Toledo Bend Reservoir

2023 Fisheries Management Survey Report

PERFORMANCE REPORT

As Required by

FEDERAL AID IN SPORT FISH RESTORATION ACT

TEXAS

FEDERAL AID PROJECT F-221-M-5

INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

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Survey and Management Summary

Fish populations in the Texas jurisdiction of Toledo Bend Reservoir were surveyed in 2023 using electrofishing, and in 2024 using gill netting and electrofishing. Anglers were surveyed from June 2023 through May 2024 with a creel survey. Historical data are presented with the 2020-2024 data for comparison. This report summarizes the results of the surveys and contains a management plan for the Texas side of the reservoir based on those findings.

Reservoir Description: Toledo Bend Reservoir is a 181,600-acre bi-state (70,469 acres in Texas) impoundment of the Sabine River in Newton, Sabine, and Shelby counties in southeast Texas. Water level fluctuations average 3 feet annually, but in 2019 the reservoir was lowered 7 feet below full pool for spillway repairs. Historically, aquatic habitat consisted of over 10,000 surface acres of aquatic vegetation (primarily hydrilla and American lotus) but coverage has fluctuated considerably in recent years. The primary aquatic habitat is standing timber.

Management History: Historically, the black bass fishery has been the most popular at Toledo Bend Reservoir, accounting for 65 to 85% of annual angling effort. Approximately 10% to 20% of anglers target crappie. Texas Parks and Wildlife Department (TPWD) has stocked Florida Largemouth Bass (FLMB) annually from 1990-2021 (except 2006 and 2014) and Lone Star Bass (2nd generation offspring of pure Florida-strain ShareLunker Largemouth Bass (fish ≥ 13 pounds)] have been stocked annually from 2022-2024. Joint efforts with LDWF have resulted in standardization of all recreational harvest regulations. In 1998, giant salvinia was discovered in Toledo Bend Reservoir. In 2013, plant coverage reached the historic high (9,314 acres). Since then, water level fluctuations coupled with increased herbicide treatments and freeze events have decreased coverage substantially with a rebound beginning in 2022.

Fish Community

- **Prey species:** Gizzard Shad, Threadfin Shad, and Bluegill were the most abundant prey species and provided ample forage for sport fish.
- **Catfishes:** Blue Catfish abundance increased while Channel Catfish abundance decreased over the last two survey years, and high numbers of fish 12 to 30 inches were available to anglers. Catfish angling catch rate was good. Blue Catfish and Flathead Catfish provided trophy opportunities for anglers.
- **Temperate basses:** White Bass were present in low numbers with no fish sampled during the 2024 spring gillnet survey. Few anglers target White Bass in the reservoir with only 0.5% of the observed angler effort directed at temperate basses, but during the spawning season (January – March) the fishery is popular in the Sabine River above the reservoir.
- **Black basses:** Spotted Bass were present in low numbers. Largemouth Bass abundance was moderate and consistent over the past three survey years. Size structure, fish condition, and growth were relatively stable and desirable. The black bass fishery was most popular amongst all species.
- **Crappies:** White Crappie and Black Crappie were present in the reservoir. Angling catch (1.7/h) and total harvest (188,443 fish) reflected an abundant crappie population.

Management Strategies: Consult with Louisiana Department of Wildlife and Fisheries (LDWF) regarding a potential change of the daily black bass limit from 8 fish to 5 fish/day. Collect angler catch of trophy Largemouth Bass via the tournament-monitoring program, creel surveys, TPWD ShareLunker Program, and the Toledo Bend Lake Association Lunker Bass Program to justify FLMB stockings. Request annual stockings of Lone Star Bass to maximize trophy fish abundance. Maintain information signs, conduct annual aerial vegetation surveys, and apply herbicides when appropriate to minimize impacts of giant salvinia. Continue to promote fish handling procedures that reduce tournament-related mortality to minimize impacts on Largemouth Bass population and reduce conflicts with non-tournament anglers.

