Bridgeport 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 Bridgeport Reservoir were surveyed in 2021 using electrofishing and trap netting and in 2022 using gill netting. A roving creel survey was conducted in 2021. Aquatic vegetation and boat-angler access locations were surveyed in 2021. Historical data are presented with the 2021-2022 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: Bridgeport Reservoir is an 11,954-acre impoundment located on the West Fork Trinity River approximately 8 miles west of Bridgeport, Texas. Water level has remained near conservation elevation since 2015. Bridgeport Reservoir has increasing productivity and is borderline eutrophic. Habitat features consisted mainly of rocky shoreline, submerged boulders, and some standing timber.

Management History: Important sport fish included Blue and Channel Catfish, White Bass, Hybrid Striped Bass, Largemouth Bass, Spotted Bass, and crappie. Palmetto Bass were first stocked in 1983 and biennially between 2002 and 2019. Sunshine Bass fingerlings and fry have been stocked since 2020. Florida Largemouth Bass were last stocked in 2021. Smallmouth Bass were stocked between 1982 and 1985 and again in 2019. In 2018, the 14- to 18-inch slot length limit for Largemouth Bass was replaced with the statewide 14-inch minimum length limit (MLL). In 2021, the Blue and Channel Catfish regulation was changed to a 25-fish combined bag limit with no more than 10 fish ≥ 20 inches in length.

Fish Community

- **Prey species:** Threadfin and Gizzard Shad were plentiful with above average electrofishing catches. Multiple sunfish species such as Bluegill, Longear Sunfish, Green Sunfish, and Redear Sunfish were available as forage.
- **Catfishes:** The Channel Catfish population appeared to be declining. However, many were still available for harvest. Blue Catfish were first collected in 2018 and seemed to be displacing the Channel Catfish population. Larger individuals were available to anglers. Flathead Catfish were also present.
- **Temperate Basses:** White Bass catch rates have increased since 2014. Abundant legal-length individuals were available to anglers. Hybrid Striped Bass were present in low abundance, with larger individuals available to anglers. Angling effort for Hybrid Striped Bass has declined since 2004.
- **Black Basses:** About 42 percent of anglers fished for black basses at Bridgeport Reservoir. The catch rates of Largemouth Bass have increased since the reservoir returned to conservation elevation. The catch rate of Spotted Bass increased since the previous survey. Smallmouth Bass were present in low abundance.
- **Crappie:** White Crappie were abundant in the reservoir with legal-length fish available to anglers. Black Crappie were present in low abundance.

Management Strategies: Bridgeport Reservoir should continue to be managed using existing fish harvest regulations. Stock Lone Star Bass to improve trophy potential of Largemouth Bass. Increase stocking rate of fingerling Hybrid Striped Bass and evaluate fry stockings. Evaluate spawning structures for Smallmouth Bass. Continue to inform the public about the negative impacts of aquatic invasive species. General monitoring with electrofishing, trap netting, and gill netting will be conducted in 2025-2026. Access and vegetation surveys will be conducted in 2025.

Introduction

This document is a summary of fisheries data collected from Bridgeport Reservoir from 2021-2022. 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 2021-2022 data for comparison.

Reservoir Description

Bridgeport Reservoir is an 11,954-acre impoundment constructed in 1932 on the West Fork Trinity River. It is located in Wise and Jack Counties approximately 8 miles west of Bridgeport, Texas. The reservoir is operated and controlled by the Tarrant Regional Water District. Primary water uses included municipal and industrial water supply and recreation. Bridgeport Reservoir is classified as borderline eutrophic with a mean TSI Chl *a* of 49.38 (Texas Commission on Environmental Quality 2020). Habitat at time of sampling consisted of rocky shoreline, submerged boulders, and some standing timber. A small amount of Floating Yellow Heart was present in the reservoir. Water level declined from 2010 to 2015 before rapidly refilling in June 2015 (Figure 1). Since 2015, water level has remained within 7 feet of conservation elevation (836.0 ft above mean sea level). The reservoir has been infested with Zebra Mussels (*Dreissena polymorpha*) since 2014. Other descriptive characteristics for Bridgeport Reservoir are in Table 1.

Angler Access

Boat access consisted of five public boat ramps and several private boat ramps. Bank fishing access was restricted to the Wise County Park, the boat ramp site near the US Highway 380 Bridge, and the boat ramp site near the dam. Northside Marina provides fishing from their docks to cabin guests and slip renters. Additional boat ramp characteristics are in Table 2.

Management History

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

1. Stock Palmetto Bass fingerlings in 2019 and 2021 and Palmetto Bass fry in 2020 and 2022 and conduct gill netting to determine the success of fry stockings.

   Actions: Palmetto Bass fingerlings were stocked in 2019. Sunshine Bass fingerlings were stocked in 2021. Sunshine Bass fry were stocked in 2020 and 2022. Gill netting was conducted in spring 2022.

2. Conduct a creel survey in summer and fall of 2021 to monitor trends in angler effort and harvest of Palmetto Bass.

   Action: A roving creel survey was conducted in summer and fall of 2021 and documented angler effort and harvest of Hybrid Striped Bass.

3. Monitor the effects of the regulation change on Largemouth Bass with standard electrofishing in fall 2021 and a creel survey in summer and fall of 2021.

   Actions: Largemouth Bass were sampled with standard electrofishing in fall 2021. A roving creel survey was conducted in summer and fall of 2021 and documented angler effort, catch, and harvest of Largemouth Bass.

4. Stock Smallmouth Bass fingerlings and monitor recruitment with standard electrofishing in fall 2021. Estimate effort and harvest of Smallmouth Bass during a summer and fall creel survey in 2021.

   Actions: Smallmouth Bass fingerlings were stocked in 2019 and electrofishing was conducted in fall 2021. A roving creel survey was conducted in summer and fall of 2021 and documented angler effort and harvest of Smallmouth Bass.

5. Inform the public about the threats of invasive species and how to prevent their spread.

   Action: Zebra mussel signage has been maintained and invasive species talking points have been presented on social media. A vegetation survey was completed in 2021 and non-native aquatic vegetation species were documented.

Harvest regulation history: Sport fishes in Bridgeport Reservoir are currently managed with statewide regulations (Table 3). Largemouth Bass were managed with a 14- to 18-inch slot length limit from 1993 to 2018 when the regulation changed to the statewide 14-inch minimum length limit (MLL). In 2021, the Blue and Channel Catfish regulation was changed to a 25-fish combined daily bag limit with no more than 10 fish ≥ 20 inches in length. This was part of a statewide effort to direct harvest to smaller catfish.

Stocking history: Florida Largemouth Bass fingerlings were stocked in 2021 (222,070). Smallmouth Bass fingerlings were stocked in 2019 (23,899). Palmetto Bass fingerlings were last stocked in 2019 (31,990), and Sunshine Bass fingerlings were stocked in 2021 (57,605). Sunshine Bass fry were stocked in 2020 (569,982) and 2022 (1,084,477). The complete stocking history is in Table 4.

Vegetation/habitat management history: In 2021, structures were deployed in Bridgeport Reservoir for Smallmouth Bass to utilize during spawning. The structures consisted of cut logs anchored with cinder blocks and were deployed throughout the lower portion of Bridgeport Reservoir. Sites with clear water, hard substrate, and protection from prevailing winds were chosen to increase the likelihood the structures would be used for spawning. Depths were chosen that would be suitable for spawning during times of lower water elevation. Assessment of the structures will determine if more are deployed in the future.

Water transfer: No inter-basin 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 Bridgeport Reservoir (Bennett and Cummings 2018). Primary components of the OBS plan are listed in Table 5. All standard survey sites were randomly selected, and all standard surveys were conducted according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2017).

Electrofishing – Black Basses, sunfishes, Gizzard Shad, and Threadfin Shad were collected in the fall 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. Ages for Largemouth Bass were determined using otoliths from 13 randomly selected fish (range 13.0 to 14.9 inches).

Trap netting – Crappie were collected using trap nets (10 net nights at 10 stations). The 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 and Blue Catfish were collected by gill netting (15 net nights at 15 stations). CPUE for gill netting was recorded as the number of fish caught per net night (fish/nn). Ages for Hybrid Striped Bass were determined using otoliths from all 17 fish captured.

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). Palmetto Bass PSD was calculated according to Dumont and Neely (2011). 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. Ages for White Crappie and Largemouth Bass were determined using Category 2 protocol and ages for Hybrid Striped Bass utilized Category 1 protocol according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2017).

Creel survey – A roving creel survey was conducted during the summer and fall quarters of 2021. The creel periods were June through August and September through November. Angler interviews were conducted on 5 weekend days and 4 weekdays per quarter to assess angler use and fish catch/harvest statistics in accordance with the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2017).

Habitat – A structural habitat survey was conducted in 2017. A vegetation survey was conducted in July 2021. Habitat was assessed with the digital shapefile method (TPWD, Inland Fisheries Division, unpublished manual revised 2017).

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

Results and Discussion

Habitat: Bridgeport Reservoir structural habitat consists primarily of rocky and natural shoreline, with some standing timber serving as structure (Bennett and Cummings 2018). Approximately 3.7 acres of Floating Yellow Heart was present in the reservoir (Table 6).

Creel: Directed fishing effort by anglers was highest for black basses (42%), followed by anglers fishing for crappie (27%), anything (12%), and catfishes (10%, Table 7). Total fishing effort for all species was 73,487 hours and direct expenditures at Bridgeport Reservoir was $450,512 for the creel period (Table 8).

Prey species: Electrofishing catch rate of Gizzard Shad was 154.7/h in 2021, which was above the historical average for Bridgeport Reservoir (Appendix B). Gizzard Shad IOV indicated that only 38% of Gizzard Shad were available to existing predators (Figure 2). Catch rate of Threadfin Shad was 165.3/h, close to the historical average (Appendix B). Total CPUE of Bluegill (179.3/h) in 2021 was slightly higher than total CPUE from the previous survey (153.1/h), and higher than the historical average for the reservoir (Figure 3, Appendix B). Other sunfish species such as Longear Sunfish, Green Sunfish, Redear Sunfish, and Warmouth contributed to a diverse forage base (Appendix A).

Catfishes: Blue Catfish were first collected in gill nets at Bridgeport Reservoir in 2018. The method of their introduction was unknown as they were not stocked by Texas Parks and Wildlife Department (TPWD). Since 2018, they have increased in abundance and size structure. In 2022, the gill net catch rate of Blue Catfish was 3.7/nn, which was greater than 1.6/nn in 2018 (Figure 4). The PSD increased to 36 in 2022 from 13 in 2018. The largest individual collected in 2022 was 37 inches in length. Body condition was below average (W_r < 100) for most inch groups, but a few larger fish exhibited excellent body condition (W_r ≥ 110). Recruitment is evident and it is expected that the fishery will continue to expand, possibly displacing Channel Catfish. The 2021 creel survey estimated 1,433 Blue Catfish were harvested over the two quarters and ranged in length from 12 to 20 inches (Table 9; Figure 6).

Gill net CPUE of Channel Catfish declined from a record 9.0/nn in 2018 to 3.1/nn in 2022 (Figure 5). This catch rate was less than the historical average (Appendix B). The number of stock-length (≥11 inches) Channel Catfish also declined to 1.8/nn. Channel Catfish size structure has remained steady over the last three surveys, with PSD values at or near 37. Body condition was below average for most inch groups, with a few exceptions. Sampling objectives were not fully met for Channel Catfish (Table 5). Catfish were generally a harvest-oriented fishery at Bridgeport Reservoir with 30 percent of legal fish caught being released (Table 9). An estimated 3,140 Channel Catfish were harvested during the creel period in 2021, with a range of 12 to 20 inches in length (Figure 6).

Flathead Catfish were present, but no directed effort has been observed in creel surveys, so targeted sampling was not necessary.

Temperate Basses: Gill net CPUE of White Bass was 4.8/nn in 2022, greater than the two previous surveys and similar to the historical catch rate (Figure 7; Appendix B). Size structure continued to be good with a PSD of 67 and many legal-length (≥ 10 inches) fish available to anglers. White Bass up to 16 inches were collected in 2022. Body condition was below average for all inch groups, and poor for larger fish. Anglers caught an estimated 3.0 White Bass per hour during the 2021 creel period, suggesting a high success rate (Table 10). White Bass were generally a harvest-oriented species as 37 percent of legal fish caught were released. An estimated 6,193 White Bass were harvested during the 2021 creel period and ranged from 10 to 16 inches (Figure 8).

Hybrid Striped Bass gill net catch rate was 1.1/nn in 2022, less than 2.7/nn in 2018 and less than the historical average (Figure 9; Appendix B). Although abundance was down, some larger individuals were available to anglers above the 18-inch minimum length limit. Relative weight was above 90 for most size classes collected. Sampling objectives were not met for Hybrid Striped Bass (Table 5), and it was determined that further sampling would not appreciably improve results. Percent directed angling effort for Hybrid Striped Bass has declined since 2004 (Table 7). Hysmith and Moczygemba (2014) reported quarter-to-quarter declines in angler effort and harvest of Hybrid Striped Bass between the 2003/2004

and 2013/2014 creel surveys. Depressed effort and harvest continued into 2021 (Table 11). Hybrid Striped Bass provided a harvest-oriented fishery as no legal fish caught were observed to be released in the creel survey. An estimated 663 fish were harvested in the 2021 creel period and ranged from 19 to 26 inches in length (Figure 10).

