Choke Canyon Reservoir

2023 Fisheries Management Survey Report

PERFORMANCE REPORT

As Required by

FEDERAL AID IN SPORT FISH RESTORATION ACT

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INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

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Survey and Management Summary

Fish populations in Choke Canyon Reservoir were surveyed in 2023 using electrofishing and in 2024 using spring electrofishing and gill netting. Anglers were surveyed from January 2024 through June 2024 with an access creel survey. Historical data are presented with the 2023-2024 data for comparison. This report summarizes the results of the surveys and contains a management plan for the reservoir based on those findings.

Reservoir Description: Choke Canyon is a 25,989-acre reservoir (averaged 12,626 acres and ranged from 10,126 to 15,818 in 2022- 2024; decreasing to 10,126 acres by July 2024) located on the Frio River in the Nueces River Basin, approximately 80 miles south of San Antonio. Its main purposes are water supply and recreation. The reservoir has a history of substantial water level fluctuations. The substrate is composed primarily of silt, sand, clay, and gravel/rock. Littoral habitat consisted of native aquatic vegetation, periodically flooded terrestrial vegetation, standing timber, hydrilla, and seasonally abundant water hyacinth.

Management History: Important sport fish species include Largemouth Bass, Blue and Channel Catfishes, White Bass, and crappies. Alligator Gar are also an important component to the overall fishery. Recent management efforts have focused on control of nuisance aquatic vegetation, documenting catch of trophy Largemouth Bass and promoting the ShareLunker Program, enhancing the Largemouth Bass population with stockings, and developing an Alligator Gar monitoring program. Staff annually monitored access areas where invasive vegetation could restrict use. The district has worked with the City of Corpus Christi to develop and implement a water hyacinth control program. District staff conducted herbicide treatments of water hyacinth from 2008 through 2015 (926 total acres). Since 2016, water hyacinth herbicide applications have been conducted through private contractors including treatments in 2016 (132 acres), 2017 (566 acres), 2018 (104 acres), 2019 (5 acres), 2022 (310 acres), and 2023 (125 acres). Prior to 2021, angler harvest of all sport fishes had been regulated according to statewide size and bag limits. In September 2021, the regulation for Blue and Channel Catfish changed from the statewide regulation to a 14-inch minimum length, 15-fish daily bag limit.

Fish Community

- **Prey species:** Gizzard Shad, Redear, and Bluegill were present in moderate abundance. Collectively, these species formed the primary forage base. The majority of prey species collected were adequate size for most predator fish.
- **Alligator Gar:** A notable reduction in harvested Alligator Gar was reported through the mandatory reporting system in recent years, no creel catches were captured; however, a trophy fishery exists.
- **Catfishes:** Blue Catfish abundance remained high and size structure comprised a wide size range of fish with good recruitment. Channel and Flathead Catfish were present in low abundance. Overall directed effort and harvest decreased in 2024 compared to previous years.
- **White Bass:** Abundance of White Bass was low throughout the survey period. Overall harvest had decreased in 2024, similarly effort for White Bass similarly decreased. Surprisingly, those who sought White Bass were highly successful.
- **Largemouth Bass:** Largemouth Bass abundance increased from previous surveys and size structure was primarily comprised of smaller individuals. Growth was excellent and mean age at legal length was 1.8 years. Largemouth Bass were the most sought-after sport fish species in the reservoir; including both tournament and non-tournament anglers. The percentage of angling effort directed at Largemouth Bass and the angler catch rate of Largemouth Bass increased in 2024, however compared to previous years directed effort for Largemouth Bass and all other sportfishes decreased.
- **White Crappie:** White and Black crappies were present within the reservoir and remain important components to the overall sport fishery. The percentage of angler effort directed at crappie and angler catch rate of crappie both increased in 2024, however compared to previous years directed effort for Largemouth Bass and all other sportfishes decreased.

Management Strategies: Continue to manage sport fish populations under existing harvest regulations. Continue to assist the City of Corpus Christi with the water hyacinth control program. Monitor access areas with annual nuisance vegetation surveys where water hyacinth and hydrilla could restrict use. Assist Texas State University with annual zebra mussel veliger monitoring. Stock Lone Star Bass to maintain trophy potential and continue to collect data for the Largemouth Bass trophy database. Continue to refine the Alligator Gar monitoring program to track population trends and monitor harvest through the mandatory harvest reporting system, seek support to revitalize interest in the mandatory harvest reporting with new signage. Work with State Parks to investigate a new location for a low water boat ramp in times of drought.

Introduction

This document is a summary of fisheries data collected from Choke Canyon Reservoir in 2023-2024. The purpose of the document is to provide fisheries information and make management recommendations to protect and improve the sport fishery. While information on other fishes was collected, this report deals primarily with major sport fishes and important prey species. Historical data are presented with the 2023-2024 data for comparison.

Reservoir Description

Choke Canyon is a 25,989-acre reservoir (averaged 12,626 acres in 2022-2024) located in the Nueces River Basin on the Frio River. The reservoir was impounded in 1982 and lies approximately 80 miles south of San Antonio. The controlling authority is the City of Corpus Christi. Its primary functions are water supply and recreation. The reservoir has a history of substantial water level fluctuations (Figure 1) and has been steadily decreasing (13-foot drop) since the rise encountered in the spring and summer of 2021. During the 2023-2024 sampling season the reservoir averaged 28.9 feet below conservation pool, due to an extended drought. Choke Canyon Reservoir was classified as eutrophic with a mean TSI cl-a of 59.74 (Texas Commission on Environment Quality 2022). Secchi disc measurements of water clarity ranged from 28 to 43 inches. The substrate was composed primarily of silt, sand, clay, and gravel/rock. Littoral habitat consisted of standing timber, periodically flooded terrestrial vegetation, native aquatic vegetation, and seasonally abundant non-native vegetation. Native aquatic vegetation and hydrilla reestablished and became more widespread in the reservoir after a substantial water level rise in 2002. Water hyacinth became established in 2006 and has been treated with herbicides annually, excluding 2014, 2020, and 2021. Other descriptive characteristics of the reservoir are in Table 1.

Angler Access

Choke Canyon Reservoir has four public boat ramps and no private boat ramps. All four public ramps were available to anglers in 2023 and winter of 2024, however, due to decreasing water levels, in spring of 2024 only one public boat ramp (Calliham ramp) was available for use for all boats, whereas Southshore was barricaded due to an exposed earthen hump at the end of the ramp and Hwy 99 and Mason Point were both accessible to non-motorized watercraft. The Calliham and Southshore ramp courtesy docks were replaced in 2013 and 2018, respectively. A boat ramp repair project at Southshore commenced in 2017 and repairs were completed early in 2018 and the launch reopened for public use in February 2018. Additional boat ramp characteristics are in Table 2. Shoreline access is adequate and available at all boat ramp launch sites as well as extensive shoreline located at Southshore and Calliham units within Choke Canyon State Park. The Calliham unit also offers an extended fishing jetty.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Binion and McDonald 2022) included:

1. Stock Lone Star Bass annually to enhance trophy potential. Promote the ShareLunker program and monitor entries.

   Action: Lone Star Bass fingerlings were stocked in 2023 and 2024 at a rate of 1,000/km based on historic and recent water levels.

2. Monitor Alligator Gar population trends (recruitment, adult abundance, harvest, harvest size composition) and promote the fishery through press releases.

   Action: The one-fish daily bag was maintained, and harvest of Alligator Gar was monitored through the mandatory harvest reporting system. Adult abundance and recruitment were not surveyed due to insufficient water levels (drought), access to identified survey locations was non-navigable.

3. Monitor presence, distribution, and spread of aquatic invasive species (i.e., aquatic vegetation, zebra mussels) and implement control measures, as needed.

   Action: Invasive vegetation was monitored annually with vegetation surveys. District staff coordinated with the Aquatic Habitat Enhancement (AHE) team, the City of Corpus Christi, and private contractors to manage and control water hyacinth through herbicide applications. One hundred and twenty-five acres of water hyacinth were treated in 2023. District staff assisted Texas State University with annual zebra mussel veliger monitoring as part of the Texas Early Detection Project.

Harvest regulation history: Historically, harvest of sport fishes in Choke Canyon Reservoir have been managed with statewide regulations. In 2009, a one-fish daily bag limit was implemented for Alligator Gar and mandatory harvest reporting for Alligator Gar was implemented on September 1, 2019. In 2021, the regulation for Blue and Channel Catfish was changed from a 12-inch minimum length limit (MLL), 25-fish daily bag limit to a 14-inch MLL, 15-fish daily bag limit (Table 3).

Stocking history: Lone Star Bass fingerlings have been stocked annually since 2022, prior to this Florida Largemouth Bass fingerlings had been stocked annually from 2016 to 2021, and sporadically since 1981. Northern Largemouth Bass (NLMB) were stocked from 2003 to 2005 as part of a research project examining the potential for increasing NLMB alleles in reservoirs with high Florida Largemouth Bass (FLMB) introgression. A complete stocking history can be found in Table 4.

Vegetation/habitat management history: Historically, growth of hydrilla at boat ramps has been controlled with herbicides. Isolated colonies of water hyacinth were found in the reservoir from 1998 through 2005. These colonies were initially removed by hand. In 2006, herbicide treatments were initiated as water hyacinth coverage was too great to mechanically remove. District staff conducted herbicide treatments on water hyacinth in 2008 (195 acres), 2009 (80 acres), 2010 (525 acres), 2011 (45 acres), 2012 (51 acres), and in 2015 (30 acres). Starting in 2016, water hyacinth control was conducted through private contractors with coordination and oversight by TPWD Aquatic Habitat Enhancement (AHE) Team and the City of Corpus Christi. This included treatments in 2016 (132 acres), 2017 (566 acres), 2018 (104 acres), 2019 (5 acres), 2022 (345 acres), 2023 (125 acres) and none treated as of May 2024.

Water transfer: Choke Canyon Reservoir is primarily used for municipal/industrial water supply, recreation, and to a lesser extent, flood control. Fifty-eight acre-feet of water is released daily to downstream Lake Corpus Christi Reservoir, with intermittent larger releases as needed. Intermittent larger releases of water were dependent on water level at Lake Corpus Christi. There is one permanent pumping station on the reservoir transferring water to the municipality of Three Rivers. There are currently no proposals to install additional pumping stations. No inter-basin transfers exist.

Methods

Surveys were conducted to achieve survey and sampling objectives in accordance with the objective-based sampling (OBS) plan for Choke Canyon Reservoir (Binion and McDonald 2022). Primary components of the OBS plan are listed in Table 5. All survey sites were randomly-selected (excluding Alligator Gar sampling –multifilament gill netting) and all surveys were conducted according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2022).

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

Electrofishing – Largemouth Bass, sunfishes, Gizzard Shad, and Threadfin Shad were collected by fall electrofishing (2 hours at 24, 5-min stations). Largemouth Bass were also collected with spring electrofishing (2 hours at 24, 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. Age at legal length for Largemouth Bass were determined using otoliths from 13 randomly selected fish (range 13.0 to 14.9 inches; category II, TPWD, Inland Fisheries Division, unpublished manual, revised 2022). Electrofishing surveys in sampling year 2023 was conducted using a Smith-Root Apex electrofisher, while previous surveys used GPP 7.5 electrofisher.

Gill netting – Blue Catfish, Channel Catfish, and White Bass 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).

Statistics – Sampling statistics (CPUE for various length categories), structural indices [Proportional Size Distribution (PSD), terminology modified by Guy et al. 2007], and condition indices [relative weight (Wr)] were calculated for target fishes according to Neumann et al. (2012). Index of Vulnerability (IOV) was calculated for Gizzard Shad (DiCenzo et al. 1996). Standard error (SE) was calculated for structural indices and IOV. Relative standard error (RSE = 100 X SE of the estimate/estimate) was calculated for all CPUE and creel statistics.

Creel survey – An access-point creel survey was conducted from January through June in 2024. Angler interviews were conducted on 7 weekend days and 5 weekdays (per quarter) in 2024 to assess angler use and fish catch/harvest statistics in accordance with the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2017). Creel statistics and estimates for the 2024 surveys were based on a 6-month period in accordance with the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2022).

Habitat – A vegetation survey was conducted in 2023 to monitor expansion of water hyacinth and hydrilla. In addition, a structural habitat survey on the littoral zone including flooded timber in 2023. Habitat and littoral structural habitat was assessed with the digital shapefile method (TPWD, Inland Fisheries Division, unpublished manual revised 2022).

Water level – Source for water level data was the United States Geological Service (USGS) website (https://waterdata.usgs.gov). Accessed 1 May 2024.

Results and Discussion

Habitat: Littoral zone structural habitat consisted primarily of natural and rocky shoreline (Table 6). In 2023, total native vegetation coverage was 161 acres (1.0%; Table 7), a slight increase from the total native vegetation coverage recorded in 2021 (128 acres). Water stargrass, coontail, and American pondweed were the most abundant native vegetation species encountered. Total non-native vegetation coverage in 2023 was 384 acres (3.0%); a decrease in coverage observed in 2021 (1,221 acres; 7.2%). Hydrilla comprised the majority of non-native vegetation observed during 2023 (236 acres; 1.8%).

