

Fort Parker Reservoir

2022 Fisheries Management Survey Report

PERFORMANCE REPORT

As Required by

FEDERAL AID IN SPORT FISH RESTORATION ACT

TEXAS

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INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

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Survey and Management Summary

Fish populations in Fort Parker Reservoir were surveyed in 2022 using electrofishing and in 2023 using trap netting. Historical data are presented with the 2022-2023 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: Fort Parker Reservoir is a 750-acre impoundment located within Fort Parker State Park in Limestone County, Texas. Water level has fluctuated greatly since 2019 although it is not formally gauged. Mean and maximum water depths are four and eight feet respectively, and the reservoir is considered hypereutrophic. Excessive sedimentation has made the upper two-thirds of the reservoir unnavigable and only the lower one-third is sampled. Habitat features consisted of natural shoreline and stands of cutgrass.

Management History: Important sportfishes include catfishes, White Crappie and Largemouth Bass. Channel Catfish were stocked most recently in 2022. Blue Catfish and Largemouth Bass were both stocked in 2021. Sportfishes are currently managed with statewide regulations, except that there is no minimum length limit on catfishes, and the daily bag limit is five (in any combination); also, fishing is by pole and line only. In 2019, Waco district staff worked with the Aquatic Habitat Enhancement Team (AHE) and Fort Parker State Park staff to treat giant cut grass stands along a large peninsula on the lower end of the lake; these stands had caused access issues for bank anglers for decades (Appendix D). The AHE team treated this area during May and July 2019. Recent management efforts include maintaining and updating aquatic invasive species (AIS) signage and educating constituents about the threat of AIS.

Fish Community

- **Prey species:** Forage abundance was low. Gizzard Shad, Threadfin Shad and Bluegill were all collected in historically low numbers.
- **Catfishes:** The Channel Catfish catch rate was above the historical average while that of Blue Catfish was below the historical average. Body condition was good to excellent for both species.
- **Largemouth Bass:** Largemouth Bass catch rates were the second lowest on record for the reservoir with only five individuals collected. All five individuals were of legal length and body condition was good to excellent.
- **Crappies:** Crappie abundance was near a historical low. Most of the White Crappie collected were sub-legal however body condition was excellent across length classes. Black Crappie were present in low numbers.

Management Strategies: Continue managing Fort Parker Reservoir with existing regulations until September 1, 2023 – and with the newly proposed regulations thereafter. Conduct a daytime electrofishing survey in fall 2024 and a low-frequency electrofishing survey in summer 2024 or 2026 pending reservoir conditions. Conduct aquatic vegetation, access and daytime electrofishing surveys in 2026 and trap netting and gill netting surveys in 2027. Monitor problematic giant cut grass stands and relate any issues with the AHE crew so that additional treatments can be performed as needed. Work to educate the public about AIS issues and protect the reservoir from AIS introductions.

Introduction

This document is a summary of fisheries data collected at Fort Parker Reservoir from 2022-2023. 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 species of fishes was collected, this report deals primarily with major sportfishes and important prey species. Historical data are presented with the 2022-2023 data for comparison.

Reservoir Description

Fort Parker Reservoir is a Texas Parks and Wildlife Department (TPWD) owned 750-acre reservoir located within Fort Parker State Park in Limestone County, Texas. The reservoir was constructed in 1935 by the Civilian Conservation Corps and serves the dual purpose of flood control and municipal water supply for the town of Groesbeck, Texas. Fort Parker Reservoir is in the Blackland Prairie Ecological Area and land use around the reservoir is primarily agricultural. Fort Parker Reservoir has a shoreline length of approximately 19 miles, a mean and maximum water depth of four and eight feet and is hypereutrophic with a mean chl-a of 63.8 (Texas Commission on Environmental Quality 2010). Excessive sedimentation has made the upper two-thirds of the reservoir unnavigable with the exception of small watercraft (i.e., canoes and kayaks) and therefore is not sampled. Habitat in the lower-third of the reservoir consisted of natural shoreline and cutgrass. Water level has fluctuated greatly since 2019 although it is not formally gauged. Descriptive characteristics for Fort Parker Reservoir are in Table 1.

Angler Access

Fort Parker Reservoir has two public boat ramps: one on the main reservoir and one on the Navasota River just above the reservoir (Table 2). Both ramps are usable during normal water elevation periods however, there is no gauging station on or near the reservoir. Although the entire reservoir lies within the boundaries of the state park, much of the preferred bank access (areas near day-use and camp sites) has been limited in the past by large stands of giant cutgrass. The upper two-thirds of the reservoir is only navigable with small watercraft (i.e., canoes, kayaks) due to shallow water.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Baird and Tibbs 2019) included:

1. Communicate with the AHE crew throughout 2019 and 2020 to ensure that cutgrass stands are treated effectively and keep park staff informed of treatment schedules and details.

Action: Treatment schedules and details were communicated freely between the Waco Team, Fort Parker State Park staff and the AHE crew. Park staff identified and mapped areas of problematic cutgrass in early 2019 and the AHE crew responded quickly by treating the area in May and again in July 2019. Additional details are in this report.
2. Discontinue spring gill netting surveys and replace with low-frequency electrofishing surveys.

Action: Low-frequency electrofishing was included in the 2018 OBS plan for Fort Parker Reservoir as an exploratory gear to collect additional recruitment data for Blue and Flathead Catfish, however this was not conducted in 2022 due to low water level and boat ramp closures. Additional details are in this report.
3. Cooperate with park staff to maintain appropriate AIS signage, educate the public about AIS, make a speaking point about AIS when presenting to constituent and user groups and keep track of all inter-basin water transfer routes to facilitate potential AIS responses.

Action: Invasive species signage was posted at Fort Parker Reservoir during summer 2013 and has been maintained since that time. District biologists have continued to educate constituents about AIS in presentations, conversations and Facebook posts since the last report writing. Inter-basin water transfers are a permanent fixture in this report and will be updated as needed.

Harvest regulation history: Sportfishes were managed with statewide regulations until 2004 when the Ctfsh1 and Gear1 exceptions took effect. The Ctfsh1 exception states, for Blue and Channel Catfish, there is no minimum length limit, and the combined daily bag limit is five; for Flathead Catfish, the minimum length limit is 18 inches, and the daily bag is five. The Gear1 exception states, fishing is by pole and line only. The Ctfsh1 and Gear1 exceptions are still in effect. A regulation change for Fort Parker is in progress however, and beginning September 1, 2023, the new regulations will be statewide length and bag limits; fishing by pole and line only, with a two pole maximum. The current regulations can be found in Table 3.

Stocking history: Recent stockings include over 18,000 Blue Catfish and 18,000 Channel Catfish in 2021, nearly 13,000 Florida Largemouth Bass in 2021 and nearly 40,000 Channel Catfish again in 2022. The complete stocking history is in Table 4.

Vegetation/habitat management history: Large stands of cutgrass have prevented bank access for anglers in highly sought areas of the park for some time. The current park manager and staff recognize bank angler access as a priority and have been proactive in seeking assistance with the problem. Park staff identified and mapped areas of problematic cutgrass in early 2019 and requested help from the Waco staff in having the cutgrass treated (Appendix D). The AHE crew responded quickly by treating the area twice in 2019, once in May and again in July. Park staff treated the area one additional time and still mows/shreds the stands as necessary, but giant cutgrass remains an issue on the peninsula.