Hybrid Striped Bass stocking rates were decreased to 5 fingerlings/acre in 1999 and were further reduced to every other year from 2005 through 2019 (Table 4). Since 2019, fingerling and fry stockings have been rotated (2020 – fry, 2021 – fingerling, 2022 – fry). An age and growth analysis from the 2022 gill net survey showed no indication that the 2020 fry stocking was successful (no age-2 fish). Seventeen Hybrid Striped Bass were collected, and age groups included age-1 (2021), age-3 (2019), and age-5 (2017) fish, all representing fingerling stockings. The 2022 fry stockings occurred after the gill net survey and will be evaluated in 2026. The reduction of stocking rates and possible failure of the 2020 fry stocking have created a low-density Hybrid Striped Bass fishery evidenced by lower gill net catch rates and angler effort (Appendix D).

Black basses: Spotted Bass remained in moderate relative abundance in Bridgeport Reservoir and have provided bass anglers an additional resource. The total CPUE of Spotted Bass in 2021 was 46.0/h, higher than the previous survey (24.6/h) and close to the historical average (Figure 11, Appendix B). Spotted Bass up to 13-inches were collected and body condition was good ($W_r \geq 90$) for most size classes. Creel results for Spotted Bass showed a minimal fishery (Table 12). Harvested Spotted Bass ranged from 12 to 15 inches (Figure 12).

The electrofishing catch rate of Largemouth Bass in 2021 was similar to the previous survey. Total CPUE in 2021 was 96.7/h and was 96.6/h in 2017, which were higher than the historical average for Bridgeport Reservoir (Figure 13, Appendix B). Stock CPUE in 2021 was 62.0/h and was 52.6/h in 2017. Sampling was completed for 18 of 24 stations due to high winds and all objectives being met. Relative weight ranged from 88 to 107, indicating adequate forage. Largemouth Bass reached legal length (14-inches) in 2.0 years (N = 13). Size structure improved since the previous survey as PSD was 76 in 2021 compared to a PSD of 57 in 2017. This was the highest PSD on record since 1991 (Hysmith and Moczygemba 2010). Size structure improvement likely had more to do with increasing productivity and the return to normal water levels since 2015, rather than the regulation change in 2018. However, it could be inferred that the regulation change has done no harm to Largemouth Bass size structure during this short period. Directed fishing effort for all black bass anglers combined was 31,039 hours for the two quarters, with tournament fishing accounting for 17% of that effort (Table 13). We estimated 1,170 legal-length Largemouth Bass were retained by tournament anglers during the six-month creel period and 1,223 Largemouth Bass were traditionally harvested. Most legal-length Largemouth Bass caught were released. Harvested and tournament-retained fish ranged from 14 to 20 inches in length (Figure 14), which indicated some harvest in the previously protected length range of 14 to 18 inches.

Historically, Smallmouth Bass have had low catch rates on Bridgeport Reservoir. The electrofishing catch rate of Smallmouth Bass in 2021 was 4.0/h with a total of six collected (Appendix A). No Smallmouth Bass were sampled in 2017 and only 3.0/h were collected in 2013 (Appendix B). Smallmouth Bass ranged from 8 to 16 inches in the 2021 sampling. The 2021 creel survey showed Smallmouth Bass to be a minimal fishery with no directed effort and no harvest observed. In 2019, a small stocking of Smallmouth Bass fingerlings (2/acre) were stocked to try to improve the population. The impact of this stocking was not apparent in the 2021 electrofishing results and will be assessed in future surveys. In 2021, spawning structures were installed to provide additional cover for spawning activity and will be assessed for future habitat work.

Crappie: The total trap net CPUE of crappie in 2021 (15.4/nn) was lower than the total CPUE in 2017 (22.3/nn, Figure 15). Legal-length fish were available to anglers and crappie up to 13 inches in length were collected. Size structure has declined slightly over the last three surveys as the combined PSD was 67 in 2021. The crappie population consisted primarily of White Crappie with some Black Crappie present to supplement catches. Only six Black Crappie were sampled in 2021. White Crappie reached legal length (10 inches) in 2.1 years (N = 13; range = 2-3 years). Body condition of crappie was good (W_r

≥ 90) for most size classes. Directed fishing effort, catch per hour, and total harvest was 19,555 hours, 4.4 fish/hour, and 24,916 fish, respectively, from June through November 2021 (Table 14). Only two percent of legal-length crappie caught were released, indicating a high harvest rate for this fishery. Harvested fish ranged from 10 to 14 inches in the 2021 creel survey (Figure 16).

Fisheries Management Plan for Bridgeport Reservoir, Texas

Prepared – July 2022

ISSUE 1: A moderately utilized fishery exists for Hybrid Striped Bass on Bridgeport Reservoir. Bi-annual fingerling and fry stockings with reduced rates have created a low-density population resulting in decreased angler effort and harvest. An age and growth study from the 2022 gill netting survey found no evidence of recruitment from the 2020 fry stocking.

MANAGEMENT STRATEGIES

1. Stock Hybrid Striped Bass fingerlings annually at 10 fish/acre to rebuild the fishery.
2. Perform gill netting in spring 2026 to monitor the Hybrid Striped Bass population and perform a category 1 age and growth analysis to evaluate the 2020 and 2022 fry stockings.

ISSUE 2: Angling effort for black bass has increased on Bridgeport Reservoir. After removal of the slot limit, tournament activity has increased. Since 2018, 12 Texas ShareLunkers over eight pounds have been submitted for the reservoir, including four Elite Class ShareLunkers over ten pounds. In March 2020, a new waterbody record Largemouth Bass was submitted, weighing 12.73 pounds. In May 2018, a waterbody record Spotted Bass was submitted, weighing 4.77 pounds. With increased bass fishing activity, management actions should seek to maintain or improve black bass fisheries.

MANAGEMENT STRATEGIES

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 per shoreline kilometer (208,000) in 2023.
2. Monitor black bass species with standard electrofishing in fall 2025 and assess genetic introgression of Lone Star Bass.
3. Monitor Smallmouth Bass spawning structures for utilization.

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 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

MANAGEMENT STRATEGIES

1. Cooperate with the appropriate authorities to maintain appropriate signage at access points around the reservoir.
2. Educate the public about invasive species through the use of media and the internet.
3. Make a speaking point about invasive species when presenting to constituent and user groups.

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

Sport fish, forage fish, and other important fishes

Important sport fish in Bridgeport Reservoir include Largemouth Bass, Spotted Bass, Hybrid Striped Bass, White Bass, White Crappie, Blue Catfish, and Channel Catfish. Important forage species include Bluegill, Longear Sunfish, Gizzard Shad, and Threadfin Shad. A proposed sampling schedule for these species is in Table 15.

Low-density fisheries

Smallmouth Bass were present in Bridgeport Reservoir in low density. Catch rates have averaged around two fish per hour of electrofishing. Smallmouth Bass will be collected during sampling for other Black Bass species, and changes in relative abundance will be documented.

Black Crappie were present in Bridgeport Reservoir; however, their abundance was much lower than White Crappie. Catch rates have averaged 0.4/nn in trap net surveys. Black Crappie will be collected along with White Crappie and any change in relative abundance will be documented.

Survey objectives, fisheries metrics, and sampling objectives

Black Bass: Largemouth Bass were the most sought-after species at Bridgeport Reservoir. Electrofishing catch rates have remained consistent as well as the size structure and condition of the bass population. 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 maximum of twenty-four randomly selected 5-min electrofishing sites will be sampled in fall 2025. The anticipated effort to collect 50 stock-length bass with an RSE of CPUE-S ≤ 25 is between 15 and 20 stations with 80% confidence. Relative abundance and size structure will be evaluated. Thirteen Largemouth between 13.0 and 14.9 inches will be collected to estimate age at the MLL of 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). Genetic introgression of Florida Largemouth Bass will be assessed with tissue samples from thirty randomly selected fish.

Spotted Bass have been collected in sufficient amounts to allow evaluation of CPUE and size structure with a high degree of precision. However, no additional effort will be expended, beyond that necessary to achieve objectives for Largemouth Bass.

Temperate Bass: Hybrid Striped Bass and White Bass provided moderately popular fisheries in Bridgeport Reservoir. Gill net catch rates have been variable. It may be unlikely that high precision (RSE ≤ 25) trend data can be collected with reasonable effort. However, data collection from Spring 2026 gill net sampling while targeting catfish should be sufficient to document relative abundance, size structure, and body condition of Hybrid Striped Bass and White Bass. All Hybrid Striped Bass collected will be aged to evaluate the success of fry stockings.

Catfish: Catfish provided the third most popular fishery at Bridgeport Reservoir. Blue Catfish were observed in gill nets for the first time in 2018. Trend data is needed to monitor Channel Catfish populations and document abundance and size structure of the developing Blue Catfish fishery. Channel Catfish catch rates have declined possibly due to interspecific competition with Blue Catfish. Sampling objectives will be based on the species that is more abundant at the time of sampling. Fifteen randomly selected gill net stations will be sampled in Spring 2026 to obtain trend data. If objectives are not met for either species, additional random stations may be added if objectives can be met with reasonable effort.

White Crappie: Crappie were the second most sought-after sport fish at Bridgeport Reservoir. We will collect trend data on size structure, age at the MLL (10-inches), and body condition of White Crappie with trap nets in Fall 2025 to monitor trends in the population. Trap net catch rate for White Crappie has been variable at Bridgeport Reservoir and obtaining high precision data to estimate relative abundance with reasonable effort is unlikely. However, we estimate that we can collect at least 50 stock-size fish to evaluate size structure of the White Crappie population with between 10 and 15 net nights. This level of sampling should also provide a sufficient number of White Crappie between 9.0 and 10.9 inches to estimate growth to legal length (10-inches). We plan to sample a minimum of 10 random shoreline trap net stations; however, an additional 5 net nights may be sampled if objectives are not met with the initial 10 sampling stations.

Sunfish and Shad: Bluegill, Longear Sunfish, along with Gizzard and Threadfin Shad are the primary forage at Bridgeport Reservoir. We intend to collect trend data on abundance, size structure, and prey availability for forage species (along with sampling for Largemouth Bass) in Fall 2025. No additional effort will be expended, beyond that necessary to achieve objectives for Largemouth Bass.

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Tables and Figures

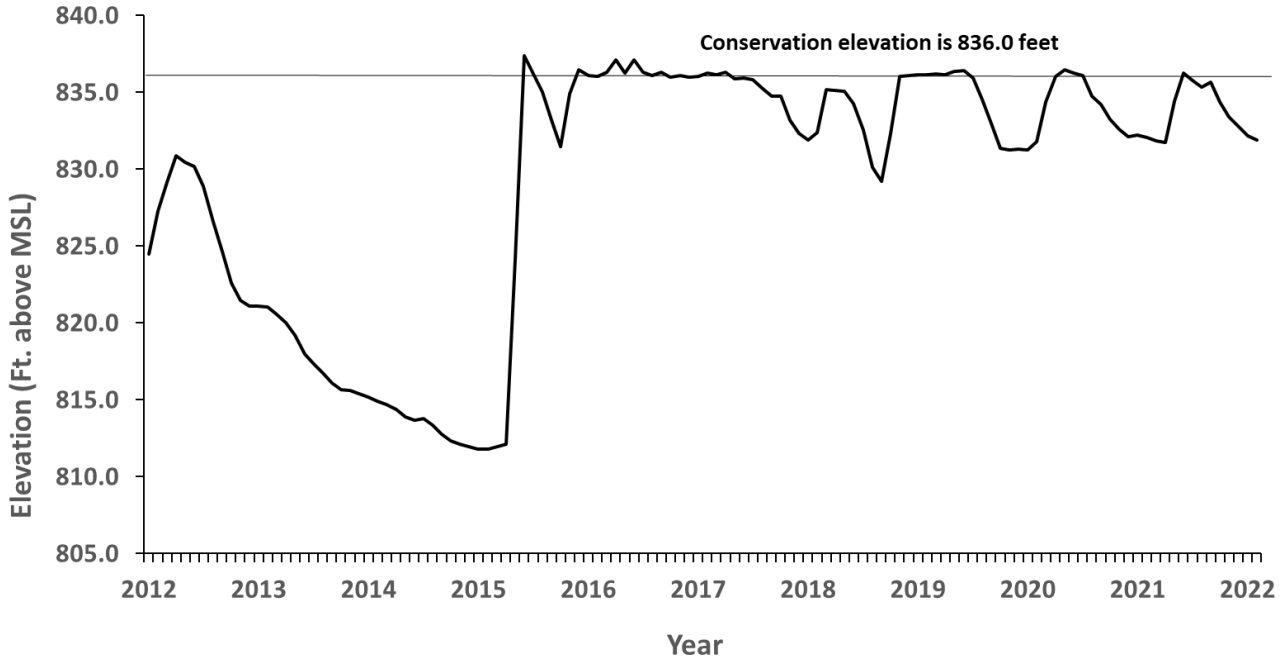


Figure 1. Mean monthly water level elevations in feet above mean sea level (MSL) recorded for Bridgeport Reservoir, Texas, January 2012 to February 2022.