Introduction

This document is a summary of fisheries data collected from the Texas side of Toledo Bend 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 2020-2024 data for comparison.

Reservoir Description

Toledo Bend Reservoir is a bi-state impoundment of the Sabine River in Newton, Sabine, and Shelby counties in southeast Texas. The Sabine River Authority (SRA) constructed the reservoir in 1966 for municipal, industrial, and agricultural water supply, generation of hydroelectric power, and recreational use. At conservation pool (172 feet above mean sea level), Toledo Bend Reservoir is 181,600 surface acres (70,469 acres in Texas), has a shoreline length of 1,200 miles, and a mean depth of 20 feet. Water level fluctuation averages three feet annually. In 2019, repairs to the spillway required a drawdown of seven feet for approximately five months (Figure 1). The reservoir was mesotrophic with a mean Carlson's Trophic State Index chl-*a* of 48.8 (Texas Commission on Environmental Quality 2020). Habitat at time of sampling consisted of sparse amounts of aquatic vegetation and standing timber. Most of the land around the reservoir is used for timber production, agriculture, and residential development. Other descriptive characteristics for Toledo Bend Reservoir are in Table 1.

Angler Access

Toledo Bend Reservoir has 32 public boat ramps on the Texas side. Additional boat ramp characteristics are in Table 2. Shoreline access is limited to public boat ramp areas.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Driscoll and Ashe 2020) included:

1. Stock Florida Largemouth Bass (FLMB) annually (≥ 500,000 fingerlings) to maintain and improve large fish potential.

   Action: FLMB had been stocked annually from 1990-2021 (except 2006 and 2014) and Lone Star Bass (2nd generation offspring of pure Florida-strain ShareLunker Largemouth Bass (fish ≥ 13 pounds) have been stocked from 2022-2024

2. Continue black bass tournament-monitoring program to increase information on relative abundance of large fish (> 20 inches).

   Action: Since 2011, data from 46 tournaments have been compiled.

3. Continue to promote fish handling procedures that minimize tournament-related mortality to minimize impacts on Largemouth Bass population and reduce conflicts with non-tournament anglers.

   Action: TPWD has maintained a livewell fish care weblink since 2022 [Livewell Management (texas.gov)]. Additionally, TPWD staff have given several presentations to fishing organizations and clubs promoting best livewell fish care practices.

4. Promote the ShareLunker Program at local businesses (i.e., post program posters and fliers) and directly with anglers during presentations, creel surveys, and on-site informational booths at large (> 50 participants) black bass tournaments.

   Action: Signage promoting the ShareLunker Program is present at boat ramps, and several tackle stores. Creel clerks have informed anglers of the program during the 2023-2024 creel survey.

5. Consult with Toledo Bend Lake Association (TBLA) regarding program cooperation with their Lunker Bass Program and ShareLunker (i.e., appropriate entries into the TBLA program could be included as entries into ShareLunker).

   Action: TPWD staff met with the TBLA board requesting cooperation with their Lunker Bass Program and the TPWD ShareLunker Program and it was agreed that TBLA program entries could be included into the ShareLunker Program, however TBLA would not donate fish $\leq$ 13 pounds to the ShareLunker Program as that would violate their rules of requiring the fish to be immediately released back into the reservoir.

6. Consult with LDWF regarding their angler opinion data and desire to change the Largemouth Bass bag limit to 5 fish/day (in aggregate with Spotted Bass). To maintain reservoir-wide standardization of harvest regulations, only recommend a bag limit change if LDWF is agreeable and adopts this regulation for Louisiana waters.

   Action: Preliminary discussions have been had with LDWF regarding this issue with no action taken. TPWD conducted an angler opinion survey during the 2019-2020 creel survey with the majority of anglers (both Texas and Louisiana) in favor of the regulation change.

7. Conduct annual vegetation surveys to monitor giant salvinia and hydrilla abundance and recommend management strategies.

