

Joe Pool Reservoir

2021 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 Joe Pool Reservoir were surveyed in 2018 and 2021 using electrofishing and in 2021 using trap nets. Due to other district priorities gill netting was not conducted in 2022. This report summarizes the results of the surveys and contains a management plan for the reservoir based on those findings.

Reservoir Description: Joe Pool Reservoir, a 7,470-acre reservoir located on Mountain Creek (a tributary of the Trinity River), was constructed in 1986 by the U.S. Army Corps of Engineers for flood control, water supply, recreation, and fish and wildlife enhancement. It was opened to public fishing in August 1989. Joe Pool Reservoir is in Tarrant, Ellis, and Dallas Counties four miles south of Grand Prairie, Texas. Historically habitat was composed mainly of shoreline emergent vegetation, submersed vegetation in the form of Hydrilla (*Hydrilla verticillata*), American Pondweed (*Potamogeton nodosus*), and flooded timber. However, at the time of sampling, aquatic vegetation was nonexistent and structural fish habitat was limited to primarily natural shoreline.

Management History: Important sport fishes include White Bass, Largemouth Bass, White Crappie, and Channel and Blue Catfish. Largemouth Bass have been intensively managed through harvest regulations and the fishery opened with an 18-inch minimum length limit. This regulation was changed to a 14-to 21-inch slot length limit in fall 1992.

Fish Community

- **Prey species:** Gizzard and Threadfin Shad were present in the reservoir. Catch rates of these species remain well below averages of other district reservoirs. Sunfishes were relatively more abundant than shad.
- **Catfishes:** Due to participation in a research project on a different district reservoir, gill nets were not set in 2022. However, from the 2018 survey, Blue Catfish catch rates continued to increase with several large fish (≥ 30 inches) captured in gill nets. Catch rate of Channel Catfish also increased in 2018 compared to previous surveys. Flathead Catfish are present in the reservoir.
- **White Bass:** Due to participation in a research project on a different district reservoir, gill nets were not set in 2022. White Bass catch rates in 2018 were below rates observed in previous surveys.
- **Largemouth Bass:** The Largemouth Bass catch rates increased from the two previous surveys. This was likely due a strong year class in 2021. Average body condition continued to be below optimal levels as in previous surveys. No fish above the 21" slot-length limit were observed in the 2021 survey.
- **White Crappie:** White Crappie catch rates decreased by nearly half from the previous survey. The catch rate of White Crappie ≥ 10 inches and size structure remained consistent with previous surveys.

Management Strategies: General monitoring with trap netting, gill netting, and electrofishing in 2025-2026. Annual aquatic vegetation surveys will be conducted to monitor Hydrilla coverage. Stock Lone Star Bass in 2026.

Introduction

This document is a summary of fisheries data collected from Joe Pool Reservoir in 2018-2021. The purpose of the document is to provide fisheries information and make management recommendations to protect and improve the sport fishery. While information on other fishes was collected, this report deals primarily with major sport fishes and important prey species. Historical data are presented with the 2018-2021 data for comparison.

Reservoir Description

Joe Pool Reservoir is a 7,470-acre impoundment constructed in 1986 on Mountain Creek (a tributary of the Trinity River) by the United States Army Corps of Engineers (USACE) for flood control, water supply, recreation, and fish and wildlife enhancement. Joe Pool Reservoir is in Tarrant, Ellis, and Dallas Counties, four miles south of Grand Prairie, Texas. The watershed was primarily agricultural but is being developed for residential purposes. Land use on the northeast side of the reservoir is maintained by Cedar Hill State Park. Joe Pool Reservoir historically has had low productivity measured by chlorophyll a production and low total phosphorus levels. This has undoubtedly had an impact on the limited forage available for sport fish populations. However, with urban development around the reservoir, it has become more productive and now ranks 88 out of 136 reservoirs in productivity (Texas Commission on Environmental Quality 2018). Water levels are fairly stable with the exception of flooding events (Figure 1). At the time of sampling the fishery habitat was composed mainly of natural shoreline and flooded timber. Other descriptive characteristics for Joe Pool Reservoir are in Table 1.

Angler Access

Joe Pool Reservoir has seven public boat ramps and no private boat ramps. Shoreline access for bank anglers is good within the numerous parks that are around the reservoir. Currently, the State Park Main Ramps are closed due to a construction project within Cedar Hill State Park. Additional boat ramp characteristics are in Table 2.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Brock and Hungerford 2018) included:

1. Conduct annual vegetation surveys to monitor Hydrilla coverage.
Action: Annual summer vegetation surveys were conducted from 2018-2021 to monitor Hydrilla abundance.
2. Electrofishing catch rates of Largemouth Bass and Bluegill were drastically lower in 2017 than previous surveys prompting us to question why.
Action: An additional fall electrofishing survey was conducted in 2018. Results are included in this report.
3. Communicate with the controlling authority, marina owners, and the public about threats posed by invasive species.
Action: Any additional information regarding zebra mussels in Texas was shared with the USACE and marina operators.

Harvest regulation history: Sport fish populations in Joe Pool Reservoir are managed with statewide regulations except for Largemouth Bass. From 1989 to 1991, Largemouth Bass were managed with an 18-inch minimum length limit. A 14- to 21-inch slot length limit was implemented in 1992 to improve growth rates, fish condition, and the population size structure. Current regulations are found in Table 3.

Stocking history: Joe Pool Reservoir was stocked in 2022 with Lone Star Bass fingerlings. The complete stocking history is in Table 4.

Vegetation/habitat management history: Joe Pool Reservoir is currently lacking any significant amounts of aquatic vegetation. This is due in part to high water levels observed the last several years followed by record low temperatures in February of 2021. Historically, vegetation was comprised of sporadic stands of American Pondweed and shoreline emergent stands of American Water-willow (*Justicia americana*), and Common Reed (*Phragmites australis*). Hydrilla was first observed in Joe Pool Reservoir in 1994. At that time, it comprised less than 0.1 acres. No Hydrilla was observed in vegetation surveys conducted in 1995, 1996, 1997, 1999 or 2000. Small stands (<1 acre in size) of Hydrilla were observed in 1998 and again in 2001 near the Lynn Creek Park boat ramps. In 2002, Hydrilla was evident at numerous locations around the reservoir with a total coverage estimated to be 13 acres. One year later, Hydrilla expanded to an estimated 116 acres. In 2004, 2005, and 2006, Hydrilla coverage fluctuated between 120 and 106 acres. Large dense stands of Hydrilla were primarily along the shores of Cedar Hill State Park and Lynn Creek Park. The boat ramps and swimming beaches were treated at both parks in summer 2004 with aquatic herbicide. In summer 2005, the City of Grand Prairie conducted herbicide treatments to their swimming areas and boat ramps and also conducted a first-time herbicide treatment at Britton Park. Hydrilla abundance decreased in 2007 to 7.5 acres. From 2008-2010 less than an acre was reported. Hydrilla increased in 2011 and covered an estimated 31.7 acres. In 2012 and 2013, Hydrilla covered an estimated 63.1 and 115.0 acres, respectively. Some mechanical harvest of hydrilla was conducted around the state park marina. In 2014, a trace amount was found, but Hydrilla was not observed in surveys conducted from 2015-2017. Additionally, trace amounts were found in 2019 and 2020, but none was observed in 2021 (Table 7).

Zebra mussels: The exotic species zebra mussels has been found in several Dallas-Fort Worth area reservoirs. Joe Pool Reservoir has tested positive for zebra mussel DNA as determined by PCR analysis conducted by the United States Geologic Survey (USGS). However, no adults nor larva have been found in the reservoir.

Water transfer: Joe Pool Reservoir is primarily used as water supply for the City of Midlothian and an irrigation supply for the City of Grand Prairie. In the future, the Cities of Duncanville and Cedar Hill will also be using water from the reservoir. No interbasin transfers exist.