Water transfer: Fort Parker Reservoir is used primarily for municipal water supply, flood control, and recreation. The town of Groesbeck has rights to all but 0.5-acre feet of the water in the reservoir and the state park has rights to the 0.5-acre foot. The town of Groesbeck utilizes a siphon tube at the dam to pump make-up water from Fort Parker Reservoir into their drinking water supply reservoir as needed. Groesbeck's water rights supersede those of the town of Mexia for Mexia Reservoir, yet there are currently no plans to utilize those water rights. The state park's water rights are used mainly for irrigation purposes within the park.

Reservoir capacity: Fort Parker Reservoir loses volume annually to sedimentation by erosion within its watershed. Studies of Mexia and Limestone Reservoirs, upstream and downstream of Fort Parker, have also shown significant losses in volume since impoundment. Although the loss of Fort Parker Reservoir capacity is unknown at this time, dredging operations initiated by the town of Groesbeck in 1994 were begun to remove 930 acre feet of deposited silt in and adjacent to the Navasota River channel within the reservoir. Those efforts were abandoned in 2002 with limited success.

Methods

Surveys were conducted to achieve survey and sampling objectives in accordance with the objective-based sampling (OBS) plan for Fort Parker Reservoir (Baird and Tibbs 2019). 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, except that electrofishing was conducted during day-time hours and trap netting was conducted during spring (TPWD, Inland Fisheries Division, unpublished manual revised 2022).

Low-frequency electrofishing – Low-frequency electrofishing was not conducted in late summer 2022 due to low water level and boat ramp closures. Low-frequency electrofishing was included in the 2018 OBS plan for Fort Parker Reservoir as an exploratory gear to try and collect better recruitment data for Blue and Flathead Catfish. Since no low-frequency electrofishing data were collected for this report, the spring 2019 gill netting data are the most recent data available for catfishes.

Electrofishing – Largemouth Bass, sunfishes, Gizzard Shad, and Threadfin Shad were collected by day-time electrofishing (0.75 h at 9, 5-min stations). The 2022 survey is the second daytime electrofishing survey completed on Fort Parker Reservoir. Catch per unit effort (CPUE) for electrofishing was recorded as the number of fish caught per hour (fish/h) of actual electrofishing.

Trap netting – White Crappie were collected by spring trap netting (5 net nights at 5 stations). The 2023 survey is the second spring-time trap netting survey completed on Fort Parker Reservoir. Catch per unit effort (CPUE) for trap netting was recorded as the number of fish caught per net night (fish/nn).

Gill netting – Catfishes were last collected by gill netting (5 net nights at 5 stations) in spring 2019; gill netting was not conducted in 2023. Catch per unit 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 2022). Micro-satellite DNA analysis was used to determine genetic composition of individual fish since 2005. Electrophoresis analysis was used prior to 2005. Fin clips were taken for all Largemouth Bass collected ($n = 5$).

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 ($RSE = 100 \times SE$ of the estimate/estimate) was calculated for all CPUE statistics.

Habitat – A structural habitat survey was last conducted by Tibbs and Baird (2011) and a vegetation survey was conducted, by random point method, in late summer 2022 (TPWD, Inland Fisheries Division, unpublished manual revised 2022).

Water level – There is currently no source for water level data for Fort Parker Reservoir.

Results and Discussion

Habitat: The last structural habitat survey estimated 12.3 miles (98%) of natural shoreline and 0.2 miles (2%) of bulk headed shoreline (Tibbs and Baird 2011). Littoral zone habitat in summer 2022 was dominated by cutgrass (92% or 23 of 25 randomly selected shoreline points). Structural habitat was scarce and open water vegetation was nonexistent.

Prey species: Gizzard Shad, Bluegill and Threadfin Shad were collected with daytime electrofishing at rates of 50.7 fish/h, 10.7 fish/h and 16.0 fish/h respectively and all three catch rates were well below historical averages (Figures 1 and 2; Appendices A and B). The OBS goal for Gizzard Shad and Bluegill was exploratory sampling so no abundance or size structure target ranges were sought. The IOV for Gizzard Shad was excellent and 95% of individuals were available to existing predators; this far-

exceeded the IOV estimate from 2018 (52; Figure 1). The Bluegill catch rate (10.7 fish/h) was the lowest on record (Figure 2; Appendices A and B). No other forage species were observed.

Catfishes: Blue and Channel Catfish were last collected with gill netting at rates of 0.6 fish/nn and 3.4 fish/nn respectively in 2019; gill netting was not conducted in 2023 (Figures 3 and 4; Appendices A and B). The Blue Catfish catch rate was below the historical average while that of Channel Catfish was above the historical average (Appendix B). The 2019 OBS goals for these species, general monitoring to collect abundance (CPUE – Total; $RSE \leq 25$) and size structure (PSD and length-frequency; $N \geq 50$) data, were not achieved as only 20 combined individuals were collected and the RSE for each species was well above 25 (Figures 3 and 4). Both populations were dominated by larger individuals. Body condition was good to excellent for both species (Figures 3 and 4).

Largemouth Bass: Largemouth Bass were collected with day-time electrofishing at a rate of 6.7 fish/h and this is the second lowest catch rate on record (Figure 5; Appendices A and B). The lowest catch rate was from the 2018 electrofishing survey (2.7 fish/h; Figure 5). The OBS goal for Largemouth Bass was exploratory sampling so no abundance or size structure target ranges were sought. Largemouth Bass genetics have improved since the previous analysis (2014), yet showed minimal Florida influence (i.e., 21%). Largemouth Bass fingerlings were stocked in July 2021 in response to flood events which did catastrophic damage to the population however, this stocking may not have provided any recruitment benefits. Two possible reasons for the continued low catch rate of Largemouth Bass are severe drought conditions during 2022 and avian predation (i.e., Cormorants and Pelicans).

White Crappie: White Crappie were collected with spring trap netting at a rate of 20.6 fish/nn and this is well below the historical average (Figure 6; Appendices A and B). The OBS goal for White Crappie abundance (CPUE – Stock; $RSE \leq 25$) fell short ($RSE = 39$) while that for size structure (PSD and length-frequency; $N \geq 50$) was achieved ($N = 77$; Figure 6). Body condition was excellent and improved across length classes. Most individuals observed were sub-legal but there was evidence of good recruitment.

Fisheries Management Plan for Fort Parker Reservoir, Texas

Prepared – July 2023

ISSUE 1: Park staff identified and mapped areas of problematic cutgrass in early 2019 and requested help from IF staff in having the cutgrass treated (Appendix D). The AHE crew responded quickly by treating the area twice in 2019 (once in May and once in July). Park staff treated the area one additional time and still mows/shreds the stands as necessary to keep them under control, but giant cutgrass remains an issue on the peninsula.

MANAGEMENT STRATEGIES

1. Communicate with the AHE crew throughout 2023-2027 to ensure that the problematic cutgrass stands are eradicated.
2. Keep Fort Parker State Park staff informed of treatment schedules and details.