Table 1. Characteristics of Bridgeport Reservoir, Texas.

Characteristic	Description
Year constructed	1932
Controlling authority	Tarrant Regional Water District
Counties	Wise and Jack
Reservoir type	Mainstream
Shoreline development index	10.6
Conductivity	361 µmhos/cm

Table 2. Boat ramp characteristics for Bridgeport Reservoir, Texas, July 2021. Reservoir elevation at time of survey was 835.65 feet above mean sea level.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
Wise County (primary ramps)	33.27869 -97.85441	Y	20	819.7	Adequate. Extension not feasible
Wise County (secondary ramps)	33.27875 -97.85678	Y	20	818.7	Adequate. Extension feasible
US 380	33.17187 -97.85956	Y	10	819.0	Adequate. Extension feasible
Runaway Bay	33.17275 -97.86107	Y	5	820.7	Adequate. Extension not feasible
Dam	33.21879 -97.83066	Y	10	818.7	Adequate. Extension feasible

Table 3. Harvest regulations for Bridgeport 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)	No limit
Catfish, Flathead	5	18-inch minimum
Bass, White	25	10-inch minimum
Bass, Hybrid Striped	5	18-inch minimum
Bass, Largemouth and Smallmouth	5 (in any combination)	14-inch minimum
Bass, Spotted		No limit
Crappie: White and Black, their hybrids and subspecies	25 (in any combination)	10-inch minimum

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

Species	Year	Number	Life Stage
Channel Catfish	1972	52,000	AFGL
Coppernose Bluegill	1983	130,000	UNK
Florida Largemouth Bass	1982	1,439	FGL
	1985	10,700	FRY
	1988	10,000	FGL
	1990	326,430	FRY
	1997	125,264	FGL
	2007	299,781	FGL
	2008	300,049	FGL
	2021	222,070	FGL
	Total	1,295,733	
Largemouth Bass	1970	250,000	UNK
Mixed Largemouth Bass	1988	12,750	
Palmetto Bass	1983	130,144	UNK
(Striped Bass X White Bass hybrid)	1994	195,693	FGL
	1995	339,300	FGL
	1996	100,700	FGL
	1997	112,206	FGL
	1998	70,767	FGL
	1998	61,832	FRY
	1999	65,004	FGL
	2002	65,005	FGL
	2005	71,788	FGL
	2007	63,879	FGL
	2009	60,820	FGL
	2011	59,931	FGL
	2013	59,756	FGL
	2015	34,153	FGL
	2017	57,318	FGL
	2019	31,990	FGL
	Total	1,580,286	

Table 4. Stocking history continued.

Species	Year	Number	Life Stage
Smallmouth Bass	1982	104	UNK
	1983	130,034	UNK
	1984	50,826	FGL
	1985	33,172	FGL
	2019	23,899	FGL
	Total	238,035	
Sunshine Bass	2020	569,982	FRY
(White Bass X Striped Bass hybrid)	2021	57,605	FGL
	2022	1,084,477	FRY
	Total	1,712,064	
Threadfin Shad	1984	4,500	AFGL
	1985	4,300	ADL
	Total	8,800	
Walleye	1974	204,000	FRY
	1975	247,000	FRY
	1984	4,692,000	FRY
	1992	7,834,586	FRY
	Total	12,977,586	

Table 5. Objective-based sampling plan components for Bridgeport Reservoir, Texas 2021–2022.

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)
Spotted Bass	Abundance	CPUE - Stock	RSE-Stock ≤ 25
	Size structure	PSD, length frequency	N ≥ 50 Stock
	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 - Total	RSE-Stock ≤ 50
	Size structure	PSD, length frequency	N ≥ 50 Stock
	Age-and-growth	Age at 10 inches	N = 13, 9.0 – 10.9 inches
	Condition	W_r	10 fish/inch group (max)
Gill netting			
White Bass	Abundance	CPUE - Total	RSE-Total ≤ 30
	Size structure	PSD, length frequency	N ≥ 50 Stock
Hybrid Striped Bass	Abundance	CPUE - Total	General monitoring
	Size structure	PSD, length frequency	General monitoring
	Age-and-growth	Recruitment from fry stockings	All fish collected
Channel Catfish	Abundance	CPUE - Stock	RSE-Stock ≤ 25
	Size structure	PSD, length frequency	N ≥ 50 Stock
Blue Catfish	Abundance	CPUE - Stock	General monitoring
	Size structure	PSD, length frequency	General monitoring

[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 aquatic vegetation, Bridgeport Reservoir, Texas, 2013, 2017, and 2021. Surface area (acres) is listed with percent of total reservoir surface area in parentheses.

Vegetation	2013	2017	2021
Native submersed [a]	0.0	7.3 (<0.1)	0.0
Native floating [b]	0.0	<0.1 (<0.1)	0.0
Non-native			
Floating Yellow Heart	0.0	0.0	3.7 (<0.1)
Hydrilla	<0.1 (<0.1)	0.0	0.0

[a] American Pondweed

[b] American Lotus

Table 7. Percent directed angler effort by species for Bridgeport Reservoir, Texas, 2003-2021. Survey periods were from June 2003 through May 2004 (one year), September through November 2013 and March through May 2014 (two quarters), and June through November of 2021 (two quarters).

Species	2003/2004	2013/2014	2021
White Bass	2.9	3.7	4.4
Hybrid Striped Bass	18.9	10.5	5.3
Black Basses	28.2	18.0	42.2 (7.1)*
Crappies	15.8	36.3	26.6
Catfishes	8.2	9.8	9.7
Anything	22.5	21.7	11.5

*Percent effort for tournament anglers

Table 8. Total fishing effort (h) for all species and total directed expenditures at Bridgeport Reservoir, Texas, 2003-2021. Survey periods were from June 2003 through May 2004 (one year), September through November 2013 and March through May 2014 (two quarters), and June through November of 2021 (two quarters).

Creel statistic	2003/2004	2013/2014	2021
Total fishing effort	125,233	18,636 (24)	73,487 (18)
Total directed expenditures	$635,467	$135,635 (40)	$450,512 (35)

Gizzard Shad

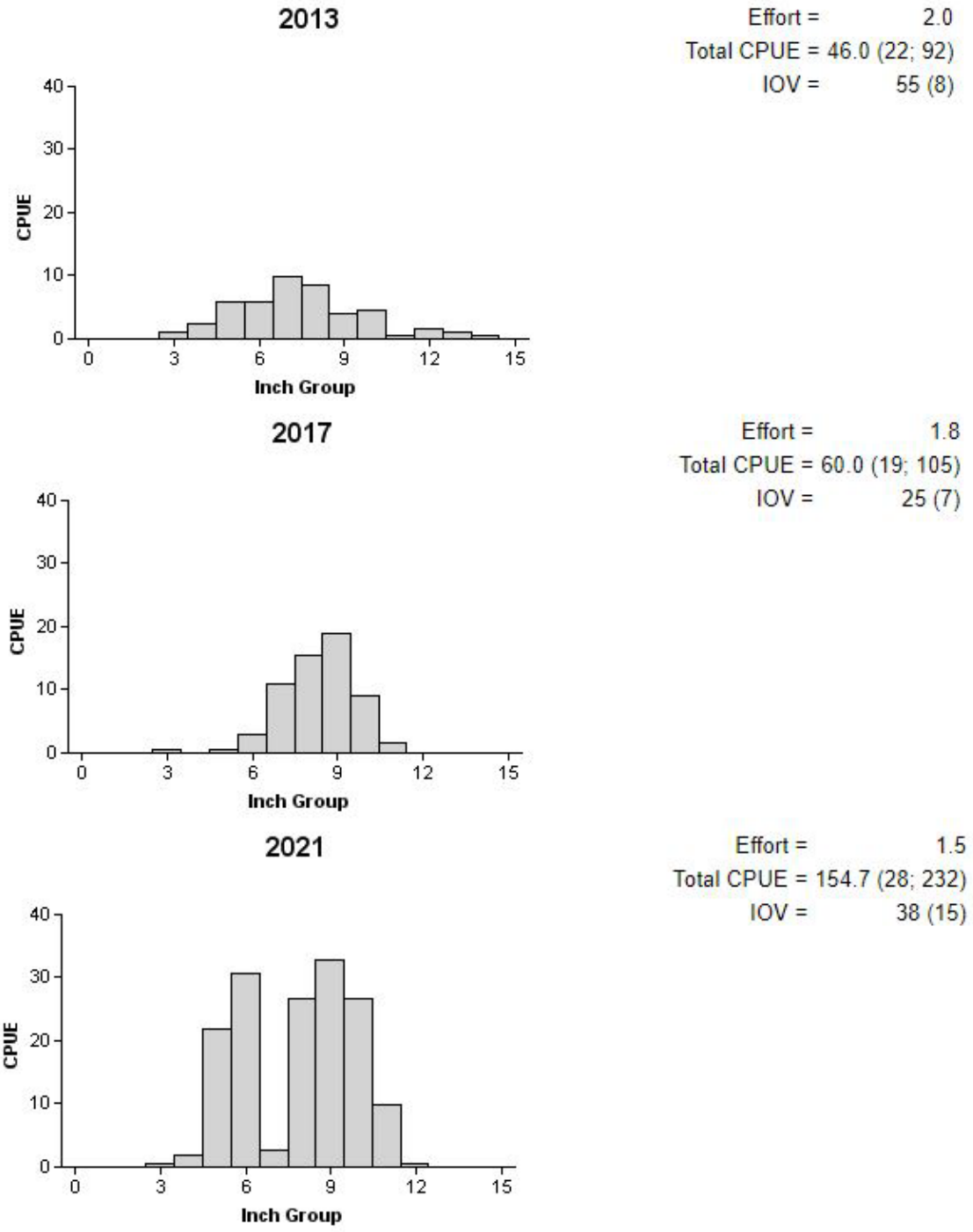


Figure 2. Number of Gizzard Shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Bridgeport Reservoir, Texas, 2013, 2017, and 2021.

Bluegill

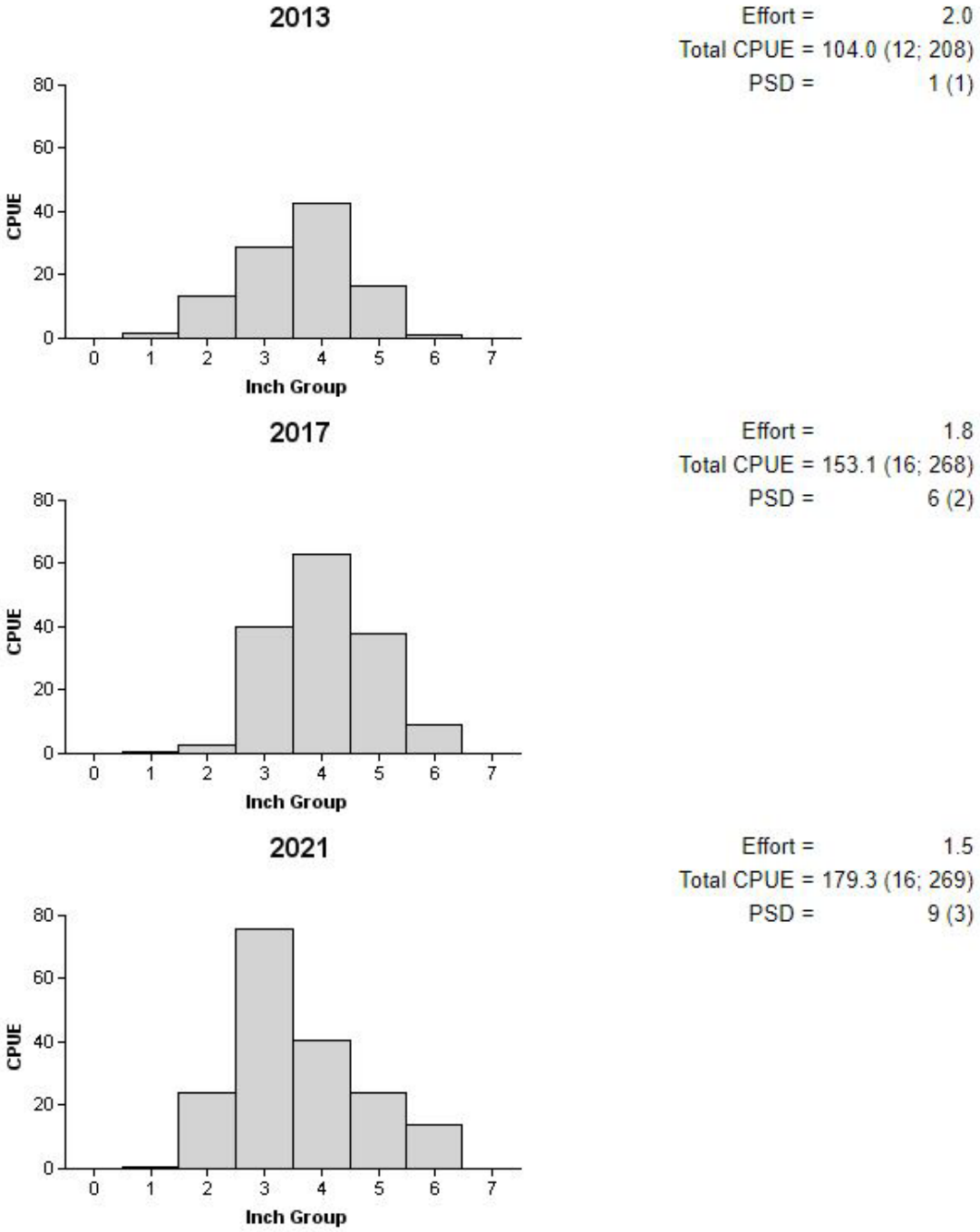


Figure 3. Number of Bluegill caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Bridgeport Reservoir, Texas, 2013, 2017, and 2021.