Methods

Surveys were conducted to achieve survey and sampling objectives in accordance with the objective-based sampling (OBS) plan for Joe Pool Reservoir (Brock and Hungerford 2018). 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 2017).

Electrofishing – Largemouth Bass, sunfishes, and Gizzard and Threadfin Shad were collected by electrofishing (1.5 hours at 18, 5-min stations). Catch per unit effort (CPUE) for electrofishing was recorded as the number of fish caught per hour (fish/h) of actual electrofishing.

Trap netting – Crappie were collected using trap nets (10 net nights at 10 stations). CPUE for trap netting was recorded as the number of fish caught per net night (fish/nn).

Gill netting – Blue Catfish, Channel Catfish, and White Bass were collected by gill netting (10 net nights at 10 stations). CPUE 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 2017). Genetic composition of individual Largemouth Bass was estimated using Micro-satellite DNA analysis beginning in 2005 and using electrophoresis prior to 2005.

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

Habitat – A structural habitat survey was conducted in 2021 using the random point method (TPWD, Inland Fisheries Division, unpublished manual revised 2017). Annual vegetation surveys were conducted to monitor the presence of Hydrilla.

Water level – Source for water level data was the United States Geological Survey (USGS 2022).

Results and Discussion

Habitat: The dominant habitat type was natural shoreline accounting for an estimated 90% of the shoreline (56.1 miles), followed by rocky shoreline and bulkhead (Table 6). Vegetation surveys to locate and measure Hydrilla abundance were conducted annually. No Hydrilla was observed in the most recent survey of 2021 (Table 7).

Prey species: The electrofishing catch rate of Gizzard Shad observed in 2021 (45.3/h) was lower than the rates observed in 2017 (70.7/h) and 2018 (68.7/h; Figure 2). The catch rate of Gizzard Shad observed in the last three surveys were all below the reservoir average of 101.7 (Appendix C). Index of vulnerability for Gizzard Shad was good in 2018 (76) but poor in 2021 (22; Figure 2). The electrofishing catch rate of Threadfin Shad was 70.7/h in 2018 but decreased to 32.0/h in 2021. The rates observed in 2018 and 2021 were below the reservoir average of 90.4/h (Appendix C). Electrofishing catch rate of Bluegill was 24.0/h in 2018 and 118.0/h in 2021 (Figure 3). The number of quality-sized Bluegill (≥ 6 inches) increased drastically from 2.7/h in 2018 to 48.7/h in 2021. Longear Sunfish catch rate was near the reservoir average of 32.5/h in 2021 (28.0/h) and well below average in 2018 (10.0/h). Objective-based sampling objectives were secondary to Largemouth Bass and were not established for both Gizzard Shad and Bluegill.

Catfishes: Due to other district priorities, the 2022 gill netting survey was not conducted. Blue Catfish were first captured by gill netting in 2006 (Appendix C). The catch rates have been low but have

gradually increased in subsequent surveys. The gill netting catch rate of Blue Catfish in 2018 was 3.6/nn and was the highest rate observed to date (Figure 4, Appendix C). Condition values of fish captured were near or above 90 for most length classes (Figure 4). Size structure of the Blue Catfish population remained consistent with the previous survey (Figure 4). The gill net catch rate of Channel Catfish was 5.1/nn in 2018 which was higher than the two previous rates observed in 2014 (4.3/nn) and 2010 (1.4/nn; Figure 5). It was also above the reservoir average of 2.8/nn (Appendix C). Most Channel Catfish collected were less than 15 inches. Condition of the fish were above or near 80 for most length classes.

White Bass: Due to other district priorities, the 2022 gill netting survey was not conducted. White Bass were first collected by gill netting in Joe Pool in 1994 and the catch rates of White Bass have historically been low (Appendix C). The catch rate in 2018 was 0.6/nn which was the lowest on record and drastically lower than the catch rate observed in 2014 (13.4/nn; Figure 6). Yellow Bass were collected for the first time in 2014 (Appendix C), but were not collected in the 2018 survey (Appendix A).

Largemouth Bass: Total electrofishing catch rate of Largemouth Bass observed in 2021 (52.7/h) was similar to the rates observed in 2017 (46.0/h) and slightly higher than in 2018 (30.7/h; Figure 7; Appendix C). The catch rate of Largemouth Bass \geq 14 inches remained fairly consistent, but low, during the last 3 surveys. Size structure of the population remained stable from 2017-2018, but decreased and was dominated by a strong year class in 2021 (29; Figure 7). The decrease in catch rates could be attributed to recent flooding which affected the shoreline habitat. Since 2018, anglers have entered 17 lunker class (8.00-9.99 lbs) fish, 3 elite class (10.00-12.99 lbs) fish, and 2 legend class (13.00+ lbs) Largemouth Bass into the Toyota ShareLunker Program. Genetics from Largemouth Bass were not collected in the most recent survey period but at last check (2013), Florida alleles remained above 50% of the sample (Table 8). Objective-based sampling objectives were considered met for Largemouth Bass although the sample was 12 stock length fish short of the 50 fish needed for size structure estimation because RSE for total catch was below the threshold listed in objectives.

White Crappie: Trap net catch rate of White Crappie was 8.9/nn in 2021, which was about half as many as the previous survey in 2017 (19.4; Figure 8). Population size structure remained similar as PSD value decreased slightly from 82 in the previous survey to 74 in the most recent survey. The catch rate of White Crappie over 10 inches remained similar as compared to the 2017 survey.

Fisheries Management Plan for Joe Pool Reservoir, Texas

Prepared – July 2022

ISSUE 1: Hydrilla has been documented in Joe Pool Reservoir. High coverage of Hydrilla can cause negative impacts to boating access, however, it can be beneficial as habitat for Largemouth Bass and sunfishes.

MANAGEMENT STRATEGY

1. Conduct annual vegetation surveys to monitor Hydrilla.

ISSUE 2: Joe Pool Reservoir has a history of producing trophy Largemouth Bass. The current waterbody record of 14.45 pounds was caught in 2008. Since 2018, 22 fish over 8 pounds have been entered into the Toyota ShareLunker Program from Joe Pool.

MANAGEMENT STRATEGY

1. Stock Lone Star Bass fingerlings, which are 2nd generation offspring of pure Florida strain ShareLunker Largemouth Bass that have proven to be able to grow to ≥ 13 pounds, at a rate of 1,000/km shoreline (100,200 total fish).

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. Giant salvinia (*Salvinia molesta*) and other invasive vegetation species can form dense mats, interfering with recreational activities like fishing, boating, skiing, and swimming. The financial costs of controlling and/or eradicating these types of invasive species are significant. Additionally, the potential for invasive species to spread to other river drainages and reservoirs via watercraft and other means is a serious threat to all public waters of the state.

MANAGEMENT STRATEGIES

1. Cooperate with the USACE to post appropriate signage at access points around the reservoir.
2. Contact and educate marina owners about invasive species, and provide them with posters, literature, etc... so that they can, in turn, educate their customers.
3. Educate the public about invasive species using media and the internet.
4. Make a speaking point about invasive species when presenting to constituent and user groups.
5. Keep track of (i.e., map) existing and future inter-basin water transfers to facilitate potential invasive species responses.

Objective-Based Sampling Plan and Schedule (2022–2026)

Sport fish, forage fish, and other important fishes

Important sport fishes in Joe Pool Reservoir include Largemouth Bass, Channel and Blue Catfish, and White Crappie. Known important forage species include Bluegill, Longear Sunfish, Threadfin and Gizzard Shad.

Low-density fisheries

Flathead Catfish: Flathead Catfish are present in Joe Pool Reservoir, however, they are rarely captured in gill nets. Data on CPUE and size structure will be recorded from all Flathead Catfish collected by gill nets targeting catfishes and White Bass.