Creel: Directed fishing effort decreased for all species in Choke Canyon with the single exception of Alligator Gar. Percent directed fishing effort by anglers was highest for Largemouth Bass (64%; tournament [26%] and non-tournament [38%]), followed by catfishes (20%), crappies (9%), White Bass (3%), no species preference (2.5%), and Alligator Gar 1.1%; (Table 8). Notable trends in the percent directed fishing effort in 2024 include an increased percentage of anglers targeting Largemouth Bass, crappies and Alligator Gar, and a decreased percentage of anglers targeting catfishes, White Bass, and no species preference. While directed effort was low, mandatory harvest reporting indicated Alligator Gar were an important component of recreational angling. Total fishing effort for all species was 60,644 hours with total expenditures of $736,829 through the first half of 2024, a significant decrease compared to previous years (Table 9). This decrease of effort and expenditures is most likely related to decreased access due to drought and national economic inflation. While some anglers traveled great distances (> 1000 miles) to fish at the reservoir, the majority (97%) resided within 250 miles (Appendix A).

Prey species: Electrofishing catch rates of Gizzard Shad and Bluegill were 30.0/h and 92.5/h, respectively. Index of Vulnerability (IOV) for Gizzard Shad was moderate, indicating that 50% of Gizzard Shad were available to existing predators; this was similar to IOV estimates in previous years (Figure 2). Total CPUE of Gizzard Shad was considerably lower in 2023 (30/h) compared to the 2021 (52.5/h) and 2019 (151/h) surveys. Contrary to this, total CPUE of Bluegill in 2023 (92.5/h) was higher than total CPUE from surveys in 2021 (48.5/h) and 2019 (47.0/h), and size structure was dominated by small individuals (Figure 3). The majority of Bluegill collected since 2019 were <6-inches total length (TL) and thus provided supplemental forage to predator species. However, sampling also indicated the presence of larger Bluegill (CPUE-6 = 18.5/h); adding recreational value for anglers. Redear Sunfish, Threadfin Shad, and Inland Silverside also contributed to the overall forage base (Appendix B). Based on our survey the results indicated adequate prey base for sport fish and that availability of prey should not be a limiting factor to the growth and condition of sport fish in the reservoir.

Alligator Gar: Alligator Gar has historically been an important component to the overall fishery and the population is robust in terms of numbers and size of fish (Binion et al. 2015). Total directed effort for Alligator Gar increased to 1.1% (693 hours) relative to 2020 (< 1.0%; 480 hours; Table 10). However, total harvest for Alligator Gar in 2024 was estimated at 0 individuals with our creel analysis. Total directed effort is likely underrepresented due to nighttime fishing effort and bow fishing tournaments that are not captured in the standard creel survey design. The mandatory harvest reporting system has shown a reduction in reporting. From September 2022 – June 2023, only 10 harvested Alligator Gar were reported and from September 2023 – June 2024, only 6 harvested Alligator Gar were reported. Within this timeframe 69% of the harvested Alligator Gar reported were ≥ 5-feet TL and 38% were > 6-feet TL. Bow-fishing and rod and reel angling were evenly split at 50%, no passive gear harvesting was reported. The decrease in reported harvests is most likely due to the combination of decreased fishing access west of Greyhound Point and the Frio River (both popular areas known for Alligator Gar) and decreased reporting/awareness with/of the mandatory harvest reporting system.

Catfishes: Blue Catfish abundance remained high over the survey period (CPUE range: 19.1 – 38.9/nn; Figure 4) and the catch rate in 2024 (38.9/nn) was higher than the historical average (23.3/nn). Proportional size distribution indicated a decline in size structure in 2024 (PSD = 7) relative to 2022 (PSD = 18) and 2020 (PSD = 8), and 33% of the fish collected in 2024 were ≥ 14-inches and available to angler harvest. Several quality-size fish were collected in 2024 (1.3/nn), decreasing from 2022 (3.1/nn), but similar to 2020 (1.3/nn). Condition of fish ≥ 14 inches remained consistent across years for most size classes and tended to increase with increased length.

Although a slight increase in relative abundance was observed over the survey period, Channel Catfish abundance remained low (CPUE range: 1.2 – 3.7/nn; Figure 5). Size composition was completely dominated by small individuals and 100% of fish collected were sub-legal.

Total catfish directed effort (12,216 hours) and total harvest (2,797 fish) suggest a significant decrease compared to previous creel surveys, this is likely in response to the extremely low water levels Choke Canyon is currently experiencing (Table 11). Even though catfish angling continues to be the second most favored fishery at Choke Canyon at 20% drought has limited access in the spring of 2024 to only a single boat ramp (Calliham ramp). Harvested Blue Catfish ranged in size from 12 - 37 inches (Figure 6) and Channel Catfish sizes ranged from 12 – 17 inches (Figure 7).

White Bass: The gill net catch rate of White Bass was 0.53/nn in 2024. Catch rates indicated that White Bass continue to be present in the reservoir at a low density. Due to so few collections, length data was not reported.

White Bass anglers accounted for only 3% of the total fishing effort. Angling success for White Bass was very good for those seeking them (3.5/h) however total harvest was low (6,320 fish; Table 12) a result of decreased fishing effort. Harvested fish ranged between 10 – 14 inches in total length (Figure 8).

Largemouth Bass: Relative abundance of Largemouth Bass increased considerably over the survey period and may be representative of a concentration of bass in submerged vegetation due to effects of drought. Total fall electrofishing catch rate was 176.5/h in 2023, higher than 96.5/h in 2021 and 85.5/h in 2019 (Figure 9). Catch rates of stock-size fish greatly improved (102.5/h) compared to 2021 (77.0/h) and 2019 (28.0/h). Only 8.4% of the total electrofishing catch comprised of legal-size fish (CPUE-14 = 15.0/h). Population size structure in 2023 was balanced (PSD = 41) with a strong recruitment cohort present. In 2024, relative weights of Largemouth Bass were fair (Wr ≥ 85) for most size classes and increased with length. Spring electrofishing rates decreased in 2024 since 2022, 29.5 and 85.5/h respectively, and is likely due to decreased habitat associated with decreased water levels, further size-structure data suggests that preferred and memorable size-classes are still available for capture (Figure 10). Continued decreases in water level since the previous report have led to decreased native submerged vegetation (by 50%) and exotic vegetation (by 80%), which has also led to a decrease in overall available forage. Downward water level trends will need to slow or stabilize for submerged vegetation and forage to rebound. Historically, forage has corresponded with increased vegetation and/or spring-timed flooding of terrestrial growth. Further, sub-stock bass (<8” in TL) showed a corresponding decline with a significant drought between years 2010 and 2015. Largemouth Bass mean age at legal length in 2024 was 1.8 years (N = 13; range: 1 – 2). Growth was considered fast and has maintained a rate ranging from 1.7 – 1.9 years since 2017 (Table 13). Introgression of FLMB genetics in the population has remained high (80-86% FLMB alleles since 2013) over the past decade (Binion and McDonald 2022).

Largemouth Bass was the most sought sport fish in the reservoir. Percent directed effort increased substantially in 2024 (63.9%) relative to 2020 and 2018 (Table 8) however directed fishing hours decreased significantly from 2020 (96,228 h) to 2024 (38,801 h) (Table 14). In 2024, tournament angling accounted for 41% of the directed effort, an increase from 2020 when tournament angling represented only 28% of the directed effort, suggesting a considerable decrease in non-tournament Largemouth Bass angling. Tournament angling catches increased in 2024 (2,637 fish) compared to 2020 (1,169 fish) suggesting successful tournaments. Angling catch rates increased to 0.9/h in 2024 compared to 2020 (0.6/h), suggesting a healthy population. The majority (95%) of legal Largemouth Bass caught were released, an increase from recent creel surveys (Table 14). Harvest decreased significantly in 2024 (376 fish) relative to 2018 (5,073 fish) and 2020 (3,234 fish). Harvested fish ranged from 14 – 19 inches in total length (Figure 11). Since the last report (2022), there have been eight Bass Pro Shops Lunker Class (8+ lbs.) lunker entries and four Strike King Elite Class (10+ lb.) lunker entries of Largemouth Bass. Some trophy-sized Largemouth Bass were caught and released by anglers in 2024 including one fish weighing >10 lbs. and five fish weighing between 7 – 10 lbs. (Table 14).

Crappies: Crappie angling was the third most popular fishery for Choke Canyon Reservoir at 8.8% directed effort, behind Largemouth Bass (63.9%) and catfishes (20.1%). Crappies remained an important component to the overall sport fishery however directed effort in 2024 (5,326 h) decreased compared to

previous years 2020 (10,341 h) and 2018 (11,838). Angler success from 2018, 2020 and 2024 were similar at around 1.3/h; Table 15). Angler compliance was excellent and harvested fish ranged in length between 10 – 15 inches, all years combined (Figure 12). Creel statistics (directed effort, angler catch rate, and total harvest) indicated a quality crappie population and ample opportunity for angling success. Decreased effort is likely due to reduced access (only a single boat ramp in use) rather than population dynamics.

Fisheries Management Plan for Choke Canyon Reservoir, Texas

Prepared – July 2024

ISSUE 1: During this survey period, Choke Canyon Reservoir experienced historic low water levels not encountered since the reservoir's filling in the mid-1980's (30.00 ft below conservation pool as of 7/04/2024). As of 04/01/2024, only a single access ramp (Calliham boat ramp) was in operation for outboard boats, previously operational boat ramps were observed to either be barricaded by State Park staff (Southshore) or only offered use for hand-launched watercraft (Hwy 99 and Mason Point). During this survey period, surface acreage had decreased from 13,629 acres to 10,126 acres. Creel survey (2024) statistics documented reduced fishing effort for all sought species, except for Alligator Gar, suggesting an overall decreased fishery usage of Choke Canyon Reservoir in direct response to decreased water levels and access. However, it should be noted that White Bass, Largemouth Bass and crappie catch rates increased, whereas catfishes and Alligator Gar catch rates decreased. With increasing demands of water needs by the City of Corpus Christi boating access may become a recurring issue.

MANAGEMENT STRATEGY

1. A preliminary ground-truthing assessment of the existing boat ramps by district staff confirmed that extensions of existing boat ramps, including Calliham boat ramp, would not be feasible due to inadequate water depths immediately beyond the ramps.
2. Coordinate with State Park Regional leadership to discuss the current status of the limited access and investigate alternative locations for a low-water boat ramp. Explore funding opportunities within State Parks and the Boater Access Program.

ISSUE 2: Historically, Choke Canyon Reservoir has supported a robust and healthy population of Alligator Gar in terms of number and size of fish. However, due to decreased water levels, navigation throughout the reservoir has been limited (areas west of Greyhound Point which encompasses the west timber field and the Frio River) to shallow running watercrafts. Lack of access has prevented our district team from navigating to historically known hot spots of Alligator Gar. Because of this, previously accessed Alligator Gar hot spots have not been accessible by boaters. Compounding this issue is a statewide reduction in harvest reporting of Alligator Gar, each of these issues (access and lack of reporting) may be responsible for the lack of harvest reports.

MANAGEMENT STRATEGY

1. Postpone adult Alligator Gar abundance monitoring until water levels have improved (> 199 mean water ft level) thus offering appropriate navigational access to previously confirmed hot spots.
2. Work with Creative Services and biologists to create new signage designed to educate Alligator Gar anglers that reporting harvest is mandatory and place them at popular boat ramps.

ISSUE 3: Choke Canyon is valued for its high-quality Largemouth Bass fishery and for catches of trophy-size fish. Through creel and ShareLunker catch records, 359 Largemouth Bass weighing >10 lbs. and 1,043 fish weighing between 7 and 10 lbs. were caught and released by anglers from 2009 – 2024. The reservoir has produced a total of 13 Legacy ShareLunkers (≥13 lbs). Further, the lake record was broken in 2009 and currently stands at 15.45 pounds. Continued introduction of Florida Largemouth Bass genetics is

necessary to enhance growth potential in the population and maintain the trophy legacy of this fishery.

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/km shoreline.
2. Maintain Largemouth Bass trophy database.
3. Promote the ShareLunker Program and monitor reservoir entries to the program.
4. Monitor genetics (% Florida alleles) with a new collection of fin clips taken during upcoming fall electrofishing survey (2025), last analysis was 2021.

ISSUE 4: Many invasive species threaten aquatic habitats and organisms in Texas and can adversely affect the state ecologically, environmentally, and economically. The financial costs of controlling and/or eradicating 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. Exotic plants such as water hyacinth and hydrilla have historically been a severe problem, primarily in the upper end and tributaries of the reservoir. These exotic plants restrict recreational use and can impact the quality of fish and wildlife habitat restricting growth and colonization of native vegetation. Further, in 2020 Choke Canyon Reservoir was added to a list of reservoirs for invasive mussel monitoring as part of the Texas Early Detection Project, in collaboration with Texas State University and other project partners.

