Bachman Reservoir

2018 Fisheries Management Survey Report

PERFORMANCE REPORT

As Required by

FEDERAL AID IN SPORT FISH RESTORATION ACT

TEXAS

FEDERAL AID PROJECT F-221-M-3

INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

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Survey and Management Summary

Fish populations in Bachman Reservoir were surveyed in 2018 using electrofishing and trap netting and in 2019 using gill netting. Historical data are presented with the 2018-2019 data for comparison. This report summarizes the results of the surveys and contains a management plan for the reservoir based on those findings.

Reservoir Description: Bachman Reservoir, a 132-acre reservoir located on Bachman Branch (a tributary of the Trinity River), was constructed in 1903 by the City of Dallas for water supply. The reservoir is currently used for recreation only and is no longer used as a water supply. It is in Dallas County near Love Field Airport. Habitat was composed mainly of shoreline emergent vegetation in the form of water willow and bulkhead in the form of rock gabions. Bachman Reservoir was dredged in 2003 to increase depth and provide better access for boaters. However, siltation has continued since the 2003 dredging, and the reservoir needs to be dredged again. A large, multi-focal group enhancement plan has been approved for Bachman Reservoir and the surrounding area. The enhancement plan includes dredging the lake and repairing the dam and spillway.

Management History: Important sport fishes include Largemouth Bass and White Crappie. All fish species have been managed by statewide regulations.

Fish Community

- **Prey species:** Threadfin Shad were present in the reservoir in low numbers. Electrofishing catch of Gizzard Shad was very high, and all Gizzard Shad were available as prey to most sport fish. Electrofishing catch of Bluegill was high, but very few Bluegill were over 6-inches long.
- **Catfishes:** The Channel Catfish catch rates were very low and the size structure suggests limited recruitment. No Flathead or Blue Catfish were collected during surveys.
- **Largemouth Bass:** Largemouth Bass were abundant, with high numbers of legal-size fish available to anglers. Body condition was good and proportional size distribution (PSD) suggests that size structure has shifted to a population of larger individuals.
- **White Crappie:** White Crappie were moderately abundant with legal-size fish available to anglers. Body condition was good for all size classes.

Management Strategies: This reservoir will be monitored with electrofishing and trap netting in 2022. Partner with Dallas Water Utilities and stake holder groups to enhance fish habitat and fish community in cooperation with the City of Dallas Master Plan to enhance Bachman Reservoir and the surrounding recreational areas. Keep public informed about TPWD involvement in Master Plan projects through media sources. Continue to maintain public awareness of aquatic invasive species.

Introduction

This document is a summary of fisheries data collected from Bachman Reservoir in 2018-2019. The purpose of the document is to provide fisheries information and make management recommendations to protect and improve the sport fishery. While information on other fishes was collected, this report deals primarily with major sport fishes and important prey species. Historical data are presented with the 2018-2019 data for comparison.

Reservoir Description

Bachman Reservoir is a 132-acre reservoir located on Bachman Branch (a tributary of the Trinity River) in Dallas County. The reservoir was constructed in 1903 by the City of Dallas for water supply. The reservoir is no longer used as a water supply but is used for recreation. The watershed is primarily industrial with a major airport, Dallas Love Field, next to the reservoir. A park surrounds the reservoir and provides recreational opportunities for the citizens of Dallas. The lower half of Bachman Reservoir was dredged in 2003 to increase depth and to provide better access for boaters. The upper half of the Reservoir remains very shallow and virtually inaccessible to boaters. At the time of sampling the fishery habitat was primarily small amounts of shoreline emergent vegetation in the form of water willow and bulkhead in the form of rock gabions. Other descriptive characteristics for Bachman Reservoir are in Table 1. Water level data is not available for Bachman Reservoir, but little fluctuation of water level occurs.

Angler Access

Bachman Reservoir has one public boat ramp available for use but parking for boat trailers is extremely limited. There is a 10.5 horsepower motor restriction for boaters, but electric trolling motors are permitted. Additional boat ramp characteristics are in Table 2. Angler bank access is excellent around the entire reservoir; however, ADA compliant fishing access is limited.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Brock et al. 2015) included:

1. Conduct a category 2 age and growth survey to assess Largemouth Bass growth.

   Action: Age samples were not collected due to uncertainty of the future of the fishery and Bachman Lake.

2. Partner with interest groups to install artificial fish habitat structure into Bachman Lake.

   Action: Working with Dallas Water Utilities and other stake holder groups to develop plan for enhancing fish habitat in Bachman Reservoir.

3. Cooperate with controlling authorities to post signage, educate the public about invasive species, and track existing and future inter-basin water transfers to facilitate potential invasive species responses.

   Action: The DFW District continued to work with Dallas Water Utilities to post signage and to educate the public about invasive species threats through media outlets.

Harvest regulation history: Sport fish populations in Bachman Reservoir have been managed with statewide regulations throughout the history of the Reservoir. Current regulations are found in Table 3.

Stocking history: Bachman Reservoir was stocked annually with Channel Catfish from 2004-2017. Florida Largemouth Bass were stocked in 2016 and 2017. The complete stocking history is in Table 4.

Vegetation/habitat management history: Bachman Reservoir contains very little aquatic vegetation or natural fish habitat. The primary vegetation that occurs in the reservoir is water willow. Historically, there have been no management plans to increase natural vegetation/habitat in Bachman Reservoir.

Water transfer: Bachman Reservoir is no longer used as a drinking water supply for the City of Dallas. No interbasin transfers are known to exist.

Methods

Surveys were conducted to achieve survey and sampling objectives in accordance with the objective-based sampling (OBS) plan for Bachman Reservoir (TPWD unpublished). Primary components of the OBS plan are listed in Table 5. All survey sites were randomly selected, and all surveys were conducted according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2015).

Electrofishing – Largemouth Bass, sunfishes, Gizzard Shad, and Threadfin Shad were collected by electrofishing (0.5 hours at 6, 5-min stations). Catch per unit effort (CPUE) for electrofishing was recorded as the number of fish caught per hour (fish/h) of actual electrofishing.

Trap netting – Crappie were collected using trap nets (3 net nights at 3 stations). Catch per unit of effort for trap netting was recorded as the number of fish caught per net night (fish/nn).

Gill netting – Channel Catfish were collected using gill nets (3 net nights at 3 stations). Catch per unit of effort for gill netting was recorded as the number of fish caught per net night (fish/nn).

Genetics – Genetic analysis of Largemouth Bass was conducted according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2015). Micro-satellite DNA analysis was used to determine genetic composition of individual fish from 2005 through 2018 and by electrophoresis for previous years.