White Bass: Previous creel survey data indicated only 1.9% of anglers targeted White Bass in Joe Pool Reservoir. Data on White Bass will be collected when the gill net survey for catfishes is conducted in the spring of 2026. This should give an idea of the population status when compared to past surveys. No sampling objectives will be set for White Bass because of the low popularity of the species and variability in year class strength of the population.

Survey objectives, fisheries metrics, and sampling objectives

Catfishes: Catfishes are the second most sought after sport fish in Joe Pool Reservoir (12 % of total angling effort; creel conducted 2013-2014). It is currently not known what percentage of catfish anglers prefer Blue and which prefer Channel Catfish. However, based on observations of angler effort trends on other district reservoirs, more of the effort is probably directed toward Blue Catfish. The popularity of catfish fishing at this reservoir warrants sampling time and effort. A gill net survey consisting of 10 gill nets will be conducted in spring of 2026 to determine CPUE and size structure of both species. Based on past catch rates, this should be adequate to obtain an RSE of CPUE-S ≤ 25 and size structure (PSD; 50 fish minimum at 15 stations with 80% confidence). If RSE objectives are not met no additional gillnetting will be conducted.

Largemouth Bass: According to the most recent creel survey conducted on Joe Pool Reservoir (2013-2014), 47.3 % of anglers target Largemouth Bass and they are the most popular sport fish in the reservoir. The popularity of Largemouth Bass fishing at this reservoir warrants sampling time and effort. Trend data on CPUE, size structure, and body condition were collected annually for many years with fall nighttime electrofishing. To continue the monitoring of Largemouth Bass, fall nighttime electrofishing will be conducted at a minimum of 18 randomly selected 5-min sites in fall of 2025. Based on past catch rates, this should be adequate to obtain an RSE of CPUE-S ≤ 25 and size structure estimates (the anticipated effort to meet both sampling objectives is 18 stations with 80% confidence; PSD; 50 fish minimum at 18 stations with 80% confidence). If the RSE objective is not met, no additional electrofishing sampling will occur.

Bluegill, Longear Sunfish, Threadfin and Gizzard Shad: Bluegill, Longear Sunfish, and Threadfin and Gizzard Shad are the primary forage in Joe Pool Reservoir. Like Largemouth Bass, trend data on CPUE and size structure have been collected with fall nighttime electrofishing. The electrofishing for Largemouth Bass will allow for monitoring of large-scale changes in Bluegill, Longear Sunfish, and Threadfin and Gizzard Shad relative abundance and size structure. Sampling effort for Largemouth Bass should result in sufficient numbers of Bluegill, Longear Sunfish, and Threadfin and Gizzard Shad for size structure estimation (PSD and IOV; 50 fish minimum at 18 stations with 80% confidence).

White Crappie: Previous creel survey data indicate White Crappie angling comprised 11% of total angling effort. A trap netting survey consisting of 10 single-cod shoreline nets will be conducted in fall of 2025. This should provide sufficient information for monitoring of large-scale changes of population.

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Tables and Figures

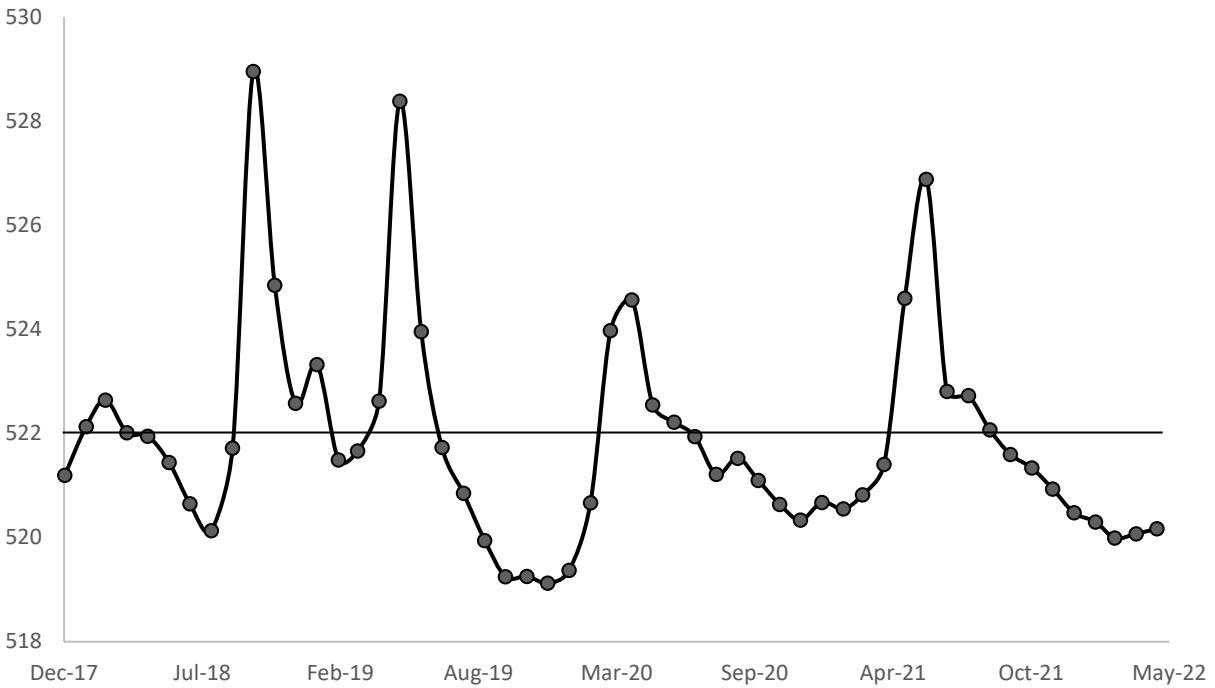


Figure 1. Mean monthly water level elevations in feet above mean sea level (MSL) recorded for Joe Pool Reservoir, Texas, December 2017 - April 2022. Conservation pool (522 MSL) is noted with solid black line.

Table 1. Characteristics of Joe Pool Reservoir, Texas.

Characteristic	Description
Year constructed	1986
Year opened	1989
Controlling authority	United States Army Corps of Engineers
Counties	Dallas, Ellis, Tarrant
Reservoir type	Tributary Trinity River
Conductivity	446 $\mu\text{S/cm}$

Table 2. Boat ramp characteristics for Joe Pool Reservoir, Texas, August 2021. Reservoir elevation at time of survey was 522 feet above mean sea level.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
	32.6142				
State Park South Ramps	-96.9950	Y	80	516.5	Good
	32.6271				
State Park Main Ramps	-96.9823	Y	90	510.5	Currently closed due to construction
	32.6323				
Lynn Creek Park North	-97.0228	Y	50	513.0	Good
	32.6313				
Lynn Creek Park South	-97.0250	Y	50	515.0	Good No courtesy dock
	32.6310				
Lynn Creek Marina	-97.0395	Y	100	510.0	Good
	32.5479				
Britton Park	-97.0535	Y	90	513.5	Good
	32.6189				
Loyd Park	-97.0625	Y	50	510.0	Good No courtesy dock

Table 3. Harvest regulations for Joe Pool Reservoir, Texas.

Species	Bag limit	Length limit
Catfish - Channel and Blue, their hybrids, and subspecies	25 (in any combination – only 10 can be 20 inches or greater in length)	No minimum
Catfish - Flathead	5	18-inch minimum
Bass - White	25	10-inch minimum
Bass - Largemouth	5 (only 1 > 21 inches)	14- to 21-inch slot
Crappie - White and Black Crappie, their hybrids, and subspecies	25 (in any combination)	10-inch minimum

Table 4. Stocking history for Joe Pool, Texas. Life stages are fry (FRY), fingerlings (FGL), advanced fingerlings (AFGL), adults (ADL) 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)
Channel Catfish	1986	750,000	FRY	0.8
	2018	400	ADL	13.2
	2019	400	ADL	14.2
	Total	750,800		
Coppernose Bluegill	1981	19,950	UNK	0.0
	1985	125,000	AFGL	2.0
	1986	5,290	AFGL	2.0
	Total	150,240		
Florida Largemouth Bass	1981	2,970	FRY	0.7
	1984	2,700	FRY	1.0
	1986	665,810	FRY	1.0
	1987	203,315	FRY	1.0
	2001	182,049	FGL	1.5
	2005	317,036	FGL	1.6
	2006	325,681	FGL	1.6
	2015	74,756	FGL	1.8
Total	1,774,317			
Lone Star Bass ^a	2022	73,105	FGL	1.8
Total	73,105			
Threadfin Shad	1981	1,080	AFGL	2.9
Total	1,080			

^a Lone Star Bass are 2nd generation offspring of pure Florida strain ShareLunker Largemouth Bass that have proven to be able to grow to ≥ 13 pounds.

