Richland-Chambers 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 Richland-Chambers Reservoir were surveyed from 2021–2023 using electrofishing in 2022, gill netting in 2021 and 2023, and a three-quarter creel survey (June 1–August 31, 2022, September 1–November 30 2022, March 1–May 31 2023) from June 2022 to May 2023. Historical data are presented with the 2021–2023 data for comparison. This report summarizes the results of the surveys and contains a management plan for the reservoir based on those findings.

Reservoir Description: Richland-Chambers Reservoir is a 41,356-acre reservoir (at full pool) on the Richland and Chambers Creek tributaries of the Trinity River. Boat access is adequate, but bank angler access is limited. At full pool, boats can be launched from nine boat ramps surrounding the lake, of which five are available without a fee. Aquatic vegetation has been historically limited in the waterbody.

Management History: Important sport fish include temperate basses (White Bass and Hybrid Striped Bass), Largemouth Bass, catfish (Blue and Channel Catfish), and crappie (White and Black Crappie). Requests for stocking of Hybrid Striped Bass have been submitted annually.

Fish Community

- **Prey species:** Threadfin Shad were abundant in the reservoir. Electrofishing catch of Gizzard Shad was also high, and most Gizzard Shad were available as prey to most sport fish.
- **Catfish:** Blue Catfish were abundant and provide excellent angling opportunities and supported a popular fishery. Channel Catfish were also present at a lower relative abundance.
- **Temperate basses:** Temperate basses provided a popular fishery in the reservoir and were the second most targeted by anglers. While recent gill net surveys have not encountered many Hybrid Striped Bass or White Bass, angler catch rates were high among anglers.
- **Black bass:** The majority of anglers (55%) fishing the reservoir were targeting black bass. While angler catch rates were moderate, the number of fish caught at a memorable size was relatively high and greatly improved from the last creel survey. Electrofishing surveys indicate that Largemouth Bass were relatively abundant with good body condition and a size structure indicative of a balanced population.
- **Crappie:** Both Black and White Crappie were present and supported another popular fishery. Crappie provided good angler catch rates in the most recent creel survey.

Management Strategies: Continue stocking Hybrid Striped Bass at 10–15 fish/acre annually. Stock Florida Largemouth Bass annually at 1,000 fish/km of shoreline, when adequate shoreline habitat is present. Inform the public about the negative impacts of aquatic invasive species. Conduct an electrofishing survey in 2026, gill net surveys in 2025 and 2027, a creel survey from 2026–2027, and a vegetation survey in 2026.

Introduction

This document is a summary of fisheries data collected from Richland-Chambers Reservoir in 2021–2023. The purpose of the document is to provide fisheries information and make management recommendations to protect and improve the sport fishery. While information on other fishes was collected, this report deals primarily with major sport fishes and important prey species. Historical data are presented with the 2021–2023 data for comparison.

Reservoir Description

Richland-Chambers Reservoir is a 41,356-acre reservoir (at full pool) on the Richland and Chambers Creek tributaries of the Trinity River. The reservoir was completed in 1987 to provide water for municipal and industrial purposes. Aquatic vegetation has traditionally been scarce (occupying <1% of the reservoir area). Richland-Chambers Reservoir is in the low range of eutrophic reservoirs in Texas with a mean Carlson's Trophic State Index (TSI chl-a) of 51.28 (Texas Commission on Environmental Quality 2020). A substantial drought occurred in the watershed from 2012-2015 resulting in low water levels (Figure 1). Water level fluctuation has stabilized in recent years. Other descriptive characteristics for Richland-Chambers Reservoir are in Table 1.

Angler Access

At full pool, boat access is adequate, but bank angler access is limited. Boats can be launched from nine boat ramps surrounding the lake, of which five require no fee (Table 2). Other descriptive characteristics for Richland-Chambers Reservoir are found in Table 1.

Management History

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

1. Stock Hybrid Striped Bass fingerlings at 10–15 fish/acre annually.

   Action: Hybrid Striped Bass fingerlings were stocked at approximately 2 fish/acre in 2020; and were stocked at approximately 10–14 fish/acre in 2021, 2022, and 2023.

2. Stock Florida Largemouth Bass fingerlings annually at 1,000 fish/km of shoreline depending on littoral habitat availability.

   Action: Approximately 160,000 Florida Largemouth Bass fingerlings were stocked in 2020.

3. Monitor aquatic vegetation coverage.

   Action: An aquatic vegetation survey was conducted in 2022.

4. Alter catfish regulations from the experimental slot limit established in 2009.

   Action: As part of the statewide regulation adjustment, catfish regulations on the reservoir were altered to fit the statewide trophy regulation (25-fish bag limit, no minimum size limit, only 5 fish ≥ 20 inches, and 1 fish ≥ 30 inches).

Harvest regulation history: With the exception of Blue Catfish, sportfish in Richland-Chambers Reservoir have been managed with statewide harvest regulations (Table 3). An experimental protective slot-length limit (30–45-inches) to protect trophy Blue Catfish went into effect in September 2009. Beginning September 1, 2021, Blue and Channel Catfish regulations were once again revised to allow 25 fish per day (combined species) with no minimum length (of which, only 5 fish ≥ 20 inches, and 1 fish ≥ 30 inches). Current regulations are found in Table 3.

Stocking history: Fingerling Hybrid Striped Bass have been requested annually for Richland-Chambers Reservoir every year since 1996; due to limited availability no stocking occurred in 2000, 2001, 2007, 2012, or 2019. Florida Largemouth Bass were first stocked in 1988 and have been periodically stocked to maintain the trophy potential of the reservoir. The complete stocking history is found in Table 4.

Water transfer: Richland-Chambers Reservoir was built by the Tarrant Regional Water District (TRWD) for municipal water supply. TRWD is currently a water wholesaler to more than ten counties in Texas in the Dallas and Fort Worth (DFW) metropolitan complex. The City of Corsicana has a pipeline from the reservoir to Lake Halbert to supplement the city water system. Raw water is also transferred from the reservoir through the current East Texas Pipeline and converges with water from Cedar Creek Reservoir near Waxahachie, Texas. Water from the pipeline is available along a grid system to multiple water treatment plants in the Dallas/Fort Worth area, including Waxahachie, Midlothian, and Fort Worth.

Raw water from Richland-Chambers Reservoir has the potential to be introduced directly or indirectly into reservoirs Bardwell, Benbrook, Halbert, Joe Pool, Mountain Creek, Arlington, Eagle Mountain, and Lake Worth; all with subsequent return into the Trinity River. The TRWD also maintains a pumping station on the Trinity River to filter raw river water through wetland cells before transmission through an additional pumping station into Richland-Chambers. However, pumping was temporarily discontinued after flooding in spring 2015 damaged the intake pumps but was re-established in 2018. The TRWD and the City of Dallas Water Utilities have partnered to construct an Integrated Pipeline (IPL) Project, which will create further connections between municipalities and reservoirs including Lake Palestine. This system came online in spring 2018 following installation of a chloramine injection facility at the Richland-Chambers intake. No inter-basin (outside of Trinity River Basin) water 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 Richland-Chambers Reservoir (Ott 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 daytime electrofishing (2 hours at 24, 5-min stations) in 2022. Catch per unit effort (CPUE) for electrofishing was recorded as the number of fish caught per hour (fish/h) of actual electrofishing.

Gill netting – Blue Catfish, Channel Catfish, White Bass, and Hybrid Striped Bass were collected by gill netting (10 net nights at 10 stations) in 2021 and 2023. CPUE for gill netting was recorded as the number of fish caught per net night (fish/nn).

Creel survey – A three quarter access point creel survey was conducted from June 2022 through May 2023 during the summer (June–August), fall (September–November), and spring (March–May) quarters. Angler interviews were conducted on five weekend days and four 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 2022).

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). Hybrid Striped 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 and creel statistics.

Habitat – A comprehensive vegetation survey was conducted in 2022 using the digital shapefile method (TPWD, Inland Fisheries Division, unpublished manual revised 2022).

Water level – Source for water level data was from the Water Data for Texas website (Water Data for Texas 2022).

Results and Discussion

Habitat: Native vegetation was present in minimal amounts (<0.1%; Table 6) with pondweed and American lotus as the predominant species encountered during the survey. Native aquatic vegetation has never persisted at high levels on the reservoir with historic vegetation surveys indicating comparably low coverages (2010 = 0.5%; 2014 = <0.1%; 2018 = 1.1%).

Creel: Total fishing effort (130,800 hours) and total directed expenditures ($2,083,536) rose substantially from the previous survey in 2018/2019 (54,503 hours; $582,367; Table 7). Although the rise in expenditures is partially attributed to inflation, expenditures in 2018/2019 were estimated at $709,168 after adjusting for inflation (Bureau of Labor Statistics 2023), indicating that the rise in economic output is largely due to increased utilization at the reservoir.

Prey species: Prior to 2014, electrofishing surveys on the reservoir were conducted during the nighttime, making it difficult to compare historic estimates to the most recent daytime surveys (2014, 2018, and 2022). Electrofishing catch rates of Threadfin Shad and Gizzard Shad were excellent at 2,760.5/h and 380.0/h, respectively. Index of Vulnerability (IOV) for Gizzard Shad was also excellent, indicating that 95% of Gizzard Shad were available to existing predators. Total CPUE of Gizzard Shad has ranged from 163.0/h – 404.5/h over the last three daytime surveys (Figure 2). Electrofishing catch rates of Bluegill were poor in 2022 with zero fish encountered; however, Bluegill populations have historically been captured at low rates during daytime electrofishing surveys (2014 = 15.0/h; 2018 = 47.0/h).

Catfishes: The percentage of total angler effort for catfishes (13%) has remained relatively stable compared to the prior two surveys (2018/2019: 7%; 2014/2015: 13%; Table 8). Anglers harvested an estimated 78,648 catfishes (Blue and Channel Catfish combined) during the 2022/2023 survey (Table 9), much greater than prior survey estimates (21,513 and 6,356 in 2014/2015 and 2018/2019, respectively). Blue Catfish continued to be the dominant species harvested (71% of harvest) but harvest of Channel Catfish substantially increased (23,124 fish) compared to the prior creel survey (2,412 fish). On September 1, 2021, harvest regulations on the reservoir for Channel Catfish were adjusted from prior statewide regulations (12-inch minimum length limit) to no minimum length limit. Harvest regulations for Blue Catfish were also adjusted, from a 30–45-inch protective slot limit to allowing only five catfish (Blue and Channel combined) ≥ 20 inches and only one catfish ≥ 30 inches (no minimum length). While regulations changed in both catfish fisheries, the increased harvest observed is not attributable to these changes as no Blue Catfish ≥ 30 inches were observed as harvested during creel surveys and only approximately 4% of harvested Channel Catfish were < 12 inches. Angler catch rate of catfishes (3.9/h; Table 9) in 2023, was excellent and substantially higher than years prior (1.8/h and 1.4/h in 2014/2015 and 2018/2019, respectively). The increased harvest observed on the reservoir is likely attributable to increased angler catch rates, as harvest rates observed in Texas fisheries often rise in unison with angler catch rates (unpublished TPWD creel data 2003–2021). While percent legal released catfish increased (32%) from the prior survey (2%), this is likely attributable to the release of less desirably sized fish as angling success was high as well as the change in catfish regulations.

