Weatherford Reservoir

2023 Fisheries Management Survey Report

PERFORMANCE REPORT

As Required by

FEDERAL AID IN SPORT FISH RESTORATION ACT

TEXAS

FEDERAL AID PROJECT F-221-M-5

INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

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Survey and Management Summary

Fish populations in Weatherford Reservoir were surveyed in 2023 using electrofishing and trap netting, and in 2024 using gill netting. Shoreline habitat and vegetation was surveyed in 2023. Historical data are presented with the 2023-2024 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: Weatherford Reservoir is a 1,158-acre impoundment on the Clear Fork Trinity River in Parker County. The reservoir was at approximately 53% capacity during habitat and fisheries surveys in 2023. The reservoir is increasingly eutrophic resulting from agricultural and domestic runoff in the watershed, and raw water transfer from Benbrook Reservoir. Habitat features consisted mainly of bulkhead, rocky and natural shoreline with numerous boat docks and piers when reservoir is at or near the conservation elevation.

Management History: Important sport fishes included Channel Catfish, Largemouth Bass, and White Crappie. In 1999, a 14- to 18-inch slot limit was removed for Largemouth Bass and replaced with the statewide regulation. All sport fishes are now managed with statewide regulations. Historical stockings have included Channel Catfish, Threadfin Shad, Paradise Bass, and Walleye. Florida Largemouth Bass were stocked between 1988 and 1997 and were last stocked in 2019 following reported catches of trophy bass. Eurasian watermilfoil used to be problematic on the reservoir, but since a Grass Carp stocking in the early 1990s and extreme water-level fluctuations, aquatic vegetation has been minimal. The management plan for the 2020 survey report included recommendations to stock Florida Largemouth Bass fingerlings and promote the bass and crappie fisheries and educate the public about invasive species.

Fish Community

- **Prey species:** Threadfin Shad and Gizzard Shad abundance remains high and almost all were available to predators. Electrofishing catch of Bluegill was high and many are available as forage.
- **Catfishes:** Channel Catfish abundance was the highest recorded in 2024. Flathead Catfish are also present.
- **White Bass:** White Bass were not collected in the recent survey.
- **Largemouth Bass:** Largemouth Bass size structure appeared excellent and bass up to 22-inches were collected despite low lake levels at the time of sampling.
- **White Crappie:** White Crappie remain abundant and more than a third of the sample consisted of harvestable-size fish.

Management Strategies: Request a Lone Star Bass stocking if water levels and habitat improve. Promote the Largemouth Bass, Channel Catfish, and White Crappie fisheries on Weatherford Reservoir. Conduct general monitoring surveys with trap nets and electrofishing surveys in 2028 and gill net surveys in 2029. Monitor for reappearance of Water hyacinth and Water lettuce if the water level increases and continue public education about invasive species. Standard access and vegetation surveys will be conducted in 2028.

Introduction

This document is a summary of fisheries data collected from Weatherford Reservoir in 2023-2024. 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 2023-2024 data for comparison.

Reservoir Description

Weatherford Reservoir, a 1,158-acre impoundment on the Clear Fork Trinity River, is located northeast of Weatherford in Parker County. It was constructed in 1957 by the City of Weatherford for municipal and industrial uses. The reservoir also provides recreation for boaters and anglers. The reservoir drains approximately 109 square miles and has six miles of shoreline. The reservoir remained near the conservation elevation between 2015 and 2021 but has been low in recent years (Figure 1). The TSI chl–*a* index of Weatherford Reservoir increased from 55.2 in 2010 to 64.2 in 2022, indicating eutrophic and almost hypereutrophic conditions (Texas Commission on Environmental Quality 2022). Beginning in 2006, the City of Weatherford experienced periodic algae blooms that created taste and odor issues for drinking water. In 2008, a study was initiated that lead to the installation of 12 aerators in the lower lake to improve water quality (City of Weatherford 2009). Habitat features consisted mainly of bulkhead, rocky and natural shoreline with numerous boat docks and piers. A 4,313 ft floating boardwalk across the upper end of the reservoir was installed in 2020. Other descriptive characteristics for Weatherford Reservoir are in Table 1.

Angler Access

Weatherford Reservoir has one public boat ramp with parking, boarding piers, and ample illumination. Much of the perimeter of Weatherford Reservoir is privately owned with occupied homes and boat docks; however, there is bank access available in public parks. Shoreline access is available at the public park adjacent to the boat ramp area and a 0.3 mi stretch of shoreline (the Wall) on the east side of the reservoir. Further information about Weatherford Reservoir and its facilities can be obtained by visiting https://tpwd.texas.gov/fishboat/fish/recreational/lakes/weatherford/access.phtml. Additional boat ramp characteristics are in Table 2.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Cummings and Bennett 2020) included:

1. Stock Florida Largemouth Bass and promote improvements in the Largemouth Bass and White Crappie populations.

   Action: A stocking of 16,100 Florida Largemouth Bass was requested in 2021 but fish were unavailable. Stocking in following years was not pursued due to declining lake levels and lack of available refuge habitat for fingerlings. Lake Weatherford bass and crappie fisheries have been promoted through social media and during interviews. Anglers reporting catches of bass over 8lbs. on Lake Weatherford Facebook groups have been encouraged to submit their catches to the ShareLunker Program.

2. Continue public education campaign on the threats of invasive species.

   Action: Updated signage was posted at the boat ramp, and documentation on the suspected intentional introduction of Water hyacinth and Water lettuce were distributed to area residents.

Harvest regulation history: From September 1, 1993, to August 31, 1999, Weatherford Reservoir had a 14- to 18-inch slot limit on Largemouth Bass. On September 1, 1999, the statewide minimum length limit (MLL) of 14-inches was enacted for Largemouth Bass. All sport fishes are currently managed with statewide regulations (Table 3). On September 1, 2021, the statewide 12-inch minimum length limit

(MLL) for Channel and Blue Catfish was changed to no MLL, with no more than 10 fish 20 inches or greater in length in the combined 25 fish bag limit.

Stocking history: Channel Catfish and Largemouth Bass were stocked in the 1960s and early 1970s. Threadfin Shad were stocked in the early 1980s for forage. Florida Largemouth Bass were stocked in 1988, 1991, 1997, and 2019. Stocking history is detailed in Table 4.

