

Mineral Wells Reservoir

2022 Fisheries Management Survey Report

PERFORMANCE REPORT

As Required by

FEDERAL AID IN SPORT FISH RESTORATION ACT

TEXAS

FEDERAL AID PROJECT F-221-M-4

INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

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Survey and Management Summary

Fish populations in Mineral Wells Reservoir were surveyed in 2022 using electrofishing and trap netting. Historical data are presented with the 2022 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: Mineral Wells Reservoir is a 440-acre impoundment constructed in 1920 on Rock Creek, a tributary to the Brazos River in Parker County. It was constructed by the U.S. Army Corps of Engineers (USACOE) and is located at the east edge of Mineral Wells. Historically, the reservoir was used as a water supply and recreation area for the Fort Wolters Army Base. It is located within the boundaries of Lake Mineral Wells State Park and is now used for recreation and emergency water supply for the City of Mineral Wells. Chl-a measurements were not available for Mineral Wells Reservoir, however historical Secchi disk transparency suggested eutrophic conditions as per Carlson's Trophic State Index (Texas Commission on Environmental Quality 2022). Structural habitat consisted of rocks and boulders and natural shoreline. Water level remained within three feet of the conservation elevation (863 feet above mean sea level), since 2015 (Figure 1). Other descriptive characteristics for Mineral Wells Reservoir are in Table 1.

Management History: Important sport fish included Crappie, Largemouth Bass, and Channel Catfish. Sport fish have been managed with state-wide regulations with a rod-and-reel only exception and a five-fish bag limit for catfish. Artificial fish habitat has been installed around fishing piers and in additional locations available on the TPWD interactive fish habitat map (https://tpwd.texas.gov/fishboat/fish/recreational/lakes/fish_attractors.phtml). Florida Bass and ShareLunker Bass were last stocked in 2012, and Channel Catfish were stocked in 2018.

Fish Community

- **Prey species:** Threadfin Shad and Bluegill relative abundance was high. Electrofishing catch of Gizzard Shad was near the historical average. Longear Sunfish, Green Sunfish, Warmouth, and Redear Sunfish also contribute to a robust forage base.
- **Catfishes:** Channel Catfish were last stocked in 2018. Targeted sampling for catfish was not conducted in 2023, but multiple catfish were observed during electrofishing for bass and prey species. A waterbody record Channel Catfish (11.6 lbs) was also submitted in 2020.
- **Largemouth Bass:** Largemouth Bass catch rate was the highest on record. Bass up to 20-inches were collected, and tournament records document bass up to 6.9 lbs.
- **Crappies:** White Crappie were the dominant species, but two Black Crappie were collected for the first time since 1992. Most fish collected were of legal length.

Management Strategies: Continue promoting fishing opportunities available at Mineral Wells Reservoir. Investigate extending the boat ramp should lake levels decline. Inform the public about the negative impacts of aquatic invasive species. Conduct general monitoring surveys with trap nets and electrofishing in 2026. Access and vegetation surveys will be conducted in 2026. Consider supplementally stocking Channel Catfish if surplus advanced fingerlings are available. Continue to monitor seasonal weeknight tournament results for catches of larger bass.

Introduction

This document is a summary of fisheries data collected from Mineral Wells Reservoir in 2022. 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 2022 data for comparison.

Reservoir Description

Mineral Wells Reservoir is a 440-acre impoundment constructed in 1920 on Rock Creek, a tributary to the Brazos River in Parker County. It was constructed by the USACOE and is located at the east edge of Mineral Wells. Historically, the reservoir was used as a water supply and recreation area for the Fort Wolters Army Base. It is located within the boundaries of Lake Mineral Wells State Park and is now used for recreation and emergency water supply for the City of Mineral Wells. Chl-a measurements were not available for Mineral Wells Reservoir, however historical Secchi disk transparency suggested eutrophic conditions as per Carlson's Trophic State Index (Texas Commission on Environmental Quality 2022). Structural habitat consisted of rocks and boulders and natural shoreline ringed by bulrush and water willow. Since 2015, the reservoir has remained within three feet of conservation elevation (863 feet above mean sea level; Figure 1). The upper end of the reservoir has suffered extensive sedimentation over its 103 year-lifespan, and the delta forming threatens to cut off access to a substantial portion of the upper reservoir. Other descriptive characteristics for Mineral Wells Reservoir are in Table 1.

Angler Access

Boat access consisted of one public boat ramp with parking and a boarding pier. A canoe/kayak launch is also available near the Plateau Camping Area. Additional boat ramp characteristics are in Table 2. Bank anglers can fish off five piers adjacent to various campgrounds. A larger T-shaped pier is available near the concession building. Further information about Mineral Wells Reservoir and its facilities can be obtained by visiting the Texas Parks and Wildlife Department (TPWD) web site at <http://www.tpwd.texas.gov> and navigating within the fishing web page.

Management History

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

1. Promote fishing opportunities and resources at Mineral Wells State Park.

Action: Significant sampling results were shared on social media pages, and habitat structures were advertised on social media and the TPWD fish habitat interactive map viewer.
2. Seek funding to assist the state park with an extension of the boat ramp when/if the lake level declines.

Action: The lake level has remained high since 2015 and extension of the ramp has not been necessary nor has construction of an extension become feasible.
3. Educate the public about invasive species.

Action: Signage and educational materials were provided and are on display at the park.

Harvest regulation history: With the exception of Channel Catfish, sport fishes in Mineral Wells Reservoir are currently managed with statewide regulations. Channel Catfish are managed under Community Fishing Lake rules which include no minimum length limit and a five-fish daily bag limit. Fishing is by pole and line only, with only two poles allowed per angler. Current regulations are found in Table 3.

Stocking history: Mineral Wells Reservoir was last stocked in 2018 with surplus Channel Catfish, and in 2012 with ShareLunker and Florida Largemouth Bass adults. The complete stocking history is in Table 4.

Vegetation/habitat management history: Vegetation treatments have not been required at Mineral Wells Reservoir. In 2015, artificial fish habitat was placed near the six fishing piers located along the shoreline of Mineral Wells Reservoir. This consisted of crappie condos purchased with TPWD Largemouth Bass conservation license plate funds. In 2020, the Fort Worth Fly Fishers were awarded a small project grant to construct and deploy artificial fish habitat including commercial Mossback structures and PVC cubes. TPWD partnered with the FWFF to construct and place the structures at locations around the reservoir published on the TPWD fish habitat webpage (https://tpwd.texas.gov/fishboat/fish/recreational/lakes/fish_attractors.phtml).