Statistics – Sampling statistics (CPUE for various length categories), structural indices [Proportional Size Distribution (PSD), terminology modified by Guy et al. 2007], and condition indices [relative weight (W_r)] were calculated for target fishes according to Anderson and Neumann (1996). Index of Vulnerability (IOV) was calculated for Gizzard Shad (DiCenzo et al. 1996). Standard error (SE) was calculated for structural indices and IOV. Relative standard error (RSE = 100 X SE of the estimate/estimate) was calculated for all CPUE and creel statistics.

Creel survey – A creel survey has never been conducted on Bachman Reservoir. Reasons for not conducting a creel survey include, but are not limited to, the lake size and data collection efficiency.

Habitat – A habitat survey was not conducted for the 2018-2019 sampling season. The last habitat survey of Bachman Lake was conducted in 2010 (Brock and Hungerford 2011).

Water level – Water level data are not available for Bachman Reservoir, but little fluctuation of water level occurs.

Results and Discussion

Habitat: A habitat survey was last conducted on Bachman Reservoir in 2010 (Brock and Hungerford 2011). Habitat in Bachman Reservoir has remained consistent with the dominant habitat consisting of shoreline emergent vegetation in the form of water willow and bulkhead in the form of rock gabions (Brock et al. 2015).

Prey species: Electrofishing catch rates of Gizzard Shad and Bluegill were 1,432.0/h and 170.0/h, respectively (Figures 1 and 2). Index of Vulnerability (IOV) for Gizzard Shad was high, indicating that 100% of Gizzard Shad were available to existing predators; this was similar to IOV estimates in previous years (Figure 1). Total CPUE of Gizzard Shad was considerably higher in 2018 compared to the 2014 survey (Figure 1). Total CPUE of Bluegill in 2018 was significantly lower than total CPUE from surveys in 2014 and 2010, but the size structure indicates the population is balanced (PSD 30; Figure 2).

Channel Catfish: The gill net catch rate of Channel Catfish was 2.7/nn in 2019. Total CPUE increased from the 2015 survey but was still lower than the 2011 survey (Figure 3). Since Channel Catfish have been consistently stocked since 2004 (Table 4), but the surveys show no catfish below 12 inches, this suggests that recruitment is limited for Channel Catfish in Bachman Reservoir. Channel Catfish condition could not be determined at the time of sampling due to equipment failure.

Largemouth Bass: Total electrofishing catch rate of Largemouth Bass was 200.0/h with a stock-length CPUE of 112.0/h in 2018 (Figure 4). Both rates were lower in 2018 than in 2010 and 2014. The OBS objectives for this species, abundance (CPUE – Stock; RSE ≤ 25) and size structure (PSD and length frequency; N ≥ 50) were achieved with 56 stock-size LMB collected and an RSE of 23 (Figure 4). Catch per unit of effort of 14-inch bass, PSD and PSD-Preferred (PSD-P) were higher than the previous two surveys (Figure 4). The high PSD and PSD-P values since 2010 fall near or into ranges associated with a “big bass” management strategy (Willis et al. 1993; Neumann et al. 2012). Body condition in 2018 was excellent (relative weight ≥95) for all size classes of fish and was similar to body condition in previous surveys (Figure 4). Florida Largemouth Bass Florida alleles have increased from 33% in 2002 to 48% and 55% in 2014 and 2018, respectively, and Florida genotype has ranged from 0 to 0.03% (Table 6). The category 2 age and growth survey was not conducted in 2018 due to the uncertainty of the fishery and Bachman Reservoir.

White Crappie: Total trap net catch rate of White Crappie was 75.7/nn in 2018, lower than in 2010 and 2014. The OBS objectives for this species, size structure (PSD and length frequency; N = 50) were achieved with over 200 individuals collected (Figure 5). Stock CPUE in 2018 (20.7) was similar to the previous survey (22.7), but lower than the 2010 survey (53.7; Figure 5). The PSD was 94 and was similar to the PSD in 2010 but higher than the PSD in 2014 (Figure 5). The high PSD values suggest an unbalanced population composed of mainly larger individuals which can be the result of multiple year class recruitment failures. Mean relative weight was over 85 for most size classes in 2018 and was similar to values observed in previous surveys (Figure 5).

Fisheries Management Plan for Bachman Reservoir, Texas

Prepared – July 2018

ISSUE 1: The City of Dallas, in cooperation with stake holder groups, has developed a Master Plan (Appendix D) to renovate Bachman Reservoir and the surrounding recreational areas. Projects that will impact the fishery include dewatering, dredging, dam and spillway repair.

MANAGEMENT STRATEGIES

1. Maintain communication with Dallas Water Utilities, the City of Dallas, and stake holder groups about plans, projects, and progress.
2. Work with Dallas Water Utilities and the City of Dallas to incorporate fishery enhancing projects into the Master Plan, including but not limited to: fish habitat construction and placement, construction of fishing piers, siltation traps, and boat ramp and parking area improvements.
3. Develop stocking plan to reestablish a quality fishery after the reservoir is refilled.

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 (*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. Giant salvinia (*Salvinia molesta*) 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.

MANAGEMENT STRATEGIES

1. Cooperate with the controlling authority to post appropriate signage at access points around the reservoir.
2. Educate the public about invasive species through the use of media and the internet.
3. Make a speaking point about invasive species when presenting to constituent and user groups.
4. Keep track of (i.e., map) existing and future inter-basin water transfers to facilitate potential invasive species responses.

Objective-Based Sampling Plan and Schedule (2022–2023)

Sport fish, forage fish, and other important fishes

Important sport fishes in Bachman Reservoir include Largemouth Bass and White Crappie. Known important forage species include Gizzard and Threadfin Shad, Bluegill and Longear Sunfish**.** All planned surveys listed below will be subject to change depending on the status of Bachman Reservoir over the next four years.

Low-density fisheries

Catfishes: Blue Catfish were stocked once in Bachman Reservoir (~13,000 fingerlings in 2003), yet only one Blue Catfish has ever been collected using standard sampling methods. Channel Catfish were consistently stocked as 9" fingerlings for the better part of two decades (1996-2016) because of an event hosted at Bachman Reservoir by the Turning POINT organization. Despite regular stockings, Channel Catfish didn't show up in surveys until 2007. Catch rates have been variable and size structure is skewed towards a low-density population of larger individuals. Given the variability of catfish catch rates and the uncertainty of the fishery in the upcoming years, no gill netting surveys will be planned, and no objectives will be set for either species.