MANAGEMENT STRATEGIES

1. Cooperate with the controlling authority to post appropriate signage at access points around the reservoir.
2. Contact and educate marina owners about invasive species, and provide them with posters, literature, etc., so that they can, in turn, educate their customers.
3. Educate the public about invasive species through the use of media and the internet.
4. Make a speaking point about invasive species when presenting to constituent and user groups.
5. Keep track of (i.e., map) existing and future inter-basin water transfers to facilitate potential invasive species responses.
6. Monitor water hyacinth and other invasive nuisance vegetation through vegetation surveys on an annual basis and continue to cooperate with the City of Corpus Christi on all vegetation control activities.
7. In cooperation with Texas State University, assist with annual zebra mussel veliger monitoring.

Objective-Based Sampling Plan and Schedule (2024–2028)

Sport fish, forage fish, and other important fishes

Sport and other recreationally important fish in Choke Canyon Reservoir include Alligator Gar, Blue, Channel, and Flathead Catfishes, White Bass, Largemouth Bass, and Black and White Crappies. Important forage species include Gizzard and Threadfin Shads, and Bluegill.

Low Density or Under-Utilized Fisheries

Channel Catfish: Channel Catfish are present, but abundance is relatively low. Since 1989, the mean gill net CPUE was 2.5/nn. An exploratory baited tandem hoop net survey was conducted in the summer of 2015 and yielded a catch rate of 2.0 fish/series. Further, directed fishing effort for Channel Catfish is non-existent based on the latest creel survey in 2024 and low (<1.0%) on previous surveys. CPUE will be recorded for standard gill net samples and large-scale changes in angler effort and harvest will be monitored with the 2028 creel survey (Table 16). Currently, the population does not warrant expending additional sampling effort.

Flathead Catfish: Flathead Catfish are present in the reservoir in low abundance. Since 1989, the mean gill net CPUE was 0.2/nn. Historically, directed fishing effort is low (<1.0%) and only 125 fish have been harvested as indicated from creel periods between 2018 – 2024. CPUE will be recorded for standard gill net samples and large-scale deviations in angler effort and harvest will be monitored with the 2028 creel survey. Currently, the population does not warrant expending additional sampling effort.

Survey objectives, fisheries metrics, and sampling objectives

Alligator Gar: Alligator Gar has historically represented an important component to the overall sport fishery at the reservoir. A mark-recapture, exploitation, and population dynamics study completed on the reservoir in 2013 revealed a robust population (> 5,000 adult individuals) with trophy potential and low exploitation (range: 0 – 2.3%; Binion et al. 2015). While total directed fishing effort estimated by creel surveys has been historically low (<3.5%), anecdotal reports and nighttime bowfishing tournaments suggest a popular fishery. Mandatory harvest monitoring was implemented in September 2019 and indicated frequent harvest by anglers. An adaptive sampling strategy and monitoring program was developed in 2019. A combination of gear types (fyke nets, multifilament gill nets) will be deployed using an adaptive sampling strategy based on reservoir (e.g., water level; caution below 199 water level feet) and environmental (i.e., flow, flood pulse, etc.) conditions to monitor trends in recruitment, abundance, and size composition when conditions allow. Annual harvest will be monitored through the mandatory harvest reporting system; and directed effort, angler catch, and angler harvest will be monitored with a standard creel survey conducted in 2028. Collectively, these data should allow the ability to detect changes in Alligator Gar abundance, fishing effort, catch, and harvest; lending important insight into population dynamics and potential problems that may warrant more intensive sampling.

Blue Catfish: Blue Catfish represent the most harvested catfish species in Choke Canyon Reservoir, currently this species is in high abundance, current CPUE for 2024 represented 38.9/nn, which is higher than the historical average of 23.3/nn (N = 31; standard deviation = 11.9; range: 0.4 – 62.5/nn). The historical mean stock size CPUE (CPUE-12) is 10.7/nn (N = 31; standard deviation = 4.7; range: 0.4 – 19.5/nn), and in 2024, we had the highest stock size CPUE on record (19.5/nn). Further, Blue Catfish and catfishes as a group were the second most popular sport fish sought (combined directed effort = 20.1%) by anglers in the 2024 creel survey and anglers harvested 2,798 fish during this time period. Trend data on CPUE, size structure, and body condition have been collected annually since 1989 (excluding 1990) and every other year since 2017 with spring gill netting. Currently, the population appears to be in good shape, and anglers are anecdotally satisfied with the fishing. Collection of trend data every two years with spring gill netting will allow for determination of large-scale changes in basic population dynamics (relative abundance, size

frequency, and body condition) that may warrant further investigation and more intensive sampling. A minimum of 15 randomly selected gill net sites will be sampled in 2026 and 2028. Sampling will continue at additional random sites until 100 stock-size (≥ 12 inches) fish are collected and the RSE of CPUE-S is ≤ 25. Finally, directed effort and angler catch and harvest will be monitored with a creel survey conducted in 2028 to assess large-scale changes in angler effort, catch, and harvest; lending important insight into overall population dynamics and potential problems that may warrant more thorough study.

White Bass: White Bass are present in the reservoir, but population metrics and relative abundance are highly variable from sample to sample. Depending on reservoir conditions (e.g., water level, flood pulses, etc.) and population abundance, White Bass often represent an important component to the overall sport fishery (directed effort = 3.0% & harvest = 1,634 in 2024) at the reservoir. However, minimal conclusions regarding the trend data on CPUE, size structure, and body condition of White Bass can be made due to high variability in the gill net catch data. White Bass data will be collected during catfish gill netting to monitor presence/absence, but no additional effort will be expended. Therefore, directed effort, angler catch, and angler harvest will be monitored with a creel survey conducted in 2028 to detect any large-scale shifts in White Bass angling effort, catch, and harvest; lending important insight into overall population status and dynamics that may justify more intensive investigation. CPUE will be recorded for standard gill net samples.

Largemouth Bass: Historically, Largemouth Bass have been present in the reservoir in good numbers and supported a very popular fishery. The mean historical total CPUE for Largemouth Bass is 136.8/h (N = 29; standard deviation = 84.0; range: 25.5 – 421.5/h) and mean stock-size CPUE is 71.4/h (N = 29; standard deviation = 45.3; range: 21.0 – 241.0/h). Relative abundance of LMB improved in 2023 relative to prior years and is currently above the historical average. Largemouth Bass remains popular with anglers; typically representing the single-most sought sport fish. Trend data on CPUE, size structure, and body condition was collected annually from 1995 – 2017 with fall electrofishing and every other year since. The continued collection of trend data with fall electrofishing every two years will allow for determination of large-scale changes in basic population dynamics (abundance, size structure indices, body condition, age-at-length) that may warrant further investigation with more intensive sampling and/or management action. A minimum of 24 randomly selected electrofishing sites will be sampled to collect 50 stock-size fish for PSD indices and relative weight. The desired level of precision is RSE ≤ 25 for CPUE-S. Sampling will continue up to an additional 12 stations until all objectives are attained. In addition to fall electrofishing surveys in 2025 and 2027, spring bass-only electrofishing surveys will be conducted in 2026 and 2028. The spring sampling will provide better insights into the population size structure and abundance of larger fish. Further, category 2 age and growth analysis [mean age at legal length (14 in), N = minimum of 13 fish between 13.0 – 14.9 in] will be conducted in 2025 to assess any changes in growth to the minimum length limit. Additionally, fin clips will be collected during the 2025 fall electrofishing survey to evaluate the genetic (% Florida alleles) composition of the population. Directed effort, angler catch, and angler harvest will be monitored with a creel survey conducted in 2028 to monitor for any large-scale changes in angling effort, catch, and harvest to gain further insight into population characteristics. Largemouth Bass catch data recorded from creel surveys will be categorized by weight groups in pounds (<4, 4 – 6.9, 7 – 9.9, >10) to document catches of trophy-size fish and to maintain the trophy LMB database at the reservoir.

Crappies: Crappies are present in the reservoir, but trap net samples have yielded low and variable catch rates (White Crappie: historical mean CPUE = 2.6/nn; N = 17; standard deviation = 1.3; range: 0.7 – 11 4.8/nn). Based on anecdotal reports and the 2024 creel survey, crappies represent an important component to the overall sport fishery (directed fishing effort = 8.8% and harvest = 2,029 in 2024) at the reservoir. However, due to low catches and inconsistent, highly variable trap net data (CPUE-Total mean RSE = 37.2) and the inability to assess trends in important population metrics, creel survey data collected in 2028 will be utilized to monitor large-scale deviations in crappie angler effort, catch, and harvest, lending important insight into overall crappie population dynamics.

Shad and Bluegill: Gizzard Shad and Bluegill are the primary forage at Choke Canyon Reservoir. Like Largemouth Bass, trend data on CPUE and size structure of Gizzard Shad and Bluegill were

collected annually 1995 - 2017 with fall electrofishing and every other year since. Continuation of sampling, as per Largemouth Bass above, will allow for monitoring of large-scale changes in Gizzard Shad and Bluegill relative abundance and size structure. Sampling effort based on achieving sampling objectives for Largemouth Bass in fall electrofishing surveys will result in sufficient numbers for size structure estimation (Gizzard Shad IOV; 50 fish minimum, Bluegill PSD; 50 fish minimum at 24 randomly selected 5-minute stations with 90% confidence) and relative abundance estimates (Gizzard Shad and Bluegill CPUE-Total; RSE < 25). Threadfin Shad presence/absence will be noted in fall electrofishing collections. No additional effort will be expended beyond sampling effort conducted for Largemouth Bass data collection.

Creel: The reservoir continues to be a popular destination for anglers. Collection of quantitative data (e.g., angler effort, catch, harvest) is necessary to evaluate trends in fishery statistics for important sport fish populations. An access creel survey will be conducted from January through June 2028. As observed in the 2024 creel survey when water elevations within the reservoir drop below 195ft. some ramps become unusable and should be a consideration with creel design.

Habitat: Historically, invasive plants (water hyacinth, hydrilla) have been problematic at the reservoir; particularly in the upper third and Frio River. Specifically, water hyacinth potentially poses a threat to angler and boater access and enhances other ecologically detrimental processes (e.g., degraded water quality, competition with desirable native vegetative species, water loss through evapotranspiration, etc.). Annual aquatic vegetation monitoring is required to identify potential threats to boating and angling access so control and rapid response efforts can be implemented as needed. The reservoir will be circumnavigated biennially for all native and non-native species and will be georeferenced.

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Tables and Figures

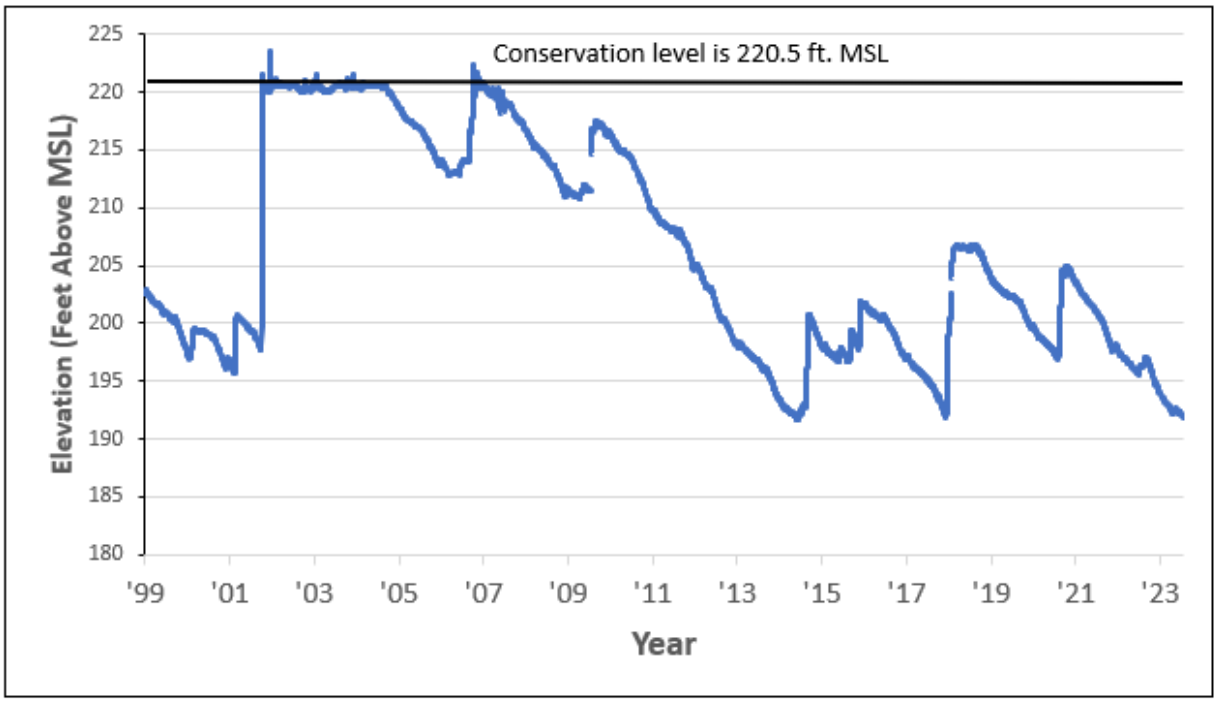


Figure 1. Quarterly water level elevations in feet above mean sea level (MSL) recorded for Choke Canyon Reservoir, Texas, 1999 through January 2024.