The gill net catch rate of Blue Catfish was moderate with catch rates at 14.9/nn in 2021 but substantially increased to 32.8/nn in 2023 (Figure 4). Compared to historic population levels (2015 = 25.2/nn; 2017 = 28.5/nn, 2019 = 19.0/nn), relative abundance has remained stable. The size structure of the Blue Catfish population was relatively low (PSD = 20 and 27 for 2021 and 2023, respectively); however, the most recent PSD estimates indicated a much better size structure than recent historic estimates (2015 = 5; 2017 = 14; 2019 = 11) and these size structure estimates are comparable to other popular trophy Blue

Catfish fisheries in Texas. Channel Catfish were also present, but at a much lower relative abundance (2021 = 0.4/nn; 2023 = 1.6/nn; Figure 5).

Temperate Basses: Temperate basses were the second most sought-after species group at Richland-Chambers Reservoir; accounting for 19% of the total directed angling effort (Table 8). Directed angling-effort (25,463 hours, Table 10) increased from the 2018/2019 survey (14,718 hours) and was comparable to the 2014/2015 survey (27,451 hours). Angler catch rate for temperate bass (3.9/h) increased from the prior two surveys (2.6/h and 2.8/h in 2014/2015 and 2018/2019, respectively). Harvest of White Bass in recent years increased (73,009 fish) compared to the prior surveys (38,562 fish and 18,779 fish for 2014/2015 and 2018/2019, respectively) and this increase may be attributable to the increased catch efficiencies observed. Hybrid Striped Bass harvest (8,910 fish) remained comparable to the prior survey (8,694 fish). Fourteen percent of the legal-length temperate basses were released, comparable to the proportion observed during the 2018/2019 survey (15%).

The gill net catch rate of White Bass was 3.6/nn in both 2023 and 2021 (Figure 8) indicating that White Bass continue to be present in the reservoir. While catch rates were relatively low for this species, historic catch rates have also remained at low levels (1.2/nn–2.5/nn from 2015–2019). The gill net catch rate of Hybrid Striped Bass was also low at 1.3/nn in 2023 and 0.1/nn in 2021 (Figure 9); however, historic catch rates have also been low for this species as well (0.2/nn–2.0/nn from 2015–2019). The current gill net sampling effort (10 net nights) typically does not allow for estimates to be made on the abundance of temperate bass populations at acceptable levels of precision therefore these low catch rates are not truly indicative of low relative abundance. Further, temperate bass gill net catch rate is highly dependent upon the timing of surveys such that spring spawning migrations coincide with gill net surveys.

Largemouth Bass: Largemouth Bass were the most popular fishery in Richland-Chambers Reservoir accounting for 54% of the total directed effort in 2022/2023 (Table 8) and comparable to the prior survey (52%; 2018/2019). Non-tournament activity (40,728 hours) composed the majority of black bass effort (58%) and substantially increased from the prior survey (7,912 hours; 28% of black bass effort). The proportion of tournament activity was substantially different between the last two creel surveys, the total amount of black bass tournament effort increased from 20,322 hours in 2018/2019 to 29,399 hours in 2022/2023. Angling catch rate was 0.4/h; comparable to 2018/2019 (0.4/h) and 2014/2015 (0.3/h). Angler catch of memorable sized Largemouth Bass greatly improved with anglers reporting 13% of released Largemouth Bass were over 4 pounds and 2% over 7 pounds. Estimated harvest was minimal with 97% of the legal-length Largemouth Bass caught by non-tournament anglers released.

The electrofishing catch rate of Largemouth Bass was moderate at 42.5/h in 2022 (Figure 12) and comparable to the most recent survey (2018 = 50.5/h). Stock CPUE (34.0/h) was much improved compared to historic levels (daytime: 3.0/h and 17.0/h for 2014 and 2018, respectively; nighttime: 13.5/h, 8.8/h, and 14.5/h for 2004, 2006, and 2010, respectively). PSD indicated a balanced population (PSD = 53; stock sized fish: N = 68); however, it is difficult to find recent years to compare size structure as historic electrofishing surveys over the past 25 years have not captured > 35 stock sized fish other than the 2022 survey. The catch rate of legal-length fish (CPUE-14) has increased in recent surveys from 1.0/h in 2014 to 7.0/h in 2018 to 12.0/h in 2022. Although aquatic vegetation has been low in recent years, increases in CPUE-14 and Stock CPUE compared to historic estimates may be connected to relatively stable water levels over the past five years (Figure 1) of which declining water levels can greatly affect the availability of littoral habitat other than aquatic vegetation (i.e., wooded cover and terrestrial vegetation). Relative weight was indicative of excellent prey availability (mean relative weight of 95). Only three Largemouth Bass were collected between 13.0–14.9 inches and the amount of sampling effort required to obtain ten more specimens was determined unfeasible, therefore length at age calculations were not made for Largemouth Bass.

Crappie: The percentage of effort for crappie was 13% in 2022/2023 (Table 8) and comparable to prior surveys (19% and 9% in 2014/2015 and 2018/2019, respectively). The magnitude of effort directed toward crappie (17,637 hours) increased substantially in comparison to the 2018/2019 survey (5,061 hours; Table 12) which may have been driven by an increase in angling success (1.9/h) compared to the prior survey (1.4/h; Table 12). Increases in crappie catch rates were also likely driven by the utilization of

live-imaging sonar, of which we solicited information during this creel survey to identify users and non-users of this technology. Angler catch rates among those that did not use live-imaging sonar (1.1/h) were considerably lower than live-imaging sonar users (2.7/h). Crappie harvest in the most recent creel survey (39,909 fish) substantially increased compared to prior surveys (2014/2015 = 17,934 fish; 2018/2019 = 7,319 fish). Live-imaging sonar usage was also a likely driver of increased harvest as estimates indicated users harvesting fish at much higher rates (2.1/h) than non-users (0.9/h) with comparable levels of effort. While increases in harvest efficiency may appear alarming, we have modeled the potential for recruitment and growth overfishing to occur in Texas crappie populations and with the fast growth rates we typically observe in Texas crappie fisheries (including Richland-Chambers), the potential for overfishing is extremely low with current statewide regulations.

Fisheries Management Plan for Richland-Chambers Reservoir, Texas

Prepared – July 2023

ISSUE 1: Hybrid Striped Bass have been an important component of the fishery at Richland-Chambers Reservoir since 1996. The most recent creel survey indicated that temperate basses are the second most popular fishery in the reservoir with 19% of directed effort. Annual stocking of Hybrid Striped Bass is required to sustain the population and maintain this fishery.

MANAGEMENT STRATEGY

1. Stock Hybrid Striped Bass fingerlings annually at 10 fish/acre. If fingerlings are not available to meet stocking requests, stock with fry at 100 fish/acre, if feasible.
2. Conduct outreach with temperate bass guides and explore the potential to collect anecdotal information from that group of anglers to supplement traditional angler survey methods to assess utilization of the Hybrid Striped Bass fishery.

ISSUE 2: The black bass fishery in Richland-Chambers Reservoir is the most popular fishery with evidence during the most recent creel survey (54% directed effort) as well as the prior creel survey (52% directed effort). The most recent creel survey provided indications of a greatly improved trophy fishery with 2% of the Largemouth Bass released estimated at 7 pounds or greater, a percentage comparable to other excellent trophy Largemouth Bass fisheries throughout the state. Since 2018, 9 Elite Class (10–13 pounds) and 23 Lunker Class (8–10 pounds) Largemouth Bass have been reported by the TPWD ShareLunker program on Richland-Chambers Reservoir. Anglers have also submitted four Legacy Class (> 13 pounds) ShareLunkers from Richland-Chambers Reservoir; the most recent in 2008. Given the abundant forage and good body condition of Largemouth Bass, stocking Lone Star Largemouth Bass is likely to improve and maintain trophy abundance. Annual stocking of Lone Star Largemouth Bass fingerlings will be dependent upon littoral habitat coverage as the probability of survival for Largemouth Bass fingerlings is greatly influenced by the availability of littoral habitat.

MANAGEMENT STRATEGIES

1. When quality littoral habitat is present, 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 annually.
2. Promote TPWD ShareLunker program to improve supplemental reporting of trophy Largemouth Bass catches within the reservoir. Explore the potential of collecting tournament data on the reservoir to supplement trophy Largemouth Bass reporting.

ISSUE 3: In 2020, the population of the invasive Zebra Mussels was identified as an established, reproducing population in the lake. 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. There are many lakes in Texas that these species do not currently exist where the potential to adversely impact fisheries exists. Taking precautions that allow boats and gear to dry completely can make a big difference in preventing the spread of zebra mussels as well as other invasive species. Further, many other invasive species threaten aquatic habitats and organisms in Texas and can adversely affect the state ecologically, environmentally, and economically. 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.

MANAGEMENT STRATEGIES

1. Continue efforts collaborating with TDWR to conduct annual monitoring assessing the Zebra Mussel population in Richland Chambers.
2. Cooperate with the controlling authority to post appropriate signage at access points around the reservoir.
3. Contact and educate marina owners about invasive species and provide them with various literature to educate their customers.
4. Educate the public about invasive species using various media outlets.
5. Make a speaking point about invasive species when presenting to constituent and user groups.
6. Keep track of (i.e., map) existing and future interbasin water transfers to facilitate potential invasive species responses.

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

Sport fishes in Richland-Chambers Reservoir include catfish (Channel and Blue Catfish), temperate bass (White Bass and Hybrid Striped Bass), Largemouth Bass, and crappie (White and Black Crappie). Important forage species include Gizzard and Threadfin Shad.

Survey objectives, fisheries metrics, and sampling objectives

Crappie: The fishery for crappie in the reservoir is moderately popular (13% of total effort) and remains an important part of the overall fishery. While an important fishery, trap netting has historically been unsuccessful in sampling the population at adequate levels of precision with a feasible level of sampling effort. Due to the unpredictability of trap net survey success which would require a large amount of sampling effort to reliably estimate crappie trend data (CPUE, PSD, relative weight), trap net surveys are no longer conducted on the reservoir. Inferences about the crappie population and identification of potential applied management actions will continue to be made from data collected during a three quarter (summer, fall, spring) lake-wide creel survey in 2026/2027 consisting of 4 weekdays and 5 weekend days sampled per quarter.

Catfish: Blue and Channel Catfish combined accounted for 10% of directed angler effort during the 2022/2023 creel survey. Blue Catfish have been historically collected in biennial gill net surveys at 10 to

15 net nights of effort. Historic catches suggest that the effort needed to describe PSD and CPUE at the desired level (stock-length fish: N > 50; Stock CPUE RSE < 25) can be achieved with 10 nets. Therefore, the relative abundance and stock distribution of Blue Catfish will continue to be monitored in the spring of 2025 and 2027 with 10 net nights of effort each year with the objective of capturing > 50 stock-length fish and a Stock CPUE RSE < 25. If objectives are not met after 10 net nights, an additional 5 sites will be implemented with a maximum amount of effort capped at 15 net nights per survey. All specimens stock-length and greater will be individually measured and weighed. Length data will be used to describe PSD; weight data will be used to estimate relative weight by inch-group. Historically, Channel Catfish have remained a minor part of the overall fishery and would require an amount of effort to sample at an adequate level of precision that would not be justified by the results. Therefore, Channel Catfish will be monitored in spring 2025 and 2027 at the same sampling intensity as described for Blue Catfish with results reported as presence/absence only. The fishery will also be monitored during a three quarter (summer, fall, spring) lake-wide creel survey in 2026/2027 consisting of 4 weekdays and 5 weekend days sampled per quarter.

