Lake Wood Reservoir

2019 Fisheries Management Survey Report

PERFORMANCE REPORT

As Required by

FEDERAL AID IN SPORT FISH RESTORATION ACT

TEXAS

FEDERAL AID PROJECT F-221-M-4

INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

Prepared by:

Greg Binion, District Management Supervisor
and
Dusty McDonald, Assistant District Management Supervisor

Inland Fisheries Division
Corpus Christi District, Mathis, Texas

Carter Smith
Executive Director

Craig Bonds
Director, Inland Fisheries

July 31, 2020

Contents

Survey and Management Summary

Fish populations in Lake Wood (H-5) were last surveyed in 2015 using electrofishing and trap netting and in 2016 using gill netting (Binion 2016). These data will not be presented due to current reservoir conditions. In March 2016, the dam structure suffered a gate failure and the reservoir receded back to the historical river channel. A management plan for the reservoir has been prepared and will be initiated once the dam structure is repaired (undetermined timeline) and the reservoir fills to conservation pool elevation.

Reservoir Description: Lake Wood (488-acres) was located on the Guadalupe River in Gonzales County, and was constructed in 1931 by the Texas Hydroelectric Commission. Its main purposes were for water supply, hydro-power production, and recreation. Angler and boat access was 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 timber. In spring 2016, the reservoir dam suffered a gate failure and dewatering to the river channel ensued. Guadalupe Blanco River Authority (GBRA) has no current plans to repair the dam structure.

Management History: Important sport fish include Channel and Flathead Catfish, Largemouth Bass, and crappies. Blue Catfish have been stocked. 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. Historically, the GBRA effectively controlled water hyacinth through contracted herbicide operations and winter lake drawdowns. 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. Angler harvest of all sport fishes has been regulated according to statewide size and bag limits.

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. If dam infrastructure is determined feasible to repair, work with GBRA on habitat enhancement initiatives prior to reservoir refilling. If the dam infrastructure is repaired and the reservoir refills, stock with sport fish and forage species. Maintain cooperative relationship with GBRA to monitor and control nuisance aquatic vegetation.

Introduction

This document is a summary of conditions at Lake Wood in 2020. 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. Fisheries population sampling was not conducted in 2019-2020, due to current reservoir conditions. Historical data for Lake Wood can be referenced from Findeisen and Binion (2012).

Reservoir Description

Lake Wood was a 488-acre impoundment on the Guadalupe River in Gonzales County and was constructed in 1931 by the Texas Hydroelectric Commission. Its main purposes were for water supply, hydro-power production, and recreation. Angler and boat access was 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, requiring treatment during most years with herbicides and winter water level drawdowns. In 2014, hydrilla became widespread in the reservoir and created access problems. In response, Triploid Grass Carp were stocked and subsequently effective in control. In 2016, the reservoir experienced a high flow event (> 6,000 cfs) which contributed to catastrophic failure of the dam structure and dewatering of the reservoir back to the main river channel. The majority of sport fish in the reservoir were either flushed downstream, remained in the river channel, or died in isolated pockets as the lakebed dried. Other descriptive characteristics for Lake Wood Reservoir are in Table 1.

Angler Access

Lake Wood Reservoir has two public boat ramps. Due to reservoir conditions, both boater access points are currently out of water and unusable to watercraft. 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 (Binion 2016) included:

1. Cooperatively work with the GBRA to restore reservoir-wide habitat conditions and sport fish populations to levels prior to the 2016 reservoir dewatering.

   Action: Habitat enhancement projects and initiatives were coordinated and planned with GBRA staff, but no action was taken since dam infrastructure remains in disrepair. No stockings occurred over the current survey period.

2. Monitor presence, distribution, and spread of invasive aquatic vegetation and implement control measures, as needed. Monitor for presence of zebra mussels.

   Action: No vegetation or zebra mussel surveys were performed due to reservoir conditions and resultant lack of boater access. The spread of zebra mussels in the river basin was monitored through settlement samplers at upstream reservoirs. Zebra mussels have been detected at several upstream reservoirs. Invasive species signage

was provided to GBRA and posted at boater access points throughout the Guadalupe Chain Lakes.