Blue Catfish

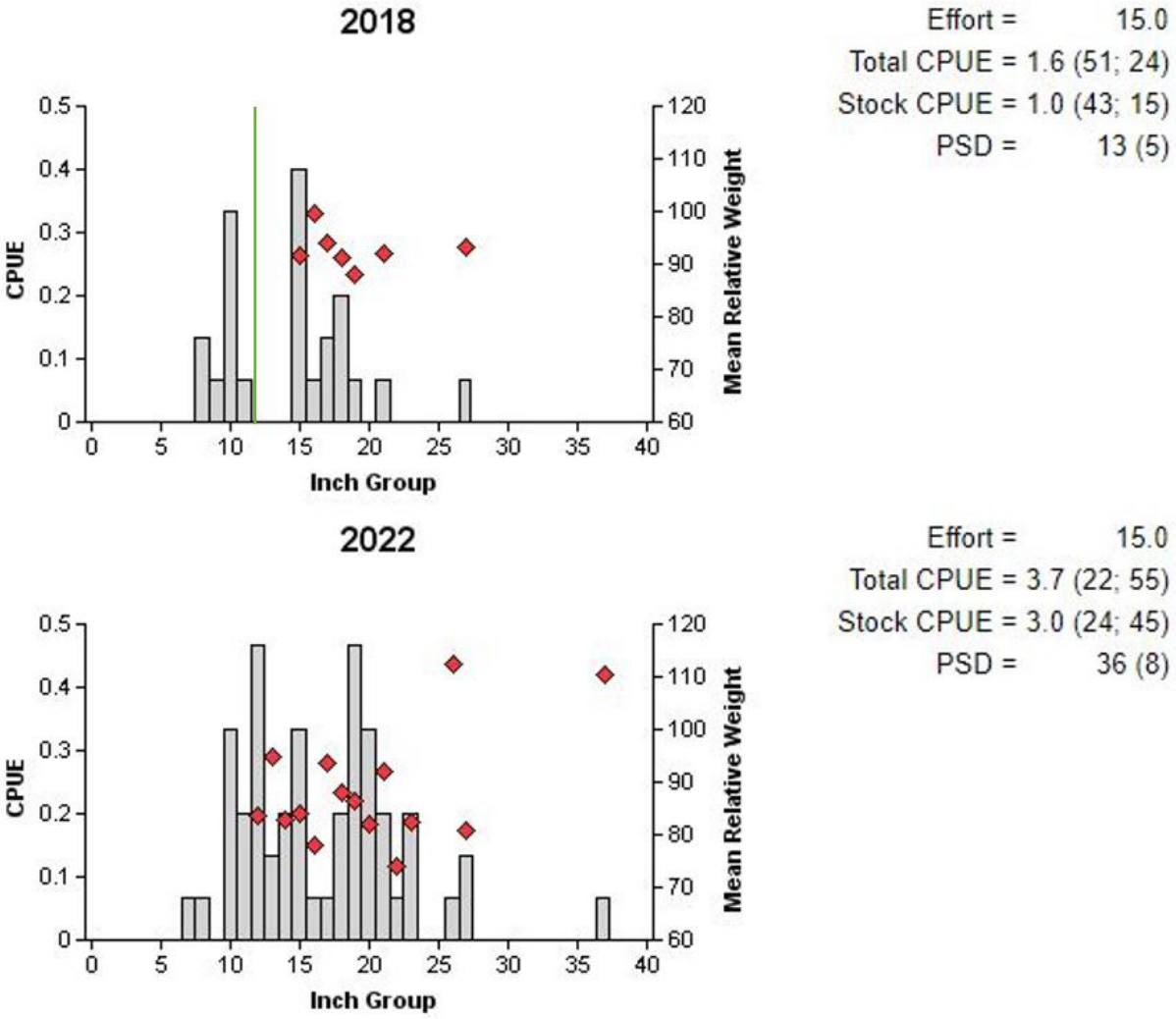


Figure 4. Number of Blue Catfish caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Bridgeport Reservoir, Texas, 2018 and 2022. Vertical line indicates minimum length limit for 2018.

Channel Catfish

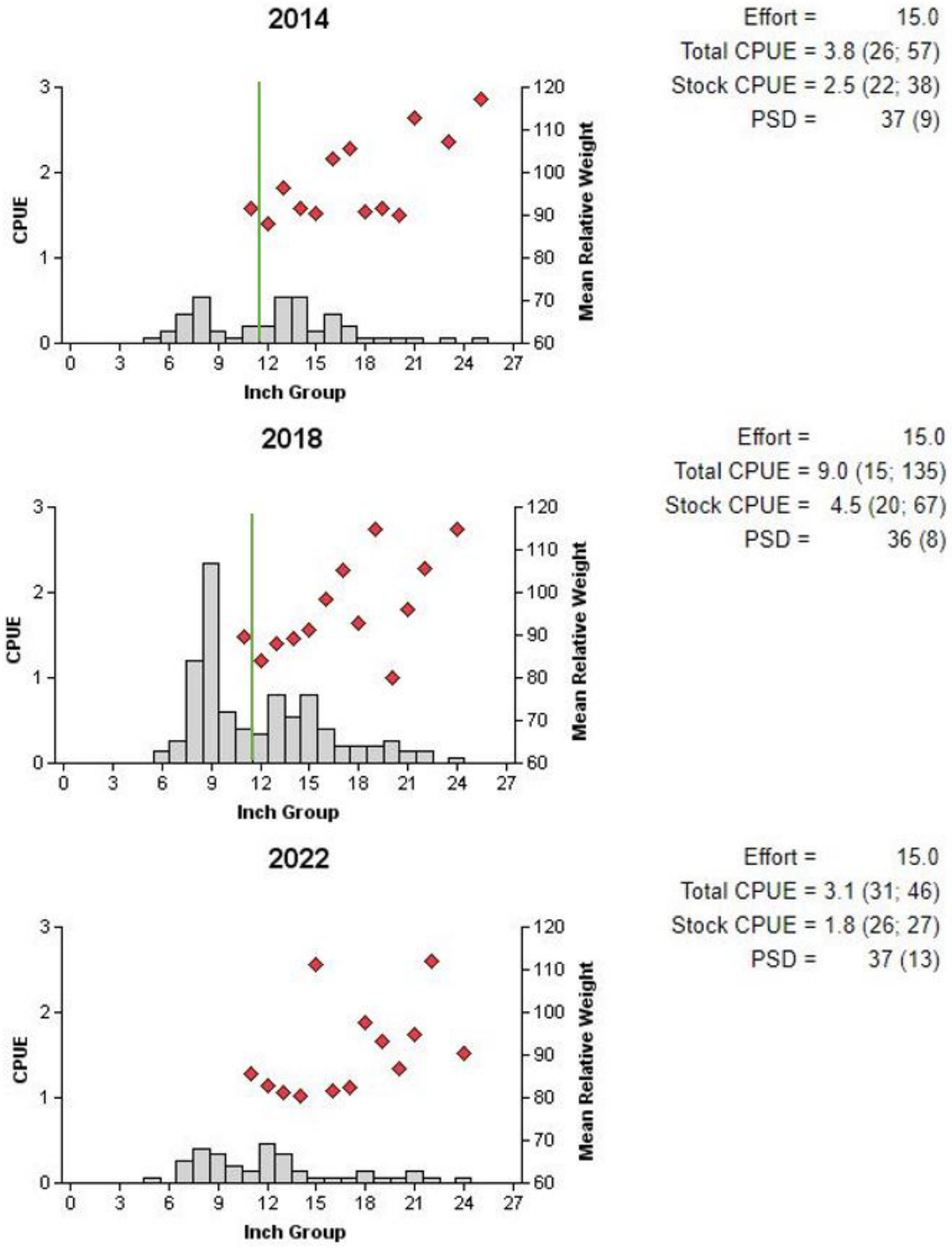


Figure 5. Number of Channel Catfish caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Bridgeport Reservoir, Texas, 2014, 2018 and 2022. Vertical lines indicate minimum length limit for 2014 and 2018.

Table 9. Creel survey statistics for catfish at Bridgeport Reservoir, Texas, 2003-2021. Creel survey periods were from June 2003 through May 2004 (one year), September through November 2013 and March through May 2014 (two quarters), and June through November of 2021 (two quarters). Total catch per hour is for anglers targeting catfish and total harvest is the estimated number of Blue and Channel Catfish harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	Year		
	2003/2004	2013/2014	2021
Surface area (acres)	11,954	7,599	11,954
Directed effort (h)	9,409 (19)	1,831 (34)	7,101 (26)
Directed effort/acre	0.8 (19)	0.2 (34)	0.6 (26)
Total catch per hour	0.6 (58)	0.2 (110)	0.7 (58)
Total harvest			
Blue Catfish	NA	NA	1,433 (116)
Channel Catfish	3,478 (50)	1,680 (70)	3,140 (66)
Harvest/acre			
Blue Catfish	NA	NA	0.1 (116)
Channel Catfish	0.3 (50)	0.2 (70)	0.3 (66)
Percent legal released	11	37	30

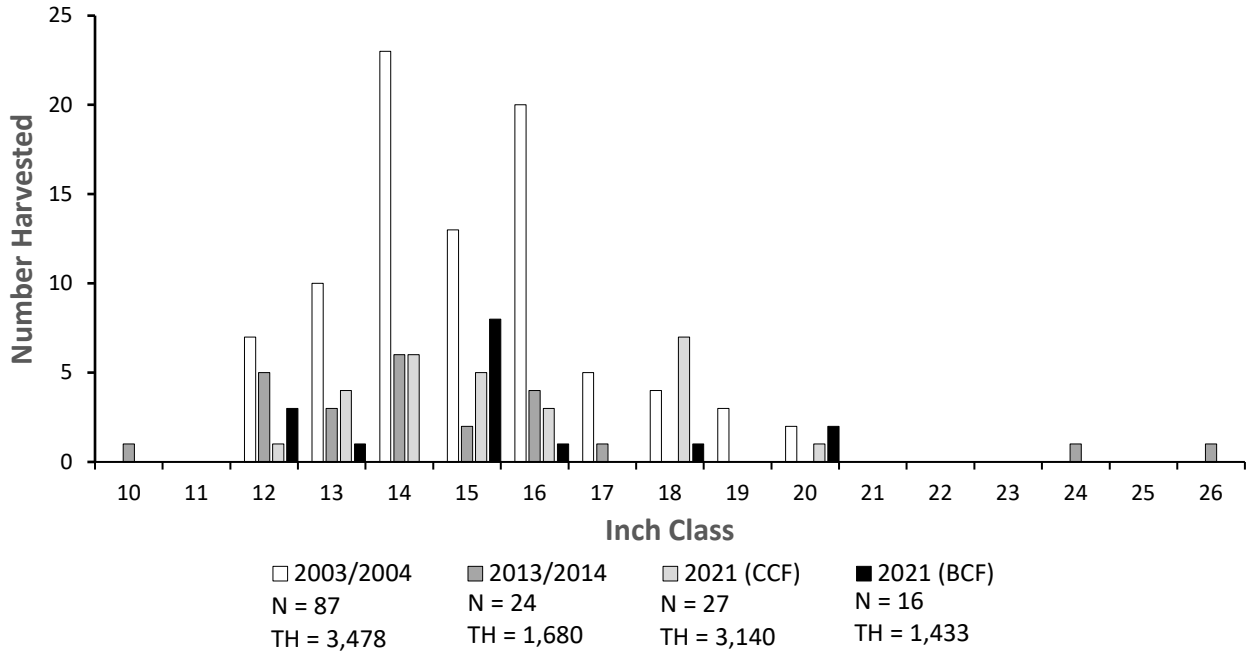


Figure 6. Length frequency of harvested Channel Catfish (CCF) and Blue Catfish (BCF) observed during creel surveys at Bridgeport Reservoir, Texas, 2003-2021. Blue Catfish were only observed during the 2021 creel survey. N is the number of harvested catfish observed during creel surveys, and TH is the total estimated harvest for the creel period.