   Action: Annual vegetation surveys have been conducted since 1998. Aerial flights have been conducted since 2006. Primary control methods have included herbicide treatments and salvinia weevil releases.

8. Conduct creel surveys every four years to monitor the crappie fishery, as trap netting at Toledo Bend Reservoir is not effective.

   Action: A creel survey was conducted in 2023-2024.

9. Continue the fish attractor partnership with TBLA. Monitor condition of existing plastic fish attractor reefs (N = 15) via sonar and scuba and refurbish with additional attractors as necessary.

   Action: TBLA donated materials for the construction of 50 fish attractors and TPWD staff constructed the attractors and deployed them in 2024. Additionally, Sabine River Authority (SRA) in cooperation with TPWD constructed over 200 fish attractors and purchased over 60 reef balls and assisted in their deployment.

10. Continue to publish monthly popular articles on TPWD activities in the Lakecaster, a newsletter distributed to approximately 30 counties in Texas and Louisiana.

    Action: Due to the Lakecaster having been sold to new owners and poor feedback no articles have been submitted.

Harvest regulation history: Due to standardization of harvest regulations with LDWF, no sport fish in Toledo Bend Reservoir are managed with TPWD statewide regulations (Table 3). Standardization of Striped Bass and White Bass harvest regulations occurred in 1980 and 1997, respectively, and black bass regulations were standardized in 1991. In 2011, regulations were standardized for crappies and catfishes. In 2014, the size-regulated bag limit component of the Blue and Channel Catfish regulation was changed from 20 to 30 inches.

Stocking history: Toledo Bend Reservoir received annual stockings of FLMB from 1990-2021 except 2006 and 2014 (Table 4). Lone Star Bass have been stocked from 2022-2024. From 1992 to 2009, Striped Bass were stocked annually by LDWF. Surplus Striped Bass fingerlings were stocked by TPWD in 2002.

Vegetation/habitat management history: Historically, nuisance exotic species included water hyacinth and giant salvinia. Since 2010, water hyacinth coverage has declined to trace amounts scattered throughout areas infested with giant salvinia, which has become problematic throughout the reservoir. From 1998 to 2004, herbicide treatments conducted by the Aquatic Habitat Enhancement (AHE) staff, coupled with annual water level drawdowns each fall, limited giant salvinia coverage to < 500 acres. The cessation of fall drawdowns in the mid-2000s was accompanied by significant increases in giant salvinia acreage, particularly during 2006 to 2014. Beginning in 2016, dedicated legislative funding resulted in more frequent herbicide treatments by AHE and private applicators, which has generally reduced coverages in recent years.

Salvinia weevils were first introduced in 2004 as a biological control for giant salvinia. Additional weevil stockings have occurred every year since, but the numbers of insects and the locations have varied. Salvinia weevils are not cold tolerant, and mortality during the colder months has been the biggest obstacle to establishing populations large enough to impact salvinia abundance and distribution.

Historically, hydrilla coverage at Toledo Bend Reservoir has exceeded 10,000 surface acres but has never required implementation of control measures. Although hydrilla is listed on the TPWD list of prohibitive plants, it is considered beneficial at Toledo Bend Reservoir providing beneficial habitat contributing to the recognition as the best national Largemouth Bass twice and consistently ranking near the top of the list.

In 2013 TPWD began deploying artificial fish attractors to facilitate angler catch, primarily for crappies. In 2018 TBLA in partnership with TPWD agreed to annually donate materials to construct and deploy up to 20 artificial fish attractors and this program continues through present. In 2023/2024 SRA in partnership with TPWD constructed and deployed 250 artificial fish attractors and 35 concrete reef balls.