Vegetation/habitat management history: In July 1990, 1,101 adult triploid Grass Carp were stocked into Weatherford Reservoir to control aquatic vegetation. Prior to the stocking, nuisance levels of Eurasian watermilfoil were estimated to cover over 50% of the reservoir (Poarch and Chilton 1992). In the spring of 1990, flooding and high turbidity removed most of the vegetation except for bulrush. Since that time, aquatic vegetation has been limited to American lotus occupying the upper portion of the lake when inundated. In August 2021, a localized introduction of exotic Water hyacinth and Water lettuce was reported in the upper end of the reservoir in the public park and along the new floating walkway. TPWD conducted a physical removal effort and the lake level subsequently declined rapidly and the area has remained out of the water.

Water transfer: Water is pumped into Weatherford Reservoir from Benbrook Reservoir within the Trinity River Basin. 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 Weatherford Reservoir (Cummings and Bennett 2020). 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 2022).

Common names of fishes and their hybrids in this report are used following Page et al. (2023) with an exception for Largemouth Bass. While we recognize recent changes to black bass names, Texas reservoirs contain a mix of Florida Bass, Largemouth Bass, and their intergrade offspring. Therefore, Largemouth Bass is used in this report for simplicity as well as consistency with previous reports.

Electrofishing – Largemouth Bass, sunfishes, Gizzard Shad, and Threadfin Shad were collected by electrofishing (0.9 hours at 11, 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. Ages for Largemouth Bass were determined using otoliths from 9 fish (range 13.0 to 14.9 inches).

Trap netting – Crappie were collected using trap nets (5 net nights at 5 stations). CPUE for trap netting was recorded as the number of fish caught per net night (fish/nn). Ages for crappie were determined using otoliths from 13 randomly selected fish (range 9.0 to 10.9 inches).

Gill netting – Channel Catfish were collected by gill netting (5 net nights at 5 stations). CPUE for gill netting was recorded as the number of fish caught per net night (fish/nn).

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 Neumann et. al. (2012). 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 statistics.

Habitat – Vegetation and structural habitat was assessed in 2023 with the digital shapefile method (TPWD, Inland Fisheries Division, unpublished manual revised 2022).

Water level – Source for water level data was the United States Geological Survey (USGS 2024).

Results and Discussion

Habitat: American lotus covered 4.6% of the reservoir in 2019 (Table 7); however, vegetation was not observed in 2023 following a 8-9 ft decline in lake level. Remaining habitat at the lower lake level included some rock outcroppings, docks, and man-made brush piles in deeper water (Table 6). Exotic species, Water hyacinth and Water lettuce, were illegally introduced in the upper reservoir and in a pond near the marina, in summer 2021. Additional plants have not subsequently been observed in the lake following physical removal efforts and a timely drop in lake level. Following a return to the conservation elevation in May 2024, a survey was done to look for new Water hyacinth and Water lettuce plants, yet none were observed. The controlling authority was informed of the survey and the potential for possible spread from seeds previously deposited in the sediment before lake levels declined in 2021.

Prey species: Electrofishing catch rate of Gizzard Shad in 2023 (1,666.9/h) was slightly less than in 2019 (2,277.2/h), yet still very high. Gizzard Shad IOV was excellent, indicating that 89% of Gizzard Shad were available to existing predators (Figure 2). Catch rate of Threadfin Shad (758.2/h) was also high (Appendix A). Low lake levels and limited littoral habitat at the time of our survey decreased sampling precision for Bluegill, and our target RSE of 25 was not met. However, total CPUE (274.9/h) and size structure of Bluegills in 2023 appeared relatively consistent with the previous surveys and overall abundance was excellent. Size structure continued to be in the target range of 20-40 (Figure 3). Longear Sunfish (44.7/h) and Green Sunfish (5.5/h) have also contributed to the forage base for many years (Appendix C).

Catfishes: A gill net survey was not conducted in 2020 due to Coronavirus travel restrictions, but a catch of record was observed in 2024 (Appendix C). Historical gill net catch rates for Channel Catfish have been moderate; however, high lake levels between 2015 and 2021 likely contributed to increased recruitment and a current abundance of harvestable fish. Relative weight of Channel Catfish was above 90 for most size classes (Figure 4). Gill net catch rates for Flathead Catfish have typically been low, yet any observation of Flathead Catfish in gill nets likely indicates an abundant population (Appendix C). Images of angler caught Flathead Catfish are routinely posted on the Marina's social media page.

White Bass: Gill net catch rates for White Bass have been low since 1996 (Appendix C) and none were collected in 2024.

Largemouth Bass: The low lake level in Fall 2023 resulted in reduced precision of our sample, as two-thirds of the Largemouth Bass were collected from two stations with quality littoral habitat. Sampling was discontinued early due to a sudden storm, and we concluded additional sampling would not meaningfully improve sampling precision with reasonable effort. However, the electrofishing catch-rate of stock-length Largemouth Bass in 2023 (44.7/h) was similar to 2019 (48.9/h). The number of legal-length fish (21.8/h) collected in 2023 was also similar to 2019 (22.2/h) and suggests the increase in abundance of larger bass first observed in 2019 persists (Figure 5). Our age and growth sample fell short of our target sample-size, yet the average age of the nine bass collected between 13.0 to 14.9 inches was 2.2 years (N = 9; range = 2 – 3 years), suggesting adequate growth rates. Body condition in 2023 was good (relative weight over 90) for most length classes of fish. To date, three Elite Class (≥ 10 pounds) ShareLunkers and three Lunker Class (≥ 8 pounds) ShareLunkers have been submitted to the ShareLunker Program since 2019.

White Crappie: Like in 2019, catch rate was highly variable between nets, resulting in poor precision. Additional sampling was not estimated to reasonably improve precision. The trap net catch rate of White Crappie in 2023 (21.4/nn) was back down near the long-term average (Appendix C), following record catches in 2019 (53.0/nn) and 2015 (38.2/nn). The catch rate of legal-length (10 inches) White Crappie (8.2/nn) was also lower, suggesting the overall abundance of crappie has declined since the lake level began to decline in 2021. However, the PSD (93) and the proportion of legal length crappie in the population remained high in 2023 (Figure 6). Body condition was good for most size classes as mean relative weight was ≥ 90. White Crappie reached 10 inches in total length in two years (N = 13), which may indicate a slight decline in growth rate from 2019. This perceived decline could be a result of the lower lake level and increased competition for forage; however, all fish aged in 2023 were >10-inches and many were 9-inches in the previous sample.