Survey objectives, fisheries metrics, and sampling objectives

Largemouth Bass: Electrofishing catch rates for Largemouth Bass have been historically high in Bachman Reservoir. Fall nighttime electrofishing will be conducted in 2022. A minimum of 6 randomly selected 5-min sites will be sampled to collect trend data on CPUE, size structure, and body condition for Largemouth Bass. Based on past catch rates, this should be adequate to obtain an RSE of CPUE-S $\leq$ 25. If the RSE objective is not met, additional electrofishing sampling will only continue if 50 stock-size or larger fish are not captured in the first 6 sample sites.

White crappie: Previous survey data indicated that White Crappie are abundant in Bachman Reservoir. A trap-netting survey consisting of 3 single-cod shoreline net sets will be conducted in fall 2022. The objective of this sampling will be to collect a minimum of 50 stock length fish which will allow us to estimate the size structure of the population. This should provide sufficient information for monitoring of large-scale changes in the population. No additional effort will be expended if 50 stock length fish are not collected in the 3 trap nets.

Bluegill, Longear Sunfish, Threadfin and Gizzard Shad: Bluegill, Longear Sunfish, Threadfin, and Gizzard Shad are the primary forage in Bachman Reservoir. Like Largemouth Bass, trend data on CPUE and size structure will be collected with fall nighttime electrofishing. Sampling, as with Largemouth Bass above, will allow for monitoring of large-scale changes in Bluegill, Longear Sunfish, Threadfin and Gizzard Shad relative abundance and size structure. Sampling effort based on achieving sampling objectives for Largemouth Bass will result in sufficient numbers of Bluegill, Longear Sunfish, Threadfin and Gizzard Shad for size structure estimation (PSD and IOV; 50 fish minimum at 6 stations with 80% confidence).

Literature Cited

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Guy, C. S., R. M. Neumann, D. W. Willis, and R. O. Anderson. 2007. Proportional size distribution (PSD): a further refinement of population size structure index terminology. Fisheries 32(7): 348.

Neumann, R. M., C. S. Guy, and D. W. Willis. Length, weight and associated indices. Pages 637-676 in A. V. Zale, D. L. Parrish, and T. M. Sutton, editors. Fisheries techniques, 3rd edition. American Fisheries Society, Bethesda, Maryland.

Tables and Figures

Table 1. Characteristics of Bachman Reservoir, Texas.

Characteristic	Description
Year constructed	1903
Controlling authority	City of Dallas
County	Dallas
Reservoir type	Tributary Trinity River
Conductivity	375 µS/cm

Table 2. Boat ramp characteristics for Bachman Reservoir, Texas, August, 2018.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
Bachman Lake ramp	32.505865 -96.515695	Y	3	Unknown	Ramp is shallow, but in good shape

Table 3. Harvest regulations for Bachman Reservoir, Texas.

Species	Bag limit	Length limit
Catfish: Channel and Blue, 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, their hybrids and subspecies	25 (in any combination)	10-inch minimum

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

Species	Year	Number Stocked	Size
Blue Catfish	2003	13,313	FGL
Channel Catfish	1966	6,000	
Channel Catfish	1969	20,000	
Channel Catfish	1976	2,000	
Channel Catfish	1982	180	
Channel Catfish	1996	324	ADL
Channel Catfish	1997	400	ADL
Channel Catfish	1998	500	FGL
Channel Catfish	1999	400	ADL
Channel Catfish	2000	400	FGL
Channel Catfish	2002	900	ADL
Channel Catfish	2004	3,807	FGL
Channel Catfish	2005	662	FGL
Channel Catfish	2006	600	FGL
Channel Catfish	2007	660	ADL
Channel Catfish	2008	660	FGL
Channel Catfish	2009	660	FGL
Channel Catfish	2010	660	FGL
Channel Catfish	2011	695	FGL
Channel Catfish	2012	661	FGL
Channel Catfish	2013	660	FGL
Channel Catfish	2014	550	FGL
Channel Catfish	2015	550	FGL
Channel Catfish	2016	550	FGL
Channel Catfish	2017	550	FGL
	Total	43,029	
Largemouth Bass	1967	2,500	
Largemouth Bass	1976	3,000	
Largemouth Bass	1982	185	
	Total	5,685	
Florida Largemouth Bass	1976	5,450	FGL
Florida Largemouth Bass	2016	14,965	FGL
Florida Largemouth Bass	2017	19,027	FGL
	Total	39,442	
Green x Redear Sunfish	1976	6,000	
Redear Sunfish	1976	6,000	

Table 4. Objective-based sampling plan components for Bachman Reservoir, Texas 2018–2019.

Gear/target species	Survey objective	Metrics	Sampling objective
Electrofishing			
Largemouth Bass	Abundance	CPUE–Stock	RSE-Stock ≤ 25
	Size structure	PSD, length frequency	N ≥ 50 stock
	Condition	W_r	10 fish/inch group (max)
	Genetics	% FLMB	N = 30, any age
Bluegill [a]	Abundance	CPUE–Total	RSE ≤ 25
	Size structure	PSD, length frequency	N ≥ 50
Gizzard Shad [a]	Abundance	CPUE–Total	RSE ≤ 25
	Size structure	PSD, length frequency	N ≥ 50
	Prey availability	IOV	N ≥ 50
Trap netting			
Crappie	Size structure	PSD, length frequency	N = 50
	Condition	W_r	None

[a] No additional effort will be expended to achieve an RSE ≤ 25 for CPUE of Bluegill and Gizzard Shad if not reached from designated Largemouth Bass sampling effort. Instead, Largemouth Bass body condition can provide information on forage abundance, vulnerability, or both relative to predator density.