Table 1. Characteristics of Choke Canyon Reservoir, Texas.

Characteristic	Description
Year constructed	1982
Controlling authorities	City of Corpus Christi, Nueces River Authority, U.S. Bureau of Reclamation, TPWD (surrounding lands)
Counties	Live Oak, McMullen
Reservoir type	Mainstem
Shoreline Development Index	7.1
Conductivity	600 µS/cm

Table 2. Boat ramp characteristics for Choke Canyon Reservoir, Texas, June 2024. Reservoir elevation at time of survey was 191.0 feet above mean sea level.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
Southshore Unit	28.47328 -98.25134	Y	72	194.0	Out of water. Extension not feasible
Calliham Unit	28.48221 -98.35354	Y	128	186.0	Excellent, no access issues
Mason Point	28.48047 -98.37375	Y	28	194.0	Out of water. Extension not feasible
FM 99 Bridge	28.52331 -98.38835	Y	20	192.0	Out of water. Extension not feasible

Table 3. Harvest regulations for Choke Canyon Reservoir, Texas.

Species	Bag limit	Length limit
Gar, Alligator	1[a]	None
Catfish: Channel and Blue Catfish, their hybrids and subspecies[b]	15 (in any combination)	14-inch minimum
Catfish, Flathead	5	18-inch minimum
Bass, White	25	10-inch minimum
Bass, Largemouth	5	14-inch minimum
Crappie: White and Black crappie, their hybrids and subspecies	25 (in any combination)	10-inch minimum

[a] Mandatory harvest reporting required for all harvested Alligator Gar (reporting available through the My Texas Hunt Harvest app or at https://apps.tpwd.state.tx.us/huntharvest/home.faces)

[b] Catfish exemption regulation was implemented 1 September 2021

Table 4. Stocking history of Choke Canyon Reservoir, Texas. FRY = fry, FGL = fingerling; AFGL = advanced fingerling; ADL = adults; UNK = unknown.

Species	Year	Number	Size
Threadfin Shad	1981	10,000	ADL
	1982	4,000	ADL
	1983	8,000	ADL
	Total	22,000	
Fathead Minnow	1981	Unknown	ADL
	Total	Unknown	
Blue Catfish	1982	98,800	FGL
	1983	102,088	FGL
	Total	200,088	
Channel Catfish	1981	92,200	FGL
	1982	307,000	FGL
	1983	91,256	FGL
	Total	490,456	
Coppernose Bluegill	1981	2,500	UNK
	1982	659,034	UNK
	1983	112,000	UNK
	Total	773,534	
Striped Bass	1983	102,600	FGL
	Total	102,600	
Largemouth Bass	2003	107,137	FGL
	2004	99,632	FGL
	2005	102,314	FGL
	Total	309,083	
Florida Largemouth Bass	1981	19,906	FGL
	1982	146,030	FGL
	1983	143,368	FGL
	1990	375,790	FRY
	1998	383,565	FGL
	2002	384,236	FGL
	2003	180,014	FGL
	2009	5,151	FGL
	2010	526,015	FGL
	2011	653,297	FGL
	2013	423,378	FGL
	2016	214,362	FGL
	2017	147,285	FGL
	2018	339,881	FGL
	2019	324,737	FGL
	2020	165,364	FGL
	2021	316,985	FGL
	Total	4,749,364	

Species	Year	Number	Size
Lone Star Bass[a]	2022	325,954	FGL
	2023	323,482	FGL
	2024	171,811	FGL
	Total	821,247	
White Crappie	1992	148,294	FRY
	1992	33,380	FGL
	Total	181,674	

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

Table 5. Objective-based sampling plan components for Choke Canyon Reservoir, Texas 2023–2024.

Gear/target species	Survey objective	Metrics	Sampling objective
Electrofishing			
Largemouth Bass	Abundance	CPUE–Stock	RSE-Stock ≤ 25
	Size structure	PSD, length frequency	N ≥ 50 stock
	Age-and-growth	Age at 14 inches	N = 13, 13.0 – 14.9 inches
	Condition	W_r	10 fish/inch group (max)
Bluegill [a]	Abundance	CPUE–Total	
	Size structure	PSD, length frequency	N ≥ 50
Gizzard Shad [a]	Abundance	CPUE–Total	
	Prey availability	IOV	N ≥ 50
Gill netting			
Blue Catfish	Abundance	CPUE–stock	RSE-Stock ≤ 25
	Size structure	Length frequency	N ≥ 50 stock
	Condition	W_r	10 fish/inch group (max)
Creel survey			
Alligator Gar	Trend information on angler effort, catch, and harvest	Angler effort, angler CPUE, total harvest, and size composition of harvest	
White Bass	Trend information on angler effort, catch, and harvest	Angler effort, angler CPUE, total harvest, and size composition of harvest	
Crappies	Trend information on angler effort, catch, and harvest	Angler effort, angler CPUE, total harvest, and size composition of harvest	

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

Table 6. Survey of structural habitat types, Choke Canyon Reservoir, Texas, 2023. Shoreline habitat type units are in miles and standing timber is acres.

Habitat type	Estimate	% of total
Bulkhead	0.0 miles	0.0
Bulkhead with boat docks	0.0 miles	0.0
Natural	57.3 miles	89.6
Rocky	6.6 miles	10.4
Standing timber	2,661.0 acres	22.0

Table 7. Survey of aquatic vegetation, Choke Canyon Reservoir, Texas, 2017–2023. Surface area (acres) is listed with percent of total reservoir surface area in parentheses.

Vegetation	2017	2019	2021	2023
Surface area (acres)	14,483	17,147	16,004	12,567
Native submersed	354.0 (2.4)	171.0 (1.0)	118 (<1.0)	60.9 (<1.0)
Native floating-leaved	7.0 (<1.0)	<1.0 (<1.0)	2 (<1.0)	
Native emergent		8.0 (<1.0)	8.0 (<1.0)	100.4 (<1.0)
Non-native				
Hydrilla (Tier III)*	504.0 (3.5)	601.0 (3.5)	1,150.0 (7.2)	235.8 (1.8)
Water hyacinth (Tier II)*	141.0 (1.0)	21.0 (< 1.0)	71.0 (<1.0)	148.6 (1.2)

*Tier II is Maintenance Status, Tier III is Watch Status

Table 8. Percent directed angler effort by species for Choke Canyon Reservoir, Texas, 2018–2024. Survey periods were from 1 January through 30 June for 2018, 2020 and 2024.

Species	2018	2020	2024
Alligator Gar	3.3	0.2	1.1
Catfishes	39.9	23.1	20.1
White Bass	5.5	17.0	3.0
Largemouth Bass	32.8	46.7	63.9
Crappies	8.7	5.0	8.8
Freshwater Drum	2.6	1.2	0.5
Anything	7.1	6.4	2.5

Table 9. Total fishing effort (h) for all species and total directed expenditures at Choke Canyon Reservoir, Texas, 2018, 2020, 2024. Survey periods were from 1 January through 30 June. Relative standard error is in parentheses.

Creel statistic	2018	2020	2024
Total fishing effort	138,525 (26)	205,645 (19)	60,644 (15)
Total directed expenditures	$1,104,151 (38)	$1,608,752 (26)	$736,829 (27)

Gizzard Shad

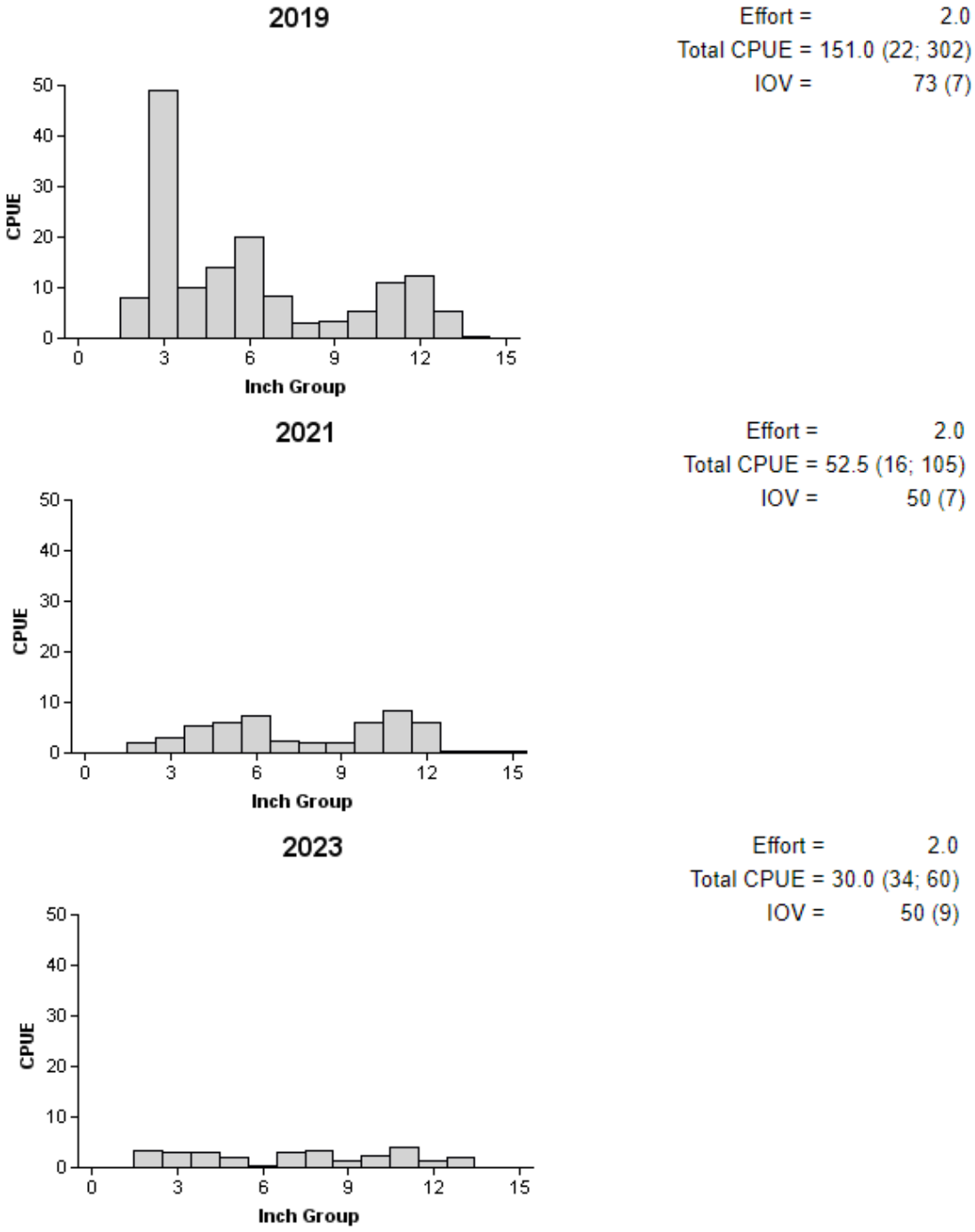


Figure 2. Number of Gizzard Shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Choke Canyon Reservoir, Texas, 2019, 2021, and 2023.