Harvest regulation history: Sport fish populations in Lake Wood have always been managed with statewide regulations. Current regulations are found in Table 3.

Stocking history: Triploid Grass Carp were stocked in 2014. 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 1990s. Prior to 1998, TPWD conducted herbicide treatments to control water hyacinth. 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, more recent control efforts have focused on reservoir-wide treatment, resulting in substantially decreased surface coverage of water hyacinth. In addition to herbicide treatments, GBRA has conducted drawdowns during extended periods of freezing temperatures, further contributing to water hyacinth control. In addition to chemical treatment, water hyacinth weevils have been utilized, 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 was primarily used for hydro-electric generation, water supply for the Gonzales County Water Supply Corporation, and recreation. There are currently no proposals to install additional pump stations. No inter-basin transfers exist.

Methods

Due to reservoir conditions and lack of boater access, no fisheries surveys were conducted over the current survey period.

Results and Discussion

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

Fisheries Management Plan for Lake Wood Reservoir, Texas

Prepared – July 2020

ISSUE 1: In March 2016, the GBRA dam gate structure on the reservoir failed due to 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, remained in the river channel, or experienced mortality as fish became isolated in several pools scattered within 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 the development and execution of habitat initiatives as well as engage in other relevant discussions pertaining this situation.

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. Zebra mussels were detected at several upstream reservoirs in 2018 – 2019.

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 to acquire cost-share funding for invasive species control initiatives.

Objective-Based Sampling Plan and Schedule (2020–2024)

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

Catfishes: An exploratory gill net survey will be conducted to identify presence/absence of Blue Catfish, Flathead Catfish, and Channel Catfish. 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.

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 of crappies. Additional population level data (relative abundance, size composition, relative weight) will be collected for specimens sampled. A minimum of 7 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

Binion, G. R. 2016. Statewide freshwater fisheries monitoring and management program survey report for: Lake Wood, 2015. Texas Parks and Wildlife Department, Federal Aid Report F-221-M-6, Austin.

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.

Tables and Figures

Table 1. Characteristics of Lake Wood Reservoir, Texas.

Characteristic	Description
Year constructed	1931
Controlling authority	Guadalupe-Blanco River Authority
County	Gonzales
Reservoir type	Mainstem
Shoreline Development Index	2.46
Access: Boat	Inadequate – 2 public ramps; currently unusable
Bank	Fair – public bank access at GBRA park
Handicapped	Inadequate – no handicapped access

Table 2. Boat ramp characteristics for Lake Wood Reservoir, Texas, August 2019. 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; unusable
Cost Ramp	29.45254° -97.52600°	Y	10	UNK	Currently out of water; unusable

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

[a] Daily bag for Largemouth Bass, Spotted Bass, and Guadalupe Bass = 5 fish in any combination.

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

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

Proposed Sampling Schedule

Table 5. Proposed sampling schedule for Lake Wood 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. Additional surveys may be conducted in other years if dam infrastructure is repaired and the reservoir returns to conservation pool elevation.