Temperate Bass: The temperate bass fishery is very popular in Richland-Chambers Reservoir with directed angling effort accounting for 20% of the total in 2022/2023 creel survey. Historic gill net sampling has been conducted on a biennial basis and catch rates of stock-sized Hybrid Striped Bass have ranged from 0.5/nn to 3.1/nn with 10 or 15 net nights of effort. Historic gill net data suggests that an unfeasible amount of sampling effort (50–60 randomly-selected gill net nights) would be required to obtain precise (Stock-CPUE RSE < 25) size structure estimates. Additionally, excessive amounts of sampling effort would be required to generate trend data for the White Bass fishery. Therefore, gill net sites will be sampled in the spring 2025 and 2027 to detect presence/absence of Hybrid Striped Bass and White Bass using the same sampling intensity as that of Blue Catfish. The fishery will also be monitored during a three quarter (summer, fall, spring) lake-wide creel survey in 2026/2027 consisting of 4 weekdays and 5 weekend days sampled per quarter.

Largemouth Bass: Largemouth Bass were the most sought species in the most recent creel survey accounting for 55% of the directed effort. Historic catches during daytime electrofishing surveys (2014, 2018, 2020) suggest that 24 randomly selected stations can adequately estimate relative abundance (mean Stock CPUE RSE = 29) which is the same level of effort required during nighttime surveys. Therefore, Largemouth Bass population trend data will be monitored in the fall of 2026 with 24, 5-minute daytime stations for relative abundance, size structure, and condition. If collected, a sample of 13 specimens 13.0-14.9 inches in length will be aged to assess growth. If feasible, additional opportunistic sampling will occur to obtain 13 age-and-growth specimens. Six additional stations will be implemented if Stock CPUE RSE does not approach < 25, with the maximum sampling effort capped at 30 stations. All specimens stock length and greater will be individually measured and weighed. Length data will be used to describe PSD; weight data will be used to estimate relative weight by inch-group. The fishery will also be monitored during a three quarter (summer, fall, spring) lake-wide creel survey in 2026/2027 consisting of 4 weekdays and 5 weekend days sampled per quarter.

Gizzard Shad and Bluegill: Gizzard Shad and Threadfin Shad are the primary forage species at Richland-Chambers Reservoir. Long-term monitoring trend data is desired for these populations to evaluate their relative abundance (CPUE) and size structure (PSD). The abundance of shad and the IOV of Gizzard Shad will be used to gauge prey fish availability for sport fishes from electrofishing sampling conducted in fall 2025. No sampling objectives will be set for prey species.

Habitat: A complete-reservoir comprehensive vegetation survey will continue to be conducted in 2026 to monitor the aquatic vegetation community within the reservoir and additionally, conduct a structural habitat survey in 2026.

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Tables and Figures

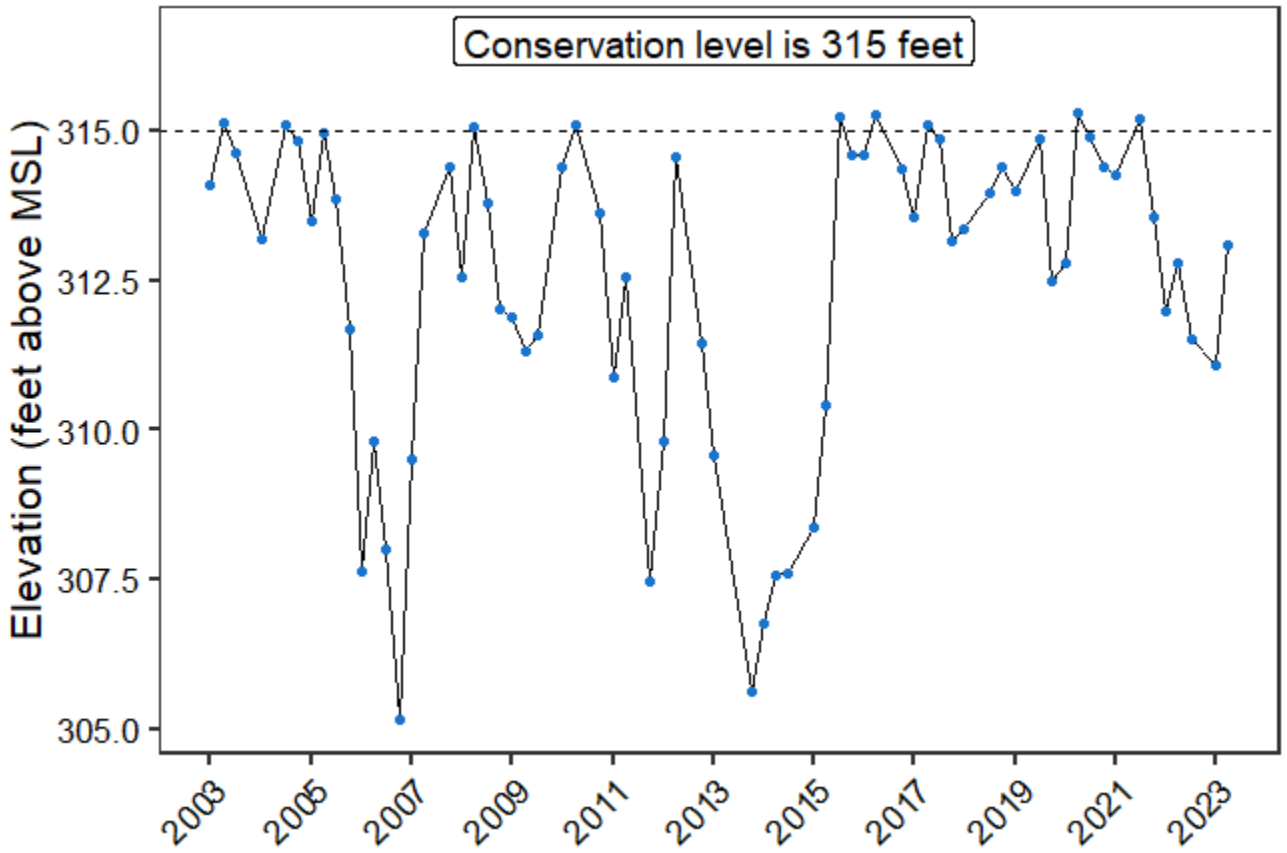


Figure 1. Quarterly water level elevations in feet above mean sea level (MSL) recorded for Richland-Chambers Reservoir, Texas (2003–2023). Dashed line indicates conservation level.

Table 1. Characteristics of Richland-Chambers Reservoir, Texas.

Characteristic	Description
Year constructed	1987
Controlling authority	Tarrant Regional Water District
Counties	Freestone (dam), Navarro
Reservoir type	Tributary
Shoreline Development Index (SDI)	11.2
Conductivity	300 µS/cm

Table 2. Boat ramp characteristics for Richland-Chambers Reservoir, Texas, August 2022. Reservoir elevation at time of survey was 315 feet above mean sea level.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft.)	Condition
Cedar Creek	32.03087 -96.27554	Y	30	NA	Good access
Sunset Cove Marina	32.04856 -96.26393	Y/fee	10	NA	Good access
FM 2859	32.06318 -96.23896	Y	20	NA	Good access
Cheneyboro	31.94983 -96.34936	Y	10	NA	Good access
Crab Creek	31.96771 -96.31576	Y	10	NA	Good access
Oak Cove Marina	32.00437 -96.21558	Y/fee	200	304.5	Good access
Harbor Inn Marina	31.99040 -96.21402	Y/fee	20	NA	Good access
Highway 309 Park	31.99105 -96.13688	Y	20	NA	Good access
Fisherman's Point	31.93896 -96.12474	Y/fee	40	303.0	Good access
Reservoir Office	31.93766 96.11737	N	20	306.0	Restricted access

Table 3. Harvest regulations for Richland-Chambers Reservoir, Texas.

Species	Bag limit	Length limit
Catfish: Channel and Blue Catfish, their hybrids, and subspecies	25 (only 10 ≥ 20 inches)	No minimum length
Flathead Catfish	5	18-inch minimum
White Bass	25	10-inch minimum
Hybrid Striped Bass	5	18-inch minimum
Largemouth Bass	5	14-inch minimum
Crappie: White and Black Crappie, their hybrids, and subspecies	25 (in any combination)	10-inch minimum
Alligator Gar	1	No minimum length

Table 4. Stocking history of Richland-Chambers Reservoir, Texas. FGL = fingerling; ADL= adult, FRY = fry.

Species	Year	Number Stocked	Size
Catfish, Blue	1988	42,750	FGL
	1988	4,222	ADL
	Total	46,972	
Catfish, Channel	1988	193,202	FRY
Hybrid Striped Bass	1996	100,861	FGL
	1997	117,576	FGL
	1998	227,618	FGL
	1999	225,598	FGL
	2002	112,070	FGL
	2003	103,300	FGL
	2004	205,895	FGL
	2005	413,686	FGL
	2006	150,753	FGL
	2008	415,646	FGL
	2009	249,657	FGL
	2010	64,036	FGL
	2010	2,072,137	FRY
	2011	100,602	FGL
	2013	304,917	FGL
	2014	387,327	FGL
	2015	422,287	FGL
	2016	244,543	FGL
	2017	221,095	FGL
	2018	313,260	FGL
	2020	95,156	FGL
	2021	413,782	FGL
	2022	565,257	FGL
	2023	1,023,794	FRY
	2023	219,927	FGL
	Total	8,770,780	
Bluegill, Coppernose	1988	659,598	FGL
	1989	1,042,071	FGL
	Total	1,701,669	

Continued next page

Table 4. Stocking History *continued*

Species	Year	Number Stocked	Size
Bass, Florida Largemouth	1988	547,329	FGL
	1989	1,114,186	FRY
	1991	160,317	FRY
	1991	339,000	FGL
	1999	644	FGL
	2001	485,519	FGL
	2002	423,715	FGL
	2006	420,129	FGL
	2007	501,630	FGL
	2010	377,318	FGL
	2011	500,538	FGL
	2015	236,700	FGL
	2016	300,122	FGL
	2018	313,260	FGL
	2020	162,638	FGL
	Total	5,883,045	
Bass, ShareLunker	2008	9,739	FGL
Bass, Largemouth	2013	564	ADL
	2016	1,324	ADL
	Total	1,888	

Table 5. Objective-based sampling plan components for Richland-Chambers Reservoir, Texas 2019–2023.