ISSUE 2: Low-frequency electrofishing was included in the 2018 OBS plan for Fort Parker Reservoir as an exploratory gear to try and collect additional recruitment data for Blue and Flathead Catfish however, low-frequency electrofishing was not conducted in 2022 due to low water level and boat ramp closures. The usefulness of the gear in Fort Parker Reservoir still needs to be determined.

MANAGEMENT STRATEGIES

1. Survey the catfish population with low-frequency electrofishing during summer 2024 or summer 2026.
2. Pending the results of the low-frequency electrofishing survey, determine whether or not to replace traditional gill netting with the gear.
3. Gill net in late winter 2027 if the decision is made to continue with gill netting.

ISSUE 3: Fort Parker Reservoir has experienced severe flooding and drought within the last several years. Given its shallow nature and flow-through system, these events are particularly damaging to the fishery. Additionally, avian predation (e.g., White Pelicans) is also taking a toll on fish populations within the park.

MANAGEMENT STRATEGIES

1. Request supplemental Blue Catfish, Channel Catfish, Lonestar Bass and Bluegill when available to mitigate these catastrophic losses.
2. Perform an additional electrofishing survey in fall 2024 to monitor Largemouth Bass and forage species.

ISSUE 4: Many AIS 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 AIS 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 state park staff to maintain appropriate signage at access points around the reservoir.
2. Provide technical support and informational materials to park visitors describing the agencies' "Clean, Drain, Dry" initiative.
3. 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 (2023–2027)

Important sport and forage fishes

Abundant and/or important sportfishes in Fort Parker Reservoir include Blue Catfish, Channel Catfish, White Crappie and Largemouth Bass. Important forage fishes include Gizzard Shad, Threadfin Shad and Bluegill.

Sportfishes with low-density populations

Flathead Catfish, White Bass and Black Crappie occur in low abundance in Fort Parker Reservoir and are generally caught incidentally to targeted species. We will continue collecting and reporting data for these species and upgrade their status as appropriate.

Survey objectives, fisheries metrics, and sampling objectives

Fall Electrofishing: This survey will be used to evaluate Largemouth Bass and primary forage species (Gizzard Shad, Threadfin Shad and Bluegill). Historically, Fort Parker electrofishing catch rates for Largemouth Bass have been among the lowest in the Waco District, and the fall 2018 and 2022 electrofishing catch rates (2.7 and 6.7 fish/h) were the lowest on record for the reservoir. Catch rates for the primary forage species were also near historical lows. Since catch rates are well below those desired for general monitoring (N of stock-sized fish ≥ 50 and CPUE target precision $RSE \leq 25$) the goal of these surveys will be exploratory sampling only. Nine random five-minute daytime electrofishing stations will be sampled during late fall 2024 and 2026. Fin clips will be taken for genetics on all Largemouth Bass collected, up to 30 fish total, in 2026. No additional sampling effort will be conducted.

Spring Trap Netting: This survey will be used to evaluate White Crappie, which is the dominant crappie species in Fort Parker Reservoir. White Crappie were last sampled with spring trap netting in 2023 (20.6 fish/nn; $N \geq \text{Stock} = 77$; $RSE = 39$). A minimum of 5 random trap netting stations will be sampled in spring 2027. The goal of this survey will be general monitoring (using CPUE, size structure and relative weight as metrics) to characterize the White Crappie population and make comparisons with historical and future data. Catch per unit effort target precision will be an $RSE \leq 25$. Target sample size will be an $N \geq 50$ stock-sized fish to determine population size structure, allowing us to calculate proportional size distributions with 80% confidence. If the objective is not met, no additional sampling effort will be conducted.

Low-frequency electrofishing: A minimum of 3 random low-frequency electrofishing stations will be completed in late summer 2024 through exploratory sampling to see if more useful recruitment data can be obtained for Blue and Flathead Catfish. Pending results and taking into consideration the known biases low-frequency electrofishing has in collecting Channel Catfish, low-frequency electrofishing may or may not be used again in 2026 to monitor the catfish fishery.

Spring Gill Netting: This survey will be used to evaluate catfishes, which are dominant sportfishes in Fort Parker Reservoir, pending results of the 2024 low-frequency electrofishing survey. Blue, Channel and Flathead Catfishes were last sampled with gill netting in 2019 at 0.6 fish/nn, 3.4 fish/nn and 0.0 fish/nn respectively. Since catch rates for these species are well below those desired for general monitoring (N of stock-sized fish ≥ 50 and CPUE target precision RSE ≤ 25) the goal of the 2027 survey will be exploratory sampling only. Five random gill netting stations will be sampled during spring.

Literature Cited

- Anderson, R. O., and R. M. Neumann. 1996. Length, weight, and associated structural indices. Pages 447-482 in B. R. Murphy and D. W. Willis, editors. Fisheries techniques, 2nd edition. American Fisheries Society, Bethesda, Maryland.
- Baird, M. and J. Tibbs. 2007. Statewide freshwater fisheries monitoring and management program survey report for Fort Parker Reservoir, 2006. Texas Parks and Wildlife Department, Federal Aid Report F-30-R, Austin.
- Baird, M. and J. Tibbs. 2019. Statewide freshwater fisheries monitoring and management program survey report for Fort Parker Reservoir, 2018. Texas Parks and Wildlife Department, Federal Aid Report F-221-M-3, Austin.
- DiCenzo, V. J., M. J. Maceina, and M. R. Stimpert. 1996. Relations between reservoir trophic state and Gizzard Shad population characteristics in Alabama reservoirs. North American Journal of Fisheries Management 16:888-895.
- 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.
- Texas Commission on Environmental Quality. 2010. Fort Parker Lake and Fairfield Lake Water Quality Project. 2010 Texas Water Quality Technical Series, Austin. 36 pp.
- Tibbs, J. and M. Baird. 2011. Statewide freshwater fisheries monitoring and management program survey report for Fort Parker Reservoir, 2010. Texas Parks and Wildlife Department, Federal Aid Report F-221-M-1, Austin.

Tables and Figures

Table 1. Characteristics of Fort Parker Reservoir, Texas.

Characteristic	Description
Year constructed	1935
Controlling authority	Texas Parks and Wildlife Department
County	Limestone
Reservoir type	Mainstem
Shoreline Development Index	4.80
Conductivity	310 $\mu\text{S}/\text{cm}$

Table 2. Boat ramp characteristics for Fort Parker Reservoir, Texas, August 2023. Although no gauging station exists for Fort Parker Reservoir, the reservoir was near full pool at the time of the surveys.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Condition
State Park	31.59619; -96.53552	Y	6	Concrete; fair
Navasota River	31.60677; -96.55191	Y	9	Concrete; good

Table 3. Harvest regulations for Fort Parker Reservoir, Texas.

Species	Bag limit	Length limit
Catfish: Channel, Blue, their hybrids and subspecies	5 (any combination)	None
Catfish: Flathead	5	None
Bass, White	25	10-inch minimum
Bass, Largemouth, Spotted, their hybrids and subspecies	5 ^a (any combination)	14-inch minimum
Crappie: White, Black, their hybrids and subspecies	25 (in any combination)	10-inch minimum

^a Daily bag for Largemouth Bass and Spotted Bass = 5 fish in any combination. There is no minimum length limit for Spotted Bass.