Gizzard Shad

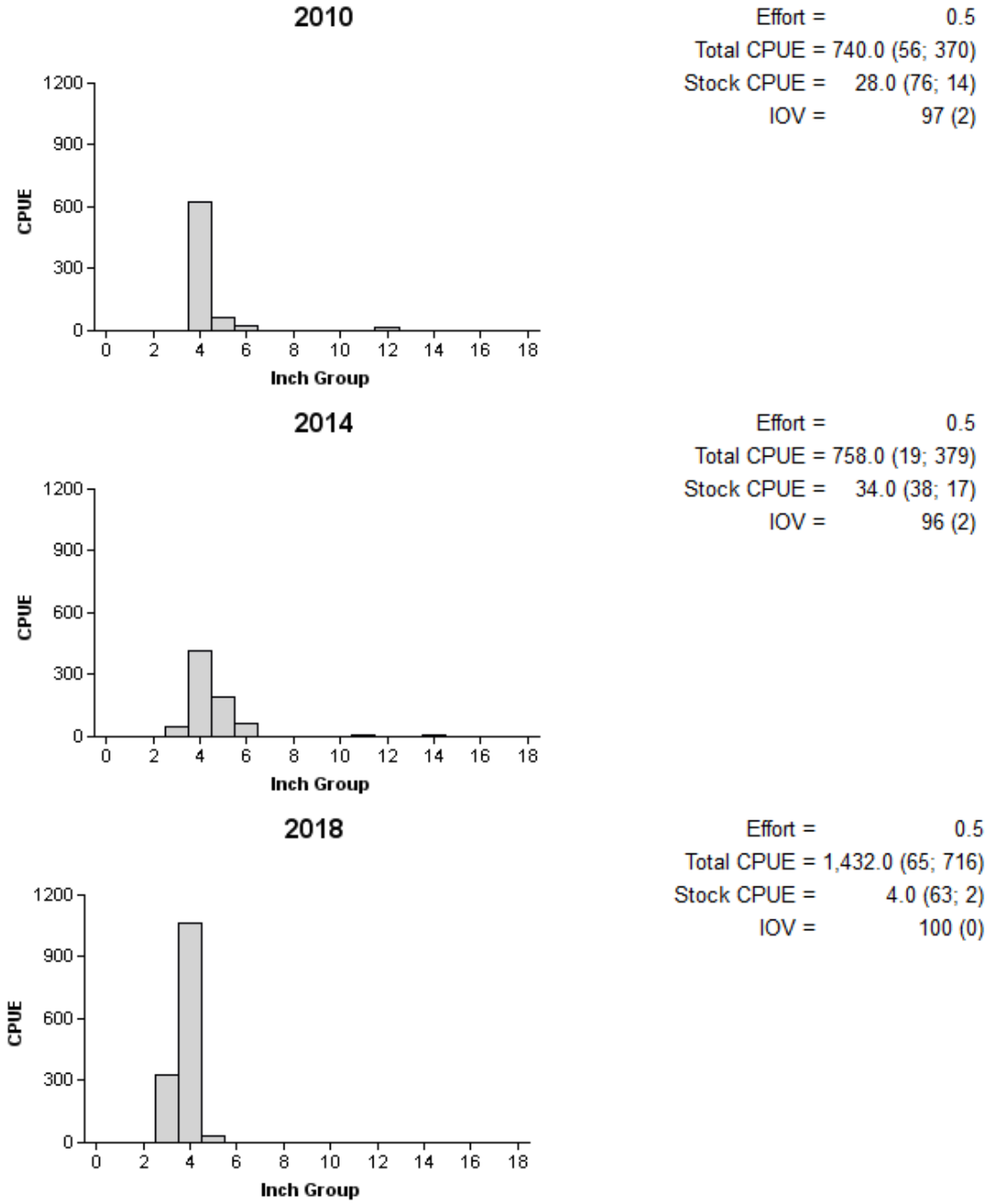


Figure 1. Number of Gizzard Shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Bachman Reservoir, Texas, 2010, 2014, and 2018.

Bluegill

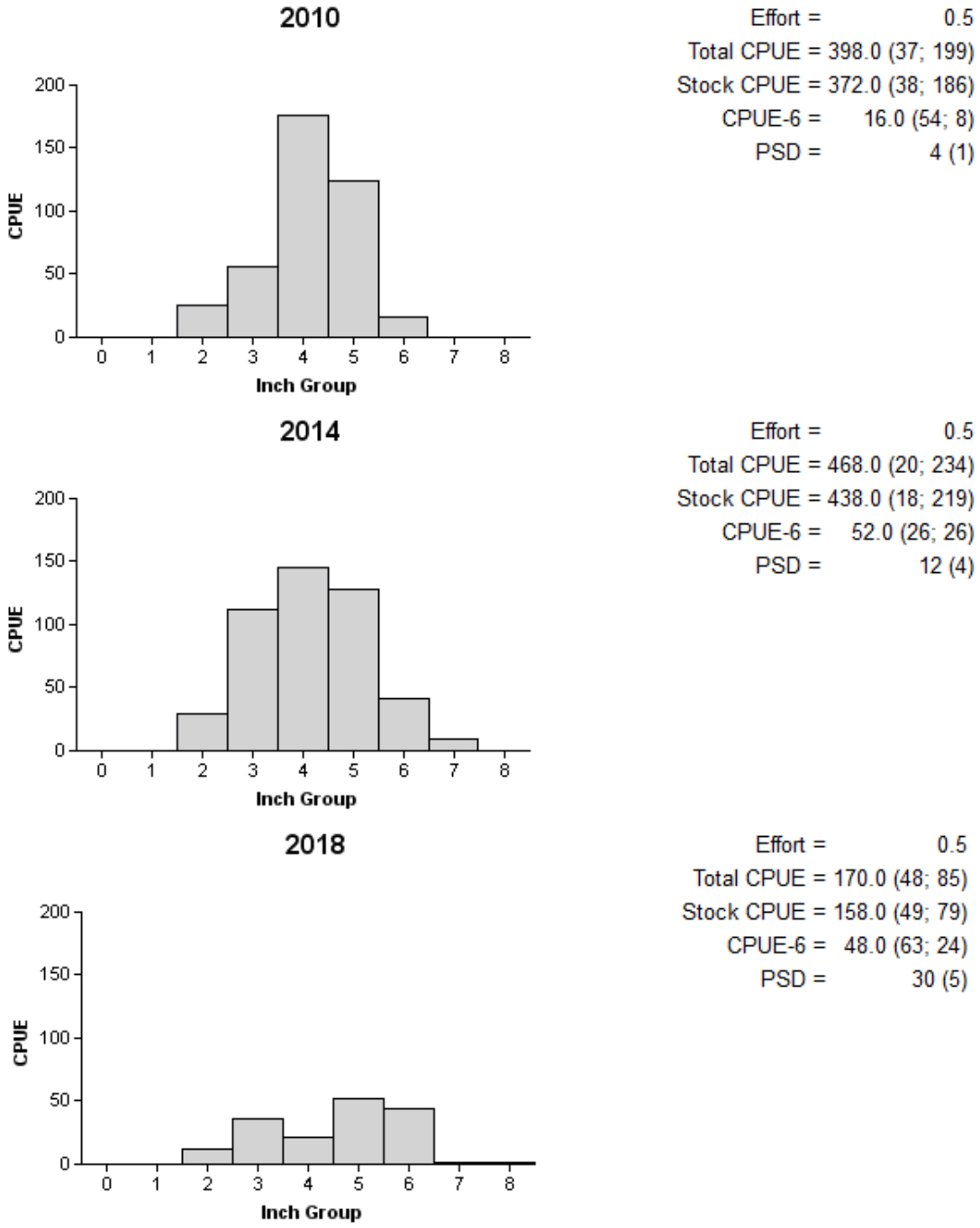


Figure 2. Number of Bluegill caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Bachman Reservoir, Texas, 2010, 2014, and 2018.

