemouth Bass	74	74.0	9	0.9		
Guadalupe Bass	4	4.0	1	0.1		
White Crappie			29	2.9	82	5.9
Black Crappie			7	0.7	15	1.1
Freshwater Drum					1	0.7
Rio Grande Cichlid					1	0.7