Table 4. Objective-based sampling plan components for Joe Pool Reservoir, Texas 2021–2022.

Gear/target species	Survey objective	Metrics	Sampling objective
<i>Electrofishing</i>			
Largemouth Bass	Abundance	CPUE–Stock	RSE-Stock ≤ 25
	Size structure	PSD, length frequency	N ≥ 50 stock
	Condition	W_r	N ≥ 50 stock
Bluegill ^a	Abundance	CPUE–Total	None
	Size structure	PSD, length frequency	N ≥ 50 stock
Gizzard Shad ^a	Abundance	CPUE–Total	None
	Size structure	PSD, length frequency	None
	Prey availability	IOV	None
<i>Trap netting</i>			
White Crappie	Size structure	PSD, length frequency	None

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

Table 6. Percent occurrence with lower and upper 95% confidence limits (CL) of shoreline structural habitat at 190 random sites in Joe Pool Reservoir, Texas, August, 2021. Water level was near conservation pool at time of sampling.

Structural habitat type	% Occurrence	Lower CL	Upper CL	Estimate
Bulkhead	6.0	3.0	10.0	3.6 miles
Natural	90.0	85.0	94.0	56.1 miles
Rocky	4.0	2.0	8.0	2.6 miles

Table 7. Survey of aquatic vegetation, Joe Pool Reservoir, Texas, 2018-2021. Surface area (acres) is listed with percent of total reservoir surface area in parentheses.

Vegetation	2018	2019	2020	2021
Hydrilla (Tier III)*	0.0 (0.0)	>0.1 (0.0)	0.0 (0.0)	0.0 (0.0)

*Tier III is Watch Status

Gizzard Shad

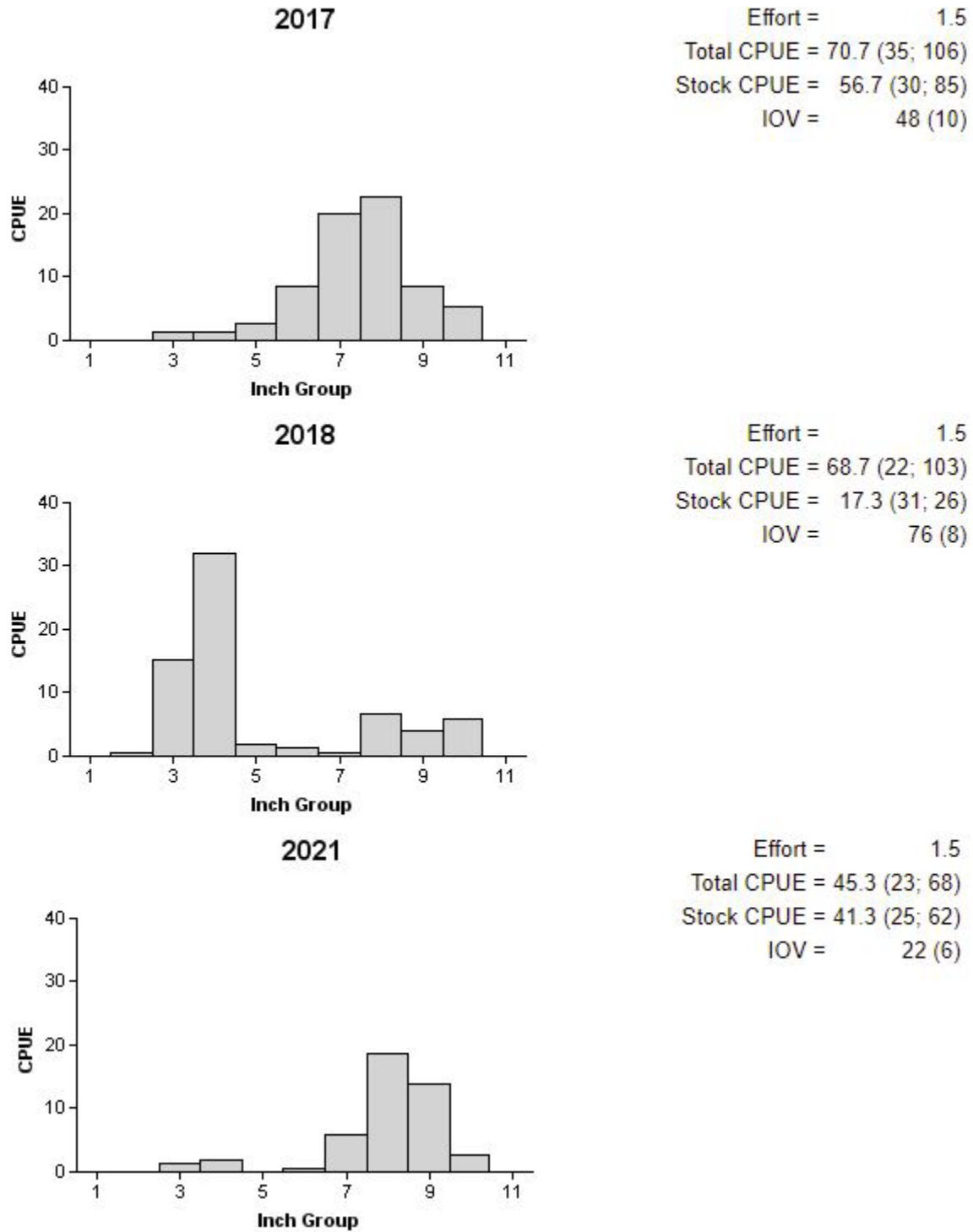


Figure 2. Number of Gizzard Shad caught per hour (CPUE; bars) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Joe Pool Reservoir, Texas, 2017, 2018, and 2021.