Channel Catfish

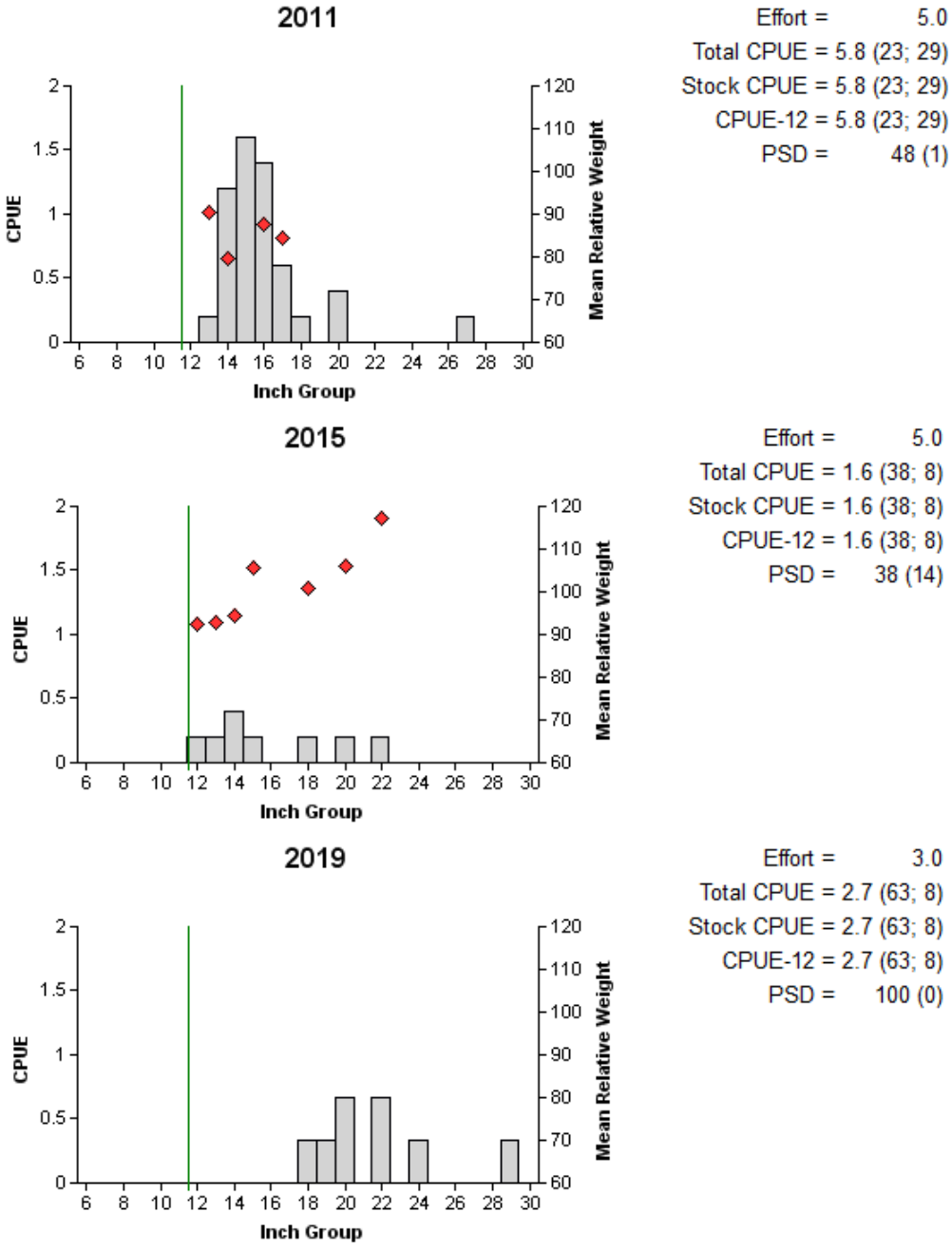


Figure 3. Number of Channel Catfish caught per net night (CPUE), mean relative weight (diamonds) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Bachman Reservoir, Texas, 2011, 2015, and 2019. Vertical line indicates minimum length limit. Sampling effort was reduced for 2019 due to low and variable catch rates from previous years. Weight data were not collected in 2019 due to equipment failure.