Fisheries Management Plan for Weatherford Reservoir, Texas

Prepared – July 2024

ISSUE 1: Florida Largemouth Bass were stocked in 2019, which was the first time since 1997. 16,100 fingerlings were requested in 2021, but not available for stocking. The FLMB allele frequencies have been stable at around 48%; however, the proportion of pure FLMB, F1 hybrids, and hybrids with over 50% Florida alleles are key to improving bass trophy potential. Weatherford Reservoir has a history of producing trophy bass (≥ 8 pounds), including six ShareLunker entries since 2019 with three over 10lbs.

MANAGEMENT STRATEGY

1. If lake levels increase, request a stocking of Lonestar Bass fingerlings at a rate of 1,000/km of shoreline to increase the proportion of FLMB genetics in the population.

ISSUE 2: The Channel Catfish population in Weatherford Reservoir have improved over the last several years with harvestable size fish available for anglers. Some anglers in the area may not be aware of the improvements. The reservoir also continued to support quality bass and crappie fisheries.

MANAGEMENT STRATEGY

1. Promote Lake Weatherford fisheries through social media, news releases, or articles in the TPWD magazine.

ISSUE 3: 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. 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. Water samples from Weatherford Reservoir have tested positive for zebra mussel eDNA; however, neither adult mussels or veligers have been observed. Exotic species, Water hyacinth and Water lettuce, were also illegally introduced and physically removed in 2021.

MANAGEMENT STRATEGIES

1. Cooperate with the City of Weatherford to maintain signage at access points around the reservoir.
2. Educate the public about invasive species through the media and the internet.
3. Make a speaking point about invasive species when presenting to constituent and user groups.
4. Continue to check riprap periodically for presence of adult zebra mussels and the upper end of the reservoir for Water hyacinth or Water lettuce if the lake level increases.
5. Keep track of (i.e., map) future interbasin water transfers to facilitate potential invasive species responses.

Objective-Based Sampling Plan and Schedule (2024–2029)

Sport fish, forage fish, and other important fishes: Sport fishes in Weatherford Reservoir include Channel Catfish, Flathead Catfish, Largemouth Bass, and White Crappie. Known important forage species include Gizzard and Threadfin Shad and Bluegill.

Low-density fisheries:

White Bass: White Bass are considered a low-density fishery because of low abundance. They are vulnerable to gill netting and may be sampled along with other open water species.

Survey objectives, fisheries metrics, and sampling objectives:

Channel Catfish: Continuation of trend data monitoring with gill netting every four years in the spring should allow for determination of any large-scale changes in the Channel Catfish population that may invite further investigation. A minimum of five randomly selected gill net stations will be sampled in spring 2029. Additional sampling may be conducted if at least 50 stock-sized catfish with an RSE of the CPUE-Stock estimate ≤ 25 can be obtained with reasonable effort. Body condition will be determined by weighing up to 10 catfish/inch group.

Largemouth Bass: Continuation of trend data monitoring with fall nighttime electrofishing every four years should allow for determination of any large-scale changes in the Largemouth Bass population that may invite further investigation. A minimum of 12 randomly selected 5-min electrofishing stations will be sampled in the fall of 2028. If goals are not met with initial sampling effort, additional sampling will occur if at least 50 stock-sized fish can be collected with a precision (RSE) of CPUE-Stock estimate ≤ 25 with reasonable effort. To get a reliable size structure, 50 stock-size Largemouth Bass should be collected. A category-2 age analysis of 13 Largemouth Bass between 13.0- and 14.9-inches total length, randomly collected during electrofishing, will be conducted to estimate the average age at the minimum-length-limit. Body condition will be determined by weighing up to 10 bass/inch group. Additional sampling stations may be necessary to achieve sampling goals.

White Crappie: Continuation of trend data monitoring with fall trap netting every four years should allow for determination of any large-scale changes in the White Crappie population that may invite further investigation. A minimum of five trap nets will be used to sample White Crappie in the fall of 2028. If goals are not met with initial sampling effort, an additional five nets will be set if collecting 50 stock-size White Crappie with a sampling precision (RSE) ≤ 25 is deemed feasible. A category-2 age analysis of 13 White Crappie between 9.0- and 10.9-inches total length, randomly collected during trap netting, will be conducted to estimate the average age at the minimum-length-limit. Body condition will be determined by weighing up to 10 crappie/inch group. Additional sampling stations may be necessary to achieve sampling goals.

Prey species: Bluegill along with Gizzard and Threadfin Shad are the primary forage at Weatherford Reservoir. Trend data on CPUE-total and size structure of Bluegill and Gizzard Shad have been collected at multi-year intervals along with Largemouth Bass since 1986 with fall electrofishing. CPUE-total was also calculated for Threadfin Shad. Continuation of multi-year trend data with nighttime electrofishing every four years in the fall will allow for determination of any large-scale changes in the shad and Bluegill populations that may invite further investigation. A minimum of 12 randomly selected 5-min electrofishing sites will be sampled in 2028, but sampling will continue in conjunction with Largemouth Bass sampling and/or until sufficient numbers for Bluegill PSD and IOV (50 fish) have been collected. No additional effort will be expended to achieve an RSE ≤ 25 for CPUE-stock of Bluegill and Gizzard Shad. Instead, Largemouth Bass body condition (relative weight of Largemouth Bass > 8”) can provide information on forage abundance, vulnerability, or both, relative to predator density.