Bluegill

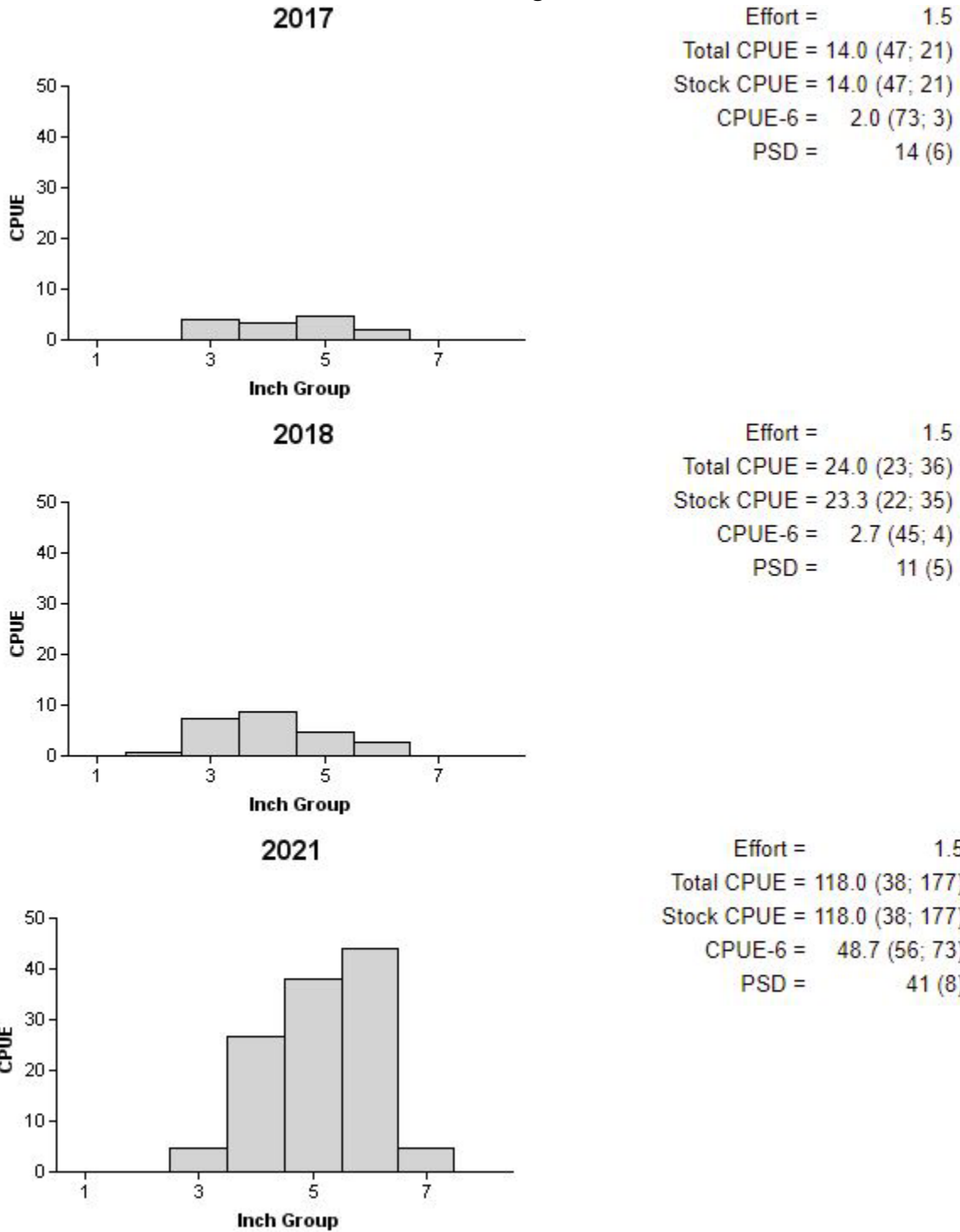


Figure 3. Number of Bluegill caught per hour (CPUE; bars) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Joe Pool Reservoir, Texas, 2017, 2018, and 2021.

Blue Catfish

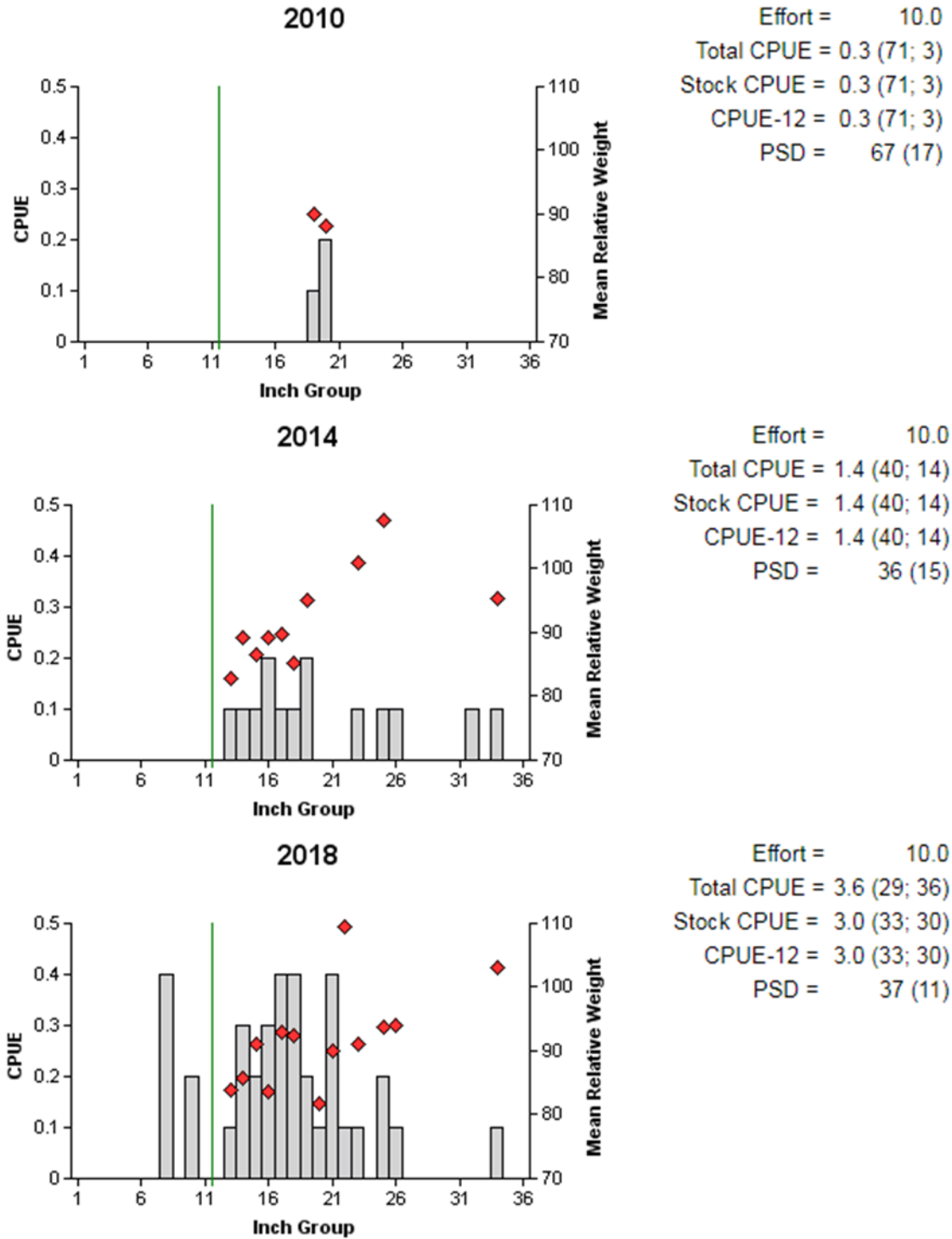


Figure 4. Number of Blue Catfish caught per net night (CPUE; bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Joe Pool Reservoir, Texas, 2010, 2014, 2018. Vertical line represents minimum length limit at time of sampling.