Largemouth Bass

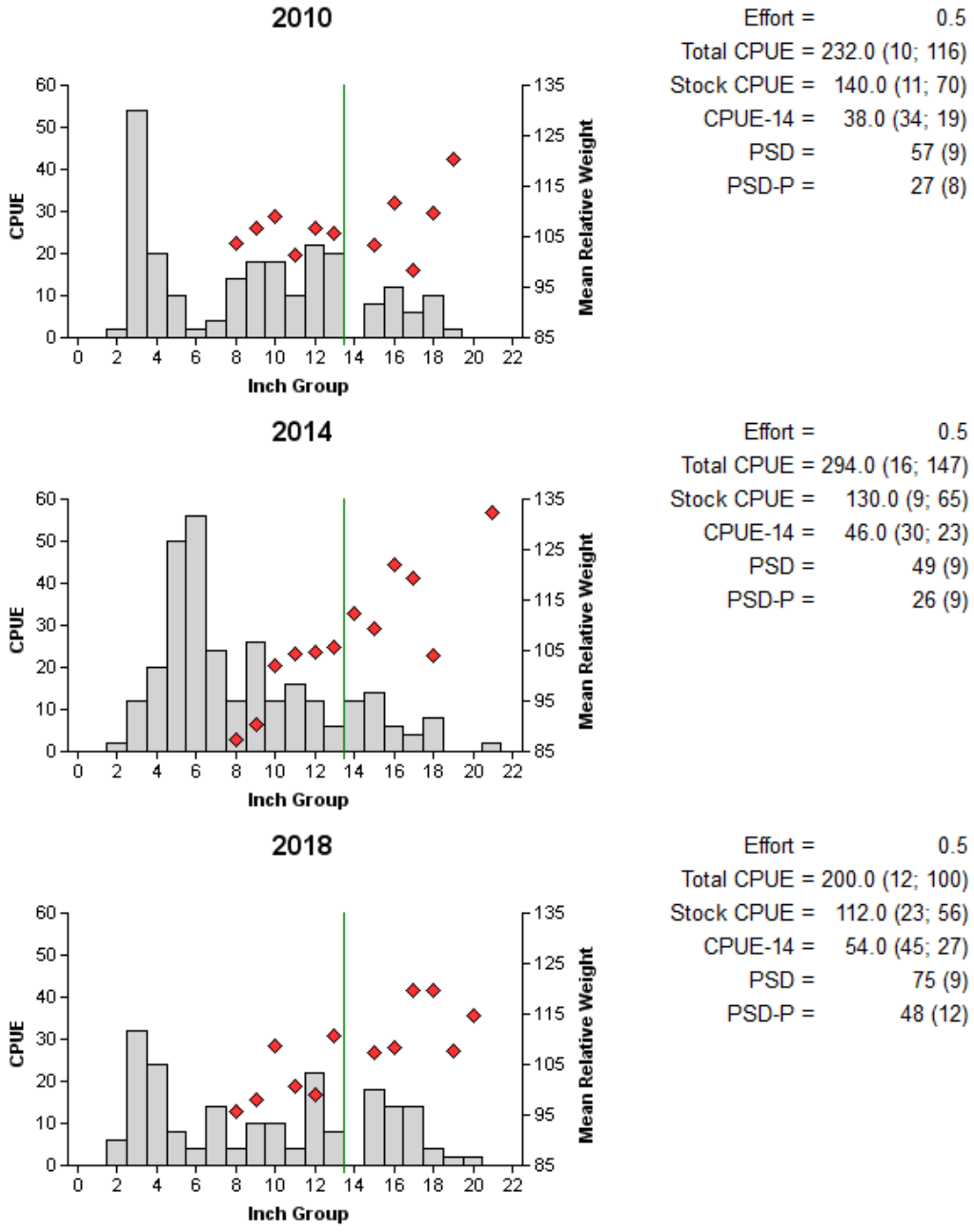


Figure 1. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Bachman Reservoir, Texas, 2010, 2014, and 2018. Vertical line indicates minimum length limit.

Table 6. Results of genetic analysis of Largemouth Bass collected by fall electrofishing, Bachman Reservoir, Texas. FLMB = Florida Largemouth Bass, NLMB = Northern Largemouth Bass, F1 = first generation hybrid between a FLMB and a NLMB, Fx = second or higher generation hybrid between a FLMB and a NLMB. Genetic composition was determined with micro-satellite DNA analysis.

Year	Sample size	Number of fish				% FLMB alleles	% pure FLMB
		FLMB	F1	Fx	NLMB		
2002	27	0	NA	22[a]	5	33.0	0.0
2014	30	0	2	28	0	48.0	0.0
2018	30	1	5	24	0	55.0	0.0

[a] Determination of hybrid status not conducted.

White Crappie

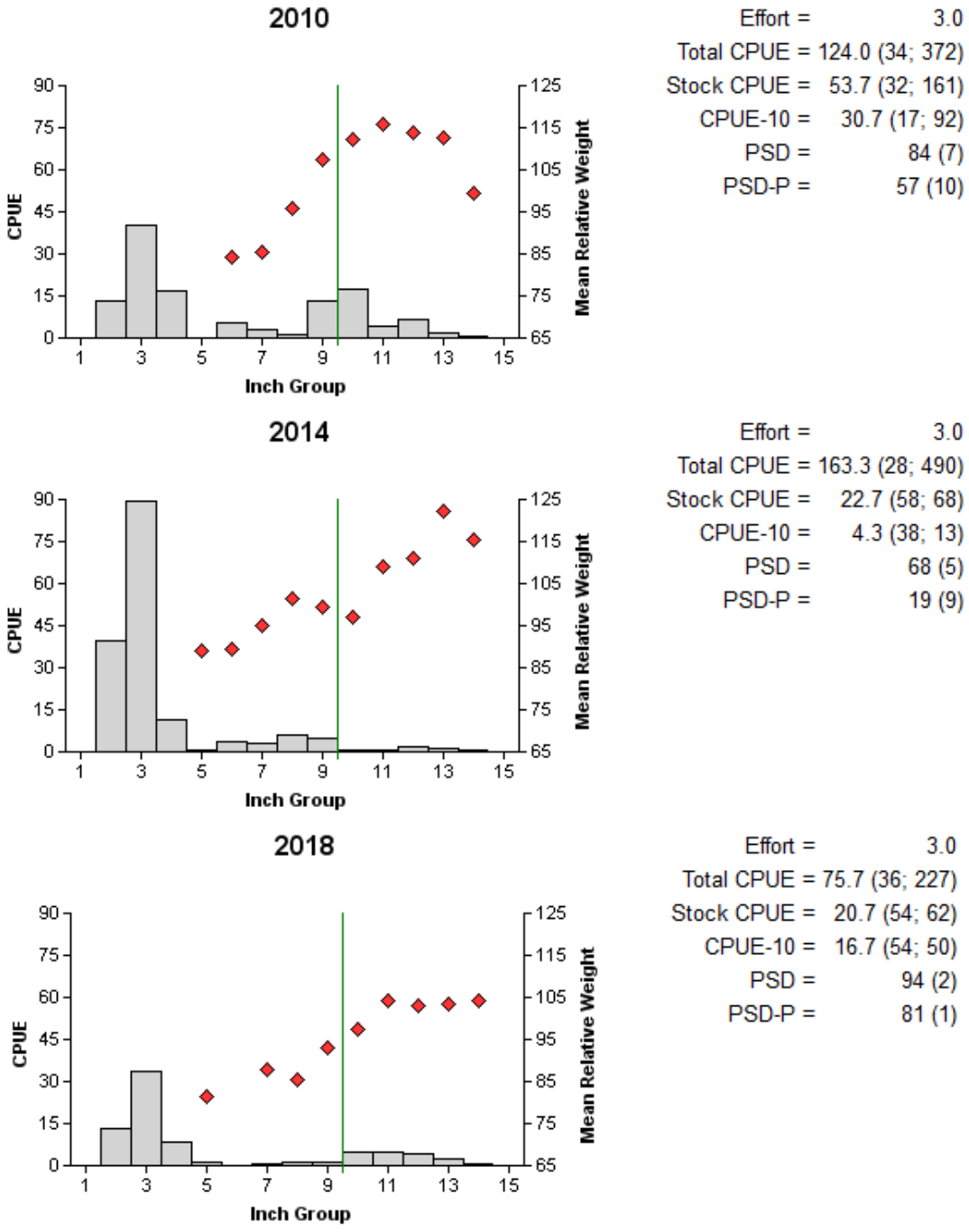


Figure 52. Number of White Crappie caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall trap netting surveys, Bachman Reservoir, Texas, 2010, 2014, and 2018. Vertical line indicates minimum length limit.