Water transfer: The annual water yield from Toledo Bend Reservoir is 2,086,600 acre-feet, of which half is allocated to Texas. The SRA-Texas holds a water right totaling 970,067 acre-feet/year. The Toledo Bend Project is operated jointly by SRA-Texas and SRA-Louisiana primarily for purposes of water supply and conservation, and secondarily for renewable hydropower production and recreation. Water supply customers utilizing Toledo Bend Reservoir include multiple municipalities, industrial and agricultural customers in the lower Sabine basin. Hydroelectric power is produced using two Kaplan units capable of providing up to 81-megawatt hours of clean, renewable power for use in both Texas and Louisiana. In 2003, SRA-Texas agreed to examine the feasibility of inter-basin transfer of water to north Texas (i.e., Dallas Water Utilities, Tarrant Regional Water District and North Texas Municipal Water District). The development of this pipeline project is projected for 2060 (Texas Water Development Board 2017).

Methods

Surveys were conducted to achieve survey and sampling objectives in accordance with the objective-based sampling (OBS) plan for Toledo Bend Reservoir (Driscoll and Ashe 2020). 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).

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, Spotted Bass, sunfishes, Gizzard Shad, and Threadfin Shad were collected by fall electrofishing (1.3 hours at 16, 5-min stations). Largemouth Bass were also collected by spring bass-only electrofishing (1.3 hours at 16, 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 was estimated using otoliths from 13 randomly selected fish (range 13.0 to 14.9 inches).

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 (W_r)] 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 – A roving creel survey was conducted from June 2023 through May 2024. Angler interviews were conducted on 5 weekend days and 4 weekdays per quarter to assess angler use and fish catch/harvest statistics in accordance with the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2022). Total angler catch of Largemouth Bass $\geq$ 4, 7, and 10 pounds was also estimated. Anglers were asked if released fish were within weight categories. Harvested fish lengths were converted to weights for classification (19 inches = 4 pounds; 23 inches = 7 pounds; 25 inches = 10 pounds). Harvested and released fish were combined to represent total catch for weight categories.

Habitat – Vegetation surveys via airplane were conducted in 2020–2023 to monitor hydrilla, water hyacinth, and giant salvinia coverages and distributions. Habitat was assessed with the digital shapefile method (TPWD, Inland Fisheries Division, unpublished manual revised 2022).

Water level – Source for water level data was the United States Geological Survey (USGS 2024).

Results and Discussion

Habitat: A structural habitat survey conducted in 2003 indicated that the littoral zone included primarily dead timber and boat docks (Driscoll 2004) with little change observed. Over 60,000 acres of standing timber were present in Texas waters. Historically, aquatic vegetation coverage at Toledo Bend Reservoir (primarily hydrilla) has exceeded 10,000 surface acres. In 2018 coverage was < 600 acres with only trace amounts observed from 2019-2021 (Table 6). Low water levels in 2019-2020 due to spillway repairs and a substantial freeze event in 2021 reduced hydrilla coverage (Figure 1). Hydrilla coverage began to rebound in 2022 (1,011 acres) and in 2023 coverage was 3,786 acres. Over the years there has been a noticeable positive correlation between hydrilla coverage and Largemouth Bass abundance. Native aquatic vegetation (American lotus) provided substantial habitat historically but has been

considerably reduced in recent years. Nuisance exotic species include giant salvinia and water hyacinth, but since 2010 water hyacinth has been limited to trace amounts scattered throughout the reservoir. Giant salvinia has been problematic in the headwaters of both the reservoir and all major embayments in shallow, backwater areas. In 2013, giant salvinia coverage reached the historic high of 9,314 acres. Beginning in 2016, legislative funding directed at invasive species facilitated more frequent herbicide treatments via AHE and contracted applicators, resulting in coverages < 3,000 acres.

Creel: Similar to that of previous survey years, fishing effort on the Texas side of Toledo Bend Reservoir was primarily directed at black basses (72.7%) and crappies (23.6%) (Table 7). In 2023/2024, total fishing effort was 410,594 h, similar to 2015/2016 (411,413 h) and greater than 2019/2020 (345,319 h) (Table 8). Similarly, direct expenditures in 2023/2024 ($5,263,380) were up significantly from previous years. In 2023/2024, most anglers traveled > 50 miles to reach Toledo Bend Reservoir (Appendix E).