Channel Catfish

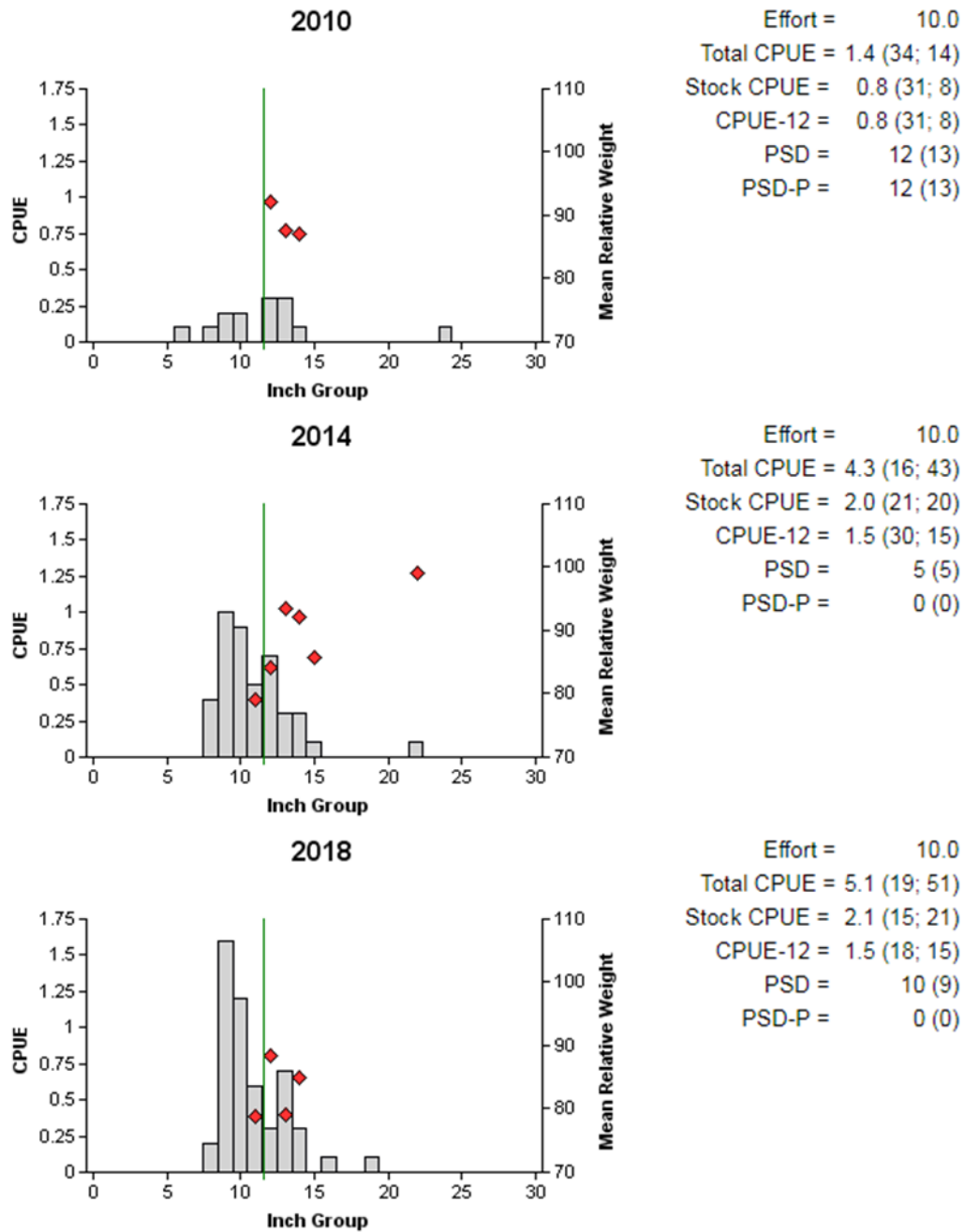


Figure 5. Number of Channel Catfish caught per net night (CPUE; bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Joe Pool Reservoir, Texas, 2010, 2014, and 2018. Vertical line represents minimum length limit at time of sampling.

White Bass

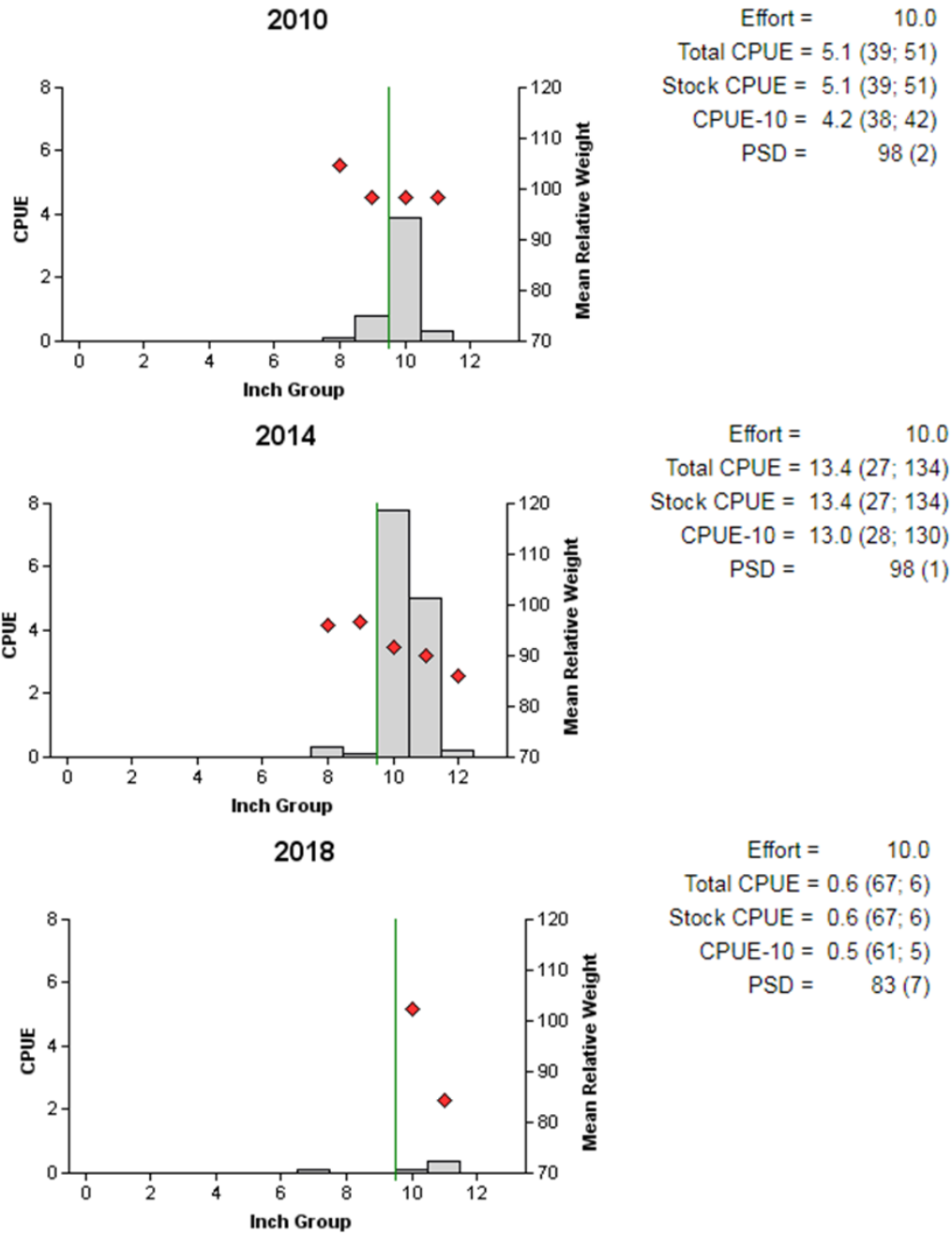


Figure 6. Number of White Bass caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Joe Pool Reservoir, Texas, 2010, 2014, and 2018. Vertical line represents minimum length limit at time of sampling.