Proposed Sampling Schedule

Table 7. Proposed sampling schedule for Bachman 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

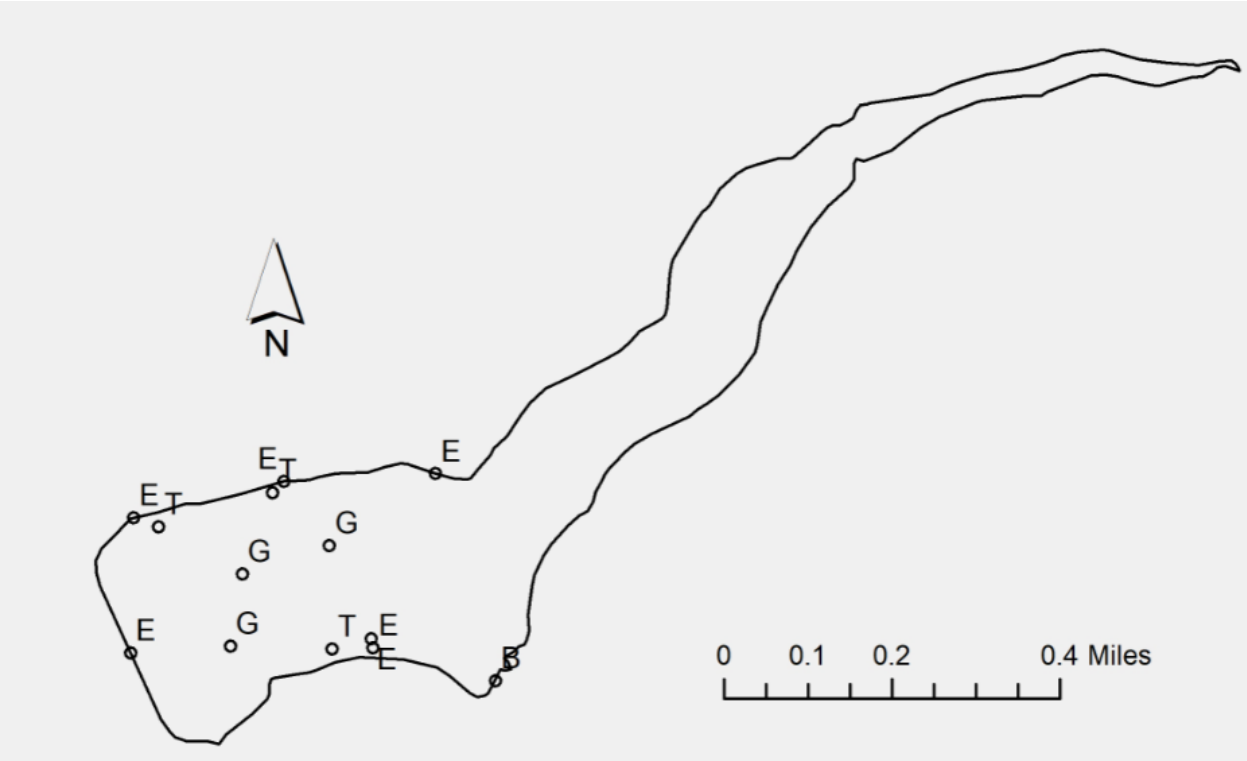
	Survey year			
	2019-2020	2020-2021	2021-2022	2022-2023
Angler Access				S
Electrofishing – Fall				S
Trap netting				S
Report				S

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 Bachman Reservoir, Texas, 2018-2019. Sampling effort was 3 net nights for gill netting, 3 net nights for trap netting, and 0.5 hour for electrofishing.

Species	Gill Netting		Trap Netting		Electrofishing	
	N	CPUE	N	CPUE	N	CPUE
Gizzard Shad					716	1,432 (65)
Channel Catfish	8	2.67 (63)				
Bluegill					85	170.0 (48)
Longear Sunfish					13	26.0 (37)
Spotted Gar	1	0.33 (100)				
Largemouth Bass					100	200.0 (12)
White Crappie			227	75.7 (36)		

APPENDIX B – Map of sampling locations



Location of sampling sites, Bachman Reservoir, Texas, 2018-2019. Trap net, gill net, and electrofishing stations are indicated by T, G, and E, respectively. B = boat ramp. Water level was near full pool at time of sampling.

APPENDIX C – Historical Catch

Catch rates (CPUE) of all species collected with electrofishing, trap netting and gill netting surveys on Marine Creek Reservoir, Texas, 2002 to present.

		Year											
Gear	Species	2002	2003	2004	2005	2006	2007	2010	2011	2014	2015	2018	2019
Electrofishing (fish/hr)	Gizzard Shad	101.3	364.0	8.0	156.0	250.0		740.0		758.0		1,432	
	Threadfin Shad												
	Warmouth	4.0											
	Bluegill	9.3	512.0	82.0	218.0	442.0		398.0		468.0		170.0	
	Longear Sunfish	5.3	60.0	24.0	54.0	32.0		202.0		76.0		26.0	
	Largemouth Bass	192.0	94.0	170.0	368.0	182.0		232.0		294.0		200.0	
	White Crappie					84.0				82.0			
Trap netting (fish/nn)	White Crappie	38.2				54.67		124.0		163.33		75.67	

Historical catch rates cont'd.

		Year											
Gear	Species	2002	2003	2004	2005	2006	2007	2010	2011	2014	2015	2018	2019
Gill netting (fish/nn)	Spotted Gar						2.67		1.0		1.2		0.33
	Gizzard Shad						22.33		32.4		8.2		17.0
	Common Carp						6.0		1.2		2.4		1.33
	River Carpsucker								0.2				
	Blue Catfish										0.2		
	Channel Catfish						0.67		5.8		1.6		2.67
	White Crappie						1.0		0.4				0.33

APPENDIX D – Bachman renovation master plan

In 2016, four City of Dallas departments had infrastructure needs at or near Bachman Reservoir. The total cost for all needs of all four departments was $286M. By September 2016, the City of Dallas took on the Love Field/Bachman Lake Feasibility Study. The purpose of the study was to address multiple City infrastructure needs and Bachman Lake in a way that reduces overall cost of improvements, minimizes adverse impacts of major construction projects, and improves recreational amenities at the lake. The Council examined several options, all of which reduced the footprint of Bachman Reservoir to a fraction of what it is now. All options were met with opposition from City departments, stake holder groups, or both.