Prey species: Primary prey species included Gizzard Shad, Threadfin Shad, and Bluegill. All three species provided an abundant forage base. Gizzard Shad catch rates decreased over the last three sampling years (range = 45.8 to 188.3/h), as well as IOV with a drop from 61 in 2019 to 2 in 2023 (Figure 2). Historically, Threadfin Shad catch rates have been highly variable; catch rate in 2023 was high at 4,609.5/h (Appendix A). Bluegill catch rates declined to 112.5/h in 2023 (Figure 3). This is a trend that is being noticed in several local reservoirs. Few anglers sought sunfish (0.6% of total fishing effort) (Table 7), and total estimated harvest was 13,958 fish (Table 9; Figure 4).

Catfishes: Blue Catfish gill net catch rates increased from 2022 (4.9/nn) to the 2024 (9.5/nn) survey (Figure 5). Fish > 30 inches were caught during each survey year, and PSDs were stable and ranged from 27 to 47, indicating consistent recruitment rates. Fish condition was moderate as W_r ranged from 79 to 133, indicating adequate prey availability.

Gill net catch rates of Channel Catfish decreased from the 2022 (21.3/nn) to the 2024 (7.1/nn) survey (Figure 6). Population size structure was dominated by smaller fish (PSD range = 8 to 11).

Catfish anglers (rod and reel only) accounted for 2.0% of the total fishing effort (Table 7) and angler catch rate was good in 2023/2024 (1.3/h) (Table 10). Percent legal release for catfishes was consistent and high across creel years (range = 53 – 78%). Total estimated harvest was 19,247 fish; 48% of harvested fish were Blue Catfish (Figures 7 and 8). Anecdotal information indicated that Blue and Flathead Catfish provided a substantial passive gear fishery.

Temperate basses: Historically (1987-2018), gill net catch rates of White Bass have averaged 1.7/nn, reflecting a low-density population in the reservoir. During the last three survey years, catch rates ranged from 0.0 to 2.5/nn (Figure 9).

Since the 1970s, Striped Bass were frequently stocked by the LDWF to support broodfish procurement for Palmetto Bass production. However, no fish have been stocked since 2009, and they were last caught with gill nets in 2008.

Yellow Bass are present in the reservoir with 0.9 fish/nn observed during the 2024 gill net survey (Appendix A). There was harvest of yellow bass (13,288 fish) despite little to no directed fishing effort (Table 7; Figure 11).

During the last three creel surveys, little directed fishing effort for temperate basses was observed (Table 7). However, during the spawning season (January through March) a popular White Bass fishery exists in the Sabine River upstream of the reservoir. Estimated temperate bass harvest was 16,831 fish in 2023/2024, 79% of which were Yellow Bass with the remainder being White Bass (Table 11; Figure 10).

Black basses: Spotted Bass were present in the reservoir, but only seventeen were collected by fall electrofishing in 2024 (Appendix A). Total estimated harvest was 15,046 fish in 2023/2024 (Figure 14).

Fall electrofishing catch rates during 2019 (134.3/h), 2021 (110.8/h) and 2023 (136.5/h) reflected relatively high and stable Largemouth Bass abundance (Figure 12). Overall population size structure was

similar across years (PSD range = 45 to 60) with PSD-14 values also similar across years (range = 24 to 30). Relative weights ranged from 72 to 111, indicating Largemouth Bass were in moderate condition. Growth rate was adequate with average age at 14 inches of 2.2 years (N = 13; range = 2 to 3 years).

Spring electrofishing catch rates were higher and stable in 2022 (164.3/h) and 2024 (140.3/h) when compared to 2020 (78.0/h) (Figure 13), reflecting a potential increase in Largemouth Bass population abundance and/or better sampling efficiency with increased hydrilla coverage. Spring surveys reflected higher proportions of larger fish (PSD range = 69 to 70; PSD-14 range = 37 to 43).