Gear/target species	Survey objective	Metrics	Sampling objective
Electrofishing (daytime)			
Largemouth Bass	Abundance	CPUE–Stock	No set objective
	Size structure	PSD, length frequency	
	Age-and-growth	Age at 14 inches	N = 13, 13.0 – 14.9 inches
	Condition	W_r	10 fish/inch group (max)
Bluegill	Abundance	CPUE–Total	No set objective
	Size structure	PSD, length frequency	
Gizzard Shad	Abundance	CPUE–Total	No set objective
	Prey availability	IOV	
Gill netting			
Blue Catfish	Abundance	CPUE-Stock	RSE-Stock ≤ 25
	Size structure	PSD, length frequency	N ≥ 50 stock
Channel Catfish	Abundance	Presence/absence	No set objective
Temperate Bass	Presence-absence	Presence/absence	No set objective
Creel Survey			
Sportfish	Angler trend information	Angler effort, angler CPUE, harvest, and size structure	No set objective

Table 6. Survey of aquatic vegetation, Richland-Chambers Reservoir, Texas, 2014, 2018, and 2022. Surface area (acres) is listed with percent of total reservoir surface area in parentheses

Vegetation	2014	2018	2022
Native submersed		129 (0.3)	
Coontail	Trace		Trace
Muskgrass	Trace		
Pondweed	Trace	31 (0.1)	1 (<0.1)
Water stargrass	Trace	98 (0.2)	
Native emergent		79 (0.2)	
American lotus		79 (0.2)	7 (<0.1)
Bull Tongue			Trace
Cattail			Trace
Water primrose			Trace
Non-native			
Alligatorweed	Trace		
Hydrilla	Trace		

Table 7. Total fishing effort (h) for all species and total directed expenditures at Richland-Chambers Reservoir, Texas, 2014–2023. Survey periods were from 1 June through 30 November and 1 March-31 May. Relative standard error is in parentheses.

Creel statistic	2014/2015	2018/2019	2022/2023
Total fishing effort (hours)	76,999 (20)	54,503 (24)	130,800 (28)
Total directed expenditures	$754,674 (35)	$582,367 (39)	$2,083,536 (36)

Table 8. Percent directed angler effort by species for Richland-Chambers Reservoir, Texas, 2014–2023. Survey periods were from 1 June through 30 November and 1 March through 31 May.

Species	2014/2015	2018/2019	2022/2023
Catfish	13	7	13
Temperate bass	36	27	19
Largemouth Bass	25	52	54
Crappie	19	9	13
Sunfish	0	2	0
Anything	7	3	1

Gizzard Shad

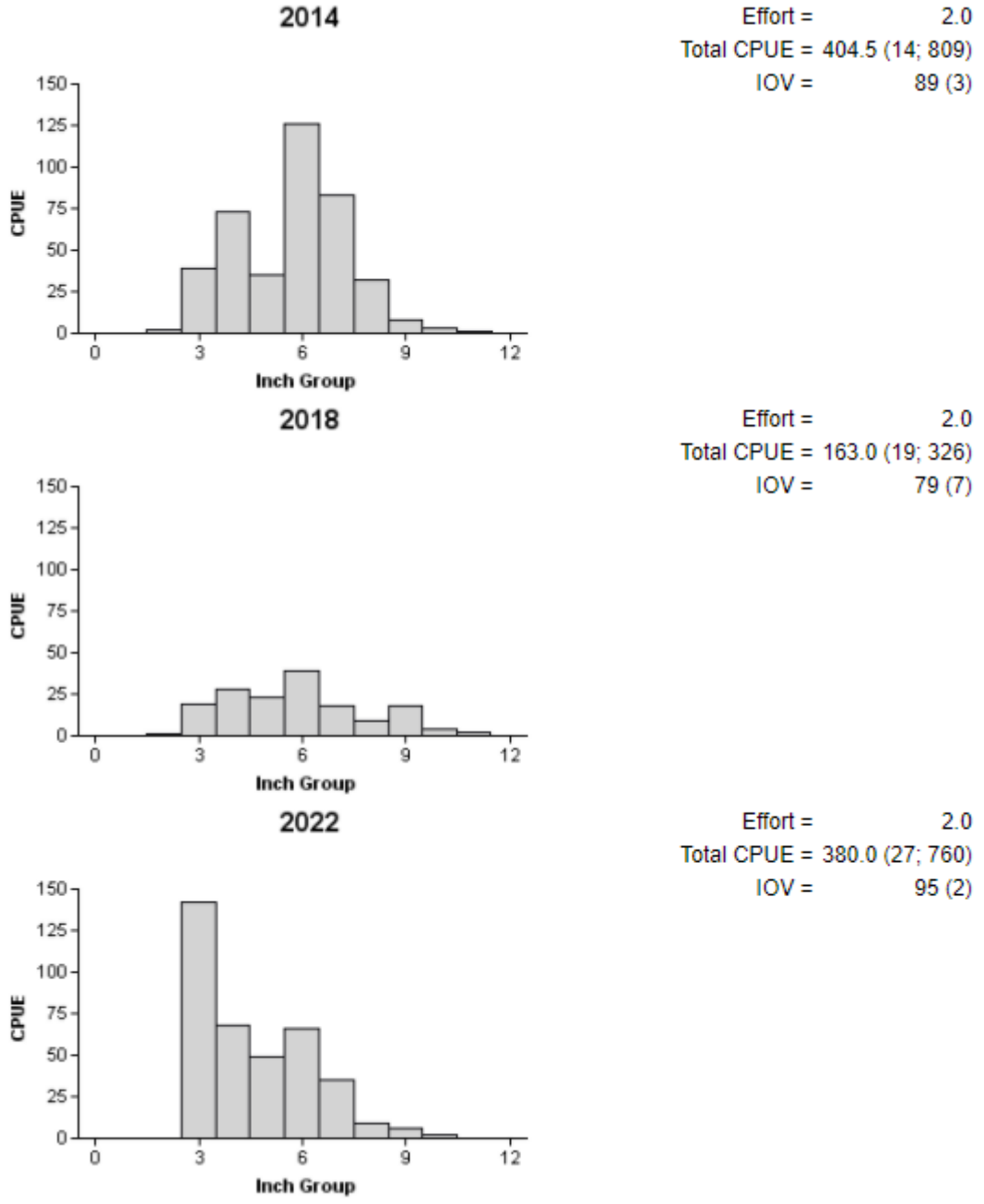


Figure 2. Number of Gizzard Shad caught per hour (CPUE, bars) and index of vulnerability (IOV) (RSE and N for CPUE and SE for IOV are in parentheses) for fall daytime electrofishing surveys, Richland-Chambers Reservoir, Texas, 2014, 2018, and 2022.

Bluegill

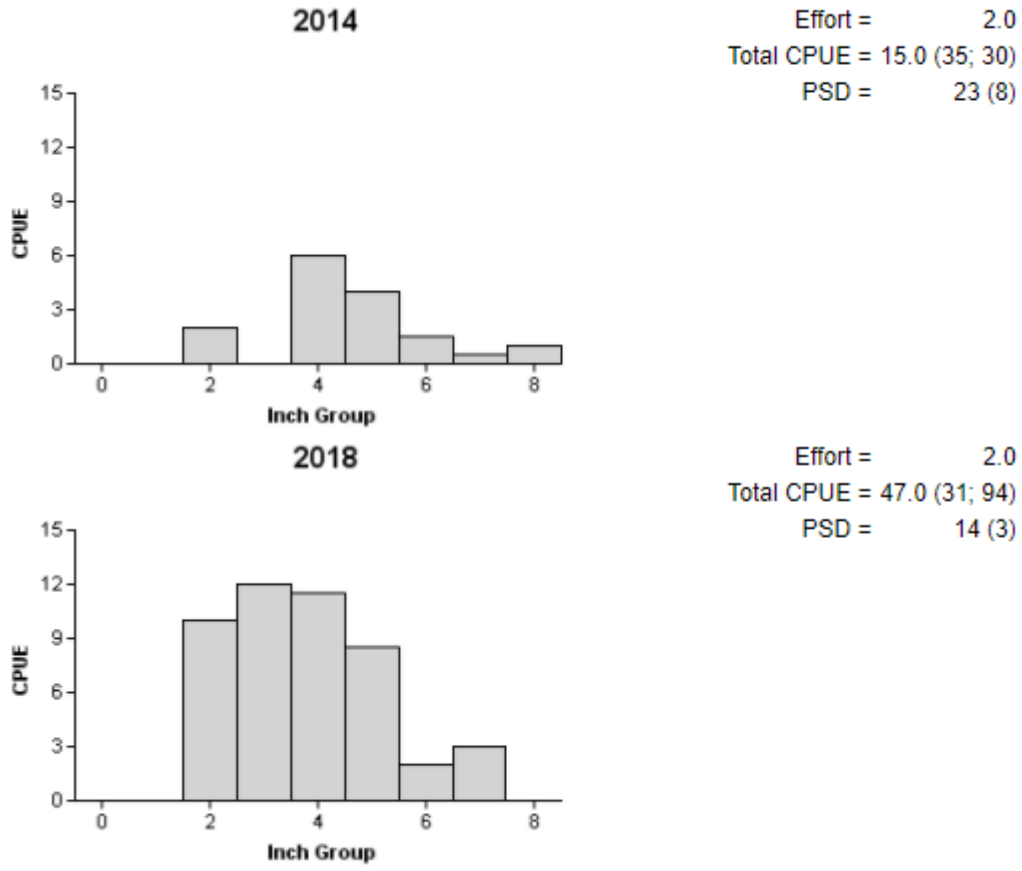
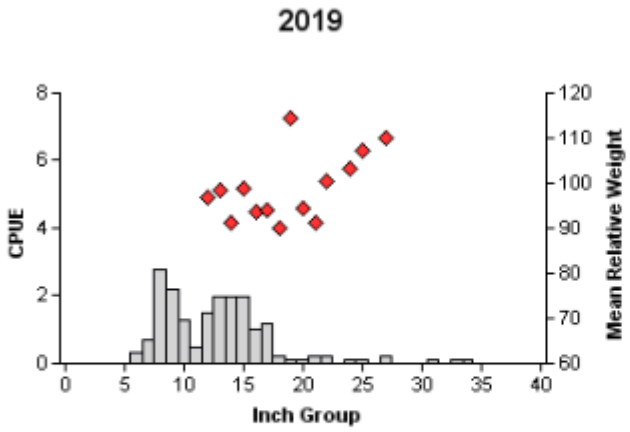
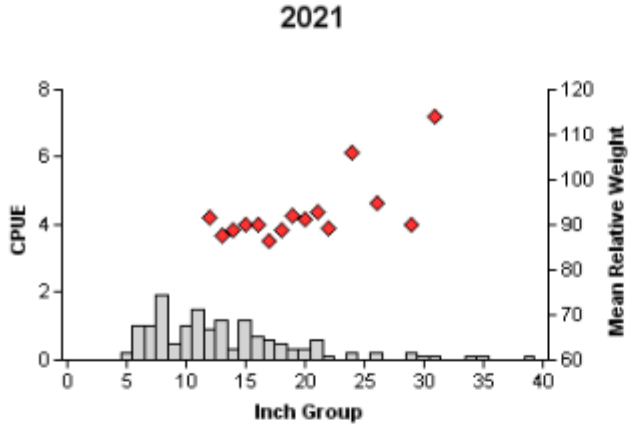


Figure 3. Number of Bluegill caught per hour (CPUE, bars) and proportional size distribution (PSD; RSE and N for CPUE and SE for PSD are in parentheses) for fall daytime electrofishing surveys, Richland-Chambers Reservoir, Texas, 2014 and 2018 (no Bluegill captured in 2022 survey).