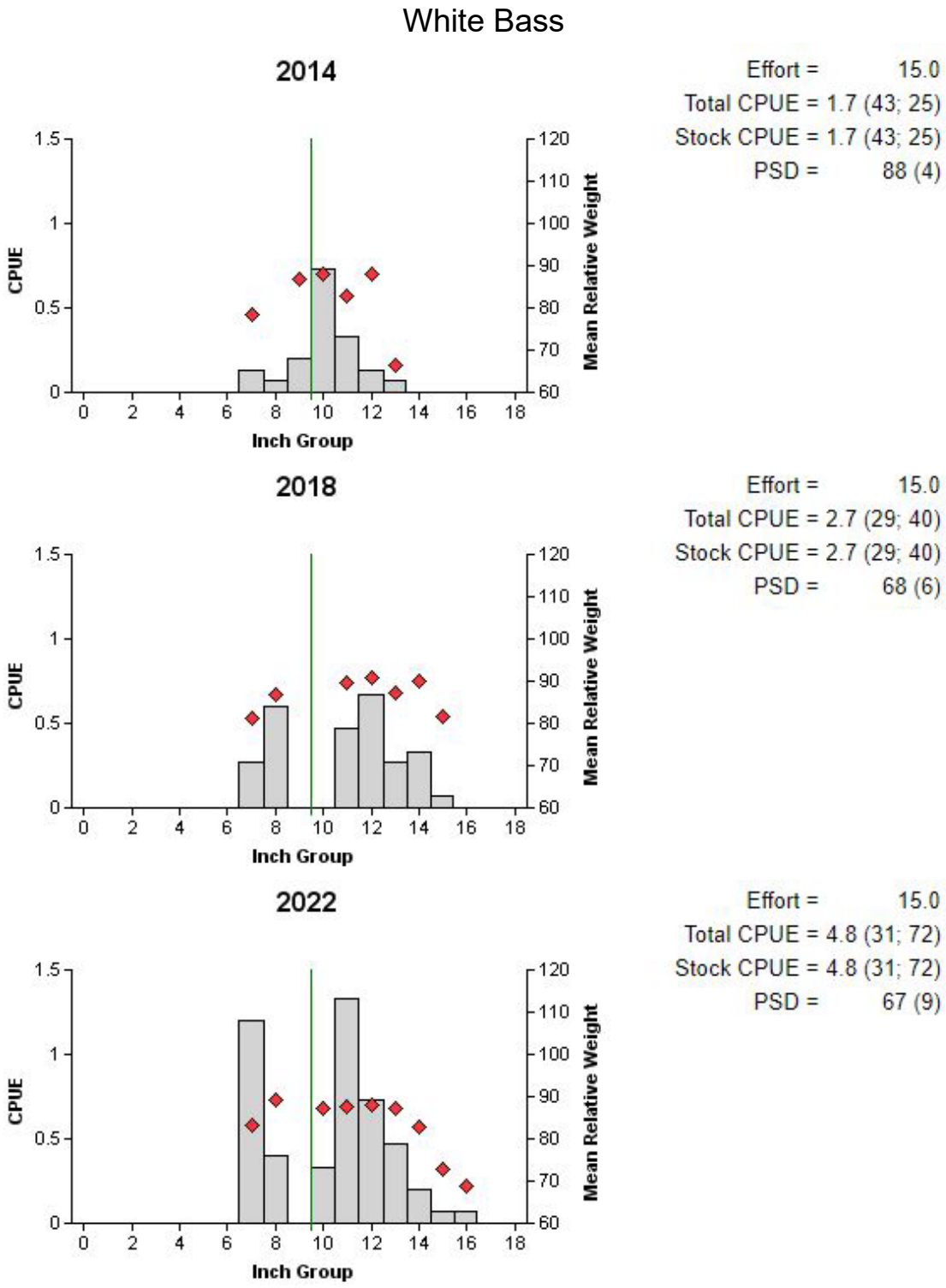


Figure 7. Number of White Bass caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Bridgeport Reservoir, Texas, 2014, 2018, and 2022. Vertical lines represent minimum length limit at time of collection.

Table 10. Creel survey statistics for White Bass at Bridgeport Reservoir, Texas, 2003-2021. Creel survey periods were from June 2003 through May 2004 (one year), September through November 2013 and March through May 2014 (two quarters), and June through November of 2021 (two quarters). Total catch per hour is for anglers targeting White Bass and total harvest is the estimated number of White Bass harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	Year		
	2003/2004	2013/2014	2021
Surface area (acres)	11,954	7,599	11,954
Directed effort (h)	3,667 (31)	682 (53)	3,243 (37)
Directed effort/acre	0.3 (31)	0.1 (53)	0.3 (37)
Total catch per hour	2.86 (56)	2.52 (51)	3.0 (137)
Total harvest	17,590 (30)	2,640 (42)	6,193 (47)
Harvest/acre	1.5 (30)	0.3 (42)	0.5 (47)
Percent legal released	27	76	37

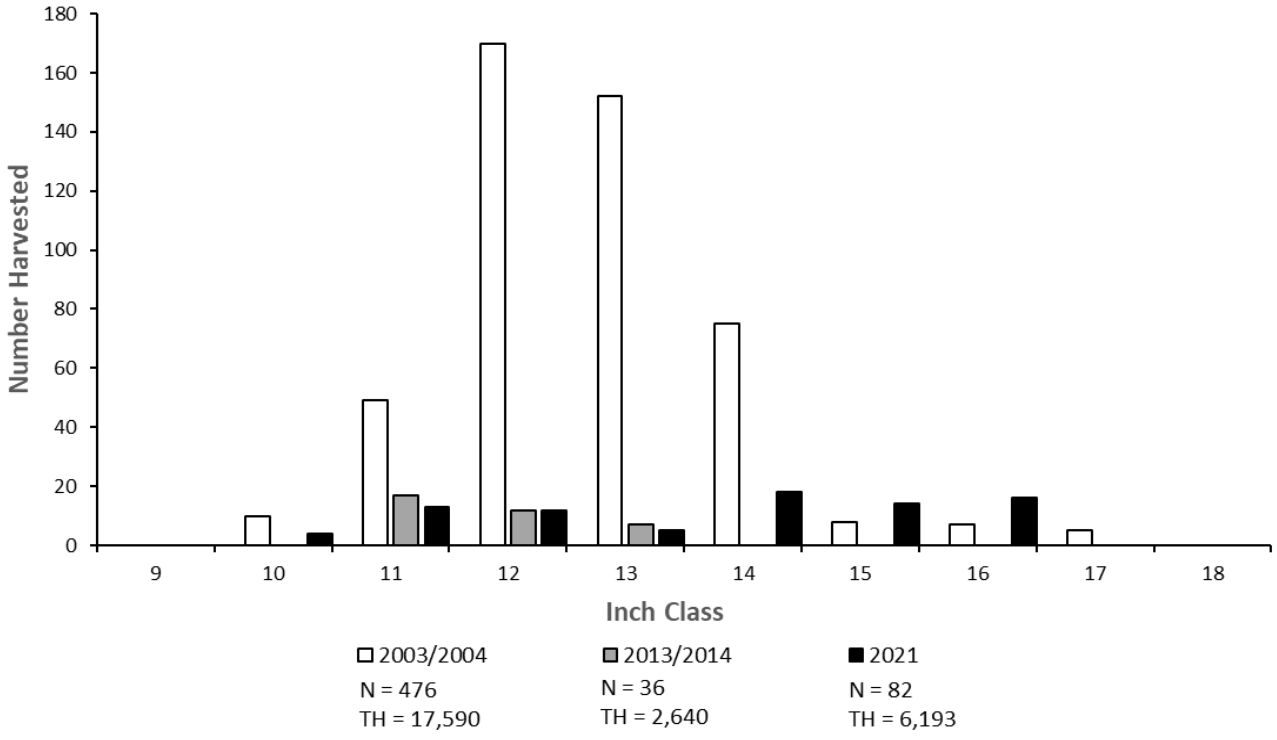


Figure 8. Length frequency of harvested White Bass observed during creel surveys at Bridgeport Reservoir, Texas, 2003-2021. N is the number of harvested White Bass observed during creel surveys, and TH is the total estimated harvest for the creel period.

Hybrid Striped Bass

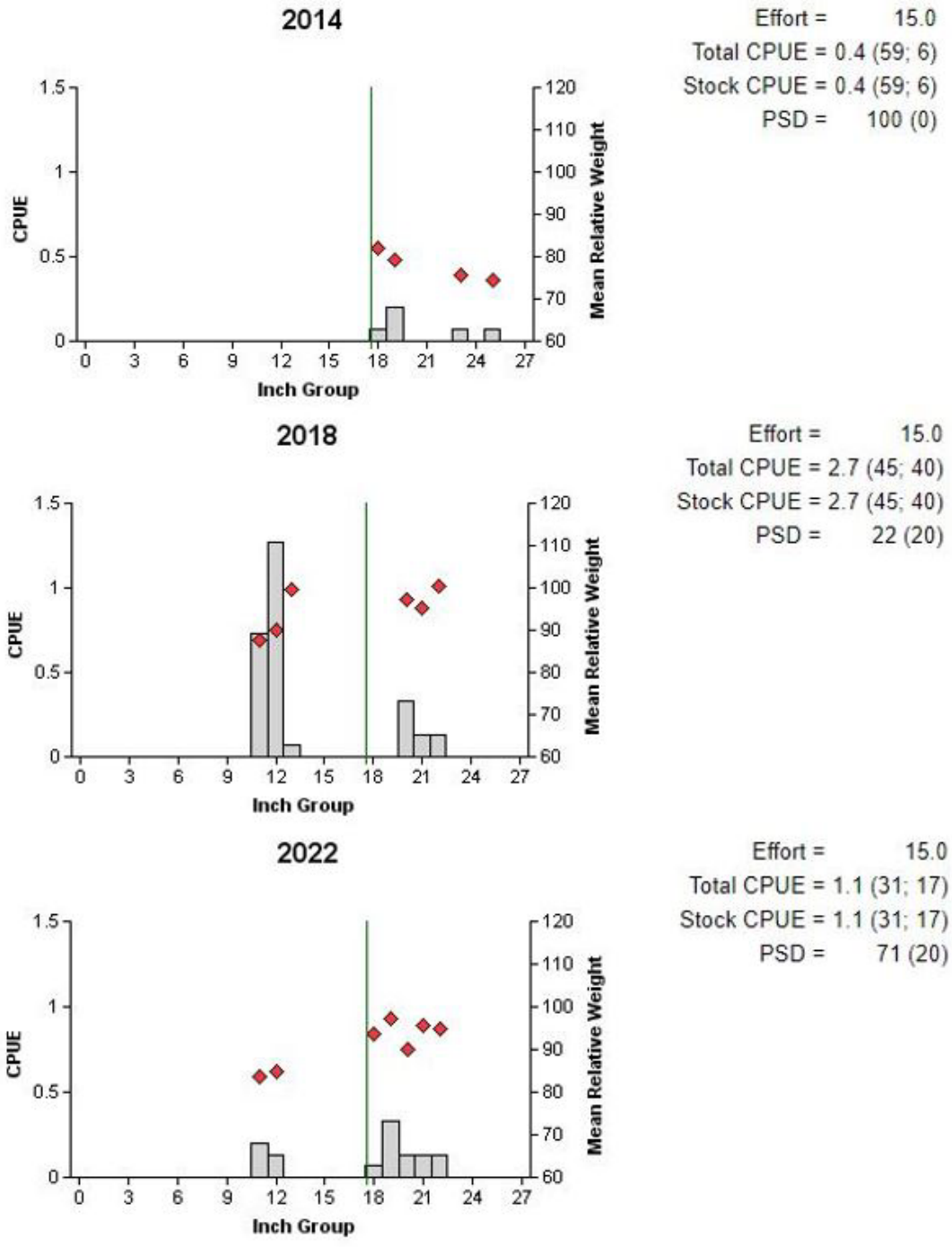


Figure 9. Number of Hybrid Striped Bass caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Bridgeport Reservoir, Texas, 2014, 2018, and 2022. Vertical lines represent minimum length limit at time of collection.