Table 4. Stocking history for Fort Parker State Park, Texas. Life stages are fry (FRY), fingerlings (FGL), advanced fingerlings (AFGL) and unknown (UNK). Life stages for each species are defined as having a mean length that falls within the given length range. For each year and life stage the species mean total length (Mean TL; in) is given. For years where there were multiple stocking events for a particular species and life stage the mean TL is an average for all stocking events combined.

Species	Year	Number	Life Stage	Mean TL (in)
Blue Catfish	2003	7,089	AFGL	9.6
	2008	36,138	FGL	2.0
	2009	36,250	FGL	2.0
	2021	<u>18,177</u>	FGL	2.1
	Total	97,654		
Channel Catfish	1966	8,000	AFGL	7.9
	1982	35,000	AFGL	7.9
	1991	283	AFGL	5.2
	2004	4,597	AFGL	8.9
	2021	18,343	FGL	2.7
	2022	<u>39,462</u>	FGL	2.8
	Total	105,685		
Coppernose Bluegill	1982	<u>30,000</u>	UNK	0.0
	Total	30,000		
Florida Largemouth Bass	1982	34,900	FRY	1.0
	2016	17,095	FGL	1.7
	2020	35,809	FGL	1.5
	2021	<u>12,841</u>	FGL	1.9
	Total	100,645		
Largemouth Bass	1966	3,000	UNK	0.0
	1970	2,000	UNK	0.0
	1974	33,000	UNK	0.0
	1975	35,000	UNK	0.0
	2004	<u>93,331</u>	FGL	1.6
	Total	166,331		

Table 5. Objective-based sampling plan components for Fort Parker Reservoir, Texas 2022–2023.

Gear/target species	Survey objective	Metrics	Sampling objective
<i>Electrofishing</i>			
Largemouth Bass	Exploratory sampling	CPUE–Stock	None
	Exploratory sampling	PSD, length frequency	None
	Exploratory sampling	W_r	None
	Exploratory sampling	% FLMB	None
Bluegill	Exploratory sampling	CPUE–Total	None
	Exploratory sampling	PSD, length frequency	None
Gizzard Shad	Exploratory sampling	CPUE–Total	None
	Exploratory sampling	PSD, length frequency	None
	Exploratory sampling	IOV	None
<i>Low-frequency electrofishing</i>			
Blue Catfish	Exploratory sampling	CPUE–Stock	None
	Exploratory sampling	Length frequency	None
Flathead Catfish	Exploratory sampling	CPUE–Stock	None
	Exploratory sampling	Length frequency	None
<i>Trap netting</i>			
Crappie	Abundance	CPUE-stock	RSE-Stock ≤ 25
	Size structure	PSD, length frequency	$N \geq 50$ stock
	Condition	W_r	10 fish/inch group (max)

Gizzard Shad

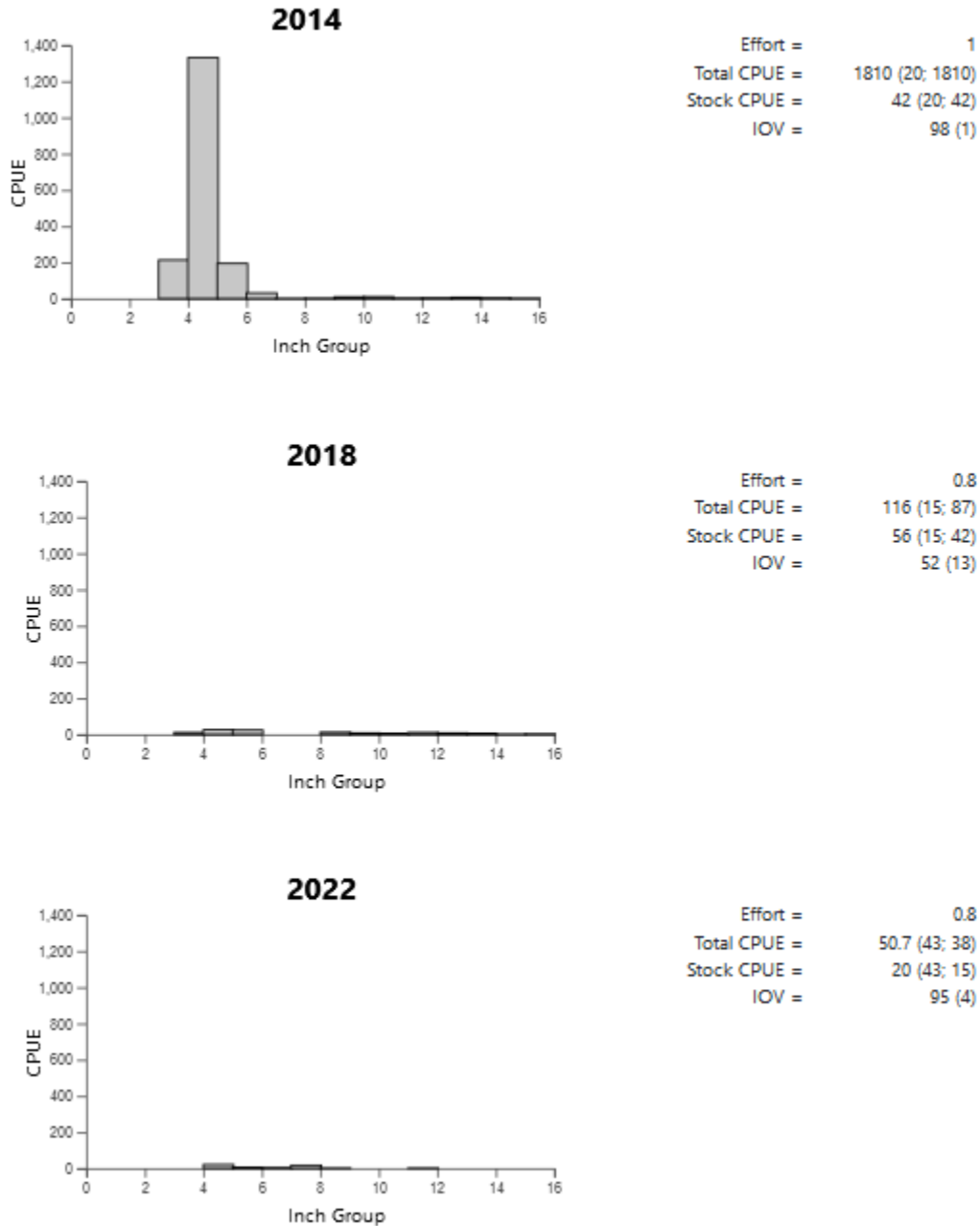


Figure 1. Number of Gizzard Shad caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Fort Parker Reservoir, Texas, 2014 (nighttime), 2018 (daytime), and 2022 (daytime).