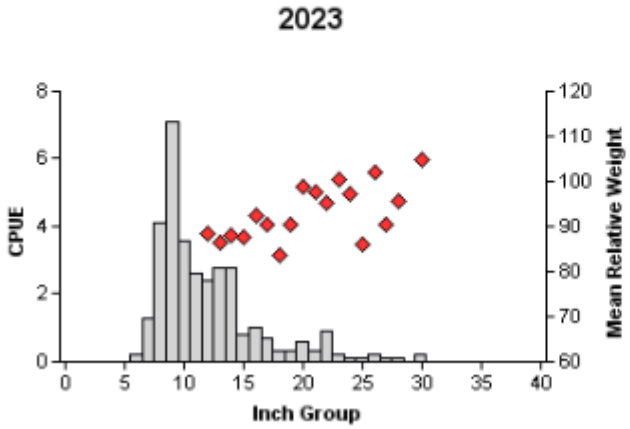
Blue Catfish



Effort = 10.0
Total CPUE = 19.0 (25; 190)
Stock CPUE = 11.2 (27; 112)
CPUE-20 = 1.2 (35; 12)
PSD = 11 (4)



Effort = 10.0
Total CPUE = 14.9 (11; 149)
Stock CPUE = 7.8 (16; 78)
CPUE-20 = 2.1 (23; 21)
PSD = 27 (5)



Effort = 10.0
Total CPUE = 32.8 (15; 328)
Stock CPUE = 13.9 (15; 139)
CPUE-20 = 2.8 (22; 28)
PSD = 20 (5)

Figure 4. Number of Blue Catfish caught per net night (CPUE, bars), mean relative weight (diamonds), and proportional size distribution (PSD; RSE and N for CPUE and SE for PSD are in parentheses) for fall gill net surveys, Richland-Chambers Reservoir, Texas, 2019, 2021, and 2023. CPUE-20 represents the catch rates of quality sized (20 inches or greater) Blue Catfish.

Channel Catfish

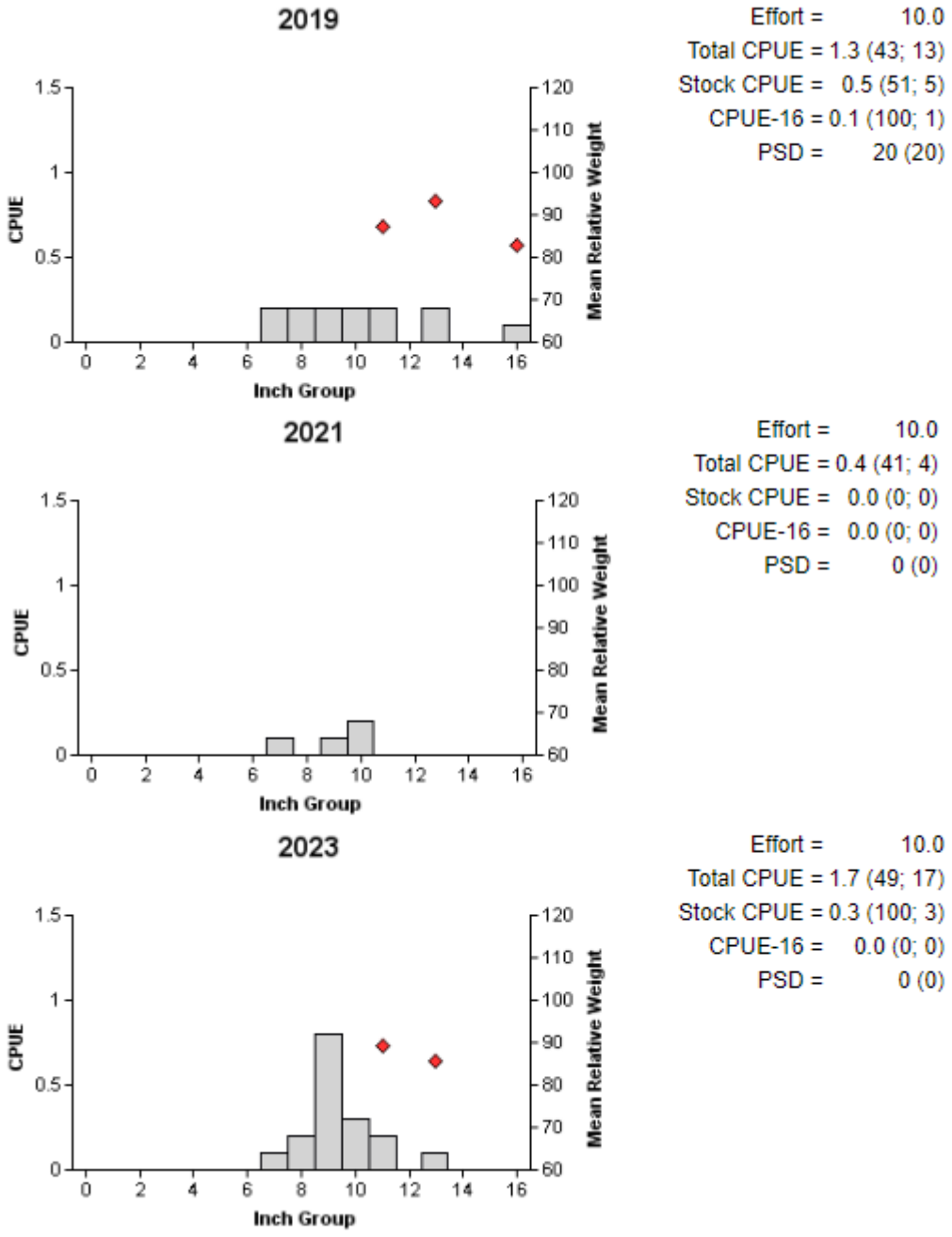


Figure 5. Number of Channel Catfish caught per net night (CPUE, bars), mean relative weight (diamonds), and proportional size distribution (PSD; RSE and N for CPUE and SE for PSD are in parentheses) for gill net surveys, Richland-Chambers Reservoir, Texas, 2019, 2021, and 2023. CPUE-16 represents the catch rates of quality sized (16-inches or greater) Channel Catfish.

Table 7. Creel survey statistics for catfish at Richland-Chambers Reservoir, Texas, from June (2014, 2018, 2022) through November (2014, 2018, 2022) and March (2015, 2019, 2023) through May (2015, 2019, 2023). Total catch per hour is for anglers targeting catfishes and total harvest is the estimated number of catfishes harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	Year		
	2014/2015	2018/2019	2022/2023
Surface area (acres)	36,495	41,356	40,431
Directed effort (h)	10,215 (33)	3,834 (39)	17,012 (38)
Directed effort/acre	0.3 (33)	0.1 (39)	0.4 (38)
Total catch per hour	1.8 (22)	1.4 (56)	3.9 (24)
Total harvest	22,718	8,768	78,648
Blue Catfish	21,513 (56)	6,356 (56)	55,524 (51)
Channel Catfish	1,205 (169)	2,412 (74)	23,124 (65)
Harvest/acre	0.6	0.2	1.9
Blue Catfish	0.6 (62)	0.2 (56)	1.4 (38)
Channel Catfish	<0.1 (169)	0.1 (74)	0.6 (24)
Percent legal released	8	2	32

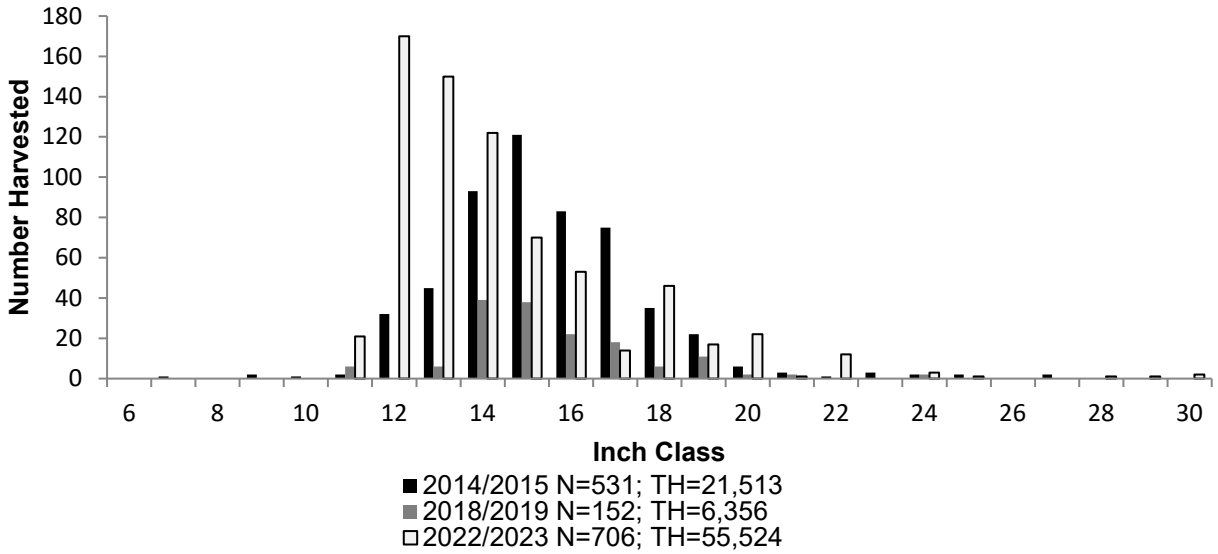


Figure 6. Length frequency of harvested Blue Catfish observed during creel surveys at Richland-Chambers Reservoir, Texas, from June (2014, 2018, 2022) through November (2014, 2018, 2022) and March (2015, 2019, 2023) through May (2015, 2019, 2023), all anglers combined. N is the number of harvested Blue Catfish observed during creel surveys, and TH is the total estimated harvest for the creel period.

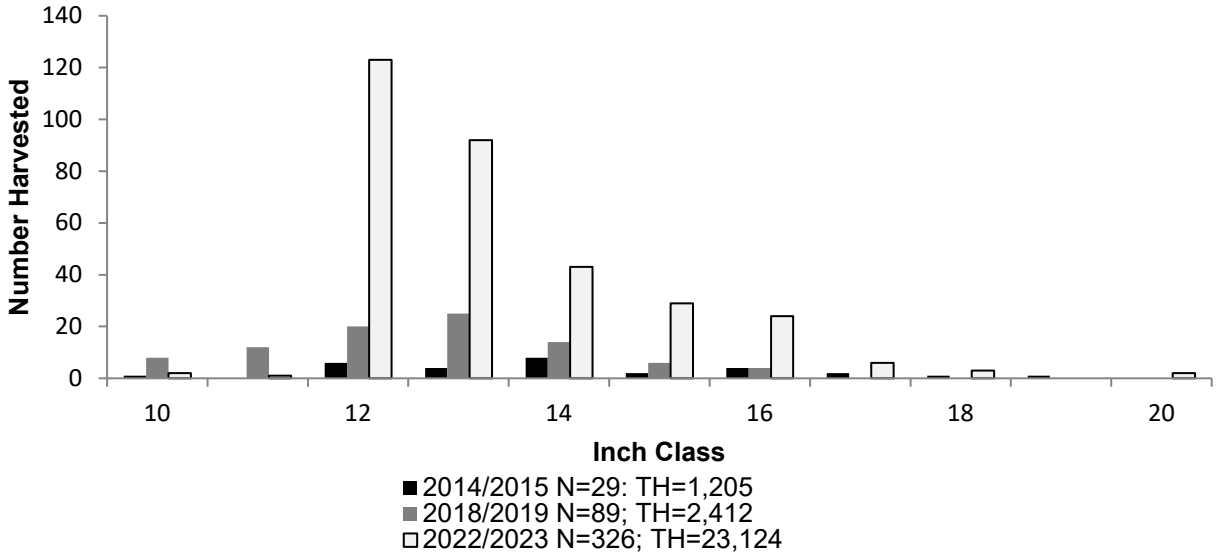


Figure 7. Length frequency of harvested Channel Catfish observed during creel surveys at Richland-Chambers Reservoir, Texas, from June (2014, 2018, 2022) through November (2014, 2018, 2022) and March (2015, 2019, 2023) through May (2015, 2019, 2023), all anglers combined. N is the number of harvested Channel Catfish observed during creel surveys, and TH is the total estimated harvest for the creel period.