Largemouth Bass

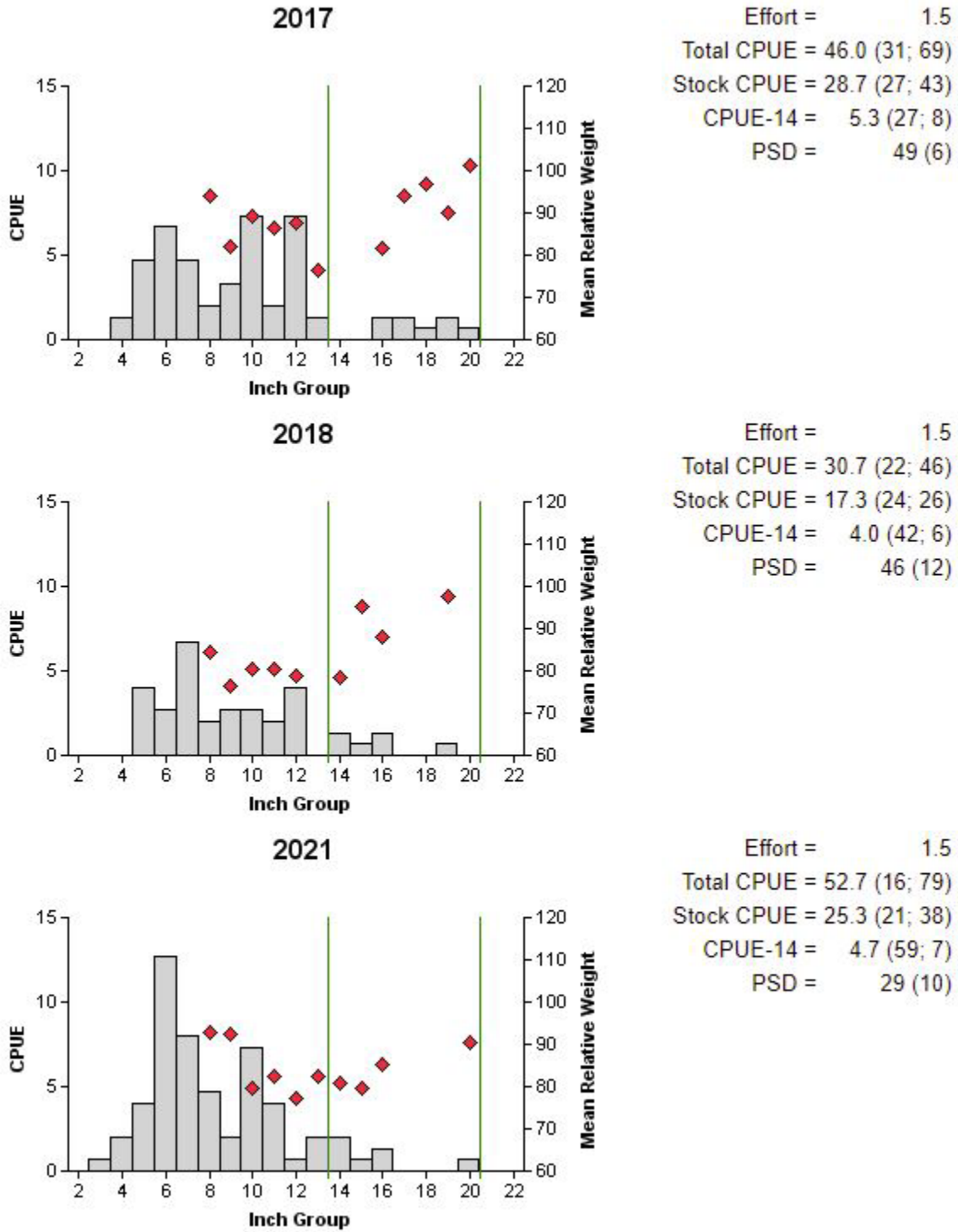


Figure 7. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Joe Pool Reservoir, Texas, 2017, 2018, and 2021. Vertical lines represents slot-length limit at time of sampling.

Table 8. Results of genetic analysis of Largemouth Bass collected by fall electrofishing, Joe Pool Reservoir, Texas, 2004, 2009, and 2013. FLMB = Florida Largemouth Bass, NLMB = Northern Largemouth Bass, Intergrade = hybrid between a FLMB and a NLMB. Genetic composition was determined by electrophoresis prior to 2005 and with micro-satellite DNA analysis since 2005.

Year	Sample size	Number of fish			% FLMB alleles	% FLMB
		FLMB	Intergrade	NLMB		
2004	30	0	16	14	25	0
2009	30	0	28	2	52	0
2013	30	1	29	0	57	3.3

White Crappie

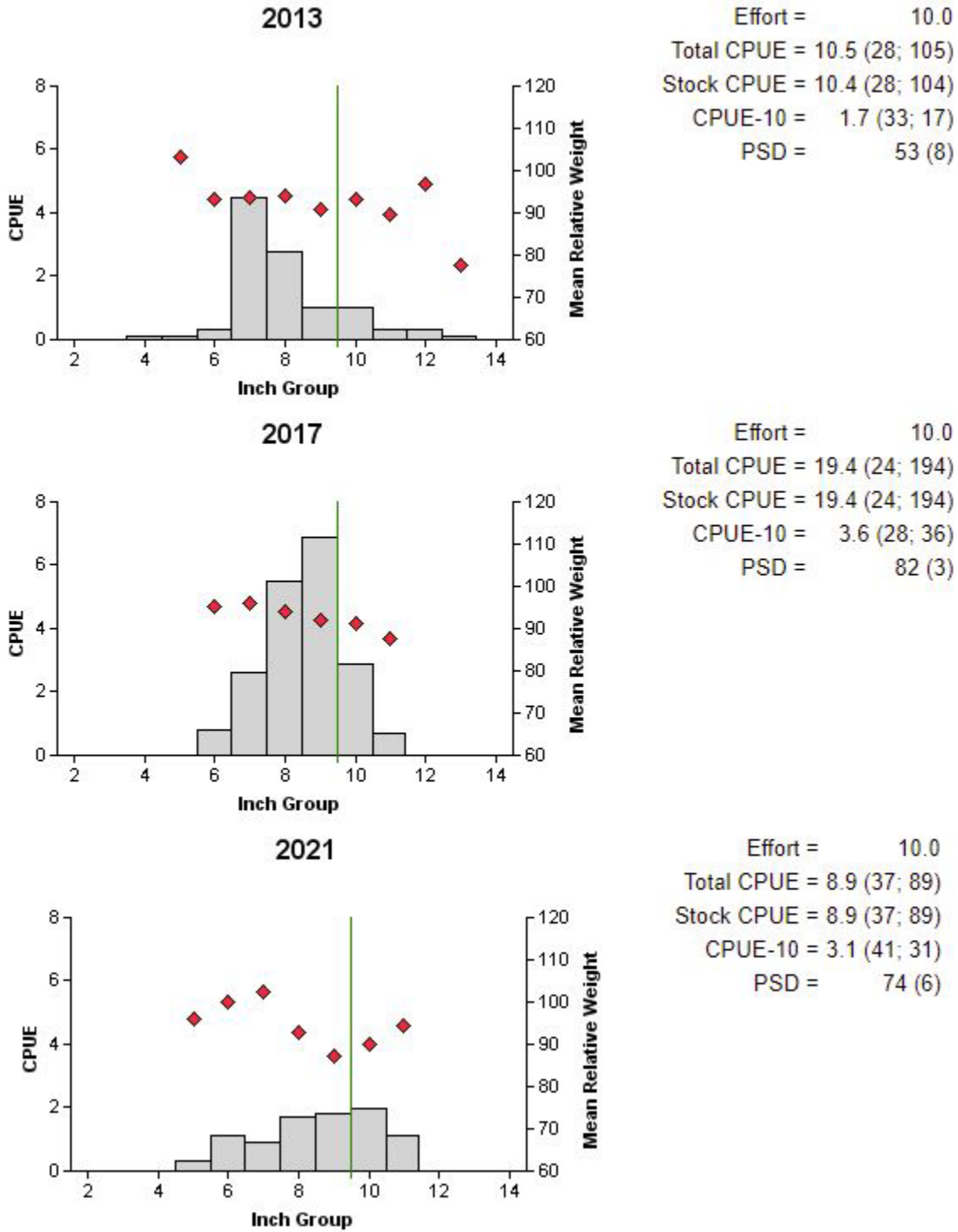


Figure 8. Number of White Crappie caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall trap netting surveys, Joe Pool Reservoir, Texas, 2013, 2017, and 2021. Vertical line represents minimum length limit at time of sampling.

Proposed Sampling Schedule

Table 9. Proposed sampling schedule for Joe Pool Reservoir, Texas. Survey period is June through May. Gill netting surveys are conducted in the spring, while electrofishing and trap netting surveys are conducted in the fall.