Similar to previous years, the majority of total fishing effort (72.7%) was directed at black basses (Table 7). Tournament-related directed effort proportion increased in 2023/2024 (27.4%) from 2019/2020 (17.9%) and was identical to that of 2015/2016 (27.4%). From 2015/2016 to 2023/2024, angler catch rates were relatively high, but variable, (range 0.7/h to 1.2/h) (Table 12). During 2023/2024, total directed effort (298,675 h) was similar to previous years; however, harvest (65,651 fish) increased from previous years. A total of 85,458 fish were retained by tournament anglers for weigh-in and release. The proportion of legal-size fish immediately released varied over the last three survey years and was relatively low compared to most Texas reservoirs (range = 40 to 58%). The proportion of total catch during the last three survey periods was nearly identical for the four size categories, with fish $\geq$ 4 pounds comprising approximately 3% of total catch (Table 12).

A tournament-monitoring program was implemented in June 2004 to increase information on legal-size fish ($\geq$ 14 inches) and provide greater insight regarding large (> 20 inches) fish abundance (Appendix C). Since 2019, the frequency of tournaments with > 50 entries has generally been relatively few (range 1 to 5), resulting in reduced utility of these statistics. Nonetheless, average weights of 1st – 3rd places were relatively high and stable, reflecting desirable numbers of larger fish. The proportion of anglers catching limits (5 legal-size fish) and weights > 15 pounds generally improved over the survey years, reflecting an increase in population abundance of legal-size fish, as well as fish > 18 inches. Across years for all tournaments, average big bass weight was high and ranged from 7.2 to 11.3 pounds. However, as evidenced by entries into the TBLA Lunker Bass Program, population abundance of trophy bass has remained relatively stable over the report years (range 25 to 57) (Appendix D). Since the inception of the revised TPWD ShareLunker Program in 2018, overall angler awareness and participation has been lower than the TBLA program but has improved since the last survey report with 116 fish $\geq$ 8 pounds entered (compared to 152 fish > 10 pounds entered into the TBLA program).

Crappies: Historically, trap net catch rates of crappies have been low (2.3/nn). Trap net surveys were discontinued in 2004.

Creel data reflected a productive crappie fishery that was second to the black bass fishery in terms of total fishing effort (23.6%; Table 7). Total harvest was 188,443 fish (Table 13; Figure 17). Angler catch rate in 2023/2024 was 1.73/h, a substantial increase from the previous 2019/2020 (0.78/h) creel period, but lower than that observed in 2015/2016 (2.19/h).

Fisheries Management Plan for Toledo Bend Reservoir, Texas

Prepared – July 2024

ISSUE 1: Creel surveys indicate most sportfishing effort at Toledo Bend Reservoir is for Largemouth Bass. The reservoir also hosts a considerable number of bass tournaments annually (approximately 20 - 50% of black bass effort). Tournament-monitoring and creel data reflect high angler catch of large fish (≥ 8 pounds). Additionally, 152 fish > 10 pounds have been entered into the TBLA Lunker Bass Program since May 2020 and the reservoir has produced five ShareLunkers ≥ 13 pounds since 2020.

MANAGEMENT STRATEGY

1. Continue annual stocking of FLMB (≥ 500,000 fingerlings) to maintain and improve the trophy Largemouth Bass population.
2. Continue the tournament-monitoring program to collect information on larger fish to justify FLMB stockings.
3. Continue to promote fish handling procedures that minimize tournament-related mortality to minimize impacts on Largemouth Bass population and reduce conflicts with non-tournament anglers.
4. Promote the ShareLunker Program at local businesses (i.e., post program posters and fliers) and directly with anglers during presentations, creel surveys, and on-site informational booths at large (> 50 participants) black bass tournaments.