Table 11. Creel survey statistics for Hybrid Striped Bass at Bridgeport Reservoir, Texas, 2003-2021. Creel survey periods were from June 2003 through May 2004 (one year), September through November 2013 and March through May 2014 (two quarters), and June through November of 2021 (two quarters). Total catch per hour is for anglers targeting Hybrid Striped Bass and total harvest is the estimated number of Hybrid Striped Bass harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	Year		
	2003/2004	2013/2014	2021
Surface area (acres)	11,954	7,599	11,954
Directed effort (h)	23,620 (16)	1,958 (36)	3,879 (32)
Directed effort/acre	2.0 (16)	0.3 (36)	0.3 (32)
Total catch per hour	0.3 (45)	0.5 (80)	0.4 (81)
Total harvest	4,312 (32)	644 (102)	663 (177)
Harvest/acre	0.4 (32)	0.1 (102)	0.1 (177)
Percent legal released	19	12	0

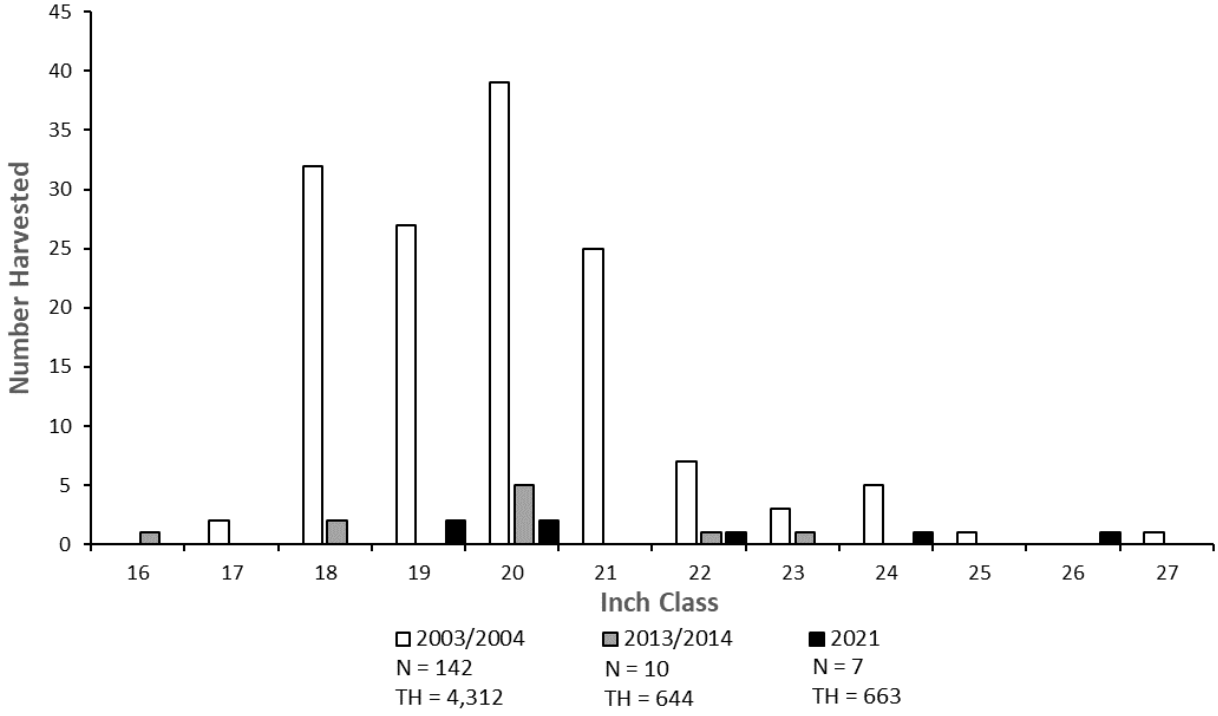


Figure 10. Length frequency of harvested Hybrid Striped Bass observed during creel surveys at Bridgeport Reservoir, Texas, 2003-2021. N is the number of harvested Hybrid Striped Bass observed during creel surveys, and TH is the total estimated harvest for the creel period.

Spotted Bass

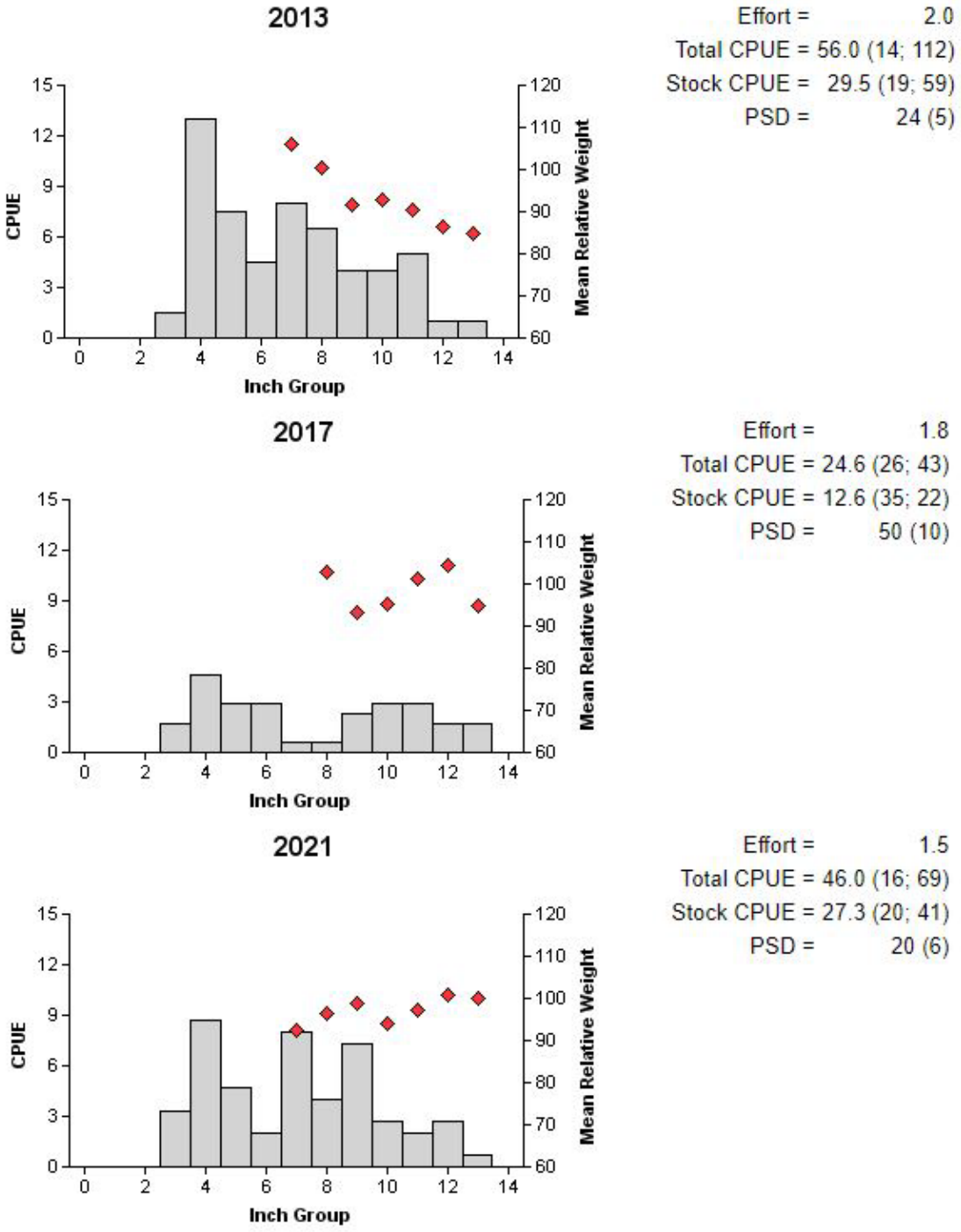


Figure 11. Number of Spotted Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Bridgeport Reservoir, Texas, 2013, 2017, and 2021.

Table 12. Creel survey statistics for Spotted Bass at Bridgeport Reservoir, Texas, 2003-2021. Creel survey periods were from June 2003 through May 2004 (one year), September through November 2013 and March through May 2014 (two quarters), and June through November of 2021 (two quarters). Total catch per hour is for anglers targeting black bass and total harvest is the estimated number of Spotted Bass harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	Year		
	2003/2004	2013/2014	2021
Surface area (acres)	11,954	7,599	11,954
Directed effort (h)			
All black bass anglers combined	33,814 (14)	3,357 (30)	31,039 (20)
Directed effort/acre	2.83 (14)	0.4 (30)	2.6 (20)
Total catch per hour	0.8 (20)	0.9 (31)	1.0 (20)
Harvest of Spotted Bass	2,094 (48)	57 (707)	474 (138)
Harvest/acre of Spotted Bass	0.2 (48)	<0.1 (707)	<0.1 (138)
Percent legal released (non-tourn.)	75	99	87

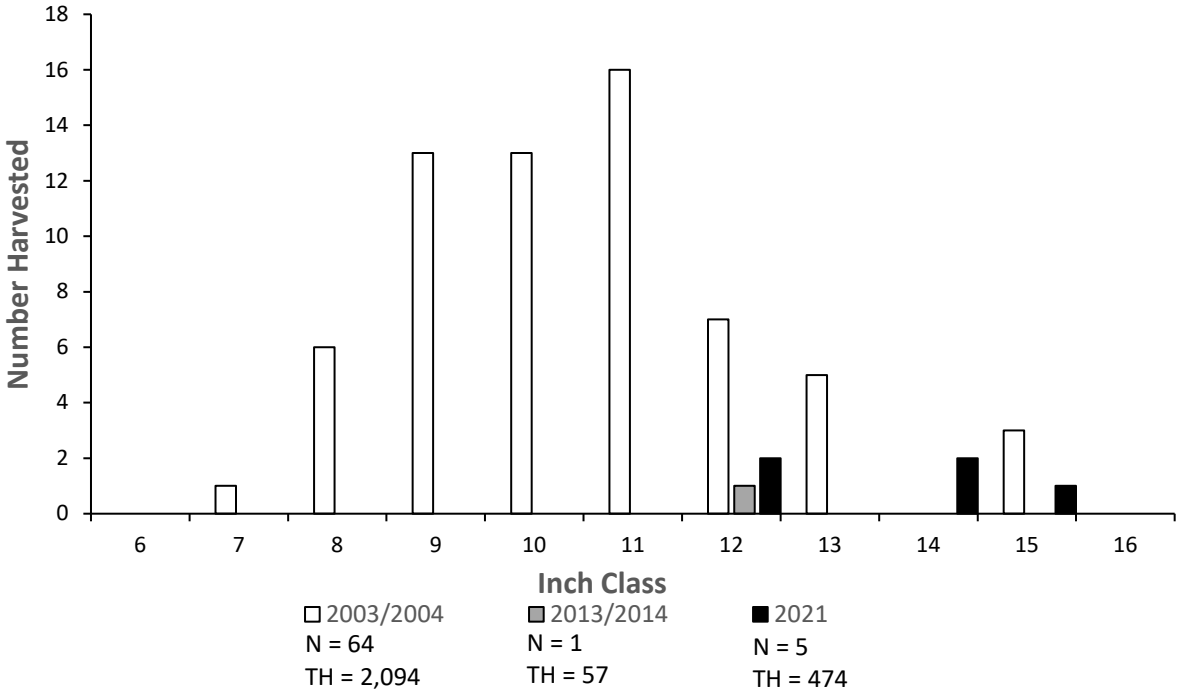


Figure 12. Length frequency of harvested Spotted Bass observed during creel surveys at Bridgeport Reservoir, Texas, 2003-2021. N is the number of harvested Spotted Bass observed during creel surveys, and TH is the total estimated harvest for the creel period.