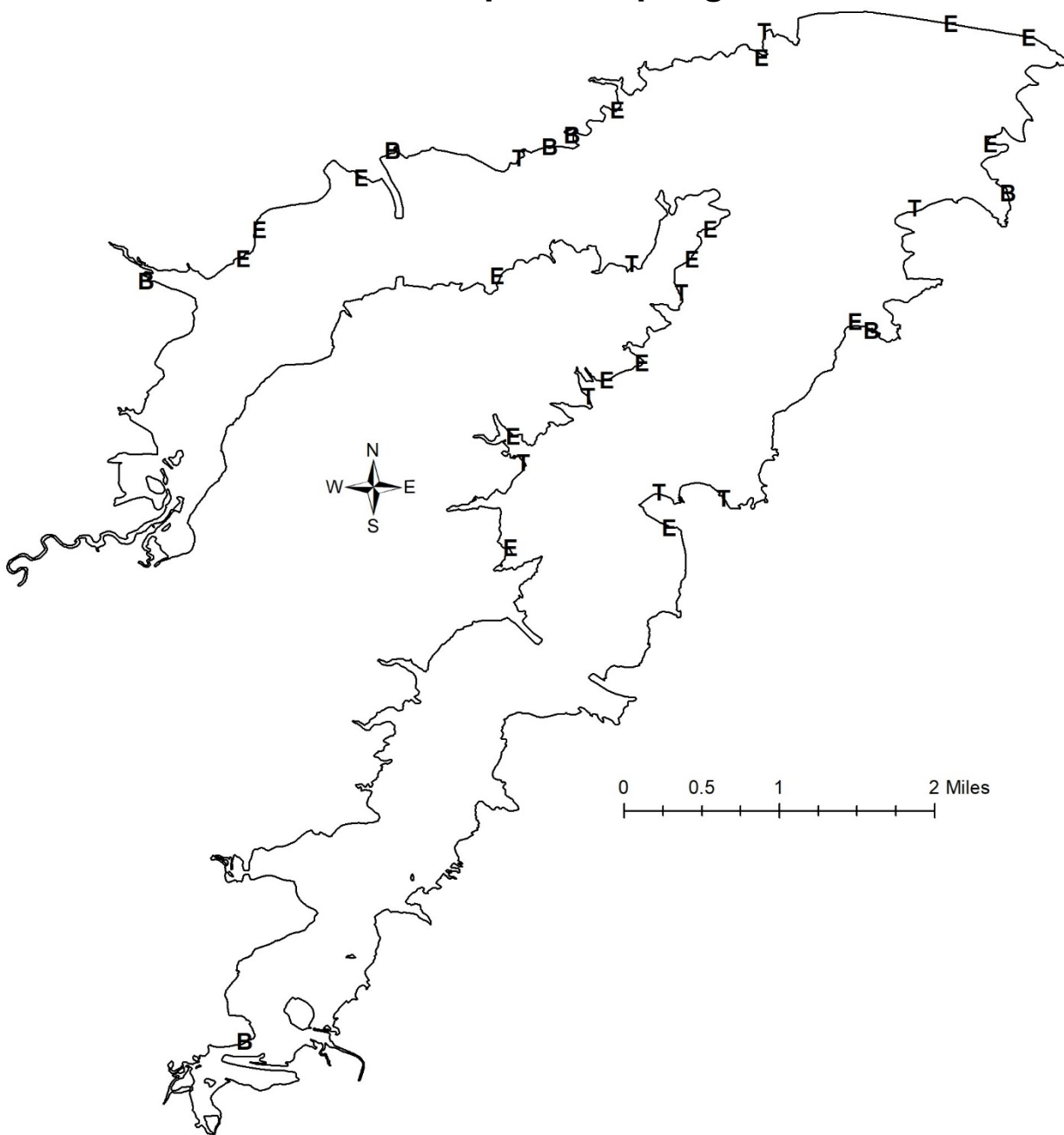
	Survey year			
	2022-2023	2023-2024	2024-2025	2025-2026
Angler Access				X
Vegetation	X	X	X	X
Electrofishing – Fall				X
Trap netting				X
Gill netting				X
Report				X

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 Joe Pool Reservoir, Texas, 2021. Sampling effort was 10 net nights for trap netting and 1.5 hours for electrofishing. Due to other district priorities, gill netting was not conducted in 2022.

Species	Trap Netting		Electrofishing	
	N	CPUE	N	CPUE
Gizzard Shad			68	45.3 (23)
Threadfin Shad			48	32.0 (29)
Bluegill			177	118.0 (38)
Longear Sunfish			42	28.0 (35)
Largemouth Bass			79	52.7 (16)
White Crappie	89	8.9 (37)		

APPENDIX B – Map of sampling locations



Location of sampling sites, Joe Pool Reservoir, Texas, 2021. Trap net and electrofishing stations are indicated by T and E, respectively. Boat ramps are indicated by B. Water level was near full pool at time of all surveys.

APPENDIX C – Historical catch rates of targeted species by gear type for Joe Pool Reservoir, Texas.

Gear	Species	Year													
		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	2000	2001	2002
Gill Netting (fish/net night)	Blue Catfish														
	Channel Catfish		3.0		1.0				2.1			3.1			2.5
	White Bass		0.0		0.0				2.1			0.8			0.9
	Yellow Bass		0.0		0.0				0.0			0.0			0.0
Electrofishing (fish/hour)	Gizzard Shad		110.0		187.0		153.0	71.0	120.0	112.0		110.7	132.7	90	152
	Threadfin Shad		36.0		12.0		13.0	0.0	22.0	26.0		11.3	84	45.3	149.3
	Bluegill		115.0		208.0		151.0		64.0	106.0		73.0	34.7	106.0	65.3
	Longear sunfish		50.0		101.0				36.0	44.0		45.0	26.0	61.0	28.7
	Largemouth Bass	92.0	120.7	144.0	151.3	144.4	143.5	106.5	113.3	119.0	133.3	91.3	104.0	90.0	78.0
Trap Netting (fish/net night)	White Crappie		15.0		7.0	7.3	4.9		1.5			2.3		18.5	17.9

APPENDIX C – Continued

Gear	Species	Year													
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2017
Gill Netting (fish/net night)	Blue Catfish				0.4				0.3				1.4		
	Channel Catfish				3.0				1.4				4.3		
	White Bass				10.0				5.1				13.4		
	Yellow Bass				0.0				0.0				0.7		
Electrofishing (fish/hour)	Gizzard Shad	76.0	58.7	106	77.3	93.3	122.7	54.7	144.7	49.3	82.0	75.3		179.3	70.7
	Threadfin Shad	56.0	21.3	77.3	274.7	126	276.0	201.3	312	70.7	44.7	47.3		196.7	54.0
	Bluegill	94.0	346.7	228	235.3	385.3	78.0	98.0	103.3	106.0	178.0	135.3		78.7	14.0
	Longear Sunfish	32.7	33.3	14.0	4.7	54.0	6.0	34.7	38.7	46.0	8.67	9.3		34.0	1.3
	Largemouth Bass	55.3	82.7	141.3	88.0	121.3	101.8	81.3	78.7	128.0	108.7	128.0		117.3	46.0
Trap Netting (fish/net night)	White Crappie			5.2				5.1				10.5			19.4

APPENDIX C – Continued

Gear	Species	Year		Average
		2018	2021	
Gill Netting (fish/net night)	Blue Catfish	3.6		1.4
	Channel Catfish	5.1		2.8
	White Bass	0.6		3.7
	Yellow Bass	0.0		0.1
Electrofishing (fish/hour)	Gizzard Shad	68.7	45.3	101.7
	Threadfin Shad	70.7	32.0	90.4
	Bluegill	24.0	118.0	131.1
	Longear Sunfish	10.0	28.0	32.5
	Largemouth Bass	30.7	52.7	103.6
Trap Netting (fish/net night)	White Crappie		8.9	9.6



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