ISSUE 3: In cooperation with LDWF, harvest regulations for Largemouth Bass were standardized reservoir-wide in 1991 (14-inch minimum length limit, 8-fish daily bag limit). In 2019, an online petition was created by Louisiana anglers in support of a change to a 5-fish/day bag limit. Currently, over 4,200 anglers have signed this petition. In response to this petition, TPWD collected angler-opinion data during the 2019/2020 creel survey, and 59% of anglers supported a change to 5 fish/day, while only 14% opposed. Historical data indicate that only 7% of black bass angling parties harvested > 5 fish/person/day, suggesting minimal biological impacts. However, social opinion favors change to a 5 fish daily bag, and this change would simplify the regulation for Texas anglers (i.e., match our current statewide bag of 5 fish/day).

MANAGEMENT STRATEGIES

1. Consult with LDWF regarding their angler opinion data and desire to change the Largemouth Bass bag limit to 5 fish/day (in aggregate with Spotted Bass). To maintain reservoir-wide standardization of harvest regulations, only recommend a bag limit change if LDWF is agreeable and adopts this regulation for Louisiana waters.

ISSUE 4: Giant salvinia exceeded 9,000 acres in 2013 (historical high) and impeded angler access. Although coverage has declined in recent years, giant salvinia is a significant problem reservoir-wide.

MANAGEMENT STRATEGY

1. The TPWD AHE office oversees management of giant salvinia at Toledo Bend Reservoir. Continue to assist AHE staff with implementation of management strategies.
2. Monitor giant salvinia coverage annually via airplane to document plant distribution and effects of control measures (i.e., herbicides and weevils).
3. Continue to oversee herbicide treatments by private contractors. Minimize collateral damage to desirable plants.
4. At access points, maintain all educational signs and continue herbicide treatments to prevent transport to other waters.
5. Continue to investigate effects of salvinia weevil releases.
6. Continue to communicate with LDWF regarding plant distribution and control measures.
7. Educate the public about giant salvinia and other invasive species via news releases and presentations.

ISSUE 5: Historically, the crappie fishery at Toledo Bend Reservoir has been productive and popular, accounting for approximately 20% of the annual angling effort (50,000 to 100,000 h). In 2018, TBLA agreed to annually donate materials to construct 20 artificial attractors to improve angling success. In 2023/2024 SRA in partnership with TPWD constructed and deployed 250 artificial fish attractors and 35 concrete reef balls.

MANAGEMENT STRATEGIES

1. Conduct creel surveys every four years to monitor the crappie fishery, as trap netting at Toledo Bend Reservoir is not effective.
2. Continue the fish attractor partnership with TBLA and SRA.

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

Sport fish, forage fish, and other important fishes

Sport fishes in Toledo Bend Reservoir include Largemouth Bass, Spotted Bass, crappies, Channel Catfish, Blue Catfish, Flathead Catfish, and White Bass. Important forage species include Bluegill, Gizzard Shad, and Threadfin Shad.

Low-density fisheries

Historically, White Bass and Striped Bass catch rates from gill net surveys were $\leq$ 3.0 and 1.0/nn, respectively, indicating low population densities in the reservoir. Since the 1970s, Striped Bass were frequently stocked by the LDWF to support broodfish procurement for Palmetto Bass production. However, no fish have been stocked since 2009, and no fish have been caught with gill nets since 2008. During the last three survey years, less than 3% of angling effort was directed at temperate basses. Although no future directed sampling is planned, temperate bass catch will be recorded from gill net surveys directed at catfishes (see below).