White Bass

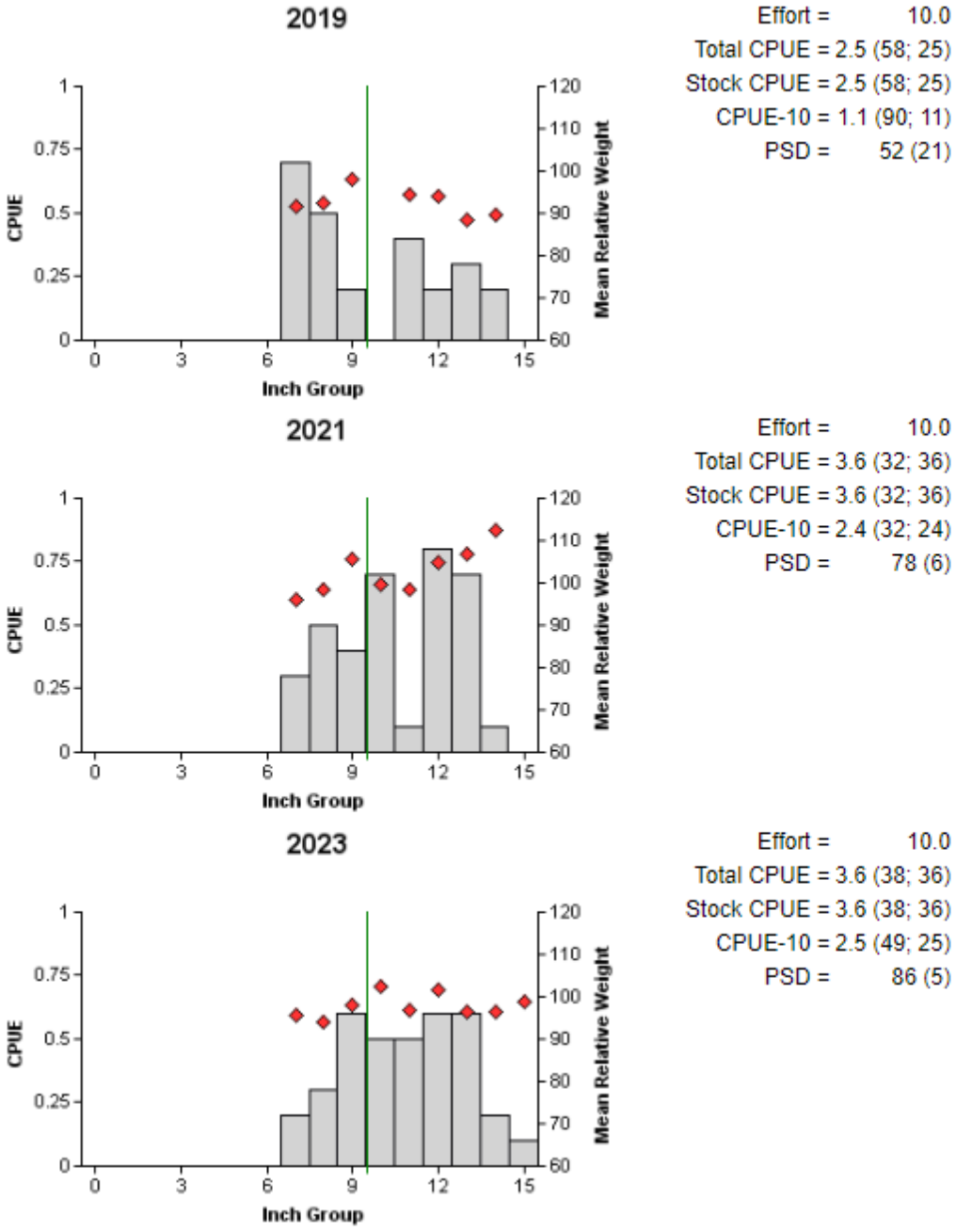


Figure 8. Number of White Bass caught per net night (CPUE, bars), mean relative weight (diamonds), and proportional size distribution (PSD; RSE and N for CPUE and SE for PSD are in parentheses) for gill net surveys, Richland-Chambers Reservoir, Texas, 2019, 2021, and 2023. PSD-P represents the proportional size distribution of preferred sized (12 inches or greater) White Bass.

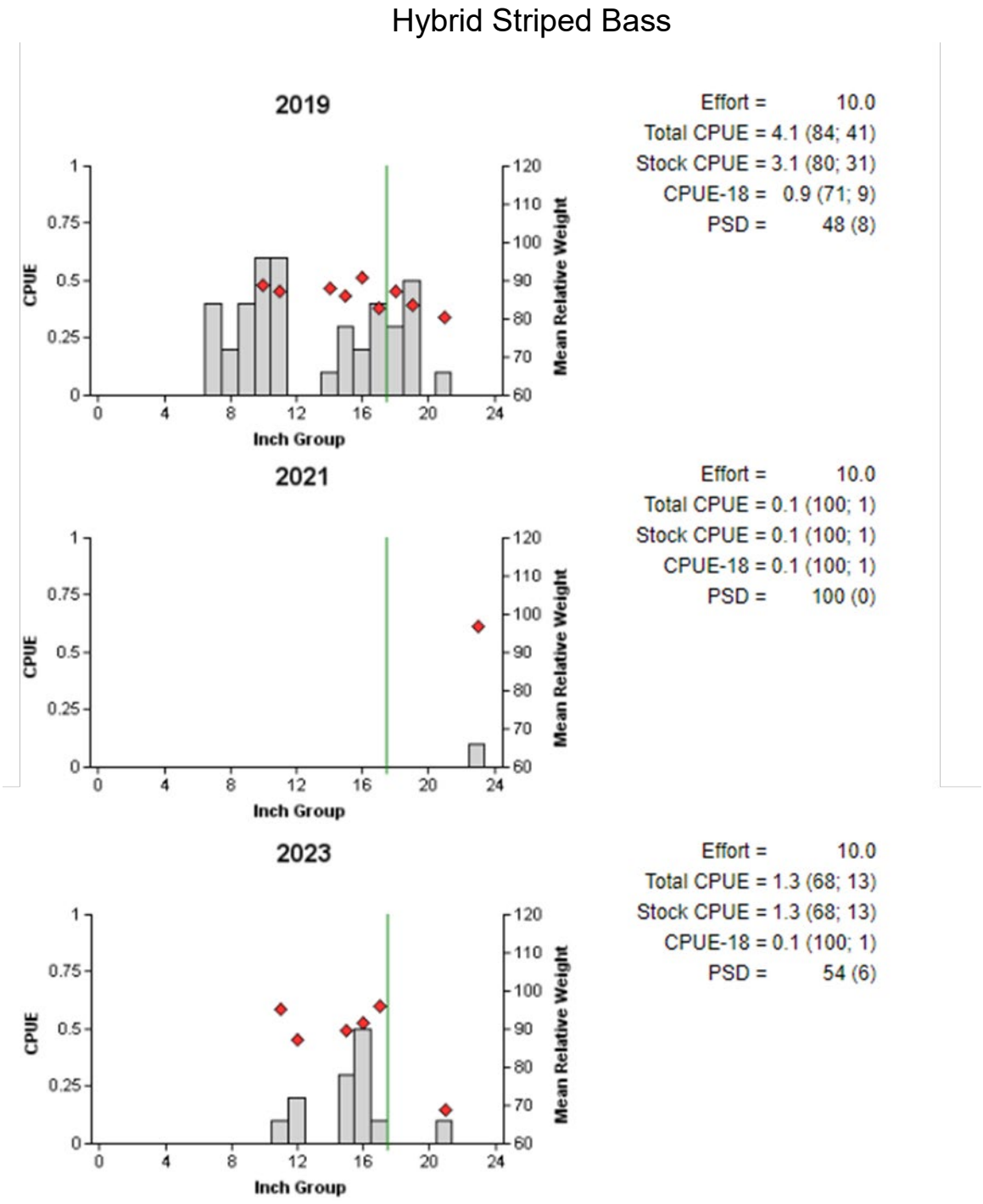


Figure 9. Number of Hybrid Striped Bass caught per net night (CPUE, bars), mean relative weight (diamonds), and proportional size distribution (PSD; RSE and N for CPUE and SE for PSD are in parentheses) for gill net surveys, Richland-Chambers Reservoir, Texas, 2019, 2021, and 2023. PSD-P represents the proportional size distribution of preferred sized (20 inches or greater) Hybrid Striped Bass.

Table 10. Creel survey statistics for temperate bass at Richland-Chambers Reservoir, Texas, from June (2014, 2018, 2022) through November (2014, 2018, 2022) and March (2015, 2019, 2023) through May (2015, 2019, 2023), all anglers combined. Total catch per hour is for anglers targeting temperate bass and total harvest is the estimated number of catfishes harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	Year		
	2014/2015	2018/2019	2022/2023
Surface area (acres)	36,495	41,356	40,431
Directed effort (h)	27,451 (25)	14,718 (37)	25, 463 (34)
Directed effort/acre	0.8 (25)	0.4 (37)	0.6 (34)
Total catch per hour	2.6 (23)	2.8 (15)	3.9 (22)
Total harvest	38,562	27,473	81,919
White Bass	37,497 (32)	18,779 (51)	73,009 (50)
Hybrid Striped Bass	1,065 (187)	8,694 (64)	8,910 (66)
Harvest/acre	1.1	0.7	2.0
White Bass	1.1 (32)	0.4 (51)	1.8 (50)
Hybrid Striped Bass	<0.1 (187)	0.2 (64)	0.2 (66)
Percent legal released	2	15	14

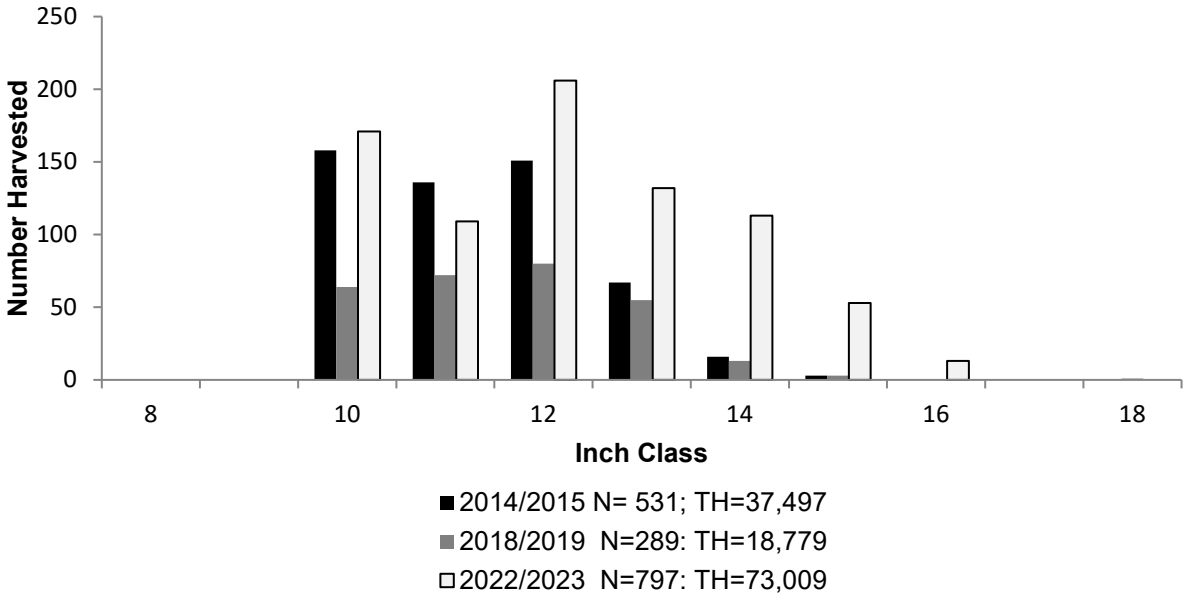


Figure 10. Length frequency of harvested White Bass observed during creel surveys at Richland-Chambers Reservoir, Texas, from June (2014, 2018, 2022) through November (2014, 2018, 2022) and March (2015, 2019, 2023) through May (2015, 2019, 2023), all anglers combined. N is the number of harvested White Bass observed during creel surveys, and TH is the total estimated harvest for the creel period.