Bluegill

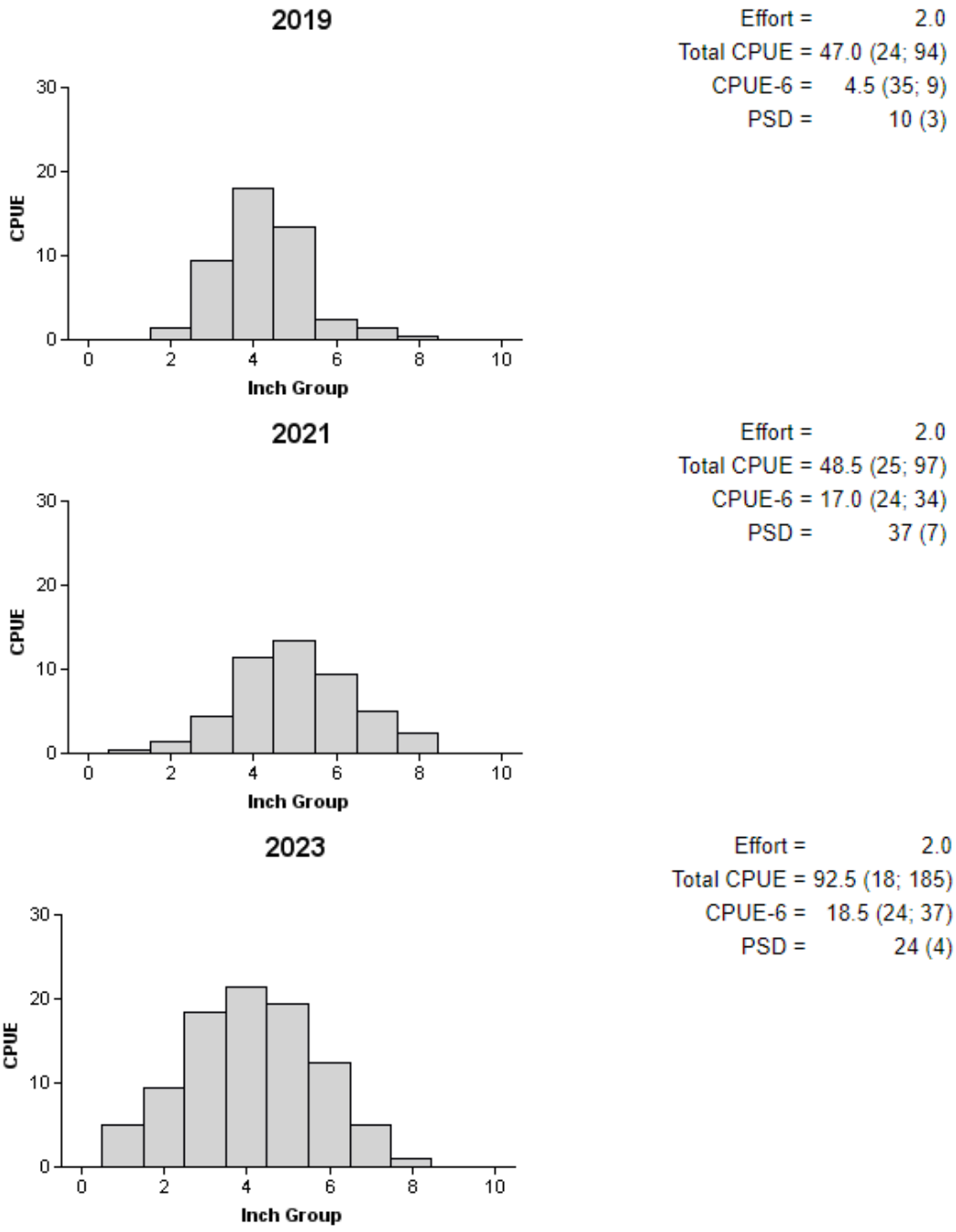


Figure 3. Number of Bluegill caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Choke Canyon Reservoir, Texas, 2019, 2021, and 2023.

Alligator Gar

Table 10. Creel survey statistics for Alligator Gar at Choke Canyon Reservoir, Texas, from January through June 2018, 2020, and 2024. Total catch per hour is for anglers targeting Alligator Gar and total harvest is the estimated number of Alligator Gar harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	Year		
	2018	2020	2024
Surface area (acres)	13,056	17,147	10,814
Directed effort (h)	4,514 (36)	480 (103)	693 (58)
Directed effort/acre	0.35 (36)	0.03 (103)	0.06 (58)
Total catch per hour	0.02 (1553)	0.90 (643)	0.0 (0.0)
Total harvest	98 (1553)	185 (1002)	0 (0.0)
Harvest/acre	0.01 (1553)	0.01 (1002)	0 (0.0)
Percent legal released	0	57	0

Blue Catfish

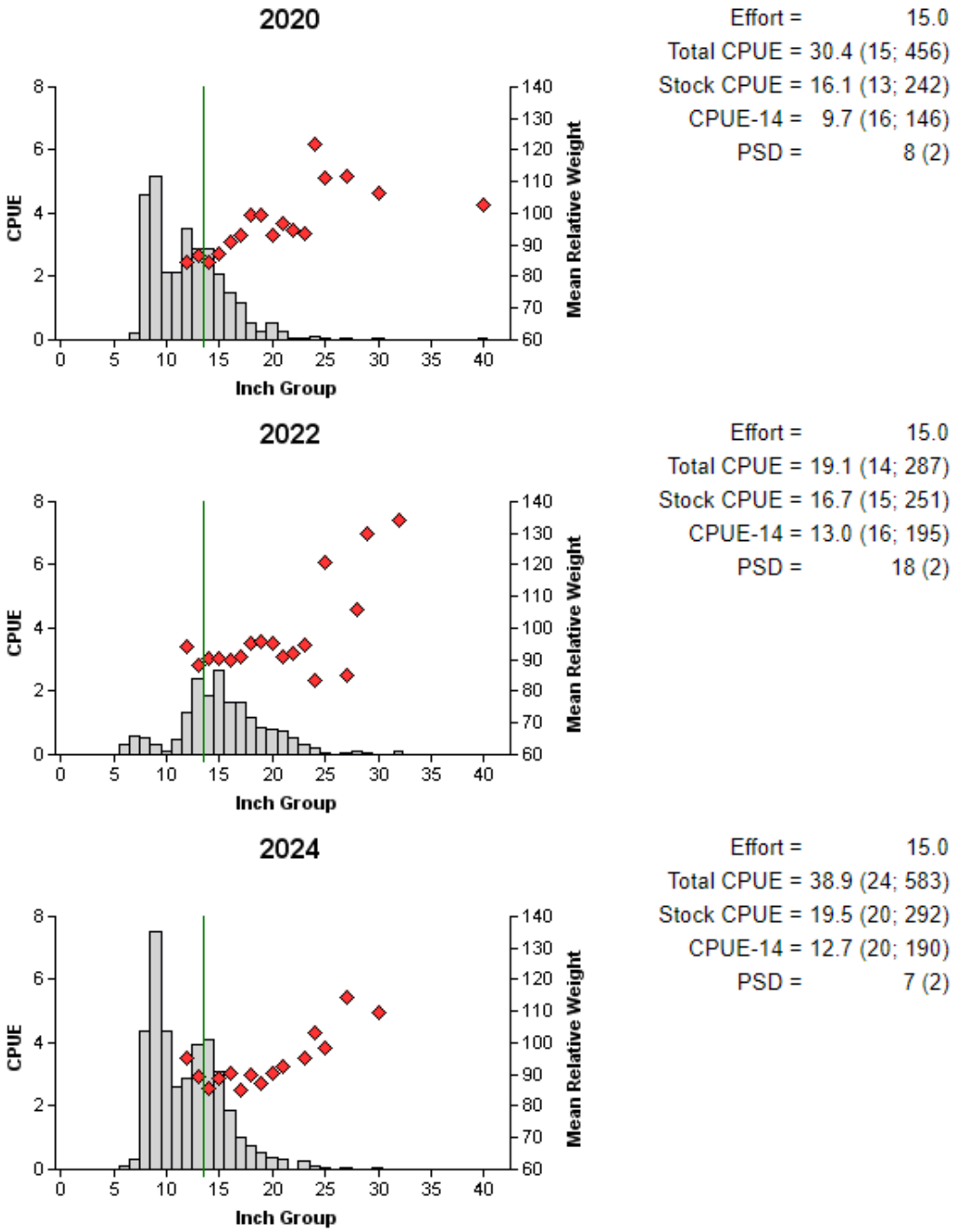


Figure 4. Number of Blue Catfish caught per net night (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Choke Canyon Reservoir, Texas, 2020, 2022, and 2024. Vertical line indicates current minimum length limit.

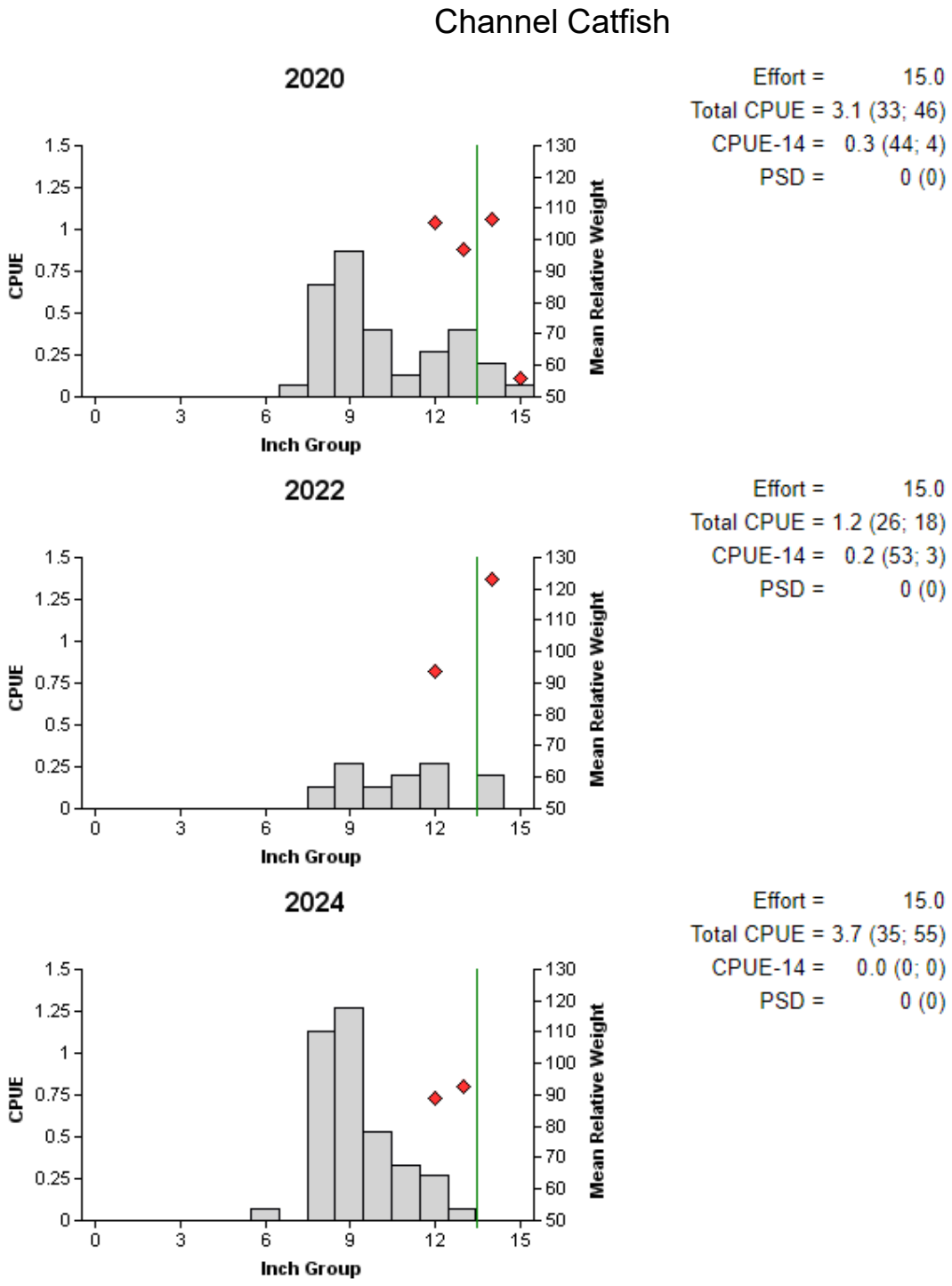


Figure 5. Number of Channel Catfish caught per net night (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Choke Canyon Reservoir, Texas, 2020, 2022, and 2024. Vertical line indicates current minimum length limit.