Largemouth Bass

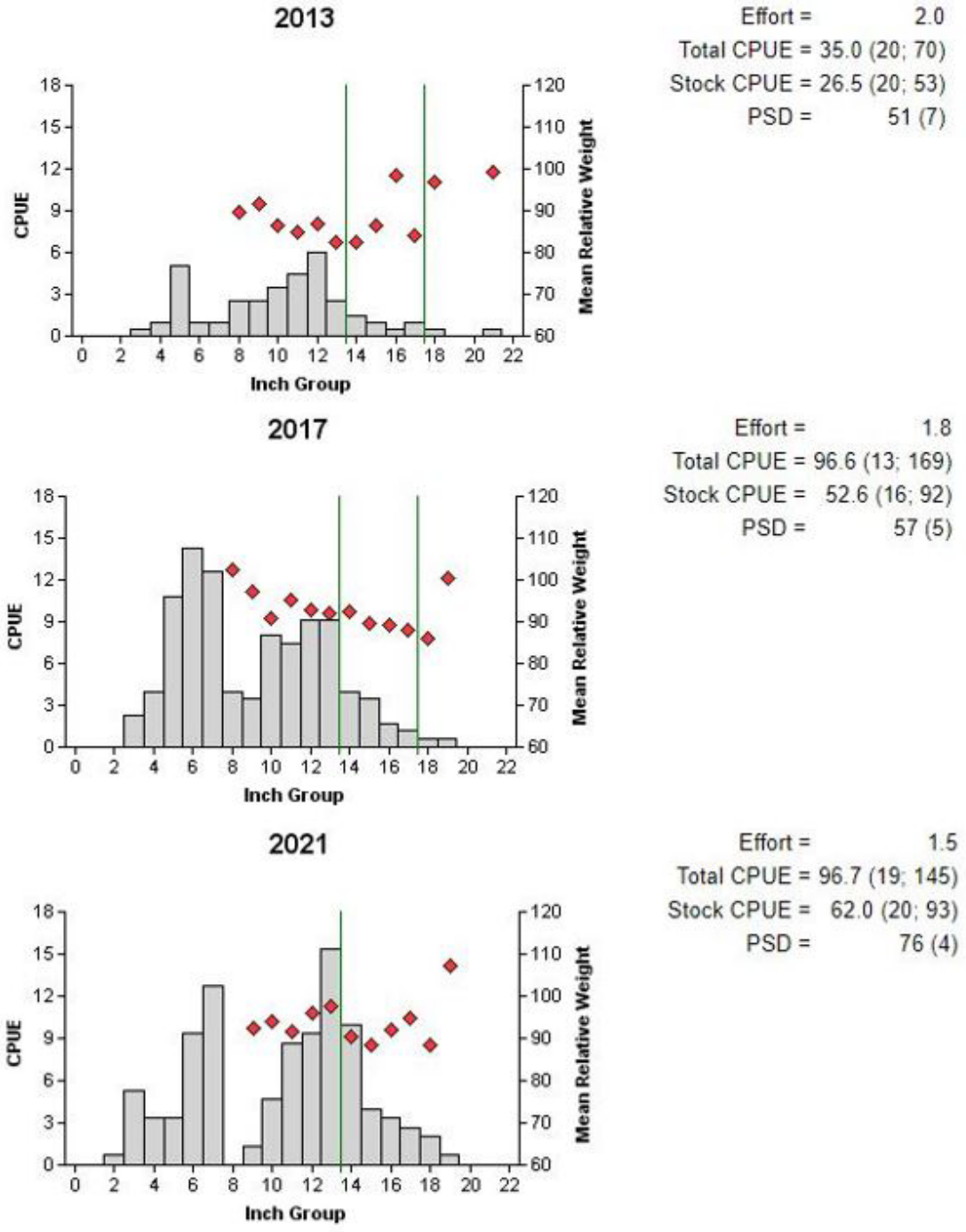


Figure 13. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Bridgeport Reservoir, Texas, 2013, 2017, and 2021. Vertical lines indicate slot length limit for 2013 and 2017 and minimum length limit for 2021.

Table 13. Creel survey statistics for Largemouth Bass at Bridgeport Reservoir, Texas, 2003-2021. Creel survey periods were from June 2003 through May 2004 (one year), September through November 2013 and March through May 2014 (two quarters), and June through November of 2021 (two quarters). Total catch per hour is for anglers targeting black bass and total harvest is the estimated number of Largemouth Bass harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	Year		
	2003/2004	2013/2014	2021
Surface area (acres)	11,954	7,599	11,954
Directed effort (h)			
Tournament	0 (0)	0 (0)	5,194 (27)
Non-tournament	33,814 (14)	3,357 (30)	25,845 (23)
All black bass anglers combined	33,814 (14)	3,357 (30)	31,039 (20)
Directed effort/acre	2.8 (14)	0.4 (30)	2.6 (20)
Total catch per hour	0.8 (20)	0.9 (31)	1.0 (20)
Harvest			
Tournament	0 (0)	0 (0)	1,170 (106)
Non-tournament	4,547 (30)	443 (80)	1,223 (62)
Harvest/acre	0.4 (30)	<0.1 (80)	0.1 (62)
Percent legal released (non-tourn.)	77	92	82

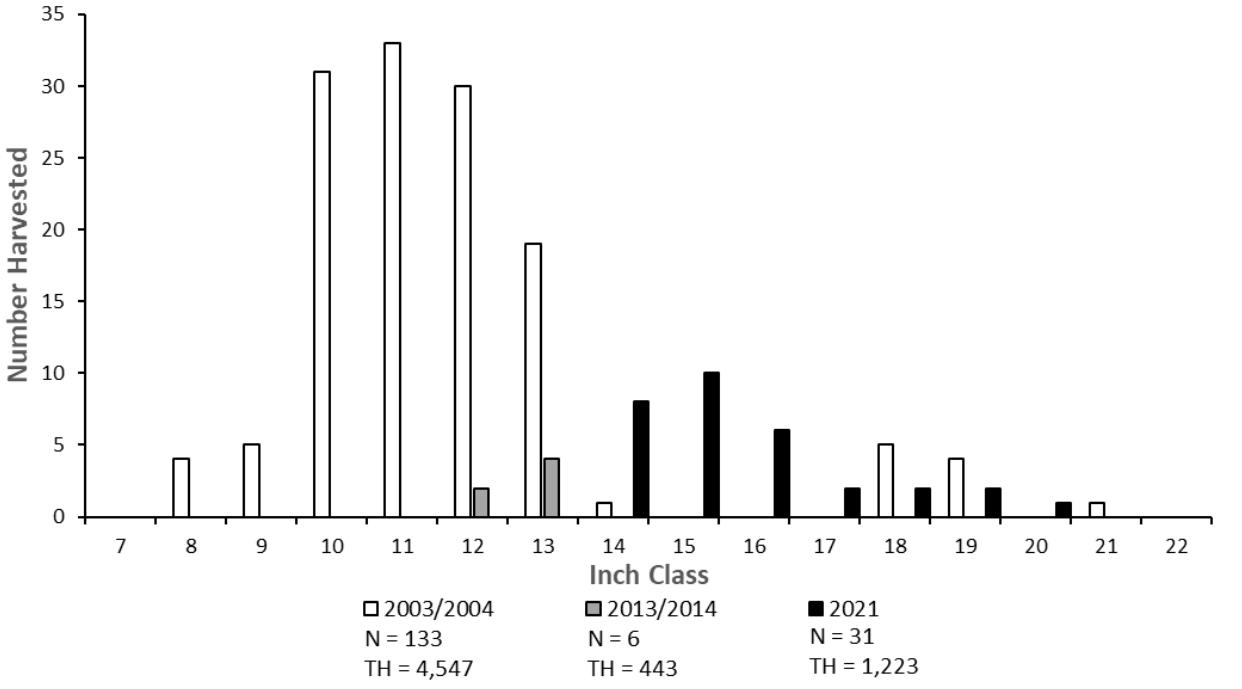


Figure 14. Length frequency of harvested Largemouth Bass observed during creel surveys at Bridgeport Reservoir, Texas, 2003-2021. N is the number of harvested Largemouth Bass observed during creel surveys, and TH is the total estimated harvest for the creel period.

Crappie

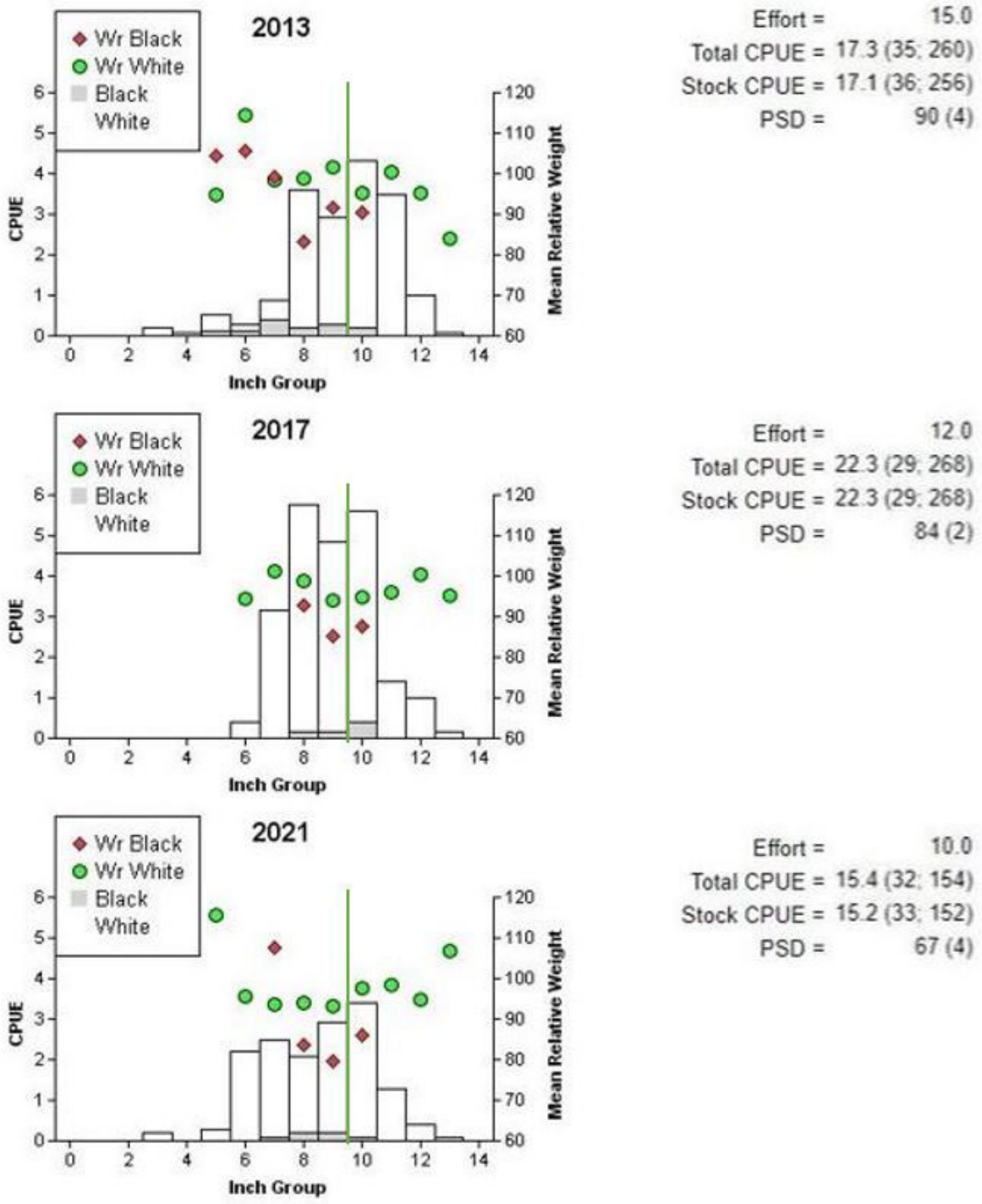


Figure 15. Number of White and Black Crappie caught per net night (CPUE, bars), mean relative weight (circles and diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall trap netting surveys, Bridgeport Reservoir, Texas, 2013, 2017, and 2021. Vertical line indicates minimum length limit.

Table 14. Creel survey statistics for crappie at Bridgeport Reservoir, Texas, 2003-2021. Creel survey periods were from June 2003 through May 2004 (one year), September through November 2013 and March through May 2014 (two quarters), and June through November of 2021 (two quarters). Total catch per hour is for anglers targeting crappie and total harvest is the estimated number of crappie harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	Year		
	2003/2004	2013/2014	2021
Surface area (acres)	11,954	7,599	11,954
Directed effort (h)	16,878 (21)	6,772 (25)	19,555 (17)
Directed effort/acre	1.4 (21)	0.9 (25)	1.6 (17)
Total catch per hour	3.72 (46)	2.8 (36)	4.4 (34)
Total harvest	25,057 (38)	17,012 (51)	24,916 (26)
Harvest/acre	2.1 (38)	2.2 (51)	2.1 (26)
Percent legal released	5	2	2

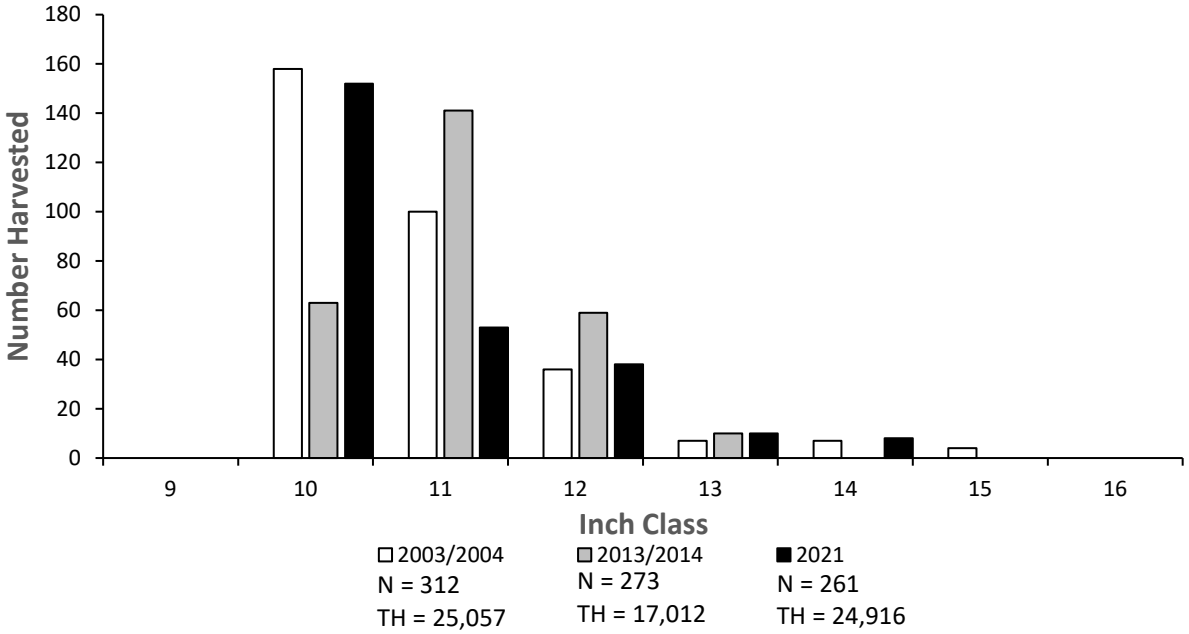


Figure 16. Length frequency of harvested crappie observed during creel surveys at Bridgeport Reservoir, Texas, 2003-2021. N is the number of harvested crappie observed during creel surveys, and TH is the total estimated harvest for the creel period.