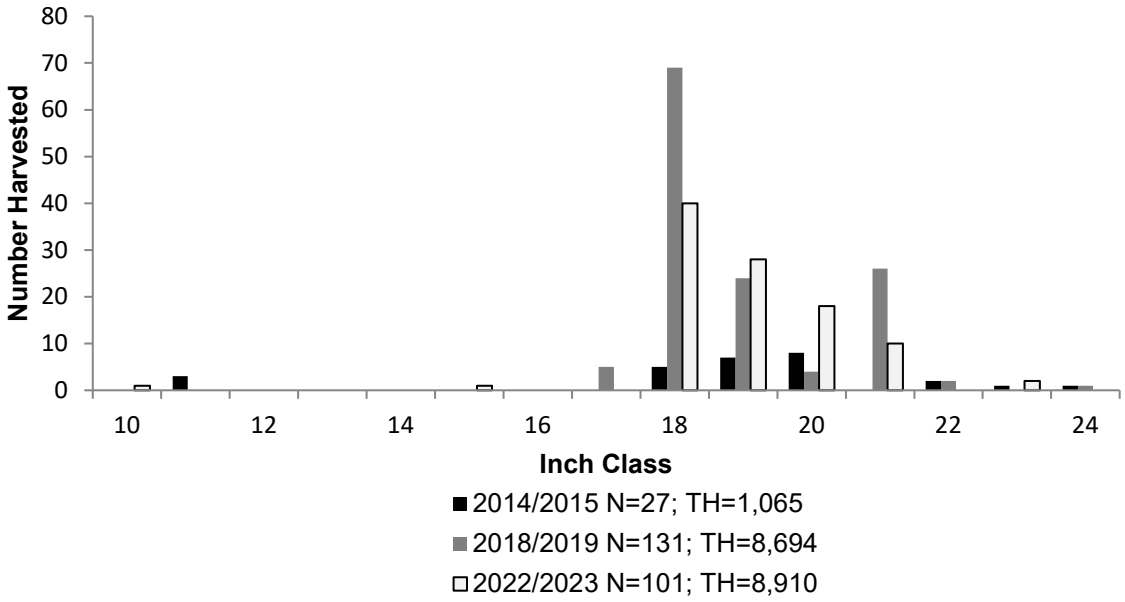


Figure 11. Length frequency of harvested Hybrid Striped Bass observed during creel surveys at Richland-Chambers Reservoir, Texas, from June (2014, 2018, 2022) through November (2014, 2018, 2022) and March (2015, 2019, 2023) through May (2015, 2019, 2023), all anglers combined. N is the number of harvested Hybrid Striped Bass observed during creel surveys, and TH is the total estimated harvest for the creel period.

Largemouth Bass

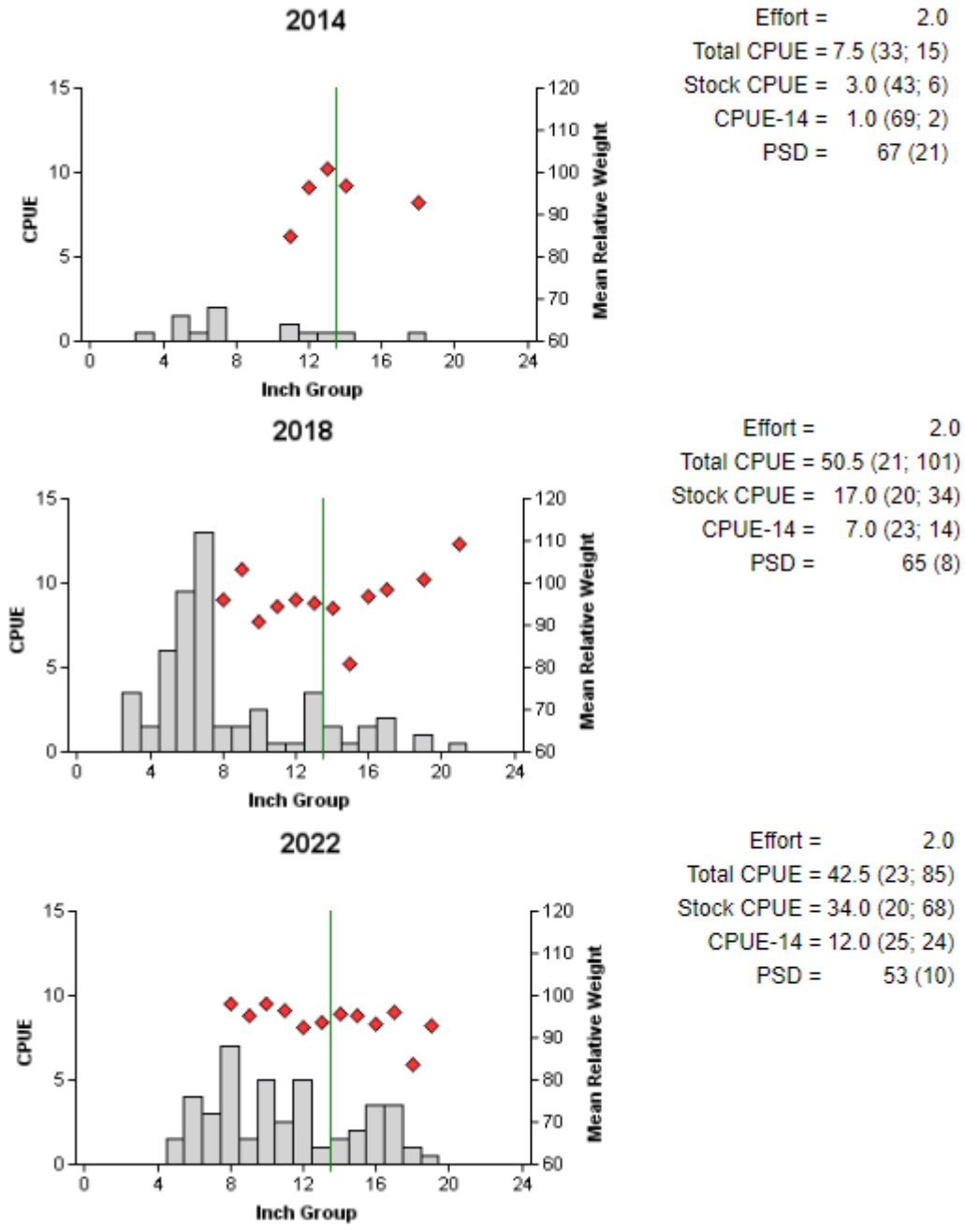


Figure 12. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and proportional size distribution (PSD; RSE and N for CPUE and SE for size structure are in parentheses) for fall daytime electrofishing surveys, Richland-Chambers Reservoir, Texas, 2014, 2018, and 2022. CPUE-14 represents the catch rates of legal length Largemouth Bass and the vertical line in graphs is also at legal length (14 inches).

Table 11. Creel survey statistics for Largemouth Bass at Richland-Chambers Reservoir, Texas, from June (2014, 2018, 2022) through November (2014, 2018, 2022) and March (2015, 2019, 2023) through May (2015, 2019, 2023), all anglers combined. Catch rate is for all anglers targeting Largemouth Bass. Harvest is partitioned by the estimated number of fish harvested by non-tournament anglers and the number of fish retained by tournament anglers for weigh-in and release. The estimated number of fish released by weight category is for anglers targeting Largemouth Bass. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	Year		
	2014/2015	2018/2019	2022/2023
Surface area (acres)	36,495	41,356	40,431
Directed angling effort (h)			
Tournament	12,807 (32)	20,322 (29)	29,399 (29)
Non-tournament	6,566 (33)	7,912 (40)	40,728 (34)
All black bass anglers combined	19,373 (32)	28,234 (32)	70,127 (30)
Angling effort/acre	0.5 (32)	0.7 (32)	1.7 (30)
Catch rate (number/h)	0.3 (28)	0.4 (23)	0.4 (14)
Harvest			
Non-tournament harvest	83 (2,169)	118 (329)	217 (414)
Harvest/acre	< 0.1 (2,169)	< 0.1 (329)	<0.1 (414)
Tournament weigh-in and release	889 (71)	1,454 (69)	3,440 (99)
Release by weight			
<4.0 lbs	7,959 (118)	8,889 (74)	14,972 (64)
4.0-6.9 lbs	447 (117)	364 (96)	1,768 (77)
7.0-9.9 lbs	54 (103)	0	383 (93)
≥10.0 lbs	0	0	0
Percent legal released (non-tournament)	93	95	97

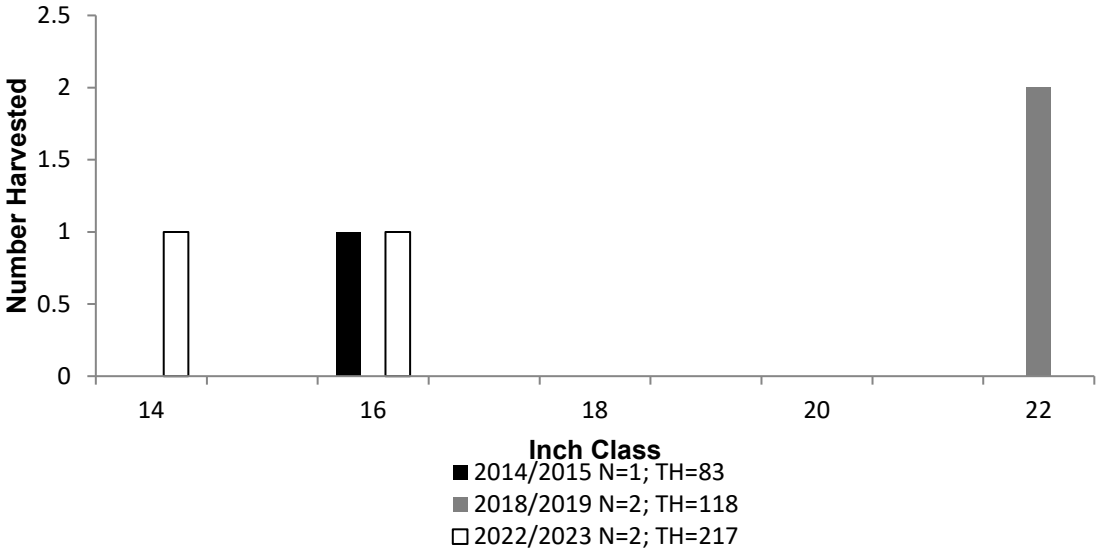


Figure 13. Figure 7. Length frequency of harvested Largemouth Bass observed during creel surveys at Richland-Chambers Reservoir, Texas, from June (2014, 2018, 2022) through November (2014, 2018, 2022) and March (2015, 2019, 2023) through May (2015, 2019, 2023), all anglers combined. N is the number of harvested Largemouth Bass observed during creel surveys, and TH is the total estimated harvest for the creel period.