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Tables and Figures

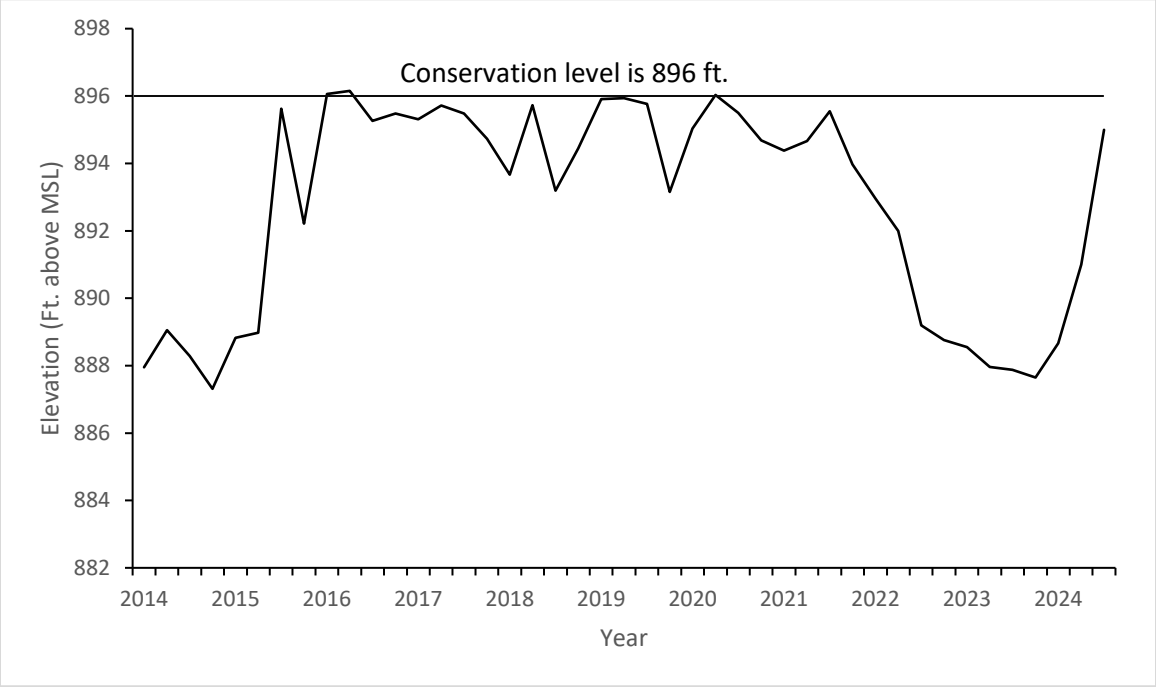


Figure 1. Quarterly water level elevations in feet above mean sea level (MSL) recorded for Weatherford Reservoir, January 2014 to June 2024.

Table 1. Characteristics of Weatherford Reservoir, Texas.

Characteristic	Description
Year constructed	1957
Controlling authority	City of Weatherford
County	Parker
Reservoir type	Mainstream
Shoreline Development Index	1.3
Conductivity	572 µS/cm

Table 2. Boat ramp characteristics for Weatherford Reservoir, Texas, August 2023. Reservoir was near conservation elevation (896 ft above msl) at time of survey.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
Lake Weatherford Marina	32.77242 -97.68554	Y	10	884	Excellent, no issues.

Table 3. Harvest regulations for Weatherford Reservoir, Texas.

Species	Bag limit	Length limit
Catfish: Channel and Blue Catfish, their hybrids and subspecies	25 (only 10 ≥ 20 inches)	None
Catfish, Flathead	5	18-inch minimum
Bass, White	25	10-inch minimum
Bass, Largemouth	5[a]	14-inch minimum
Bass: Spotted	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 and Spotted Bass = 5 fish in any combination.

Table 4. Stocking history of Weatherford Reservoir, Texas. FGL = fingerling; FRY = fry; AFGL = advanced fingerling; UNK = unknown.

Species	Year	Number	Life Stage
Channel Catfish	1961	18,850	AFGL
	1962	22,540	AFGL
	1964	31,025	AFGL
	1970	28,000	AFGL
	Total	100,415	
Florida Largemouth Bass	1988	114,400	FRY
	1991	36,392	FGL
	1991	81,087	FRY
	1997	114,450	FGL
	2019	55,485	FGL
	Total	401,814	
Largemouth Bass	1962	233,000	UNK
	1967	14,000	UNK
	1971	20,000	UNK
	Total	267,000	
Paradise Bass (Yellow Bass X Striped Bass)	1977	14,997	UNK
Threadfin Shad	1981	1,790	AFGL
	1984	1,000	AFGL
	Total	2,790	
Triploid Grass Carp	1990	1,101	AFGL
Walleye	1982	755,550	FRY
	1983	1,730,000	FRY
	1984	2,500,000	FRY
	Total	4,985,550	

Table 5. Objective-based sampling plan components for Weatherford Reservoir, Texas 2020 - 2024.

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
	Age-and-growth	Age at 14 inches	N = 13, 13.0 – 14.9 inches
	Condition	W_r	10 fish/inch group (max)
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			
White Crappie	Abundance	CPUE-Stock	RSE-Stock ≤ 25
	Size structure	PSD, length frequency	N = 50
	Age-and-growth	Age at 10 inches	N = 13, 9.0 – 10.9 inches
	Condition	W_r	10 fish/inch group (max)
Gill netting			
Channel Catfish	Abundance	CPUE-Stock	RSE-Stock ≤ 25
	Size structure	PSD, length frequency	N = 50 stock
	Condition	W_r	10 fish/inch group (max)

[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.

Table 6. Survey of structural habitat types, Weatherford Reservoir, Texas, 2023. Shoreline habitat type units are in miles and piers and docks is acres.

Habitat type	Estimate	% of total
Bulkhead	3.0 miles	50.0
Natural	1.9 miles	32.0
Rocky	1.1 miles	18.0
Piers and docks	2.2 acres	0.2

Table 7. Surveys of aquatic vegetation, Weatherford Reservoir, Texas, 2011 – 2023. Surface area (acres) is listed with percent of total reservoir surface area in parentheses.

Vegetation	2011	2015	2019	2023
Native floating-leaved[a]	0.0	0.3 (<0.1)	53.0 (4.6)	0.0
Native emergent[b]	0.0	0.3 (<0.1)	0.3 (<0.1)	0.0
Native terrestrial[c]	NA	76.0 (6.6)	0.0	NA

[a] American lotus
[b] Bulrush
[c] Black willow (inundated)