Proposed Sampling Schedule

Table 15. Proposed sampling schedule for Bridgeport 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
Electrofishing				X
Trap netting				X
Gill netting				X
Creel survey				
Report				X

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

Number (N) and catch rate (CPUE) (RSE in parentheses) of all target species collected from standard gear types from Bridgeport Reservoir, Texas, 2021-2022. Sampling effort was fifteen net nights for gill netting, ten net nights for trap netting, and 1.5 hours for electrofishing.

Species	Gill Netting		Trap Netting		Electrofishing	
	N	CPUE	N	CPUE	N	CPUE
Gizzard Shad					232	154.7 (28)
Threadfin Shad					248	165.3 (47)
Blue Catfish	55	3.7 (22)				
Channel Catfish	46	3.1 (31)				
Flathead Catfish	3	0.2 (72)				
White Bass	72	4.8 (31)				
Hybrid Striped Bass	17	1.1 (31)				
Warmouth					4	2.7 (58)
Bluegill					269	179.3 (16)
Longear Sunfish					168	112.0 (15)
Redear Sunfish					6	4.0 (69)
Smallmouth Bass					6	4.0 (49)
Spotted Bass					69	46.0 (16)
Largemouth Bass					145	96.7 (19)
White Crappie			148	14.8 (33)		
Black Crappie			6	0.6 (37)		

APPENDIX B – Historical catch rates

Catch rates (CPUE) of targeted species by standard gear type for Bridgeport Reservoir, Texas, 1997 - 2017.

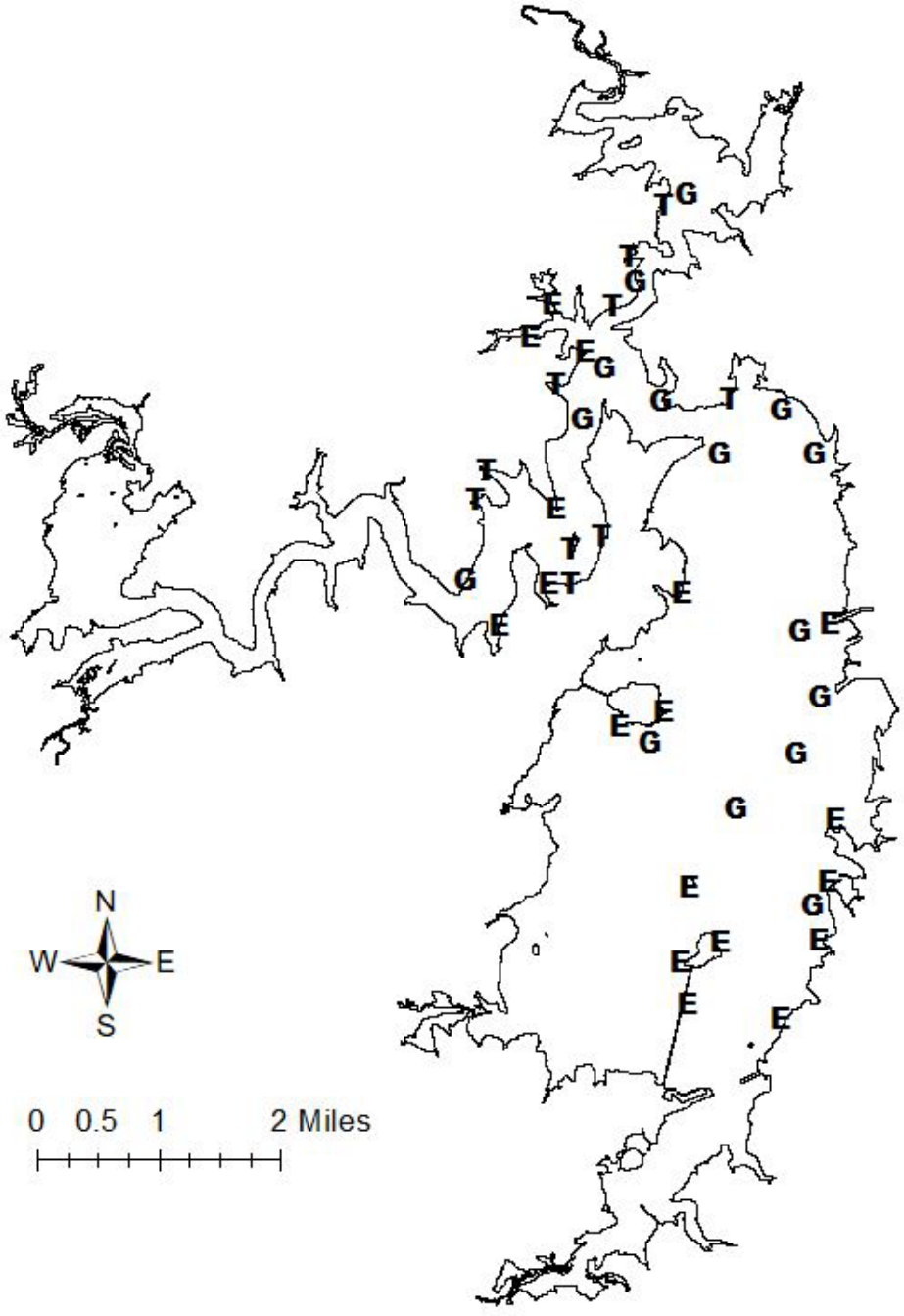
		Year						
Gear	Species	1997	2001	2005	2009	2013	2017	**Avg.**
Gill Netting	Blue Catfish	0.0	0.0	0.0	0.0	0.0	1.6	**0.3**
(fish/net night)	Channel catfish	1.9	2.5	3.3	3.4	3.8	9.0	**4.0**
	Flathead catfish	0.0	0.2	0.3	0.2	0.1	0.1	**0.2**
	White Bass	4.3	2.7	2.1	15.7	1.7	2.7	**4.9**
	Palmetto Bass	9.2	2.0	0.9	3.0	0.4	2.7	**3.0**
Electrofishing	Gizzard Shad	49.0	69.0	21.5	39.5	46.0	60.0	**47.5**
(fish/hour)	Threadfin Shad	4.5	43.5	88.5	456.0	191.0	177.1	**160.1**
	Green Sunfish	37.0	23.0	61.0	53.5	35.5	19.4	**38.2**
	Warmouth	5.5	2.0	9.0	1.5	2.0	5.1	**4.2**
	Orangespotted Sunfish	0.0	0.0	0.0	2.0	1.5	0.6	**0.7**
	Bluegill	42.0	109.0	227.5	118.5	104.0	153.1	**125.7**
	Longear Sunfish	44.0	138.5	260.0	93.0	99.0	156.0	**131.8**
	Redear Sunfish	10.5	10.5	33.0	12.0	8.5	14.3	**14.8**
	Smallmouth Bass	2.0	1.0	1.0	4.0	3.0	0.0	**1.8**
	Spotted Bass	55.5	33.0	37.5	46.0	56.0	24.6	**42.1**
	Largemouth Bass	63.0	89.0	92.0	47.0	35.0	96.6	**70.4**
Trap Netting	White Crappie	10.2	13.6	11.3	4.6	16.0	21.2	**12.8**
(fish/net night)	Black Crappie	0.0	0.0	0.0	0.1	1.3	0.8	**0.4**

*Electrofishing surveys prior to 2007 were conducted using a Smith-Root 5.0 GPP (gas powered pulsator). Since 2007, surveys have been conducted using a Smith-Root 7.5 GPP.

*Gill netting surveys were conducted in the spring following the posted year.

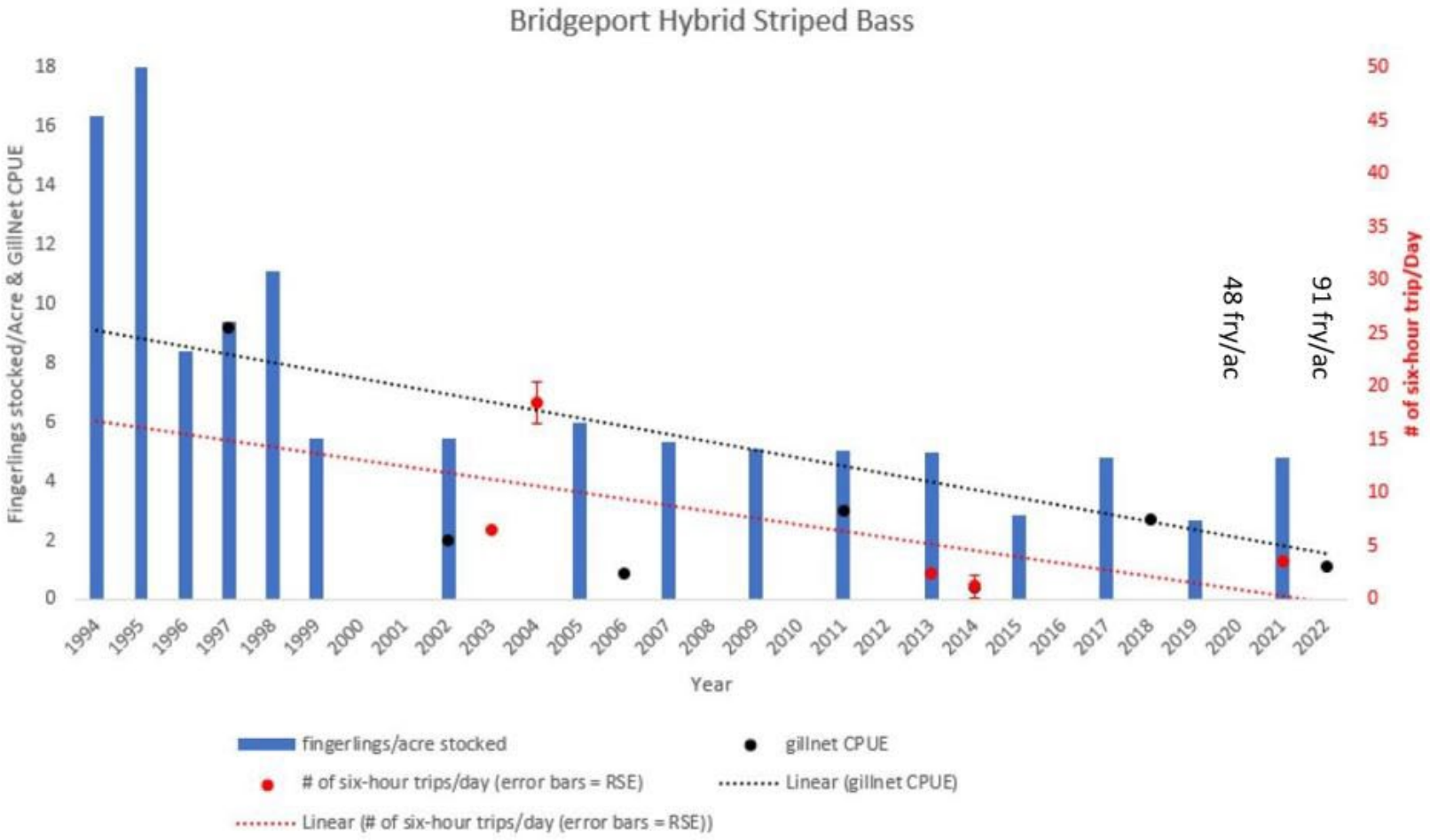
*Objective based sampling started in 2016.

APPENDIX C – Map of sampling locations



Location of sampling sites, Bridgeport Reservoir, Texas, 2021-2022. Trap net, gill net, and electrofishing stations are indicated by T, G, and E, respectively. Water level was near full pool at time of sampling.

APPENDIX D – Hybrid Striped Bass stockings vs CPUE and effort



Number of Hybrid Striped Bass fingerlings (columns) and fry (labels) stocked per acre compared to gillnet CPUE (fish/nn) and angler effort (# of six-hour trips per day) for Bridgeport Reservoir, Texas, 1994 – 2022. Linear trends for CPUE and angler effort have been added.

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