Bluegill

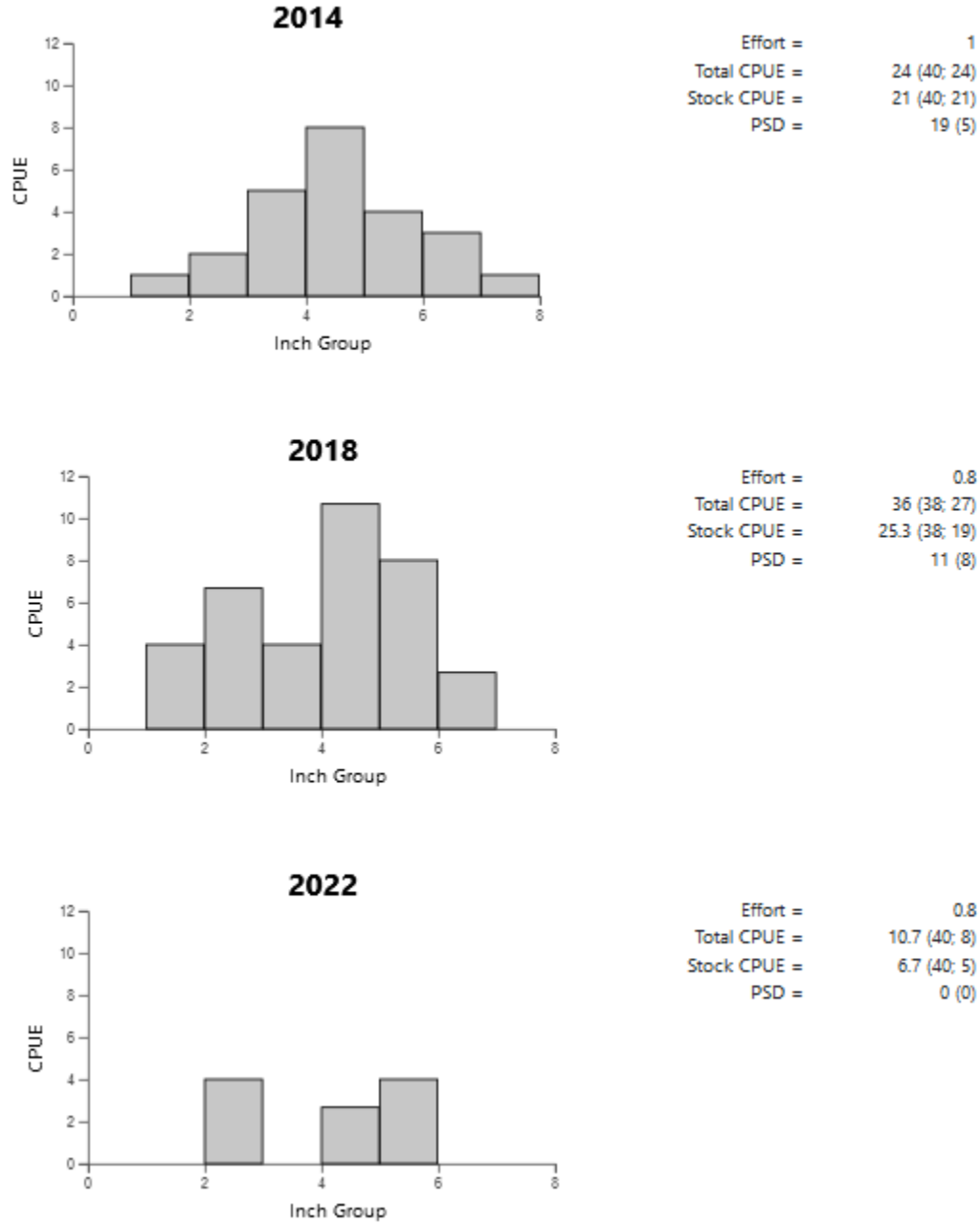


Figure 2. Number of Bluegill caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Fort Parker Reservoir, Texas, 2014 (nighttime), 2018 (daytime), and 2022 (daytime).

Blue Catfish

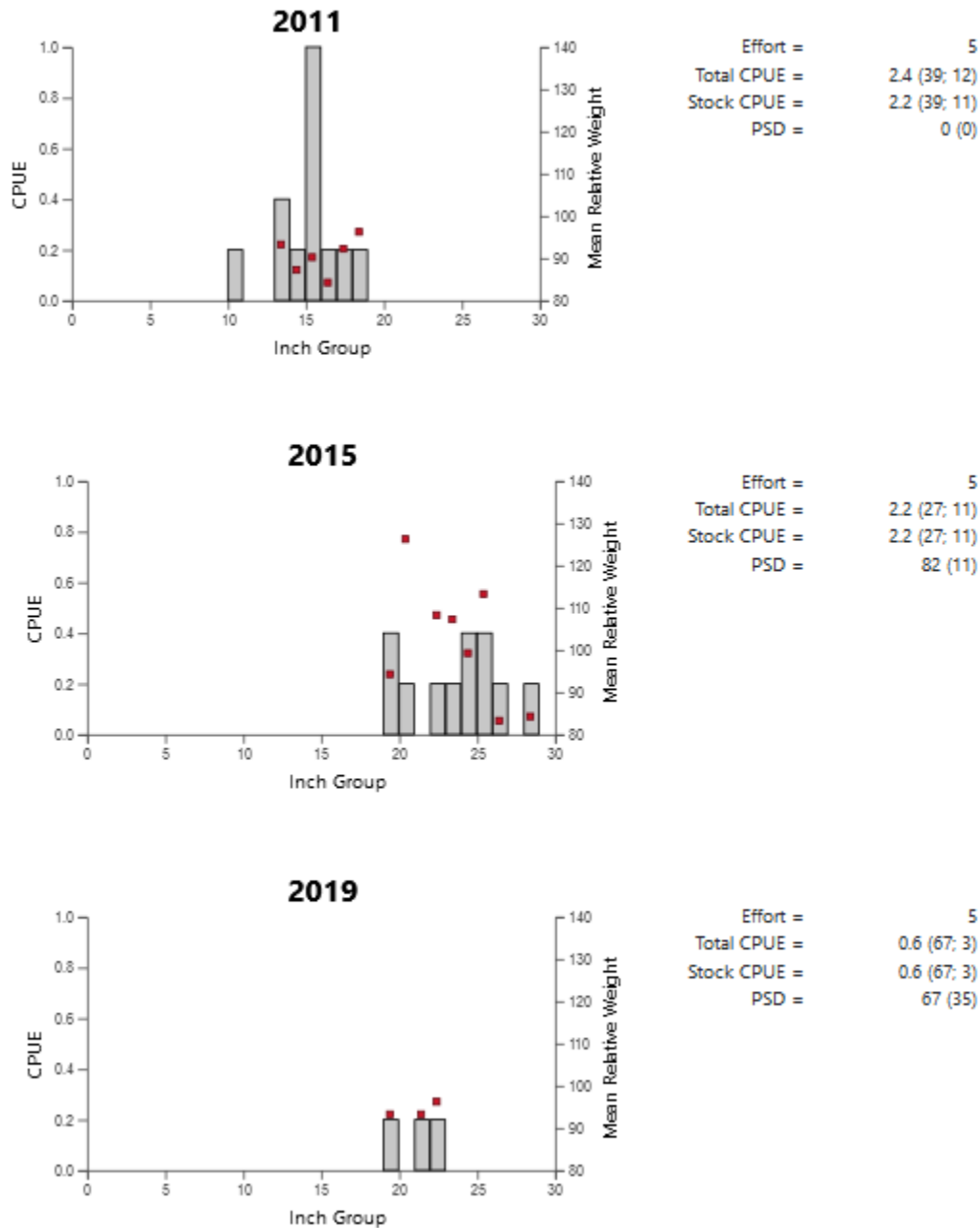


Figure 3. Number of Blue Catfish caught per net night (CPUE, bars), mean relative weight (squares), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill netting surveys, Fort Parker Reservoir, Texas, 2011, 2015, and 2019. Gill netting surveys were not conducted in 2023.