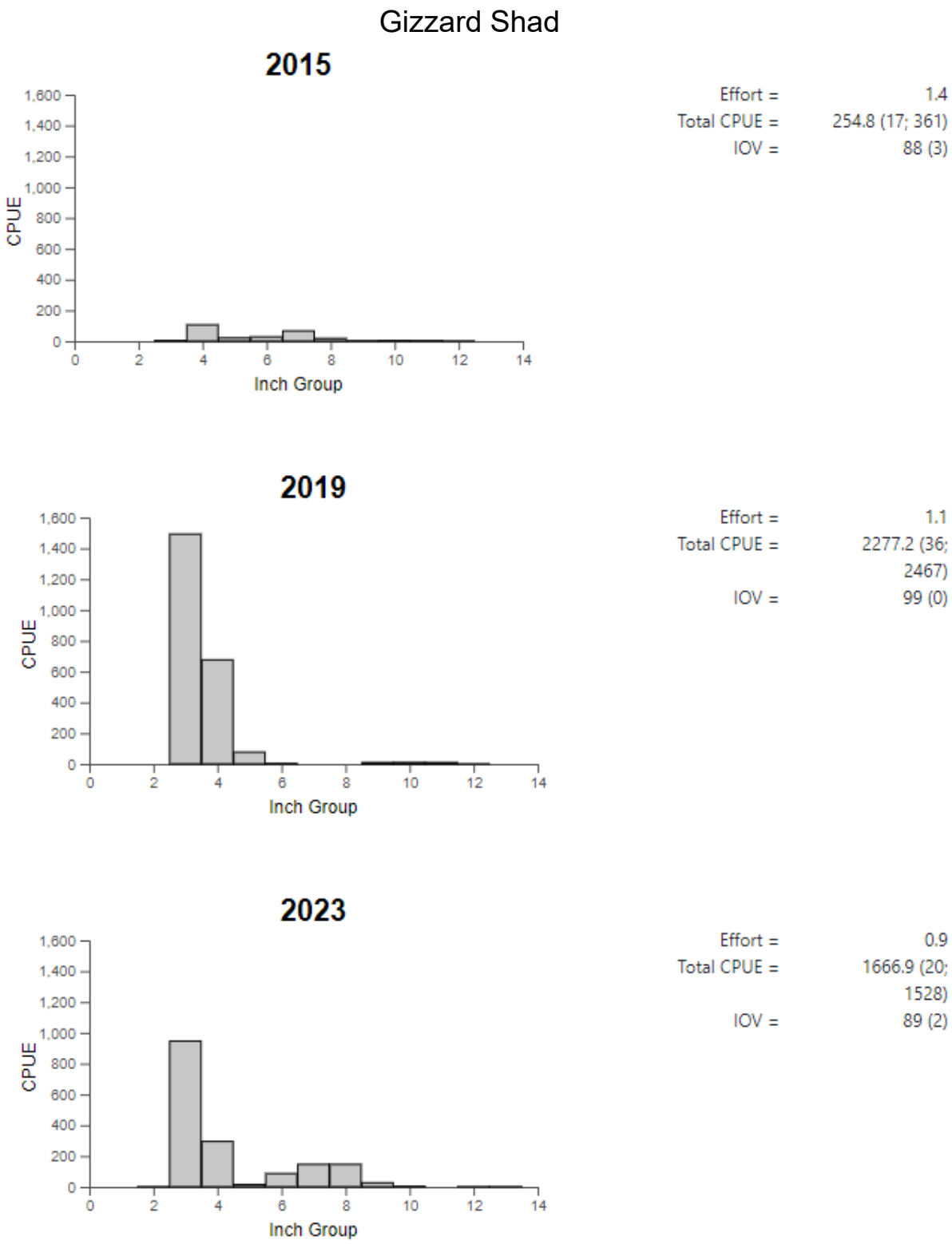


Figure 2. Number of Gizzard Shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Weatherford Reservoir, Texas, 2015, 2019, and 2023.

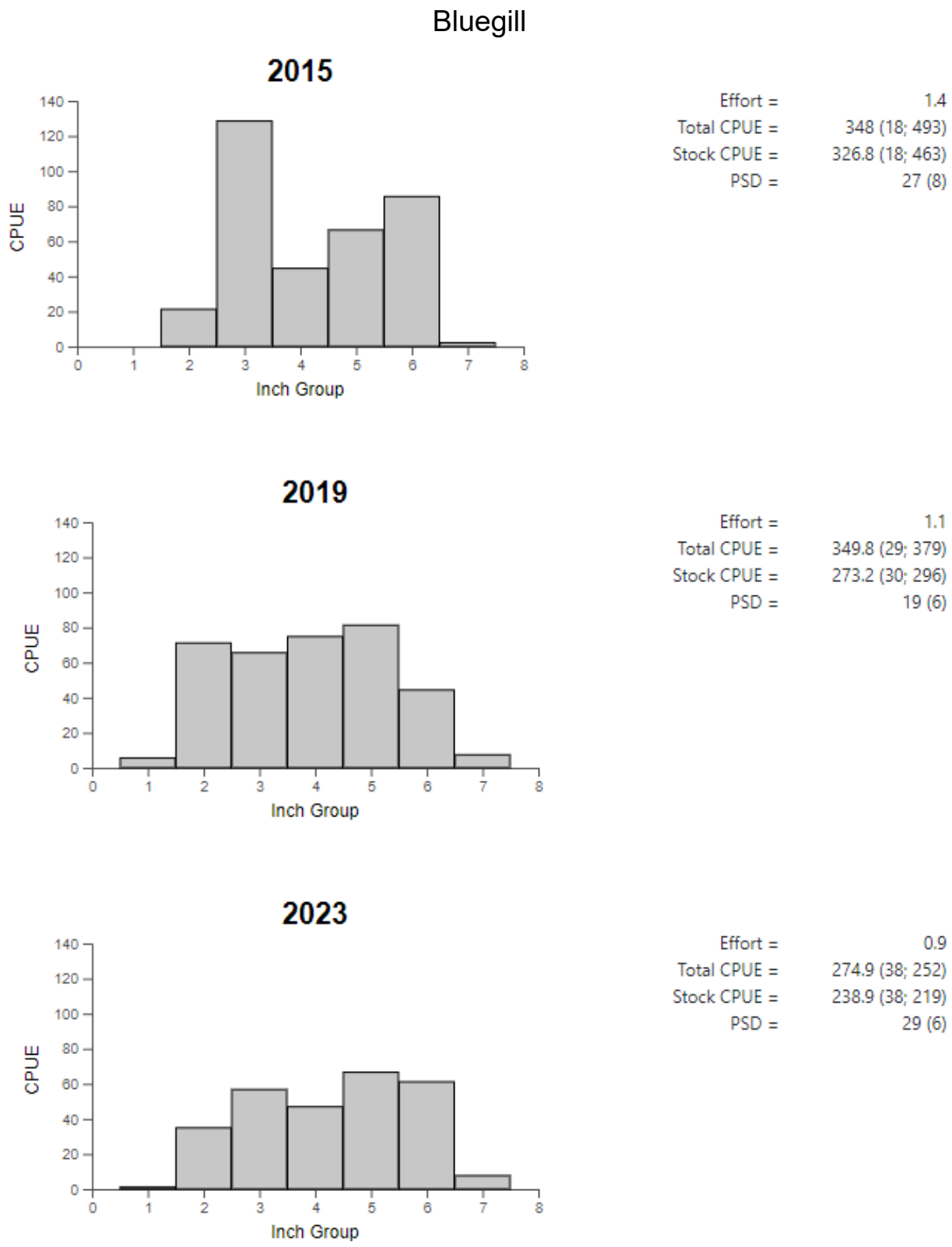


Figure 3. Number of Bluegill caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Weatherford Reservoir, Texas, 2015, 2019, and 2023.