Table 11. Creel survey statistics for catfishes at Choke Canyon Reservoir, Texas, from January through June 2018, 2020, and 2024. 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		
	2018	2020	2024
Surface area (acres)	13,056	17,147	10,814
Directed effort (h)	54,038 (30)	47,555 (23)	12,216 (20)
Directed effort/acre	4.12 (30)	2.77 (23)	1.13 (20)
Total catch per hour	2.04 (22)	2.87 (18)	1.00 (28)
Total harvest	43,095 (33)	61,635 (24)	2,797 (30)
Harvest/acre	3.30 (33)	3.59 (24)	0.26 (30)
Percent legal released	6	15	6

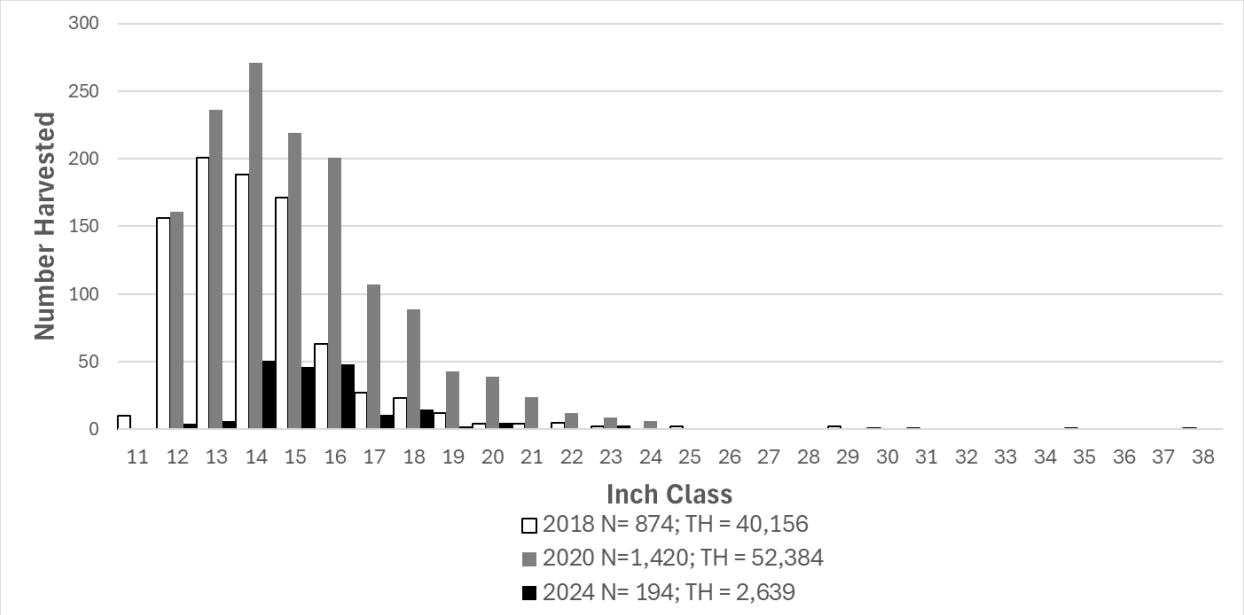


Figure 6. Length frequency of harvested Blue Catfish observed during creel surveys at Choke Canyon Reservoir, Texas, January through June 2018, 2020, and 2024, all anglers combined. N is the number of harvested Blue Catfish observed during creel surveys, and TH is the total estimated harvest for the creel period.

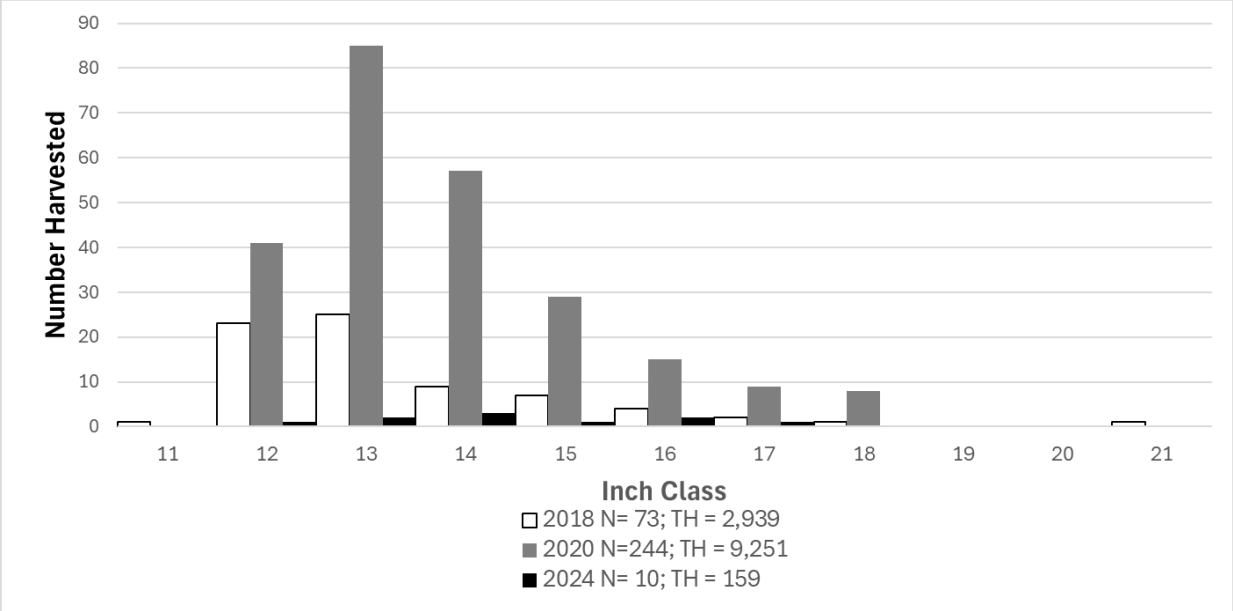


Figure 7. Length frequency of harvested Channel Catfish observed during creel surveys at Choke Canyon Reservoir, Texas, January through June 2018, 2020, and 2024, all anglers combined. N is the number of harvested Channel Catfish observed during creel surveys, and TH is the total estimated harvest for the creel period.

White Bass

Table 12. Creel survey statistics for White Bass at Choke Canyon Reservoir, Texas, from January through June 2018, 2020, and 2024. 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		
	2018	2020	2024
Surface area (acres)	13,056	17,147	10,814
Directed effort (h)	7,521 (52)	34,999 (28)	1,824 (47)
Directed effort/acre	0.58 (52)	2.04 (28)	0.16 (47)
Total catch per hour	0.54 (73)	1.36 (29)	3.46 (45)
Total harvest	3,101 (74)	37,348 (36)	6,320 (45)
Harvest/acre	0.24 (74)	2.18 (36)	0.58 (45)
Percent legal released	7	2	15

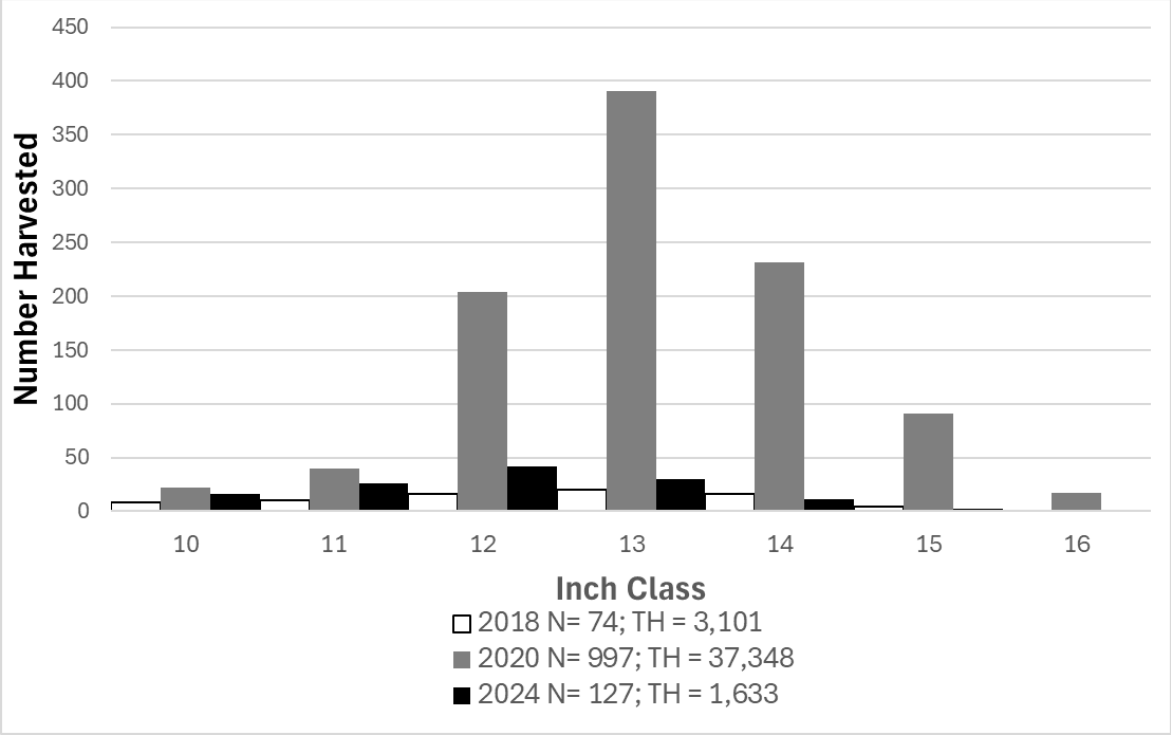


Figure 8. Length frequency of harvested White Bass observed during creel surveys at Choke Canyon Reservoir, Texas, January through June 2018, 2020, and 2024, all anglers combined. N is the number of harvested White Bass observed during creel surveys, and TH is the total estimated harvest for the creel period.

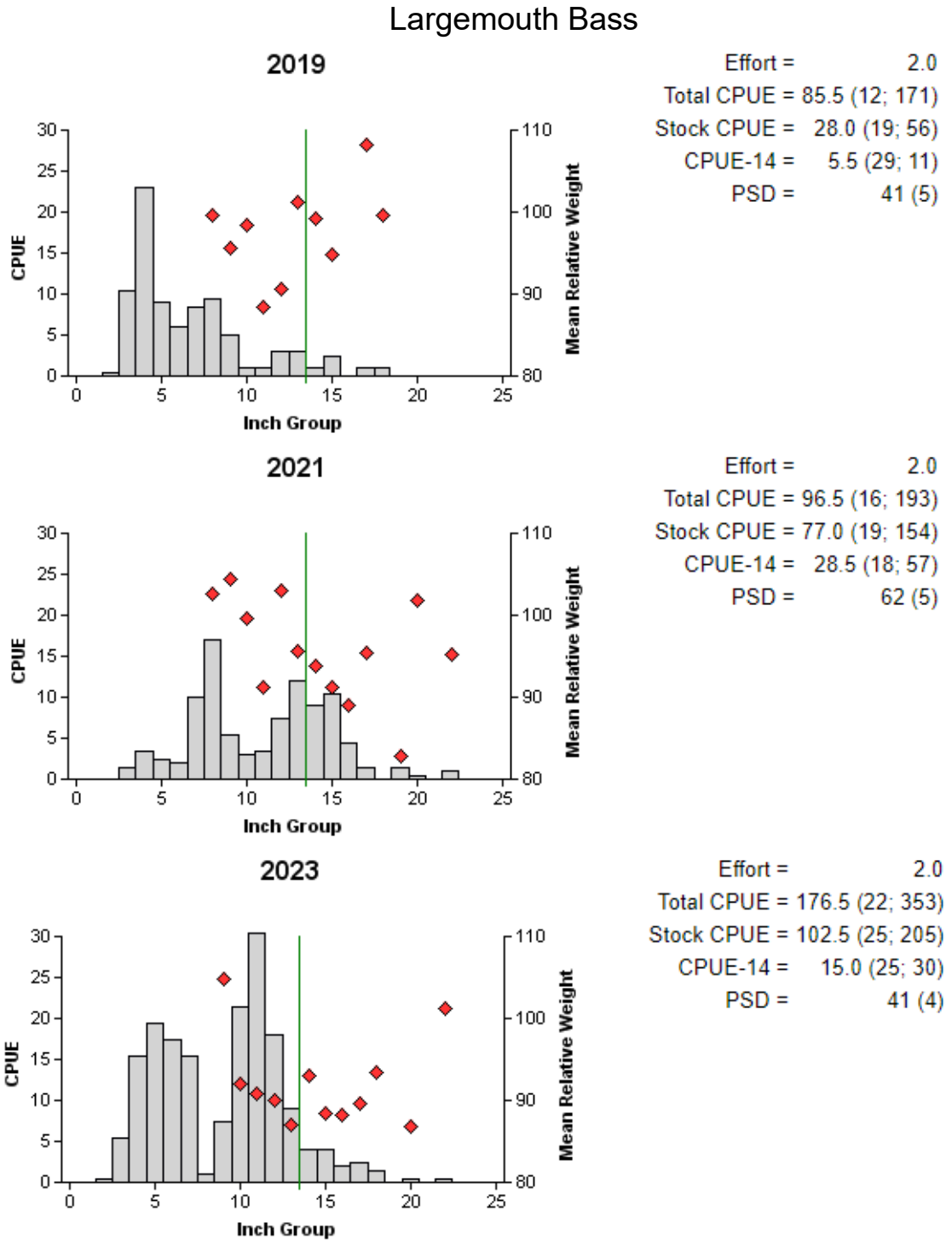


Figure 9. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Choke Canyon Reservoir, Texas, 2019, 2021, and 2023. Vertical line indicates minimum length limit.