Water transfer: The City of Mineral Wells has water rights to Mineral Wells Reservoir and maintains an operational pump in the lake. However, the City of Mineral Wells only exercises the water rights as a contingency during severe drought conditions or emergency water demands. There are no known inter-basin water transfers.

Methods

Surveys were conducted to achieve survey and sampling objectives in accordance with the objective-based sampling (OBS) plan for Mineral Wells Reservoir (Cummings and Bennett 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 (TPWD, Inland Fisheries Division, unpublished manual revised 2022).

Electrofishing – Largemouth Bass, sunfishes, Gizzard Shad, and Threadfin Shad were collected by electrofishing (1 hour at 12, 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 thirteen randomly selected 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 White Crappie were determined using otoliths from thirteen randomly selected fish (range 9.0 to 10.9 inches).

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 (Wr)] 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 CPUE. Otoliths were used for aging Largemouth Bass and White Crappie according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2022).

Creel – An online survey was deployed in September 2022 and advertised at access areas and docks around the lake.

Habitat – A vegetation survey was conducted in 2022. Habitat was assessed 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 2023).

Results and Discussion

Habitat: Structural habitat has remained unchanged at Mineral Wells Reservoir (Moczygemba and Hysmith 2015). Littoral zone structural habitat consisted primarily of rocks and boulders. An aquatic vegetation survey was conducted in 2022. Native emergent vegetation in the form of bulrush and water willow provided cover along shorelines (Table 6).

Creel: A proposal to modify statewide regulations for community fishing lakes (CFL's) and state park lakes prompted the development of an online survey for Mineral Wells State Park Lake (Appendix D) to learn more about attitudes and opinions about current regulations and fishing activity. A flyer detailing the survey and an online link (SelectSurvey.net) was posted at various locations around the state park including all public access areas and fishing piers. Despite the ease of access to the online survey, the link was accessed 36 times and received only 13 responses. Respondents indicated they fished at Mineral Wells an average of 76 days (range 1 to 259), and just three reported fishing less than 30 days over the past year, suggesting respondents were likely the most avid Mineral Wells State Park anglers. Participation in our survey was far less than a 2012 catch-card survey manually distributed to park visitors by state park personnel which received three hundred returned surveys for a 21% response rate. Despite low participation in 2022/2023, crappie, followed closely by Largemouth Bass, remained the most popular sport fish species at Mineral Wells Reservoir. The proportion of bank/pier anglers in 2022/23 (62%) was also similarly high in 2012 (50%). However, shore-based anglers may have been more likely to be exposed to our survey flyer since they were placed near common access areas and piers.

Though response to our online survey was low, 64% of survey respondents opposed the adoption of a CFL regulation and preferred to maintain the current fishing regulations for Mineral Wells Reservoir. To evaluate awareness of recent artificial habitat placement at Mineral Wells Reservoir we asked anglers if they were aware of the placement of habitats by TPWD and the Fort Worth Fly Fishers, and just 30% of respondents knew about the structures. Considering contemporary concerns among fisheries managers regarding the use of live-imaging sonar (ActiveTarget, Livescope, Mega Live Imagining), we also asked anglers whether they used the technology when fishing at Mineral Wells Reservoir, and two of five boat anglers indicated they utilized live-imaging sonar.

Prey species: Gizzard Shad electrofishing catch rate was near the long-term average (164.0/h) and has remained stable over time (Figure 2, Appendix B). Gizzard Shad IOV declined slightly since previous surveys, indicating that 50% of Gizzard Shad were available to existing predators, and reflected a slight increase in the proportion of larger shad. Threadfin Shad CPUE has remained elevated since 2010 (Appendix C). The Threadfin Shad catch rate of 891.0/h in 2022 was similar the catch rate in 2018 (931.0/h). Electrofishing catch rates of Bluegill (590.0/h) and Longear Sunfish (279.0/h) were similar to 2018 (Figures 3 and 4). The sunfish community continued to be dominated by small individuals <4-inches (e.g Bluegill PSD=2).

Channel Catfish: A 2012 catch card survey showed low directed fishing effort and 79% voluntary legal release for Channel Catfish (Moczygemba 2015) so annual Channel Catfish stockings were discontinued and monitoring was not conducted. Although some natural recruitment is believed to occur, a stocking of surplus Channel Catfish was conducted in 2018 to support the fishery. Multiple Channel Catfish were observed during the 2022 electrofishing survey for bass and forage species but were not collected or enumerated. The 2022/2023 online survey conducted also indicated some effort for catfish and two 15-inch Channel Catfish were reported as harvested.

Largemouth Bass: The electrofishing catch rate of Largemouth Bass was 207.0/h in 2022, a catch of record, following an increasing trend since 2014 (65.0/h; Figure 5). The increase in abundance is believed to be a result of long-term stable or high lake levels since 2015. Size structure of stock sized bass declined slightly from the previous survey as PSD was 64 in 2018 and 58 in 2022, yet the catch rate of larger bass (CPUE-16 & CPUE-18; Figure 5) was greater in 2022. Mean relative weight (W_r) was over 90 for most size classes, indicative of the robust forage base. Average age at 14 inches was 2.2 years ($N = 13$; range = 2 – 3 years); similar to the average age in 2018 (2.4 years). A genetic sample was the only stated sampling objective not achieved in 2022. In absence of recent stocking efforts for Largemouth Bass and a recent genetic sample in 2018, we decided a genetic sample was not necessary.

A seasonal, weekly “working man’s” tournament was initiated at Mineral Wells in about 2018 (pers. comm. Bo Thibault, organizer/participant), and has become a valuable resource to document catches of larger bass. A Facebook group was created in 2021 and weekly results have been posted for most events since March of 2021 (Appendix E). The number of weekly participants has ranged from 6 to 19 and the largest winning bag reported was 19.9 lbs. in April 2022. The big bass is often in the 5-to-6-pound range, and so far, none have been over 8 pounds.

Crappies: The trap net catch rate of White Crappie was 12.2/nn in 2022 and lower than the long-term average (19.1/nn; Appendix B); however, the catch rate of legal length crappie (≥ 10 -inches) increased over the previous two surveys. Two Black Crappie were also collected for the first time since 1992. While we collected 61 White Crappie with an RSE 30 in five net nights, we deemed that catch rate was sufficient to make broad assessments of the population and additional sampling was unlikely to improve precision considering the variability in catch per net. Size structure (PSD-92) was high for crappie (Figure 6), and most crappie caught were available for harvest (≥ 10 -inches). Relative weights were above 95 for all legal length crappie. White Crappie reached legal length (10 inches) in 2.3 years ($N = 13$, range = 1-4 years). The 2012 catch card survey and our online survey suggest crappie are the most popular sport fish species. All but one Largemouth Bass angler in our online survey indicated they also fish for crappie at Mineral Wells Reservoir.