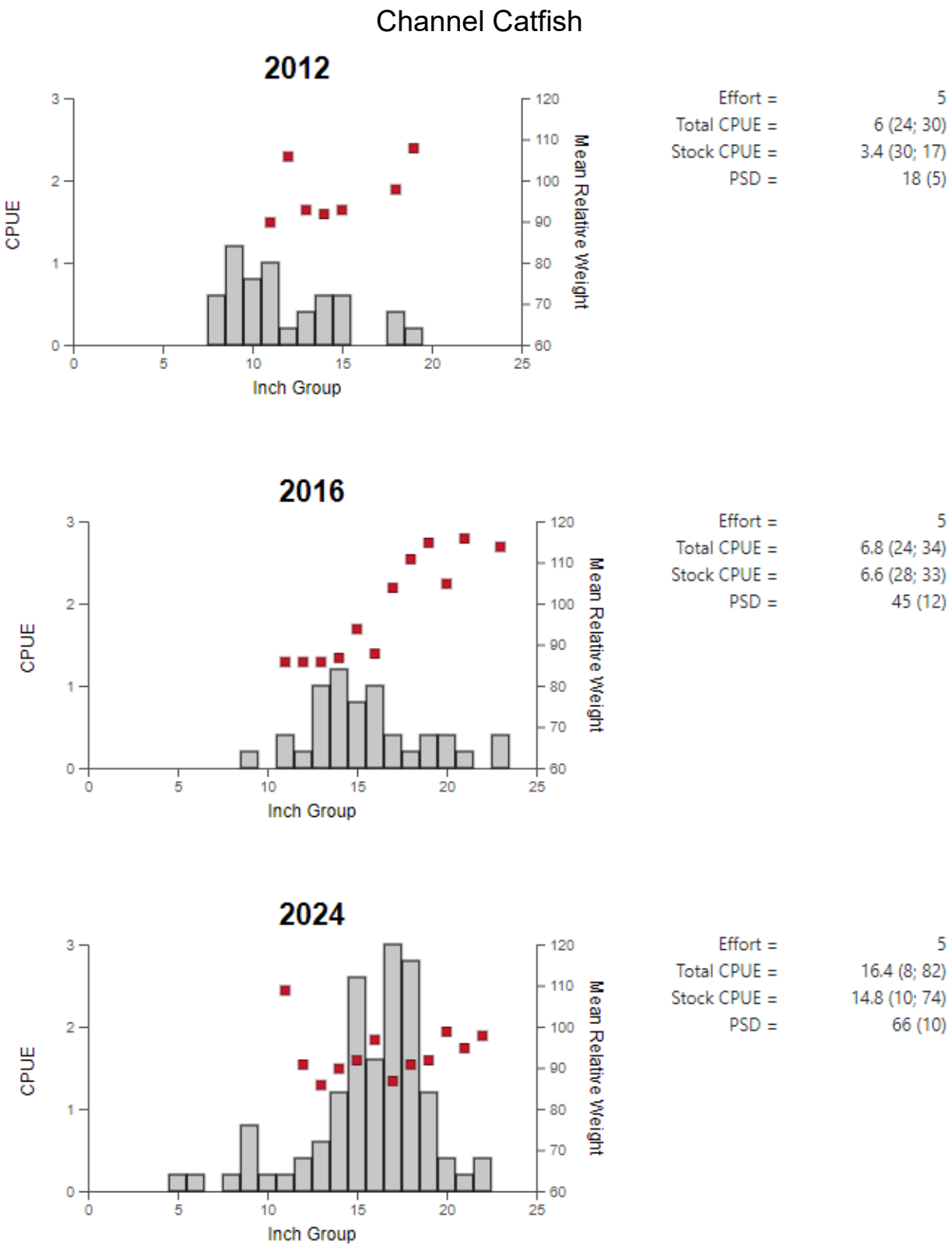


Figure 4. Number of Channel Catfish caught per hour (CPUE, bars), mean relative weight (squares), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gillnet surveys, Weatherford Reservoir, Texas, 2012, 2016, and 2024.