Channel Catfish

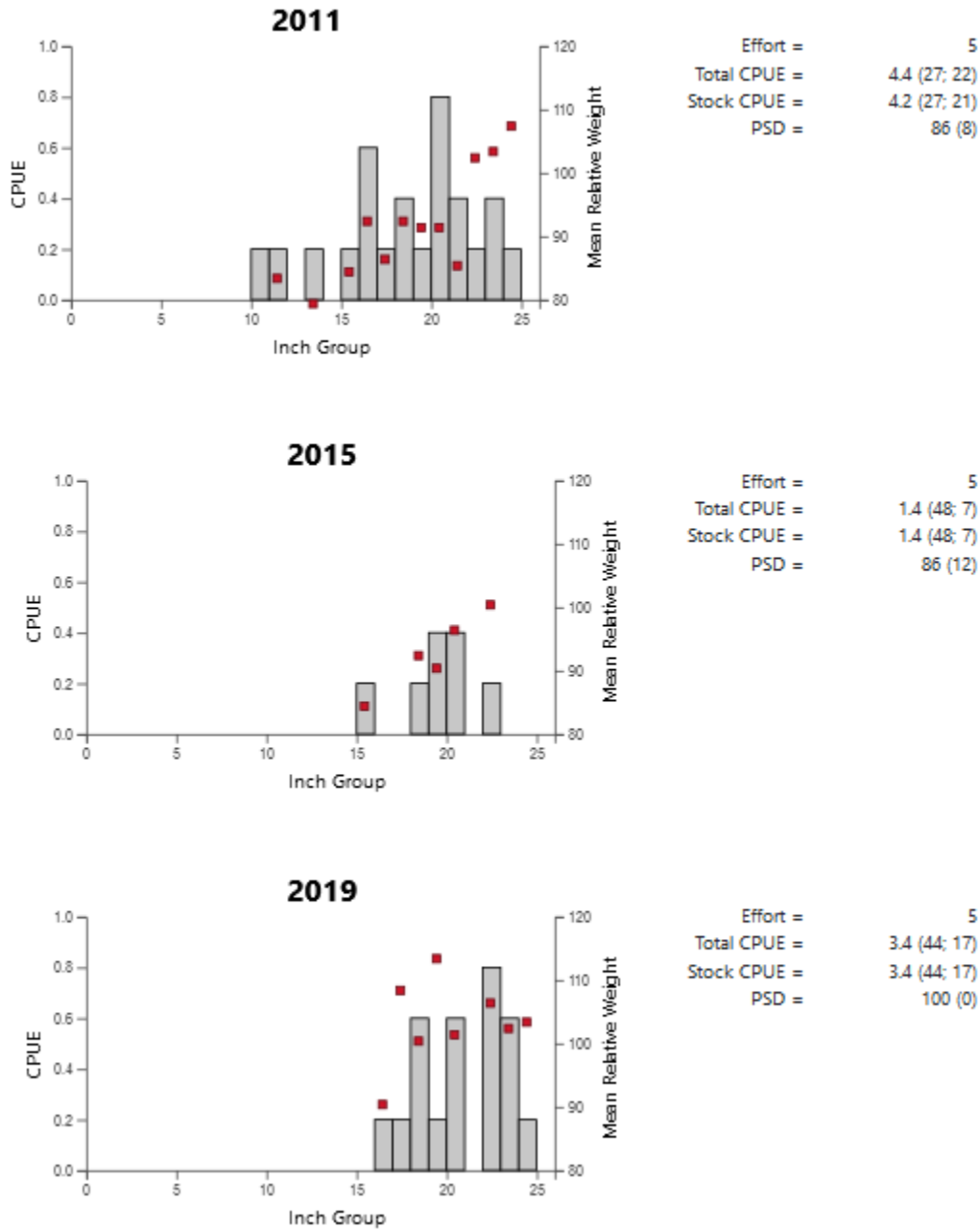


Figure 4. Number of Channel Catfish caught per net night (CPUE, bars), mean relative weight (squares), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill netting surveys, Fort Parker Reservoir, Texas, 2011, 2015, and 2019. Gill netting surveys were not conducted in 2023.