Largemouth Bass

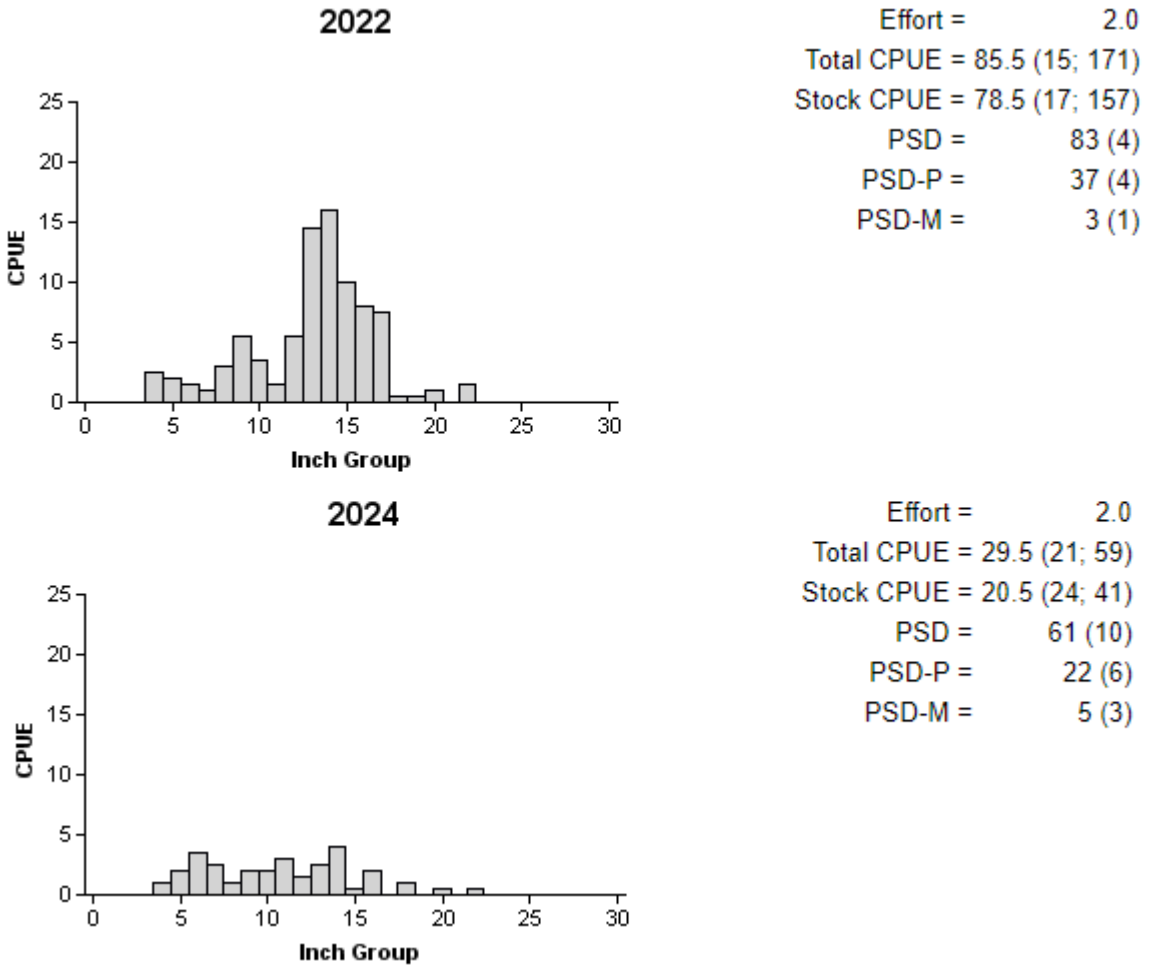


Figure 10. Number of Largemouth Bass caught per hour (CPUE, bars), population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring electrofishing surveys, Choke Canyon Reservoir, Texas, 2022, and 2024. Vertical line indicates minimum length limit.

Table 13. Mean age at legal length (14-inches) for Largemouth Bass collected by fall electrofishing, Choke Canyon Reservoir, Texas. Standard deviations are in parentheses.

Year	N	Age Range	Age-at-Legal length
2008	53	1 – 4	1.7 (0.79)
2009	13	1 – 3	2.0 (0.40)
2010	15	1 – 3	2.2 (0.77)
2011	13	1 – 4	2.4 (0.86)
2012	13	1 – 4	2.3 (0.75)
2013	14	1 – 4	2.8 (0.70)
2014	14	2 – 4	2.9 (0.62)
2015	13	1 – 5	2.7 (1.03)
2016	13	1 – 3	1.4 (0.65)
2017	13	1 – 2	1.7 (0.48)
2019	15	1 – 3	1.8 (0.77)
2021	14	1 – 2	1.9 (0.27)
2023	13	1 – 2	1.8 (0.48)

Table 14. Creel survey statistics for Largemouth Bass at Choke Canyon Reservoir, Texas, from January through June 2018, 2020, and 2024. 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.

Statistic	2018	2020	2024
Surface area (acres)	13,056	17,147	10,814
Directed angling effort (h)			
Tournament	13,186 (27)	27,018 (29)	15,867 (20)
Non-tournament	31,292 (26)	69,267 (20)	22,934 (16)
All black bass anglers combined	44,478	96,228	38,801
Angling effort/acre	3.41 (22)	5.62 (20)	3.58 (16)
Catch rate (number/h)	1.46 (27)	0.61 (23)	0.92 (35)
Harvest			
Non-tournament harvest	5,073 (41)	3,234 (45)	376 (53)
Harvest/acre	0.39 (41)	0.19 (45)	0.03 (53)
Tournament weigh-in and release	2,256 (66)	1,169 (89)	2,637 (34)
Release by weight			
<4.0 lbs	53,728 (39)	52,292 (33)	2,097 (9)
4.0-6.9 lbs	3,873 (46)	1,879 (45)	28 (30)
7.0-9.9 lbs	0 (*)	81 (120)	5 (52)
≥10.0 lbs	0 (*)	19 (214)	1 (100)
Percent legal released (non-tournament)	74	83	95

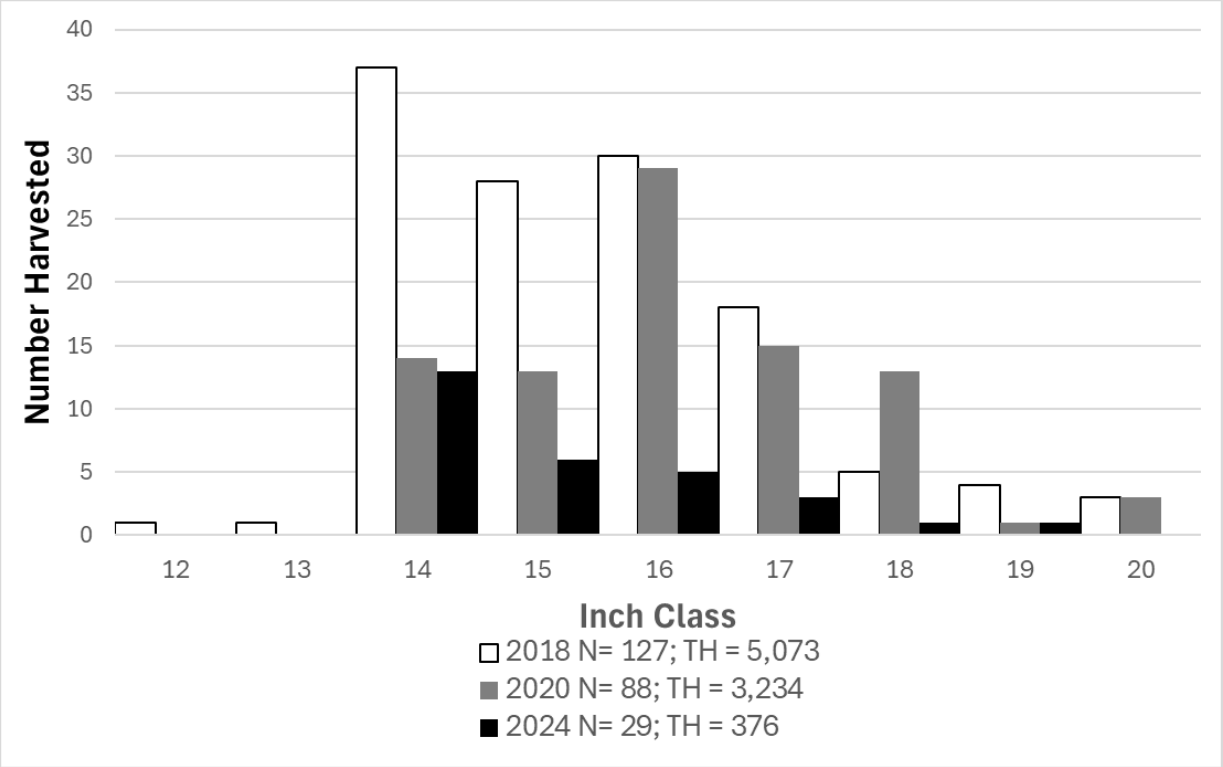


Figure 11. Length frequency of non-tournament harvested Largemouth Bass observed during creel surveys at Choke Canyon Reservoir, Texas, from January through June 2018, 2020, and 2024, all anglers combined. N is the number of harvested Largemouth Bass observed during creel surveys, and TH is the estimated non-tournament harvest for the creel period.

Crappies

Table 15. Creel survey statistics for crappies at Choke Canyon Reservoir, Texas, from January through June 2018, 2020, and 2024. Total catch per hour is for anglers targeting crappies 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		
	2018	2020	2024
Surface area (acres)	13,056	17,147	10,814
Directed effort (h)	11,838 (41)	10,341 (32)	5,326 (26)
Directed effort/acre	0.91 (41)	0.60 (32)	0.49 (26)
Total catch per hour	1.27 (36)	1.27 (48)	1.32 (41)
Total harvest	11,924 (41)	10,682 (54)	2,029 (40)
Harvest/acre	0.91 (41)	0.62 (54)	0.19 (40)
Percent legal released	2	2	7