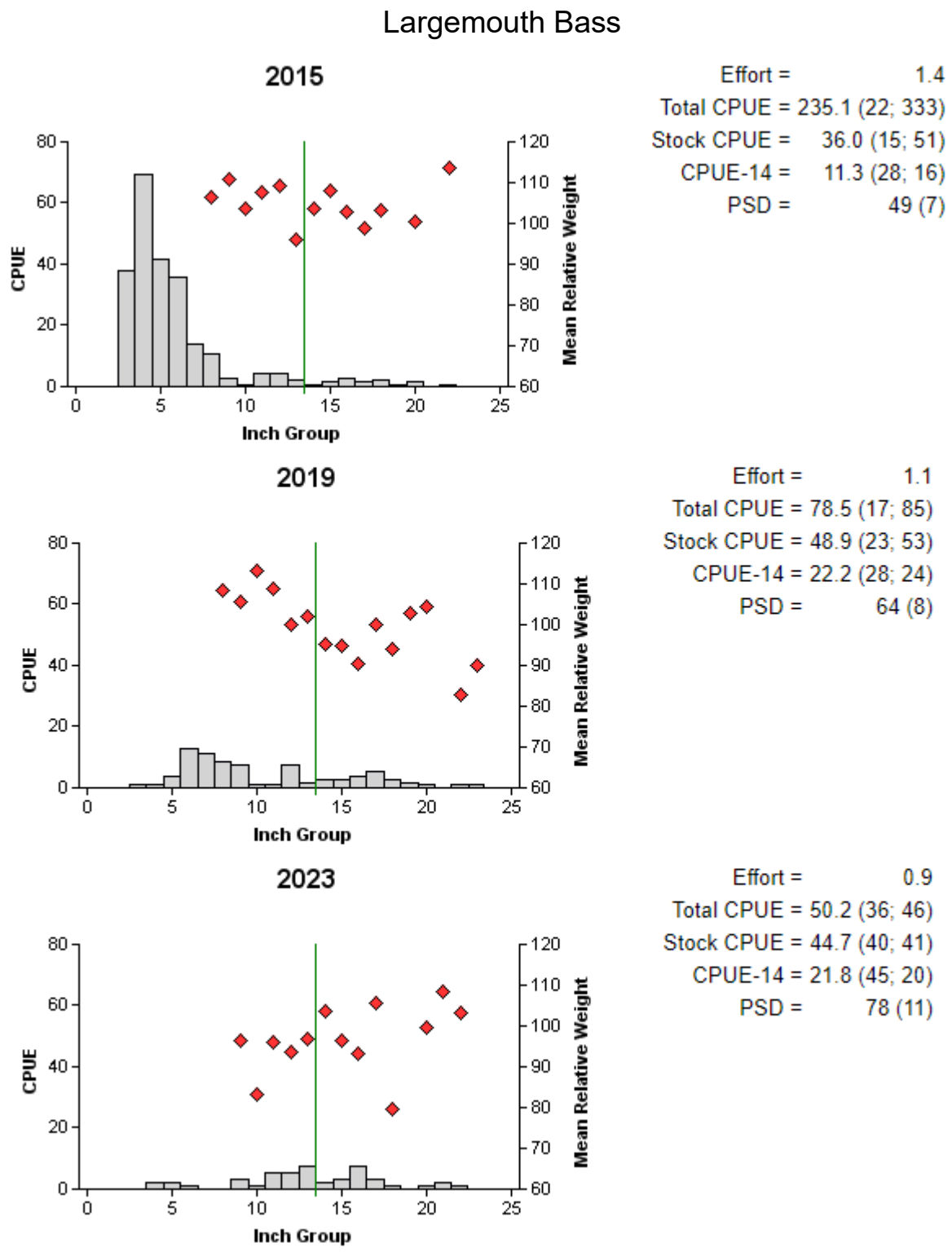


Figure 5. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Weatherford Reservoir, Texas, 2015, 2019, and 2023. Vertical line indicates minimum length limit.

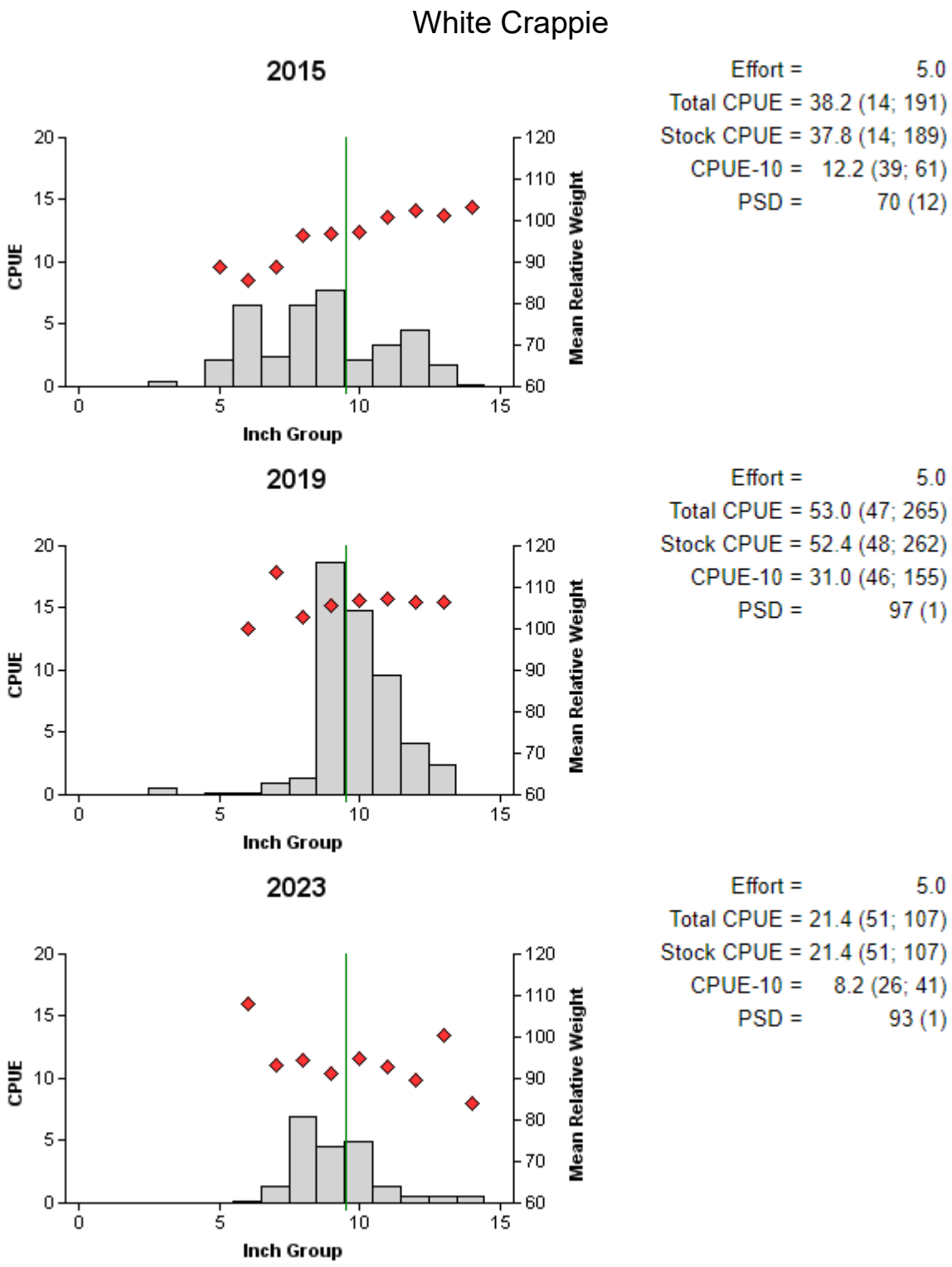


Figure 6. Number of White Crappie caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall trap netting surveys, Weatherford Reservoir, Texas, 2015, 2019, and 2023. Vertical line indicates minimum length limit.

Proposed Sampling Schedule

Table 8. Proposed sampling schedule for Weatherford Reservoir, Texas. Survey period is June through May. Electrofishing and trap netting surveys are conducted in the fall. Gill netting surveys are conducted in the spring.