Fisheries Management Plan for Mineral Wells Reservoir, Texas

Prepared – July 2023

ISSUE 1: Despite a robust forage base and lake records of 11.4 lbs. (all-tackle) in 1999 and 10.8 lbs. (junior angler) in 2003, Mineral Wells Reservoir has had infrequent stockings of Florida Largemouth Bass. Fingerlings have not been stocked since 1997.

MANAGEMENT STRATEGIES

1. Stock 44,000 Lonestar Bass fingerlings in spring 2024.
2. Monitor stocking success through tournament and angler reports.

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. Work with state park staff to maintain appropriate signage at access points around the reservoir.
2. Educate new park staff and 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.

Objective-Based Sampling Plan and Schedule (2023–2027)

Sport fish, forage fish, and other important fishes

Important sport fish in Mineral Wells Reservoir include Largemouth Bass, crappie, and Channel Catfish. Important forage species include Bluegill, Longear Sunfish, Gizzard Shad, and Threadfin Shad.

Survey objectives, fisheries metrics, and sampling objectives

Largemouth Bass: Largemouth Bass are one of the most popular fisheries at Mineral Wells Reservoir. Sampling once every four years to collect long-term monitoring trend data will allow for determination of any large-scale changes in the Largemouth Bass population that may spur further investigation.

A minimum of 12 randomly selected 5-min electrofishing sites will be sampled in the fall of 2026 to achieve our objectives of collecting ≥ 50 stock-size fish with an RSE of CPUE-S ≤ 25 to evaluate size structure and CPUE. Based on previous surveys, we should meet objectives in the original 12 random stations; however, 6 additional random stations will be generated in the event additional sampling is necessary. Thirteen Largemouth Bass between 13.0 and 14.9 inches will be collected to estimate age at 14-inches. Relative weight of Largemouth Bass ≥ 8 " TL will be determined from their length/weight data (maximum of 10 fish weighed and measured per inch class).

Crappie: White Crappie are the dominant species in Mineral Wells Reservoir and support the most popular fishery. Black Crappie were also observed for the first time in 2022.

A minimum of five randomly selected trap nets will be set in fall of 2026 to collect trend data on size structure, age at the MLL (10-inches), and body condition of White Crappie. It is estimated that at least 50 stock-size White Crappie with an RSE of CPUE-S ≤ 25 can be collected with between 5 and 10 net nights. Additional net nights will be sampled if objectives are not met with the initial sampling stations, with a maximum effort of 10 net nights.

Channel Catfish are present in Mineral Wells Reservoir and are the fourth most popular fishery after "anything". Advanced fingerling Channel Catfish stockings were discontinued because of low directed effort observed through the catch-card survey in 2012 (Moczygemba 2015). The survey documented 79% legal release of Channel Catfish and suggested the population could be sustained without supplemental stocking. Since annual stockings have ceased, netting is low precision and increases mortality, and Channel Catfish make up a small portion of directed effort and harvest, gill netting has been discontinued. Presence/absence of Channel Catfish during electrofishing surveys will be documented to determine continued presence/absence.

Sunfish and Shad: Bluegill, Longear Sunfish, along with Gizzard and Threadfin Shad are the primary forage at Mineral Wells Reservoir. We intend to collect trend data on abundance, size structure, and prey availability for forage species (along with sampling for Largemouth Bass) once every four years. No additional effort will be expended, beyond that necessary to achieve objectives for Largemouth Bass.

The proposed sampling schedule for important sport fish and forage is in Table 7.

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Tables and Figures

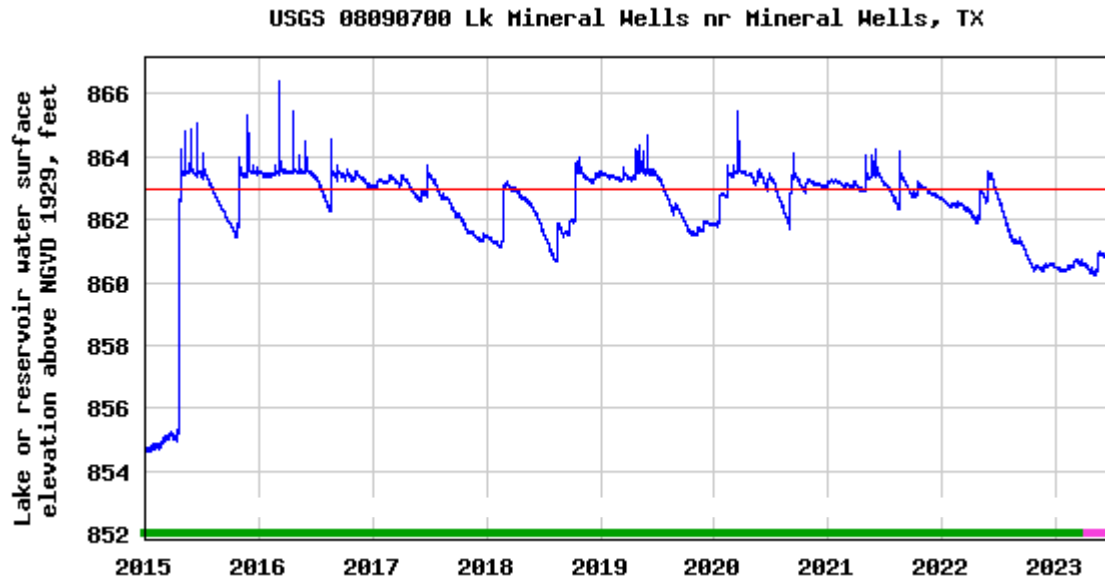


Figure 1. USGS real time water data for USGS 08090700 Mineral Wells Reservoir near Mineral Wells, Texas, January 2015 – April 2023. Red line indicates conservation elevation.

Table 1. Characteristics of Mineral Wells Reservoir, Texas.

Characteristic	Description
Year constructed	1920
Controlling authority	Palo Pinto Co. Municipal Water District No. 1
County	Parker
Reservoir type	Tributary
Shoreline Development Index	1.9
Conductivity	339 $\mu\text{S/cm}$

Table 2. Boat ramp characteristics for Mineral Wells Reservoir, Texas, August 2022.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
South Ramp	33.81466 -98.03900	Y	16	857	Usable to 4 or 5 feet low. Extension benefit limited.