Crappie

Table 12. Creel survey statistics for crappie at Richland-Chambers Reservoir, Texas, from June (2014, 2018, 2022) through November (2014, 2018, 2022) and March (2015, 2019, 2023) through May (2015, 2019, 2023), all anglers combined. 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		
	2014/2015	2018/2019	2022/2023
Surface area (acres)	36,495	41,356	40,431
Directed effort (h)	14,871 (26)	5,061 (42)	16,519 (34)
Directed effort/acre	0.4 (26)	0.1 (42)	0.4 (34)
Total catch per hour	1.5 (35)	1.4 (15)	1.9 (29)
Total harvest	7,319	17,934	39,909
White Crappie	7,538 (54)	4,103 (74)	29,491 (46)
Black Crappie	10,396 (45)	3,216 (83)	11,418 (72)
Harvest/acre	0.4	0.1	1.0
White Crappie	0.2 (54)	0.9 (74)	0.7 (46)
Black Crappie	0.3 (45)	0.2 (83)	0.3 (72)
Percent legal released	0	0	4

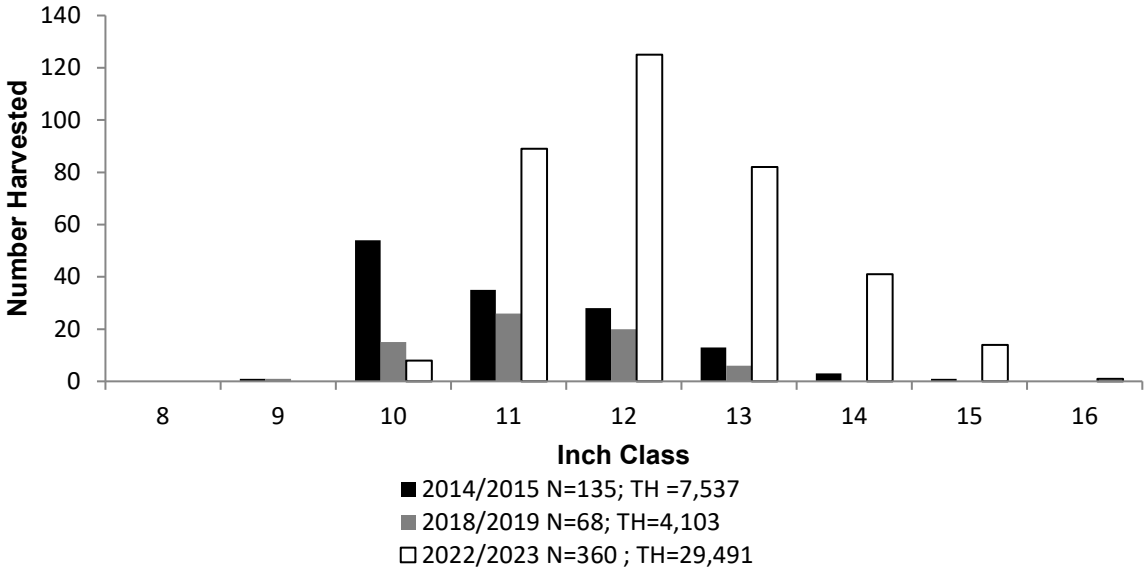


Figure 14. Length frequency of harvested White Crappie observed during creel surveys at Richland-Chambers Reservoir, Texas, from June (2014, 2018, 2022) through November (2014, 2018, 2022) and March (2015, 2019, 2023) through May (2015, 2019, 2023), all anglers combined. N is the number of harvested White Crappie observed during creel surveys, and TH is the total estimated harvest for the creel period.

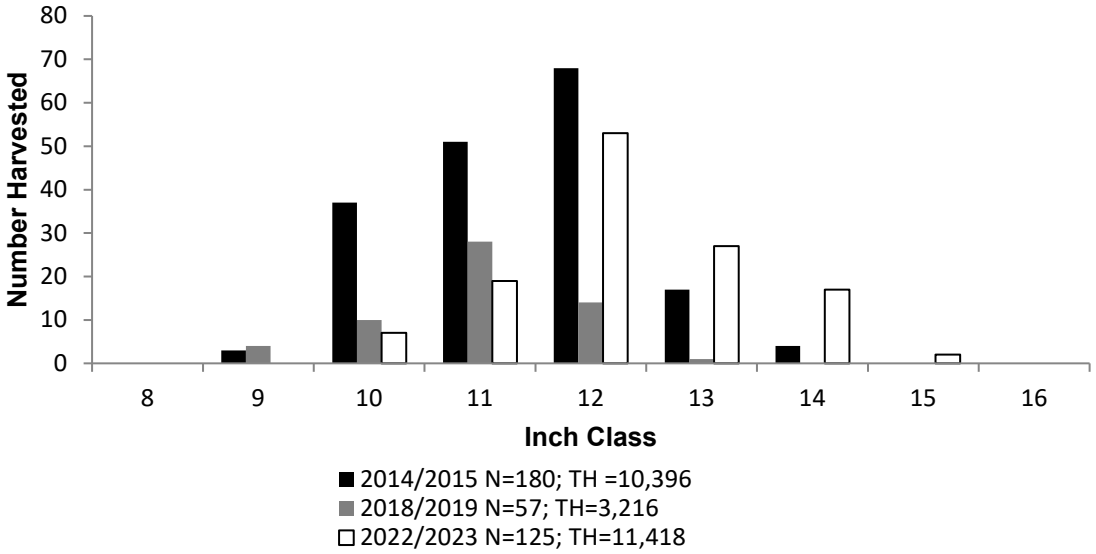


Figure 15. Length frequency of harvested Black Crappie observed during creel surveys at Richland-Chambers Reservoir, Texas, from June (2014, 2018, 2022) through November (2014, 2018, 2022) and March (2015, 2019, 2023) through May (2015, 2019, 2023), all anglers combined. N is the number of harvested Black Crappie observed during creel surveys, and TH is the total estimated harvest for the creel period.

Proposed Sampling Schedule

Table 13. Proposed sampling schedule for Richland-Chambers 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.

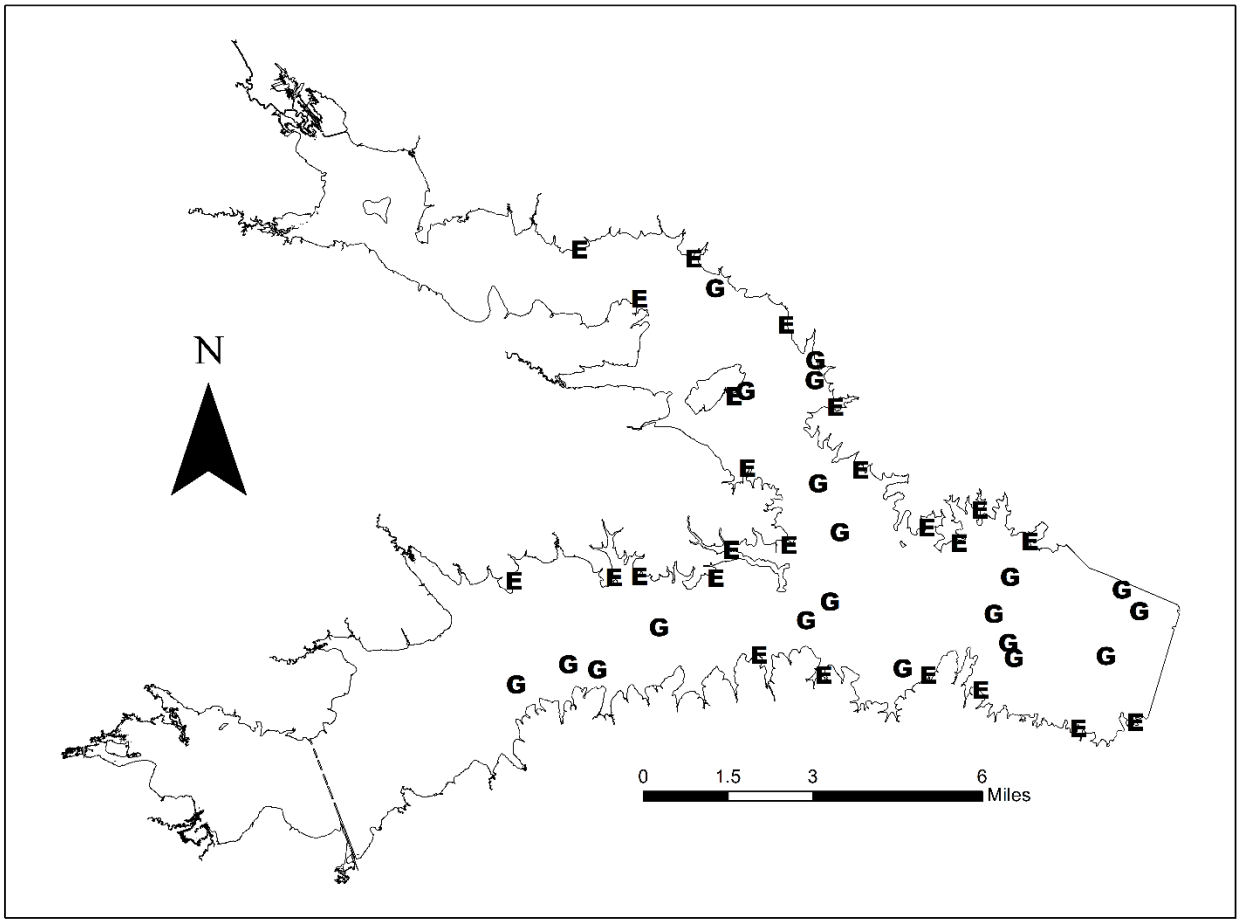
	Survey year			
	2023-2024	2024-2025	2025-2026	2026-2027
Vegetation				X
Structural Habitat				X
Daytime Electrofishing				X
Gill Netting		X		X
Creel Survey				X
Report				X

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 Richland-Chambers Reservoir, Texas, 2021-2023. Sampling effort was 20 net nights for gill netting and 2 hours for electrofishing.

Species	Electrofishing		Gill Netting	
	N	CPUE	N	CPUE
Gizzard Shad	760	380.0 (27)		
Threadfin Shad	5,521	2,760.5 (31)		
Blue Catfish			477	23.9 (14)
Channel Catfish			21	1.1 (42)
White Bass			72	3.6 (24)
Hybrid Striped Bass			13	0.65 (70)
Green Sunfish	1	0.5 (100)		
Longear Sunfish	5	2.5 (64)		
Largemouth Bass	85	42.5 (23)		

APPENDIX B – Map of sampling locations



Location of sampling sites, Richland-Chambers Reservoir, Texas, 2021-2023. Electrofishing and gill net stations are indicated by E and G, respectively. Water level was near full pool at time of sampling.

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