Largemouth Bass

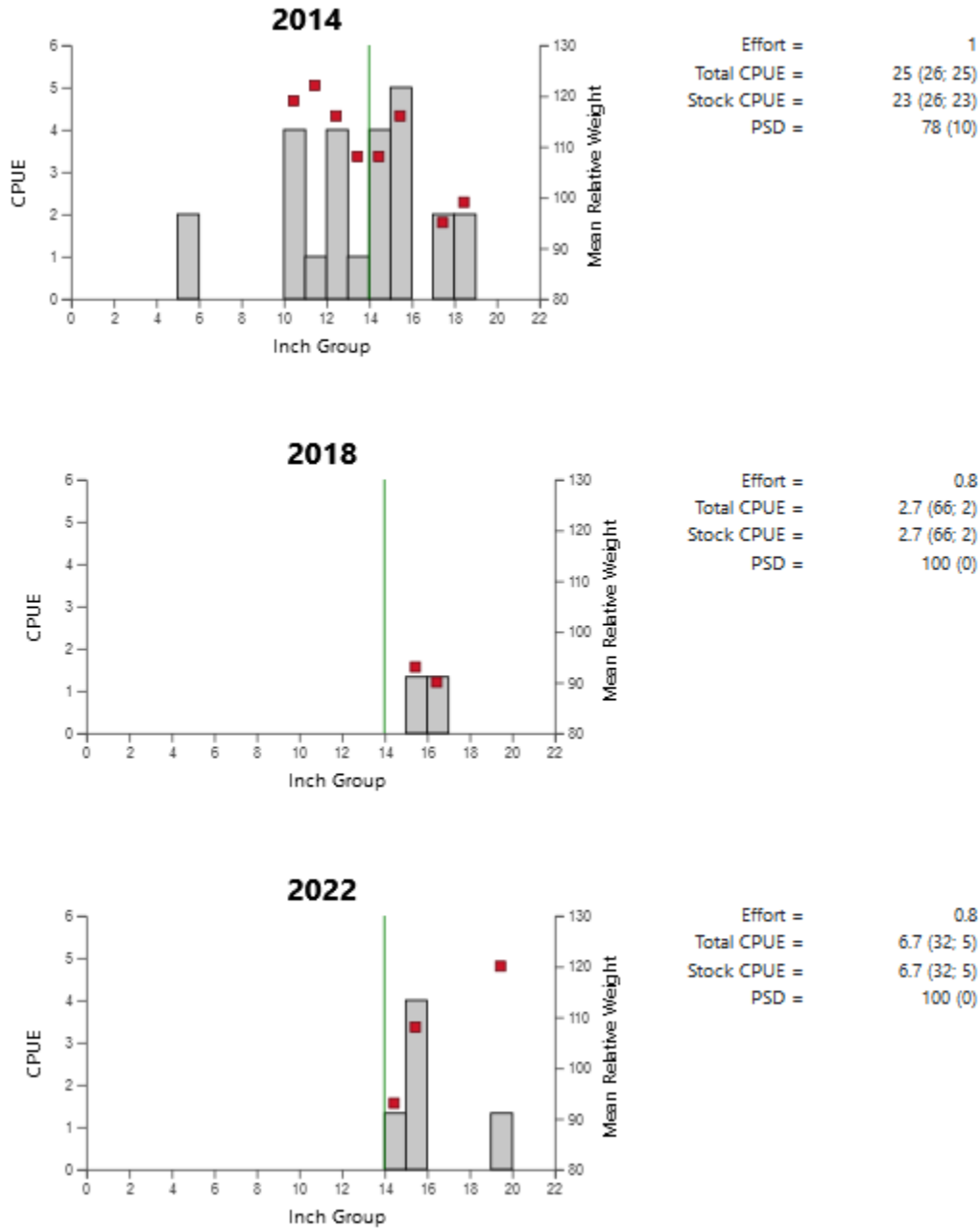


Figure 5. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (squares), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Fort Parker Reservoir, Texas, 2014 (nighttime), 2018 (daytime), and 2022 (daytime). Vertical line indicates minimum length limit.

White Crappie

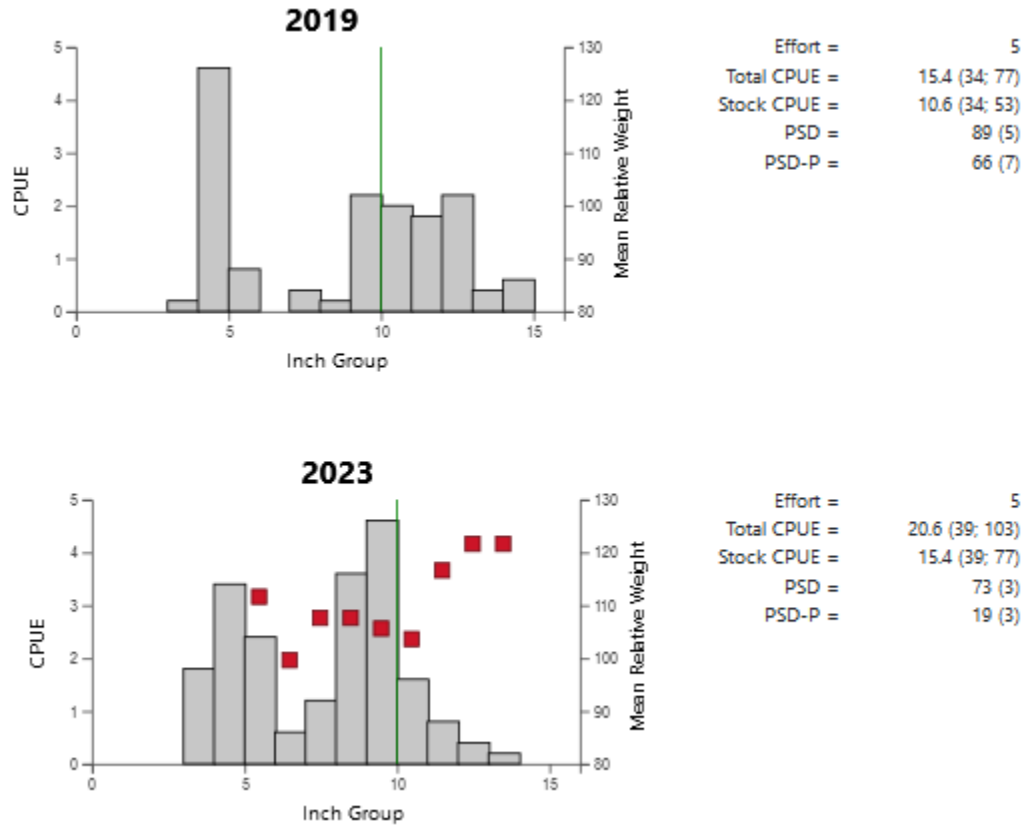


Figure 6. Number of White Crappie caught per net night (CPUE, bars), mean relative weight (squares), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring trap netting surveys, Fort Parker Reservoir, Texas, 2019 and 2023. Relative weights were not calculated in 2019. Vertical line indicates minimum length limit.

Proposed Sampling Schedule

Table 6. Proposed sampling schedule for Fort Parker Reservoir, Texas. Survey period is June through May. Low-frequency electrofishing surveys are conducted in the summer, electrofishing surveys are conducted in the fall and trap/gill netting surveys are conducted in the spring. Only one low-frequency electrofishing survey (*) will be conducted, either in summer 2024 or summer 2026.

	Survey year			
	2023-2024	2024-2025	2025-2026	2026-2027
Angler Access				X
Vegetation				X
Low-frequency electrofishing		X*		X*
Electrofishing – Fall		X		X
Trap netting				X
Gill netting				X
Report				X

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 Fort Parker Reservoir, Texas, 2019-2023. Sampling effort was 5 net nights for gill netting, 5 net nights for trap netting, and 0.75 hour for daytime electrofishing.

Species	2019 Gill Netting		2023 Trap Netting		2022 Electrofishing	
	N	CPUE	N	CPUE	N	CPUE
Gizzard Shad					38	50.7 (43)
Threadfin Shad					12	16.0 (43)
Channel Catfish	17	3.4 (44)				
Yellow Bullhead	4	0.8 (100)				
Blue Catfish	3	0.6 (67)				
Bluegill					8	10.7 (40)
Largemouth Bass					5	6.7 (32)
White Crappie	11	2.2 (36)	103	20.6 (39)		
Black Crappie			5	1.0 (45)		

APPENDIX B – Historical catch rates for targeted species

Catch rates (CPUE) of targeted species collected with electrofishing, trap netting and gill netting surveys on Fort Parker Reservoir, Texas, 2002 to present. Electrofishing stations were sampled with a 5.0 Smith-Root GPP (Gas Powered Pulsator) until 2010 and a 7.5 Smith-Root GPP thereafter. Asterisk denotes a species collected by a non-standard gear. Dashes represent no data taken. Daytime electrofishing surveys were conducted in 2018 and 2022, and springtime trap netting was conducted in 2019 and 2023.