Table 3. Harvest regulations for Mineral Wells Reservoir, Texas.

Species	Bag limit	Length limit
Catfish: Channel and Blue Catfish, their hybrids and subspecies	5 (in any combination)	None
Catfish, Flathead	5 ^a	18-inch minimum
Largemouth Bass	5 ^a	14-inch minimum
Spotted Bass	5	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 Mineral Wells Reservoir, Texas. FGL = fingerling; FRY = fry; AFGL = advanced fingerling; ADL = adults; UNK = unknown.

Species	Year	Number	Life Stage	Species	Year	Number	Life Stage
Blue Catfish	1988	12	ADL	Rainbow Trout	1984	11,243	ADL
	Total	12			1985	17,943	ADL
Channel Catfish	1971	15,000	AFGL		Total	29,186	
	1972	100,000	AFGL	ShareLunker Largemouth Bass ^a	2012	5	ADL
	1987	32,800	FGL		Total	5	
	1989	18,786	AFGL	Threadfin Shad	1984	800	AFGL
	1991	9,985	AFGL		1985	3,400	AFGL
	1992	9,948	AFGL		Total	4,200	
	1993	16,580	AFGL				
	1993	11,040	FRY				
	1994	35,638	AFGL				
	1995	17,064	AFGL				
	1996	16,575	AFGL				
	2005	11,210	AFGL				
	2008	11,095	AFGL				
	2009	11,760	AFGL				
	2010	11,163	AFGL				
	2011	11,034	AFGL				
	2018	11,008	AFGL				
	Total	350,686					
Florida Largemouth Bass	1986	32,794	FRY				
	1987	5,065	FGL				
	1990	66,443	FRY				
	1997	66,300	FGL				
	2005	1,421	ADL				
	2012	73	ADL				
	Total	172,096					
Largemouth Bass	1967	60,000	UNK				
	1972	80,000	UNK				
	Total	140,000					

^a ShareLunker Largemouth Bass are 1st generation offspring from angler-donated Largemouth Bass \geq 13 pounds from the Toyota ShareLunker program.

Table 5. Objective-based sampling plan components for Mineral Wells Reservoir, Texas 2022.

Gear/target species	Survey objective	Metrics	Sampling objective
<i>Electrofishing</i>			
Largemouth Bass	Abundance	CPUE–Stock	RSE–Stock \leq 25
	Size structure	PSD, length frequency	N \geq 50 stock
	Age-and-growth	Age at 14 inches	N = 13, 13.0 – 14.9 inches
	Condition	W_r	10 fish/inch group (max)
	Genetics	% FLMB	N = 30, any age
Bluegill ^a	Abundance	CPUE–Total	RSE \leq 25
	Size structure	PSD, length frequency	N \geq 50
Gizzard Shad ^a	Abundance	CPUE–Total	RSE \leq 25
	Size structure	Length frequency	N \geq 50
	Prey availability	IOV	N \geq 50
<i>Trap netting</i>			
White Crappie	Abundance	CPUE–Stock	RSE–Stock \leq 25
	Size structure	PSD, length frequency	N = 50
	Age-and-growth	Age at 10 inches	N = 13, 9.0 – 10.9 inches

^a No additional effort will be expended to achieve an RSE \leq 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 aquatic vegetation, Mineral Wells Reservoir, Texas, 2014–2022. Surface area (acres) is listed with percent of total reservoir surface area in parentheses. Water level was 2 feet below the conservation elevation at time of survey.

Vegetation	2014	2018	2022
Native floating-leaved ^a	Not surveyed	3.5 (0.8)	0 (0.0)
Native emergent ^b	0.15 (<0.1)	8.6 (2.0)	8.0 (1.9)