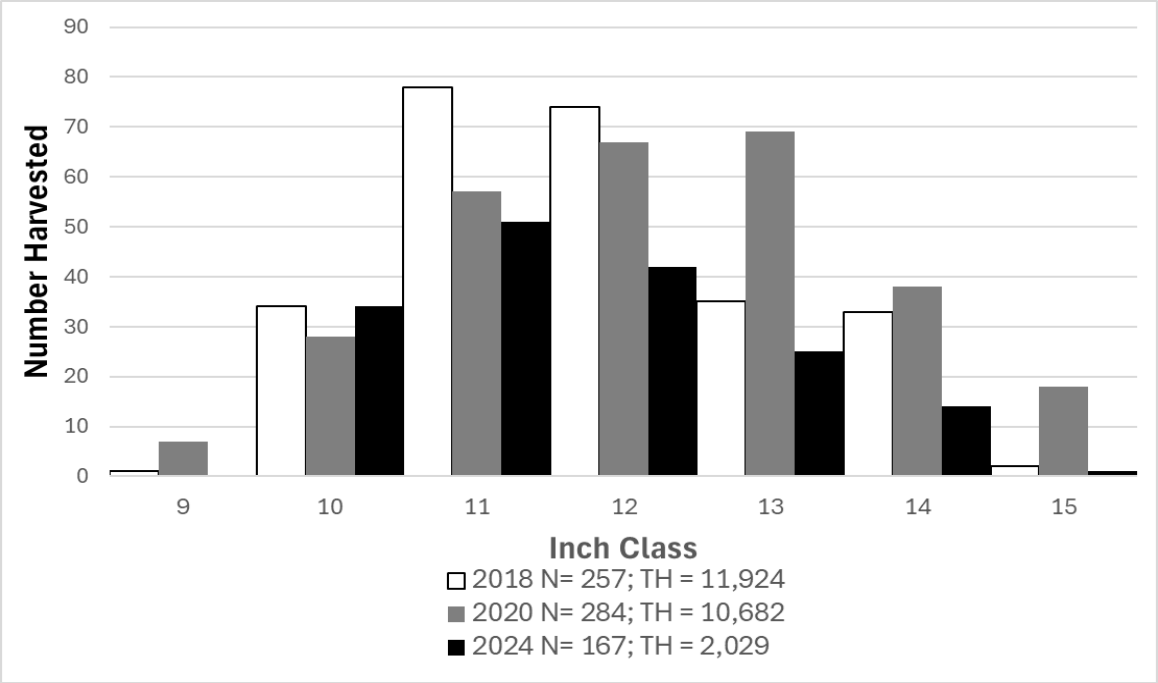


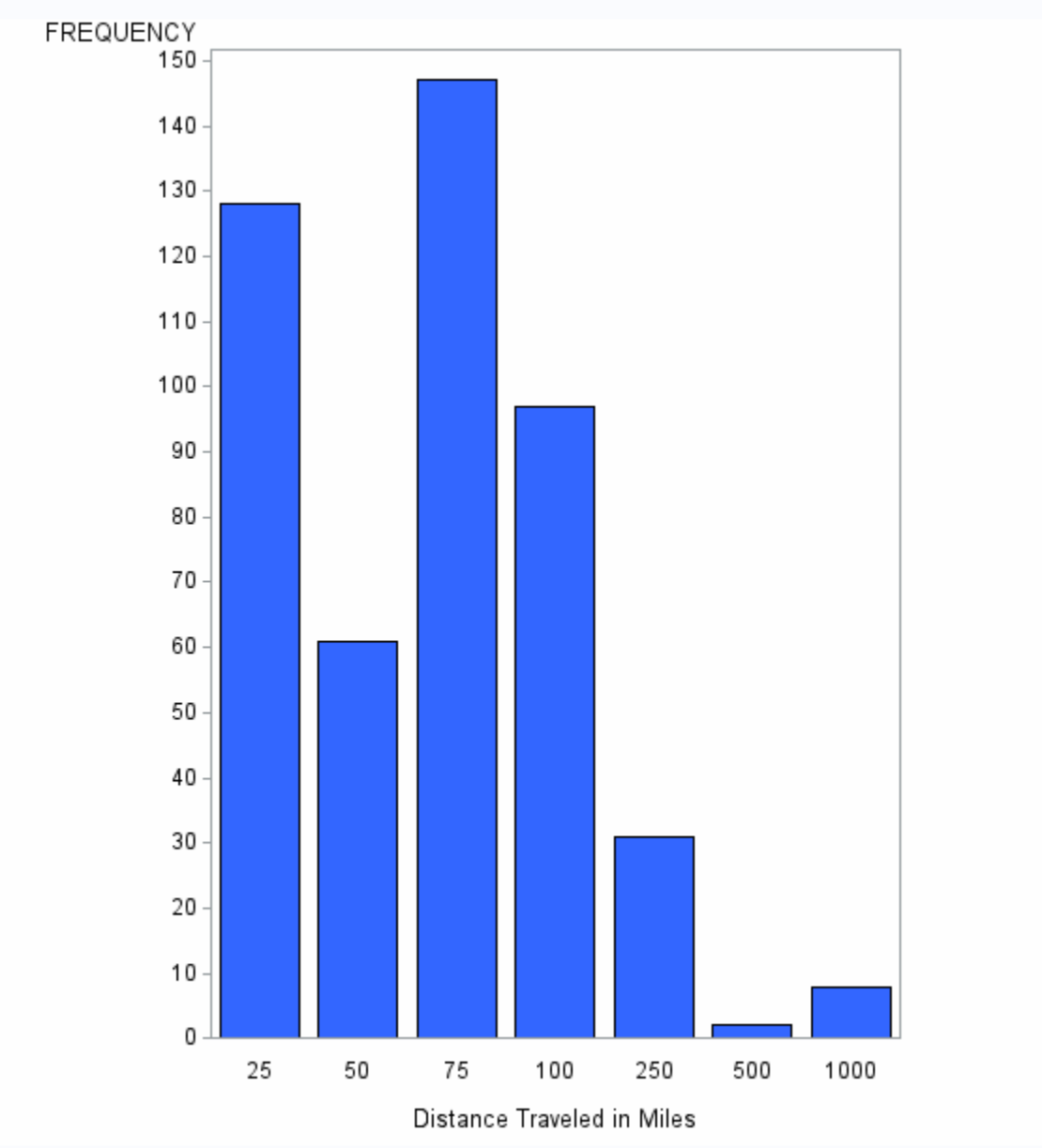
Figure 12. Length frequency of harvested crappies observed during creel surveys at Choke Canyon Reservoir, Texas, January through June 2018, 2020, and 2024, all anglers combined. N is the number of harvested crappies observed during creel surveys, and TH is the total estimated harvest for the creel period.

Proposed Sampling Schedule

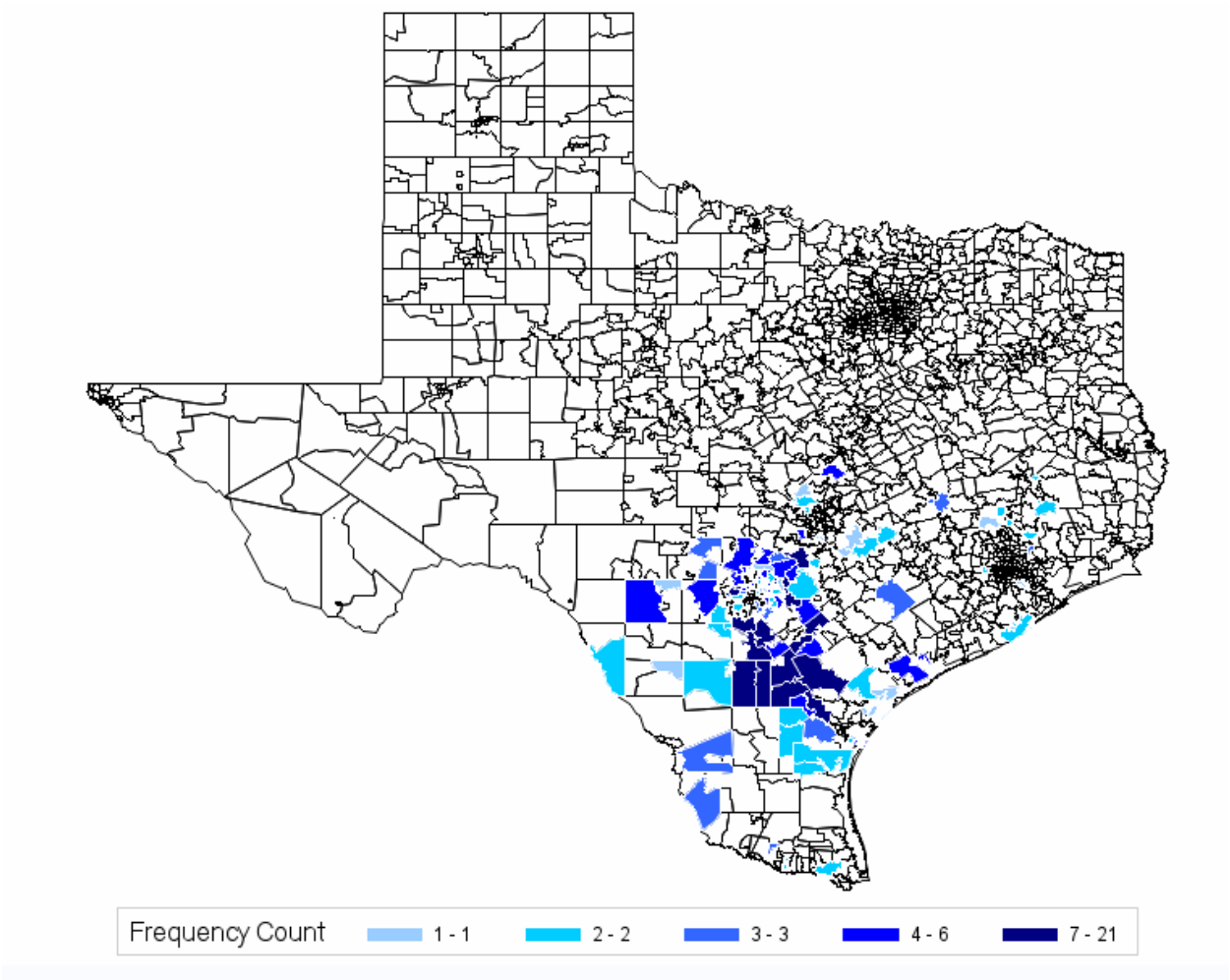
Table 16. Proposed sampling schedule for Choke Canyon Reservoir, Texas. Survey period is June through May. Gill netting surveys are conducted in the spring, while electrofishing surveys are conducted in the spring and fall.

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

APPENDIX A –Reporting of creel ZIP code data



Frequency of anglers that traveled various distances (miles) to Choke Canyon Reservoir, Texas, as determined from the January through June 2024 creel survey.



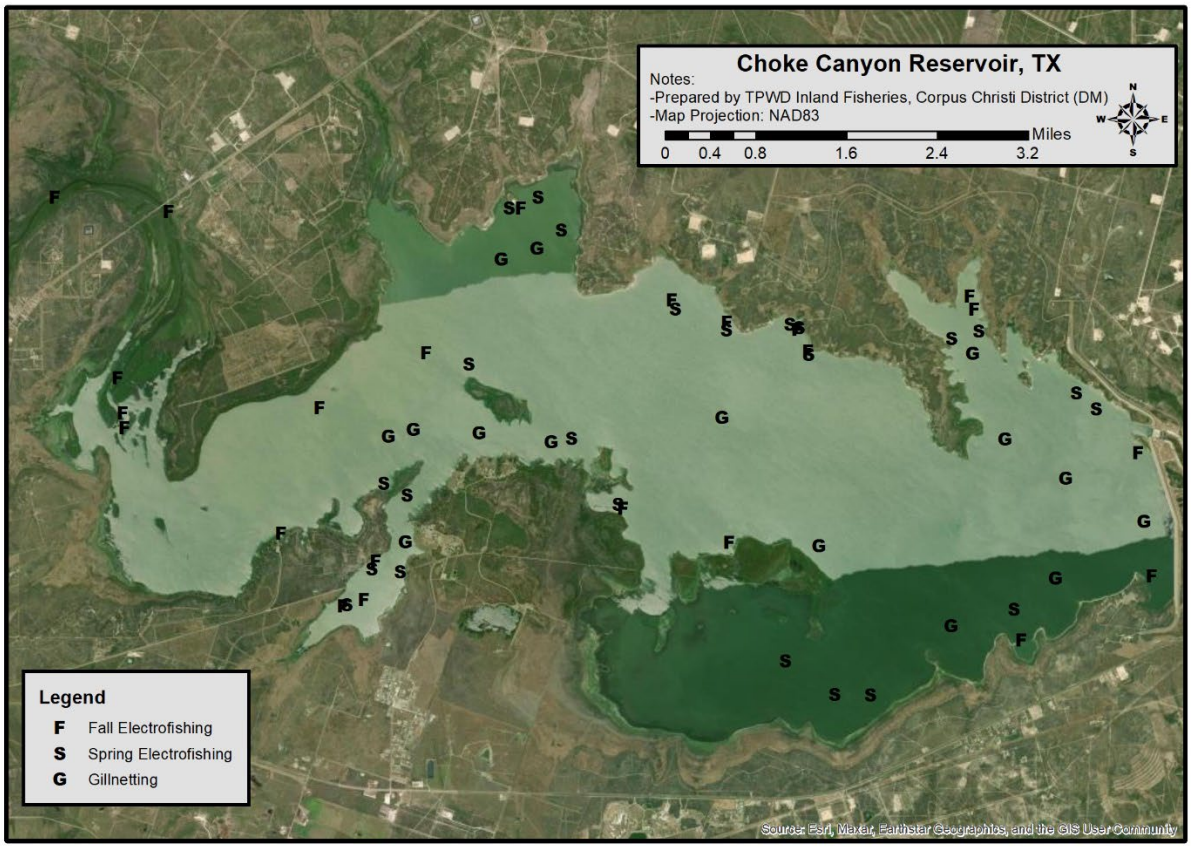
Location, by ZIP code, and frequency of anglers that were interviewed at Choke Canyon Reservoir, Texas, during the January through June 2024 creel survey.

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

Number (N) and catch rate (CPUE) (RSE in parentheses) of all species collected from all gear types from Choke Canyon Reservoir, Texas, 2023-2024. Sampling effort was 2 hours for electrofishing, and 15 net nights for gill netting.

Species	Electrofishing		Gill Netting	
	N	CPUE	N	CPUE
Spotted Gar			27	1.80 (34)
Longnose Gar			14	0.93 (50)
Alligator Gar			7	0.47 (46)
Gizzard Shad	60	30.00 (34)	356	23.73 (10)
Threadfin Shad	54	27.00 (87)		
Common Carp			3	0.20 (72)
Golden Shiner	5	2.50 (50)		
Inland Silverside	13	6.50 (37)		
Smallmouth Buffalo			76	5.07 (20)
Blue Catfish			583	38.87 (24)
Channel Catfish			55	3.67 (35)
Flathead Catfish			1	0.07 (100)
White Bass	12	6.00 (48)	8	0.53 (48)
Warmouth	4	2.00 (59)		
Bluegill	185	92.50 (18)	7	0.47 (62)
Longear Sunfish	2	1.00 (69)		
Redear Sunfish	194	97.00 (20)	1	0.07 (100)
Largemouth Bass	353	176.50 (22)	1	0.07 (100)
White Crappie	23	11.50 (33)	4	0.27 (57)
Black Crappie	34	17.00 (33)	2	0.13 (100)
Freshwater Drum			276	18.40 (19)
Rio Grande Cichlid	1	0.50 (100)		
Blue Tilapia	7	3.50 (64)		

APPENDIX C – Map of sampling locations



Location of sampling sites, Choke Reservoir, Texas, 2023-2024. Fall electrofishing, spring electrofishing and gill net stations are indicated by F, S, and G, respectively. Water level was 27.5 feet below conservation pool at time of sampling.

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