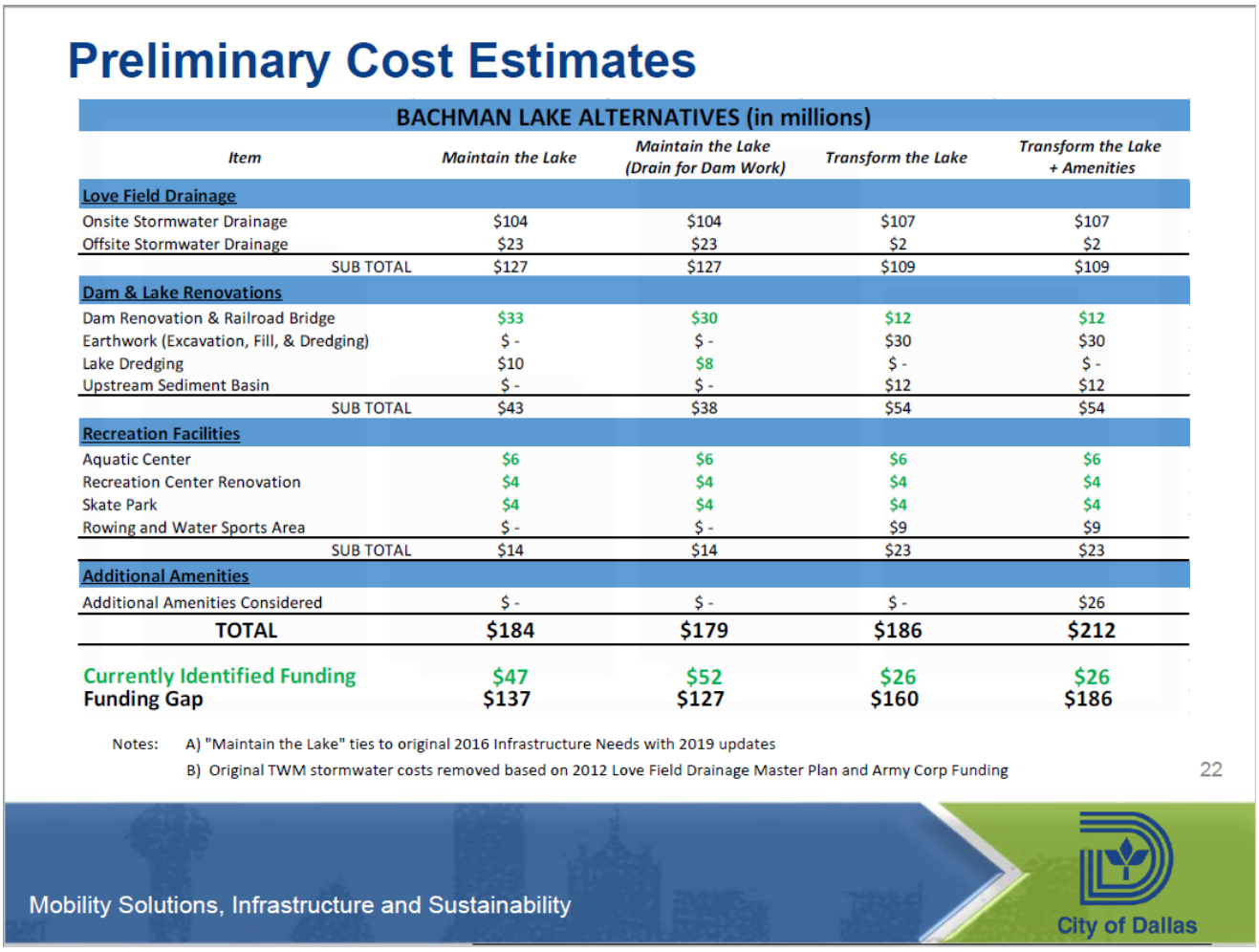
In March 2018, the Council requested City staff develop a task force to further evaluate alternatives. By October 2018, the task force was created consisting of 6 constituents and 4 City staff. The constituents are council members from each of the three districts involved, and the City staff are from three of the departments that had infrastructure needs (Aviation, Dallas Water Utilities, and Parks). As I understand it, there is not a representative for the fourth department, Trinity Watershed Management. In November 2018 the task force met with each department to discuss needs, options, and costs. From those meetings, they developed two options to present to the City. The task force presented their options to the City in February 2019. The members of the City of Dallas Mobility, Solutions, Infrastructure, and Sustainability Committee approved one of the two options presented by the task force.

The approved option is termed “Maintain the Lake.” This option has lower upfront costs and means the footprint of the lake will remain unchanged and departments will proceed with planned infrastructure improvements. Some of the major renovations needed at Bachman Reservoir are 1) dam renovation, 2) stream and main lake dredging, and 3) upstream silt basin installation. Other renovations and costs are listed below.

A Friends of Bachman organization was formed by members of various stake holder groups to maintain a citizen presence in the planning and renovation process. Members of the Inland Fisheries Management team in Fort Worth has met with the Friends of Bachman organization, Dallas Water Utilities, and Groundwork Dallas to discuss how we can help with the planning process.

Timeline of planning and projects in the Bachman Reservoir Renovation Master Plan. This is not an official timeline, just projections from Dallas Water Utilities as of May 2019.

Project	Expected Timeline (Months)	Estimated Begin Date (MM/YYYY)
Begin designing lake and park renovations	6	11/2019
Planning/Design for project work	12	11/2020
Start work	18 – 24	05/2021 – 11/2022
Project work	12 – 18	2022 – 2023 earliest completion



Preliminary Cost Estimates

BACHMAN LAKE ALTERNATIVES (in millions)

Item	*Maintain the Lake*	*Maintain the Lake (Drain for Dam Work)*	*Transform the Lake*	*Transform the Lake + Amenities*
Love Field Drainage				
Onsite Stormwater Drainage	$104	$104	$107	$107
Offsite Stormwater Drainage	$23	$23	$2	$2
SUB TOTAL	$127	$127	$109	$109
Dam & Lake Renovations				
Dam Renovation & Railroad Bridge	$33	$30	$12	$12
Earthwork (Excavation, Fill, & Dredging)	$ -	$ -	$30	$30
Lake Dredging	$10	$8	$ -	$ -
Upstream Sediment Basin	$ -	$ -	$12	$12
SUB TOTAL	$43	$38	$54	$54
Recreation Facilities				
Aquatic Center	$6	$6	$6	$6
Recreation Center Renovation	$4	$4	$4	$4
Skate Park	$4	$4	$4	$4
Rowing and Water Sports Area	$ -	$ -	$9	$9
SUB TOTAL	$14	$14	$23	$23
Additional Amenities				
Additional Amenities Considered	$ -	$ -	$ -	$26
TOTAL	**$184**	**$179**	**$186**	**$212**
Currently Identified Funding	**$47**	**$52**	**$26**	**$26**
Funding Gap	**$137**	**$127**	**$160**	**$186**

Notes: A) "Maintain the Lake" ties to original 2016 Infrastructure Needs with 2019 updates
B) Original TWM stormwater costs removed based on 2012 Love Field Drainage Master Plan and Army Corp Funding

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Mobility Solutions, Infrastructure and Sustainability

City of Dallas

List of infrastructure needs and associated costs. The Committee approved to move forward with the "Maintain the Lake (Drain for Dam Work)" option as it was the least expensive method.

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