^a American lotus

^b bulrush and water willow

Gizzard Shad

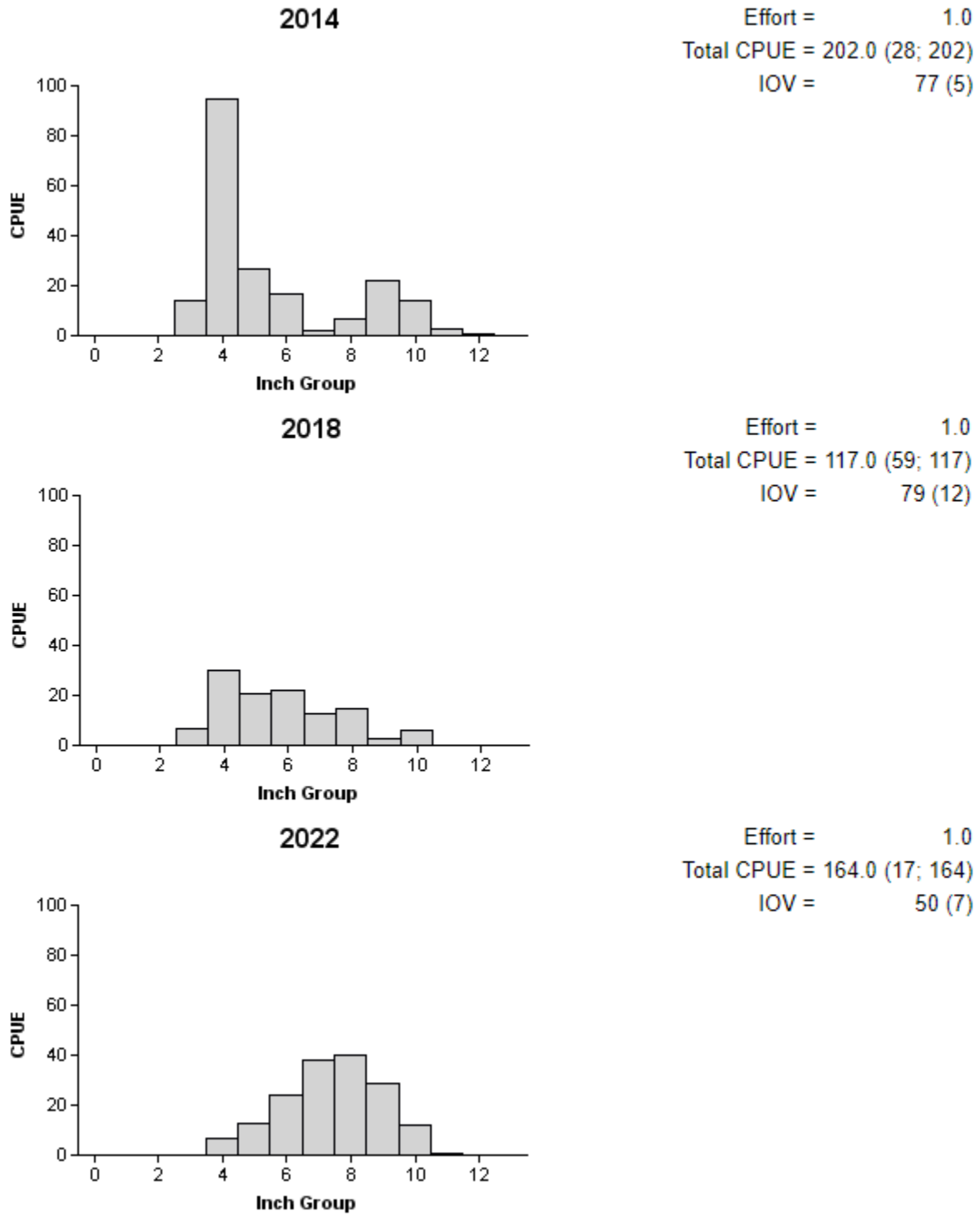


Figure 2. Number of Gizzard Shad caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Mineral Wells Reservoir, Texas, 2014, 2018, and 2022.

Bluegill

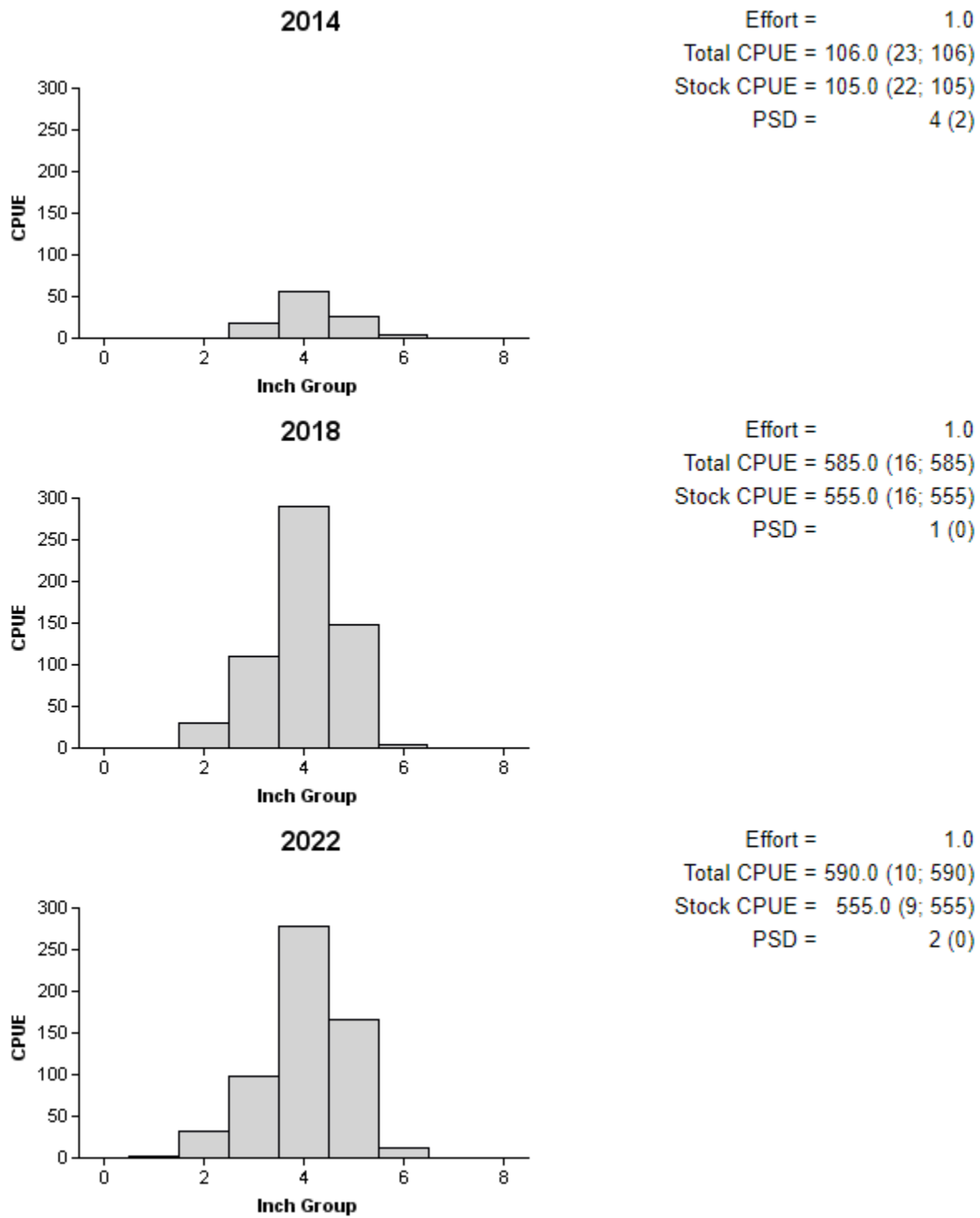
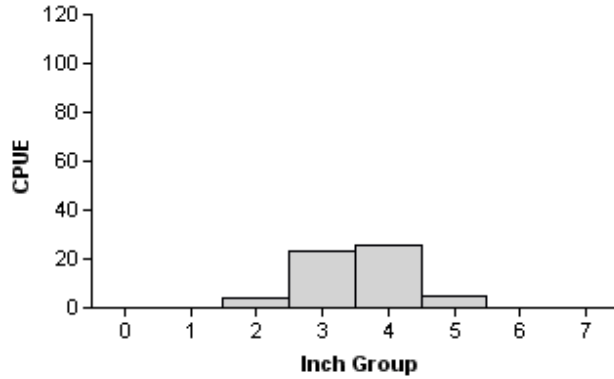


Figure 3. Number of Bluegill caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Mineral Wells Reservoir, Texas, 2014, 2018, and 2022.