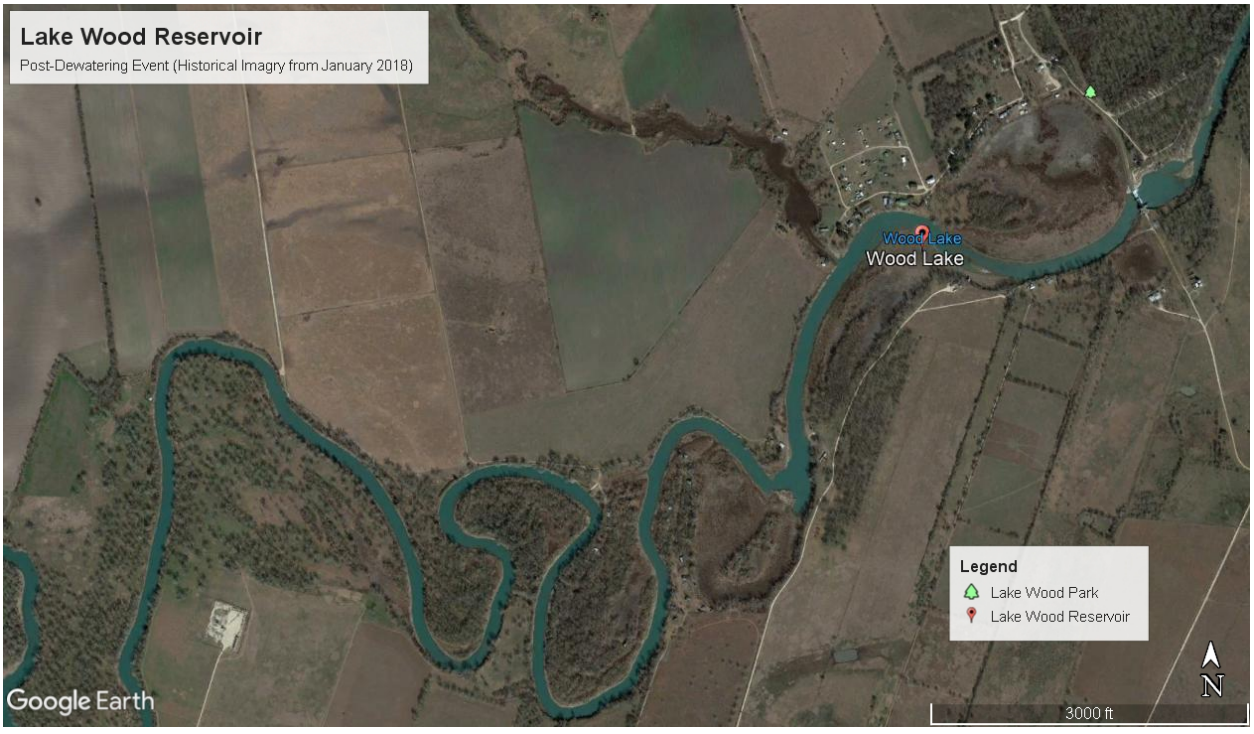
	Survey year			
	2020-2021	2021-2022	2022-2023	2023-2024
Angler Access				S
Structural Habitat				S
Vegetation				S
Electrofishing – Fall				S
Trap netting				S
Gill netting				S
Report				S

APPENDIX A – Catch rates for all species from all gear types

Number (N) and catch rate (CPUE) (RSE in parentheses) of all target species collected from all gear types from Lake Wood Reservoir, 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 (85)		
Longnose Gar			15	1.5 (71)		
Gizzard Shad	125	125.0 (24)	172	17.2 (21)	5	0.4 (70)
Threadfin Shad	77	77.0 (51)			3	0.2 (72)
Common Carp			13	1.3 (65)		
Golden Shiner	6	6.0 (58)	4	0.4 (76)		
Bullhead Minnow	9	9.0 (68)				
Inland Silverside	6	6.0 (52)				
Smallmouth Buffalo			31	3.1 (35)	1	0.7 (100)
Blue Catfish			3	0.3 (51)	1	0.7 (100)
Channel Catfish			28	2.5 (27)	14	1.0 (55)
Flathead Catfish			5	0.5 (45)	3	0.2 (100)
Mexican Tetra	5	5.0 (81)				
Warmouth	8	8.0 (34)			10	0.7 (37)
Bluegill	551	551.0 (25)			358	25.6 (28)
Longear Sunfish	33	33.0 (42)			2	0.1 (68)
Redear Sunfish	122	122.0 (26)	4	0.4 (55)	31	2.2 (30)
Largemouth Bass	74	74.0 (14)	9	0.9 (31)		
Guadalupe Bass	4	4.0 (56)	1	0.1 (100)		
White Crappie			29	2.9 (51)	82	5.9 (18)
Black Crappie			7	0.7 (52)	15	1.1 (32)
Freshwater Drum			14	1.4 (36)		
Rio Grande Cichlid					1	0.7 (100)

APPENDIX B – Pre- and post-reservoir dewatering images



Life's better outside.®

In accordance with Texas State Depository Law, this publication is available at the
Texas State Publications Clearinghouse and/or Texas Depository Libraries.