Electrofishing

	2002	2006	2010	2014	2018	2022	Average
Gizzard Shad	544.0	2114.0	252.0	1810.0	116.0	50.7	814.5
Threadfin Shad	5.2	243.0	231.0	48.0	21.3	16.0	94.1
Bluegill	196.0	352.0	209.0	24.0	36.0	10.7	138.0
Redear	0.0	1.0	0.0	0.0	0.0	0.0	0.2
Warmouth	13.0	4.0	5.0	0.0	0.0	0.0	3.7
Green	6.0	4.0	3.0	4.0	0.0	0.0	2.8
Largemouth Bass	42.0	39.0	42.0	25.0	2.7	6.7	26.2

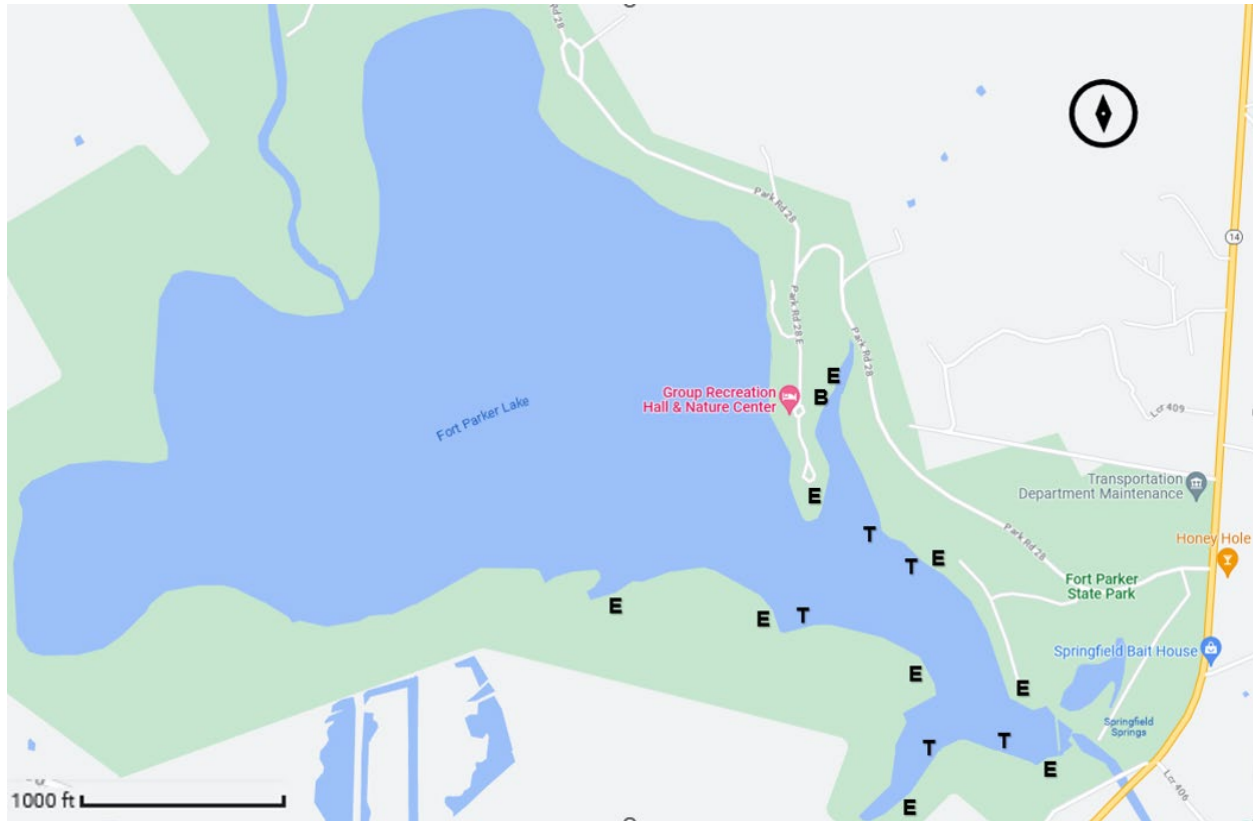
Trap netting

	2002	2006	2010	2014	2018	2019	2023	Average
White Crappie	11.8	28.6	195.0	106.8	9.8	15.4	20.6	55.8
Black Crappie	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0

Gill netting

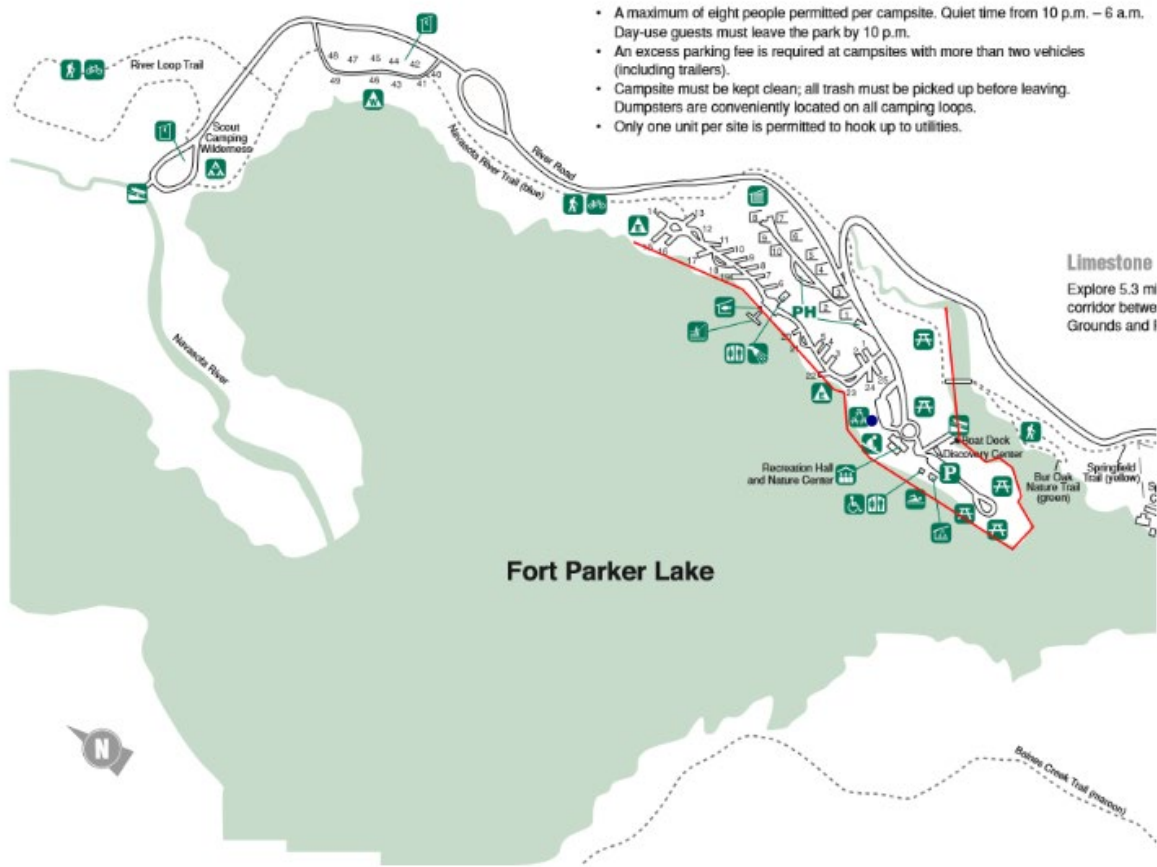
	2003	2007	2011	2015	2019	Average
Blue Catfish	0.8	0.6	2.4	2.2	0.6	1.3
Channel Catfish	1.0	3.2	4.4	1.4	3.4	2.7
White Bass	1.4	0.4	0.0	0.2	0.0	0.4
White Crappie*	--	--	--	--	2.2	2.2

APPENDIX C – Map of sampling locations



Location of sampling sites, Fort Parker Reservoir, Texas, 2022-2023. The boat ramp, electrofishing and trap netting stations are indicated by B, E, and T respectively. Water level was near full pool at the time of the surveys. The upper two-thirds of the reservoir is not navigable due to sedimentation and shallow water.

APPENDIX D – Map of problematic cutgrass



Location of problematic cutgrass (red line) from the 2019 report, Fort Parker Reservoir, Texas.



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