Longear Sunfish

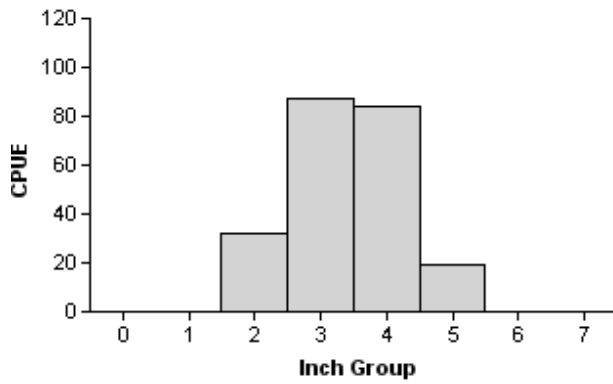
2014

Effort = 1.0
Total CPUE = 58.0 (22; 58)



2018

Effort = 1.0
Total CPUE = 222.0 (18; 222)



2022

Effort = 1.0
Total CPUE = 279.0 (13; 279)

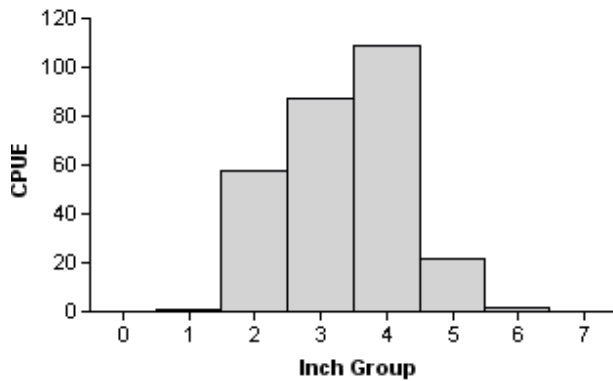


Figure 4. Number of Longear Sunfish caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Mineral Wells Reservoir, Texas, 2014, 2018, and 2022.

Largemouth Bass

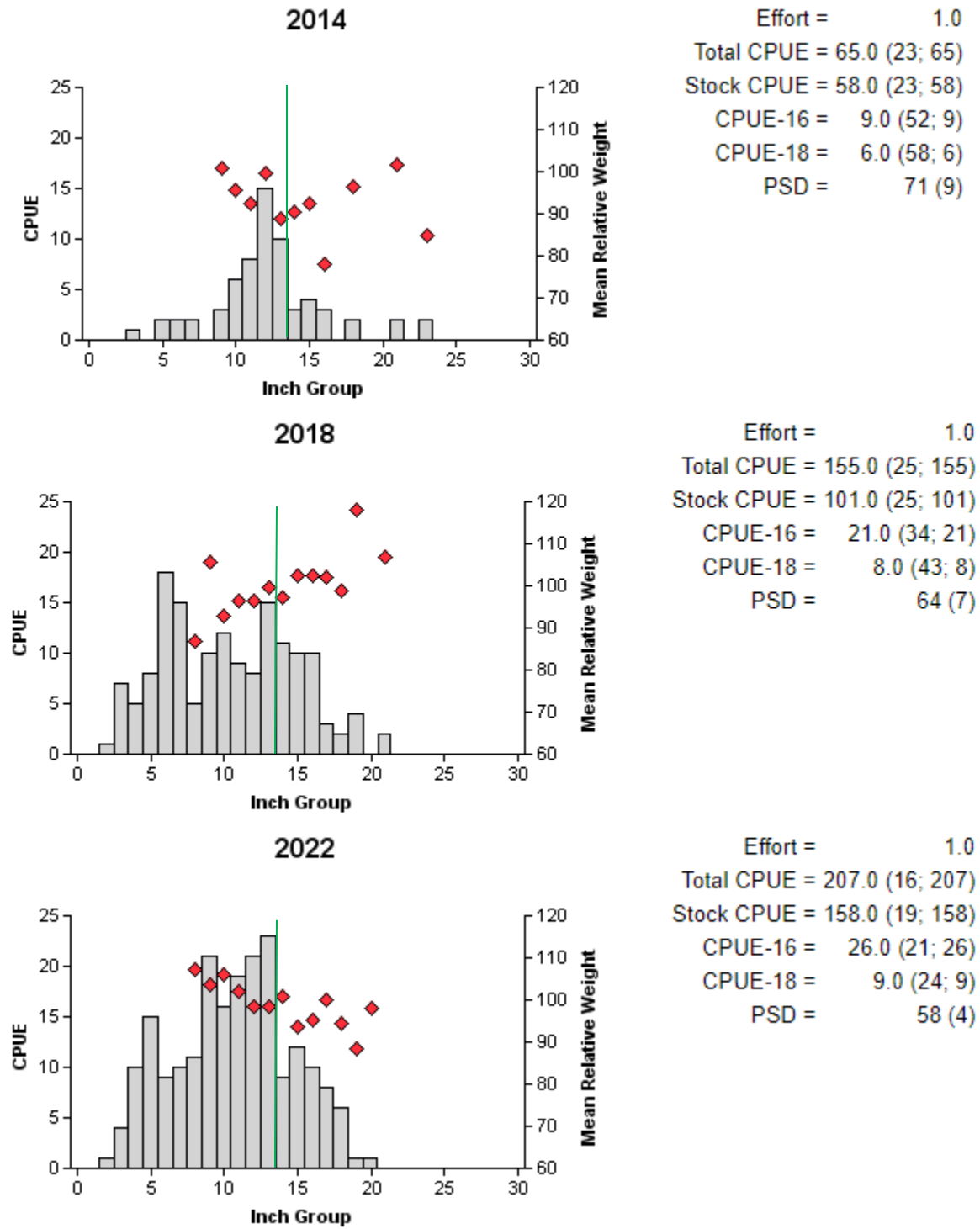


Figure 5. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Mineral Wells Reservoir, Texas, 2014, 2018, and 2022. Vertical lines represent length limit at time of collection.