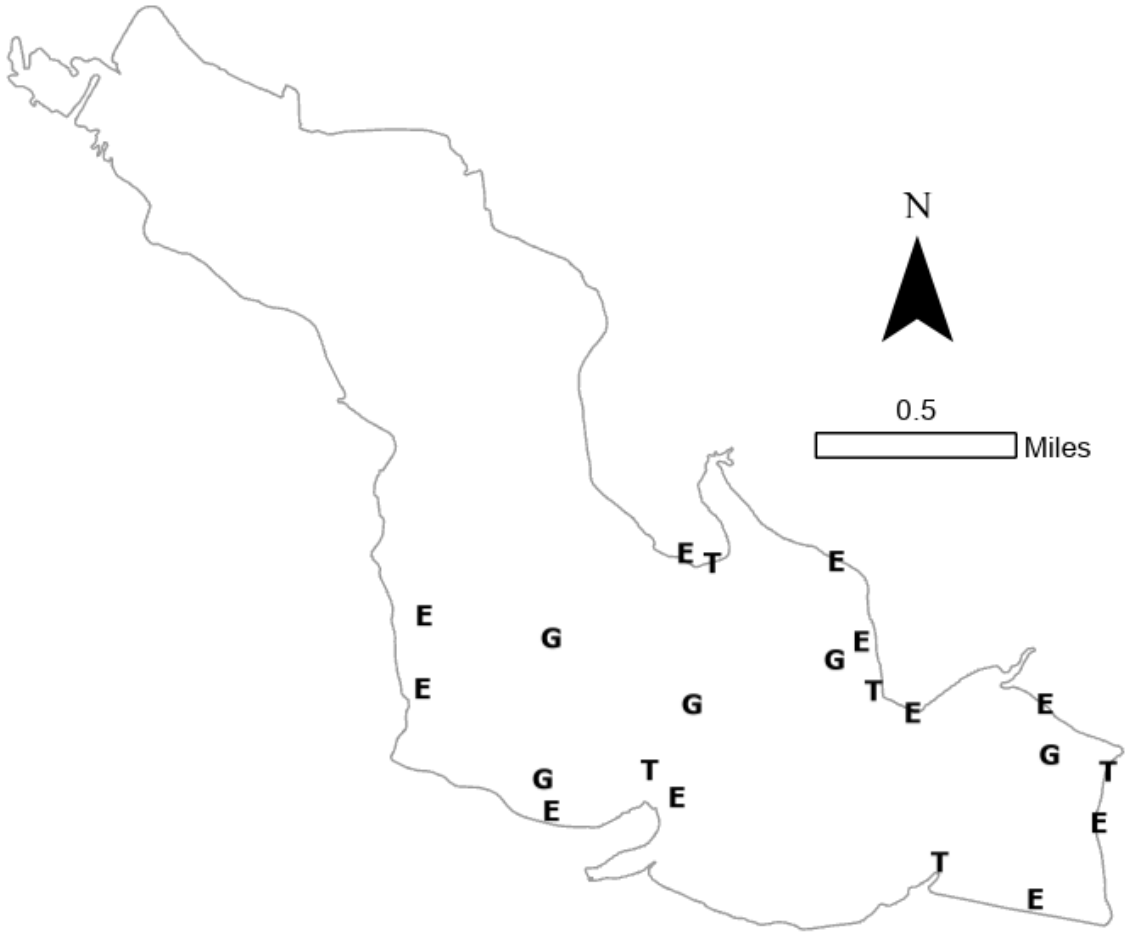
	Survey year				
	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029
Angler Access					X
Structural Habitat					X
Vegetation					X
Electrofishing – Fall					X
Trap netting					X
Gill netting					X
Report					X

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 Weatherford Reservoir, Texas, 2023-2024. Sampling effort was 5 net nights for trap netting, 5 net nights for gill netting, and 0.9 hour for electrofishing.

	Gill netting		Trap Netting		Electrofishing	
Species	N	CPUE	N	CPUE	N	CPUE
Gizzard Shad					1,528	1,666.9 (20)
Threadfin Shad					695	758.2 (34)
Channel Catfish	82	16.4 (8)				
Flathead Catfish	2	0.4 (61)				
Green Sunfish					5	5.5 (62)
Bluegill					252	274.9 (38)
Longear Sunfish					41	44.7 (39)
Spotted Bass					1	1.0 (100)
Largemouth Bass					46	50.2 (36)
White Crappie			107	21.4 (51)		

APPENDIX B – Map of sampling locations



Location of sampling sites, Weatherford Reservoir, Texas, 2023-2024. Gill net, trap net and electrofishing stations are indicated by G, T and E, respectively. Water level was 9 feet low at time of sampling.

APPENDIX C – Long-term catch rates

Catch rates of targeted species by gear type for standard surveys on Weatherford Reservoir, Texas, 1986 - 2023. Gill netting was conducted the following spring for each year listed.

Gear	Species	Year											
		1986	1989	1993	1996	1999	2003	2007	2011	2015	2019	2023	**Avg**
Gill Net (fish/net night)	Channel Catfish		13.4	5.0	10.8	7.4	5.8	12.0	6.0	6.8		16.4	**9.3**
	Flathead Catfish		0.8	0.2	0.0	0.6	0.0	0.2	0.1	0.0		0.4	**0.3**
	White Bass		0.0	9.2	34.0	2.6	0.4	1.2	0.0	0.6		0.0	**5.3**
Electrofishing (fish/hour)	Gizzard Shad	20.5	84.7	99.3	103.3	1,024.0	217.0	289.0	226.0	254.8	2,277.2	1,666.9	**569.3**
	Threadfin Shad	8,045.5	97.3	27.3	0.0	235.0	151.0	53.0	3,993.0	230.8	127.4	758.2	**1,247.1**
	Green Sunfish	22.0	19.3	11.3	24.7	11.0	12.0	5.0	1.0	12.0	6.5	5.5	**11.8**
	Warmouth	2.5	16.0	4.0	2.7	3.0	7.0	5.0	2.0	8.5	5.5	0.0	**5.1**
	Orangespotted Sunfish	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	0.0	**0.0**	**1.1**
	Bluegill	177.5	640.0	132.0	430.0	255.0	314.0	303.0	170.0	348.0	349.9	274.9	**308.6**
	Longear Sunfish	104.0	63.3	84.0	193.3	65.0	310.0	112.0	43.0	146.1	69.2	44.7	**112.2**
	Redear Sunfish	22.0	72.7	24.7	17.3	12.0	4.0	4.0	6.0	30.4	0.0	0.0	**17.6**
	Spotted Bass	0.0	0.0	0.0	0.7	0.0	0.0	0.0	5.0	0.0	0.9	0.0	**0.6**
	Largemouth Bass	36.5	112.7	107.3	159.3	158.0	91.0	78.0	59.0	235.1	78.5	50.2	**106.0**
Prom Trap Net (fish/net night)	White Crappie	24.4	2.2	22.8	1.5	6.4	11.0	15.0	14.0	38.2	53.0	21.4	**19.1**
	Black Crappie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.2	0.0	**0.1**

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