Crappie

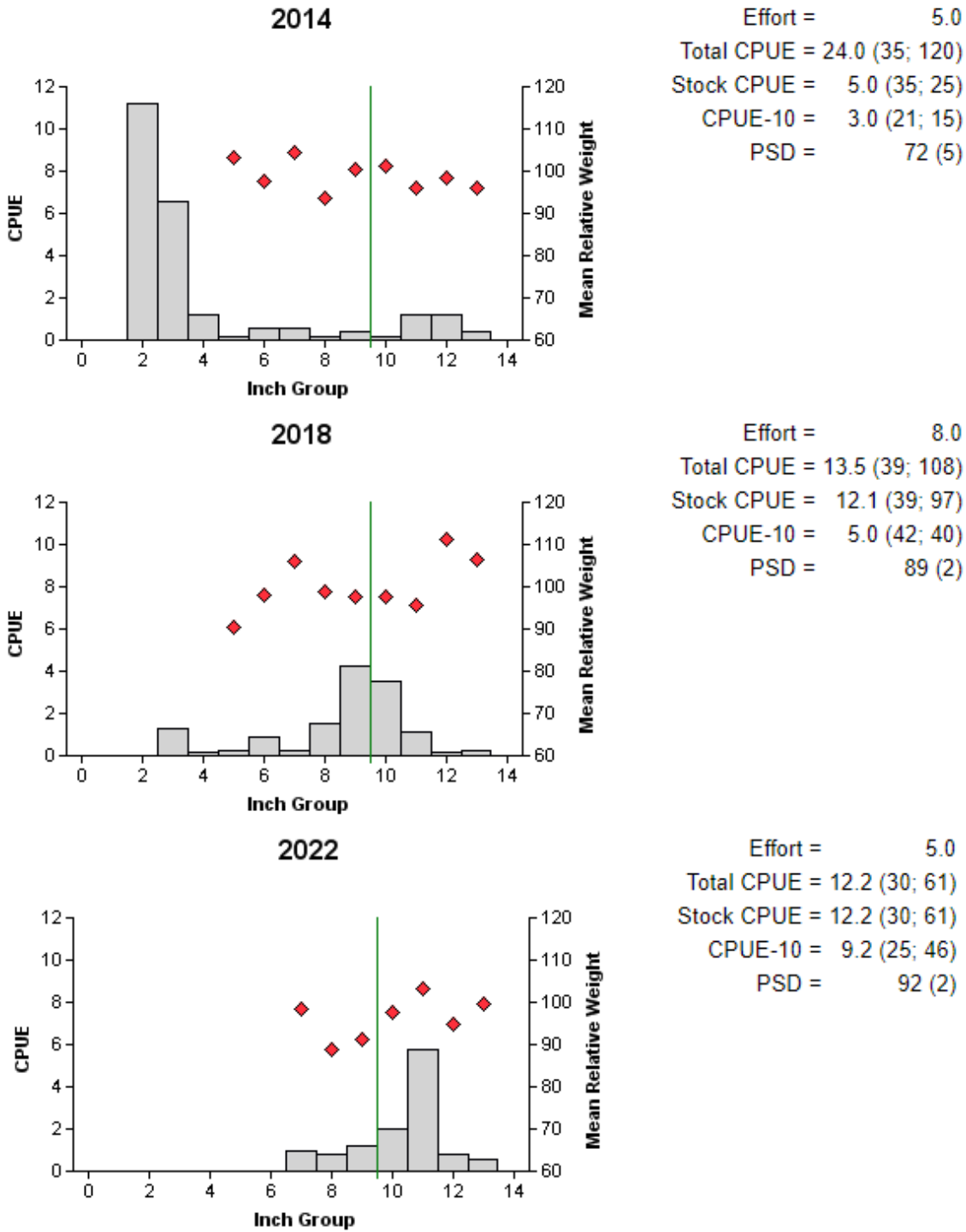


Figure 6. Number of White Crappie caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall trap netting surveys, Mineral Wells Reservoir, Texas, 2014, 2018, and 2022. Vertical line indicates minimum length limit.

Proposed Sampling Schedule

Table 7. Proposed sampling schedule for Mineral Wells, Texas. Survey period is June through May.

	Survey year			
	2023-2024	2024-2025	2025-2026	2026-2027
Angler access				X
Vegetation				X
Electrofishing - Fall				X
Trap netting				X
Report (Proposed CFL or small lake format)				X

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

Number (N), relative standard error, and catch rate (CPUE) of all target species collected from all gear types from Mineral Wells Reservoir, Texas, 2022. Sampling effort was 5 net nights for trap netting, 1.0 hour for standard fall electrofishing.

Species	Electrofishing (Fall)		Trap Netting	
	N	CPUE (RSE)	N	CPUE (RSE)
Gizzard Shad	164	164.0 (17)		
Threadfin Shad	891	891.0 (32)		
Warmouth	10	10.0 (46)		
Orangespotted Sunfish	2	2.0 (67)		
Bluegill	590	590.0 (10)		
Green Sunfish	40	40.0 (37)		
Redear Sunfish	17	17.0 (37)		
Longear Sunfish	279	279.0 (13)		
Largemouth Bass	207	207.0 (16)		
White Crappie			61	12.2 (30)
Black Crappie			2	0.4 (100)

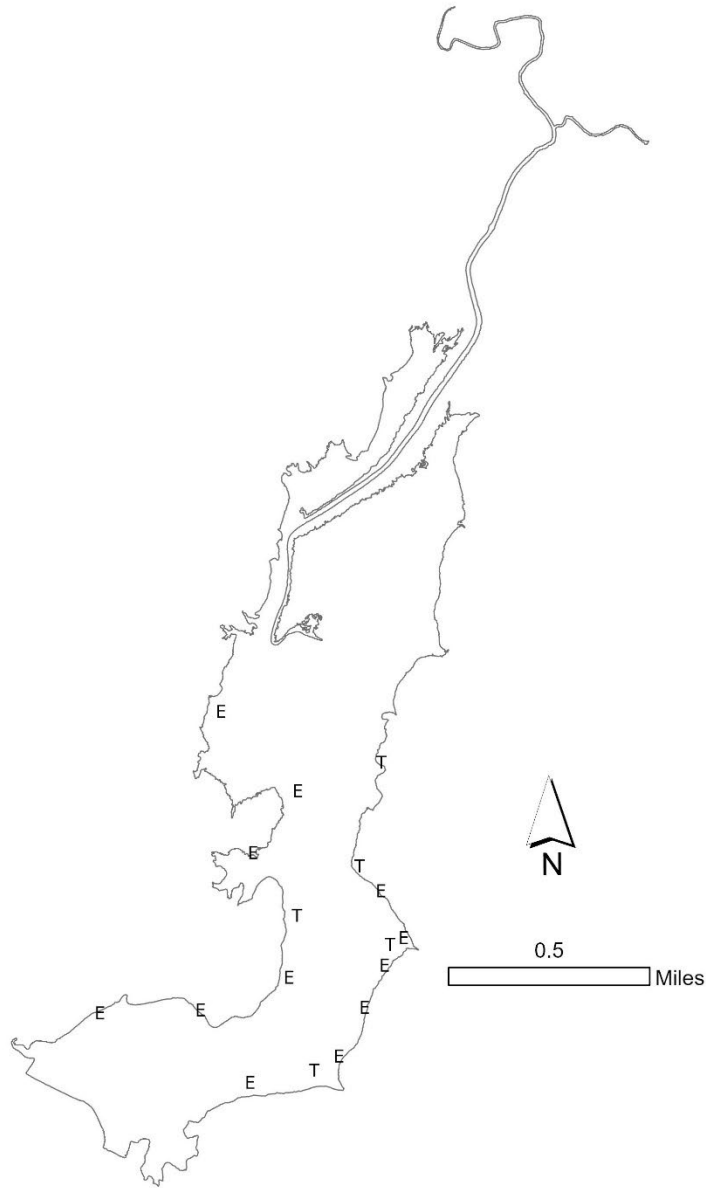
APPENDIX B – Historical catch rates of target species by gear type

Historical catch rates of targeted species by gear type for Mineral Wells Reservoir, Texas, 1992 - 2022.

Gear	Species	Year									Avg.
		1992 ^a	1995 ^a	1998	2002	2006	2010	2014	2018	2022	
Electrofishing (fish/hour)	Gizzard Shad	214.0	93.0	129.0	156.0	172.0	135.0	202.0	117.0	164.0	153.6
	Threadfin Shad	15.0	112.0	88.0	42.0	59.0	1091.0	2657.0	931.0	891.0	654.0
	Green Sunfish	0.0	12.0	42.0	17.0	26.0	8.0	4.0	44.0	40.0	21.4
	Warmouth		8.0	32.0	31.0	14.0	8.0	1.0	19.0	10.0	13.7
	Orangespotted Sunfish	0.0	0.0	3.0	1.0	0.0	2.0	0.0	3.0	2.0	1.2
	Bluegill	42.0	360.0	395.0	95.0	346.0	388.0	106.0	585.0	590.0	323.0
	Longear Sunfish	6.0	38.0	62.0	42.0	137.0	203.0	58.0	222.0	279.0	116.3
	Redear Sunfish	2.0	28.0	23.0	12.0	31.0	6.0	1.0	1.0	17.0	13.4
	Spotted Bass	69.0	0.0	6.0	9.0	2.0	0.0	0.0	0.0	0.0	9.6
Largemouth Bass	69.0	146.0	206.0	59.0	162.0	93.0	65.0	155.0	207.0	129.1	
Trap Netting (fish/net night)	White Crappie	28.1	34.5	4.3	16.8	10.4	27.8	24.0	13.5	12.2	19.1
	Black Crappie									0.4	0.4

^aAll sampling stations for all gear types were subjectively selected.

APPENDIX C – Map of sampling locations



Location of sampling sites, Mineral Wells Reservoir, Texas, 2022. Trap net and fall electrofishing stations are indicated by T and E respectively. Water level was 2.5 feet below the conservation elevation at time of sampling.

APPENDIX D – Mineral Wells Online Angler Survey 2022-2023

1. Approximately how many days have you fished at Lake Mineral Wells in the last year?
2. During your last fishing trip at Lake Mineral Wells did you fish from the bank, pier/dock, kayak/paddle craft, or a power boat?
3. Did you utilize any of the following types of sonar/fish finders when boat fishing at Lake Mineral Wells? LiveSonar (e.g. Active Target, Livescope, Mega Live Imaging), Sidescan Sonar, Traditional or Chirp Sonar, or None.
4. During the past 12 months, what fish species have you targeted at Lake Mineral Wells? (Largemouth Bass, crappie, catfish, sunfish, anything, other).
5. How many fish of each species did you catch during your last fishing trip at Lake Mineral Wells?
6. If you kept fish for any reason (e.g. to eat, for bait, for trophy) during your latest fishing trip at Mineral Wells Lake, please indicate the approximate length in inches of any fish harvested.
7. Prior to receiving this questionnaire, were you aware of the artificial fish habitats or fish attractors installed in Lake Mineral Wells by TPWD and the Fort Worth Fly Fishers?
8. If proposed for Lake Mineral Wells, would you support or oppose an aggregate (i.e. all species combined) 5-fish daily bag limit, of which only 1-bass over 14-inches is allowed to be harvested.
9. Have you fished a competitive fishing event (i.e. fishing tournament) at Lake Mineral Wells in the past 12 months?
10. More restrictive harvest regulations for Largemouth Bass have contributed to an increased abundance of larger bass in similar size reservoirs. However, these restrictive regulations also significantly limit the number and size of bass that may be harvested or temporarily retained during competitive fishing events. **Provided that information; please rank the following harvest regulations from 1 to 5 (1 being your 1st choice) for Largemouth Bass at Lake Mineral Wells Lake according to your personal preference.**
 - a. Retain the current 14-inch minimum length limit (statewide MLL); 5-fish daily bag limit. Only bass 14 inches or greater may be retained.
 - b. A 5-fish daily bag limit of all fish species combined; only 1 Largemouth Bass greater than 14-inches may be retained.
 - c. 16-inch maximum length limit; daily bag = 5 bass; only bass 16 inches in length or less may be retained; one-fish greater than 24" may be temporarily retained for donation to the ShareLunker program.
 - d. 1 over 16-inches; daily bag = 5 bass; only one bass longer than 16-inches or greater in length may be retained.
 - e. 14 to 21" slot-length limit; daily bag = 5 bass; only bass 14 inches and less or 21 inches or greater in length may be retained. Only one fish greater than 21" may be retained each day.

11. If the harvest of smaller bass (e.g. <14-inches) was allowed, would you keep bass to eat?

12. Please use this space to share any additional comments you may have:

APPENDIX E – Select statistics from the Mineral Wells Lake Working Man’s Tournament.

Date	# of Anglers	Winning weight	Big Bass
3/30/2021	14	n/a	4.27
7/19/2021	8	9.61	6.28
7/27/2021	8	7.01	5.57
8/10/2021	7	5.7	2.31
8/17/2021	8	8.86	3.13
8/25/2021	7	5.57	5.57
4/12/2022	8	13.37	6.17
4/19/2022	7	19.89	6.54
4/26/2022	10	18.58	5.75
5/10/2022	6	12.36	4.58
5/17/2022	7	14.38	4.43
5/31/2022	11	8.67	5.31
6/21/2022	10	11.37	6.78
6/28/2022	12	9.85	3.4
8/20/2022	n/a	17.54	6.45
4/12/2023	19	16.29	6.89
4/19/2023	n/a	15.72	4.49
5/3/2023	n/a	10.69	6.92
5/10/23	n/a	9.37	4.54
5/17/23	n/a	15.0	6.59
5/24/23	n/a	10.55	6.06
5/31/23	n/a	9.46	2.73
6/7/23	n/a	10.17	4.06
6/14/23	n/a	16.20	7.22

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