Survey objectives, fisheries metrics, and sampling objectives

Largemouth Bass: Largemouth Bass are the most popular sport fish in Toledo Bend Reservoir, accounting for approximately 80% of the annual angling effort (30-50% of effort tournament-related). The reservoir supports a high-quality, nationally-recognized fishery with substantial economic contributions. Largemouth Bass have always been managed with the 14-inch MLL regulation. For nearly 20 years, trend data on CPUE, size structure, and body condition (with fall and spring electrofishing), and angler catch, effort, and harvest (with roving creel surveys) were collected annually. Since 2014, biennial surveys have been conducted for fall and spring electrofishing. Creel surveys have been conducted every four years since 2016. Continuation of biennial trend data with night electrofishing (both fall and spring) in 2025/2026 and 2027/2028 will allow for determination of any large-scale changes in the Largemouth Bass population that may spur further investigation. A minimum of 16 randomly selected 5-min electrofishing sites will be sampled, but sampling will continue at random sites until 50 stock-sized fish are collected and the RSE of CPUE-S is $\leq$ 25 (the anticipated effort to meet both sampling objectives is 12-20 stations with 80% confidence). If failure to achieve either objective has occurred after one night of sampling and objectives can be attained with 6-12 additional random stations, additional effort will be expended. Annual creel surveys will be conducted every four years (4 quarters, 5 weekend and 4 week days/quarter), with the next survey scheduled for 2027/2028.

Crappies: The crappie fishery is the second most popular at Toledo Bend Reservoir, accounting for 10 – 20% of the annual angling effort. Historically, trap netting has resulted in low and variable catch rates. For nearly 20 years, creel surveys have been used to monitor the crappie fishery and make inferences about the population. Although directed effort and harvest have varied over the years, angler catch rates have remained relatively high since 2005 (range = 0.8 – 2.8 fish/h), reflecting an abundant crappie population. A creel survey will be conducted in 2027/2028 and every four years thereafter to detect any large-scale changes in the crappie population that may warrant additional sampling.

Catfishes: The rod and reel catfish fishery accounts for < 5% of the annual angling effort. Anecdotal information indicates that the passive gear fishery is more popular and accounts for frequent catches of Blue and Flathead Catfish > 30 pounds, especially in the upper third of the reservoir. Flathead Catfish are managed with an 18-inch MLL, 10-fish daily bag limit. Channel and Blue Catfish are managed with a no MLL, 50-fish daily bag limit (no more than 5 fish $\geq$ 30 inches retained per day).

Biennial gill netting data has indicated relatively stable Channel and Blue Catfish recruitment and abundance and should provide adequate population-level insight relative to large-scale changes that would dictate further investigation. A minimum of 15 randomly selected gill netting sites will be sampled

in 2026 and 2028, but sampling will continue at random sites until 50 stock-sized fish are collected and the RSE of CPUE-S is ≤ 25 (the anticipated effort to meet both sampling objectives is 12-18 stations with 80% confidence). Additional sampling will occur (5-10 gill netting sites) if objectives are not attained.

Currently, little is known about the Flathead Catfish population at Toledo Bend Reservoir. However, the majority of passive-gear angling occurs in the upper third of the reservoir. Although a low-frequency electrofishing survey was attempted in June 2015 (upper reservoir only) to establish a baseline relative abundance estimate for trend comparisons over time, only two fish were collected from 10 random stations. Annual creel surveys will be conducted every four years (4 quarters, 5 weekend and 4 week days/quarter), with the next survey scheduled for 2027/2028 to provide information regarding angler utilization, catch rates, and harvest.

Prey species: Bluegill, Gizzard Shad, and Threadfin Shad are the primary forage at Toledo Bend Reservoir. Like Largemouth Bass, trend data on CPUE and size structure were collected annually for 20 years with fall electrofishing. Since 2014, fall electrofishing has been conducted biennially. Continuation of biennial sampling, as per Largemouth Bass above, will allow for monitoring of large-scale changes in Bluegill and Gizzard Shad relative abundance and size structure. Effort based on achieving sampling objectives for Largemouth Bass will result in sufficient numbers of Bluegill for size structure (PSD; 50 fish minimum) and relative abundance (RSE ≤ 25 of CPUE-Total) and Gizzard Shad size structure (IOV; 50 fish minimum). No additional effort will be expended to achieve an RSE ≤ 25 for Gizzard, Threadfin Shad and Bluegill, but Largemouth Bass body condition (fish ≥ 8” TL) will be used to provide additional information on forage abundance and vulnerability.

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Tables and Figures

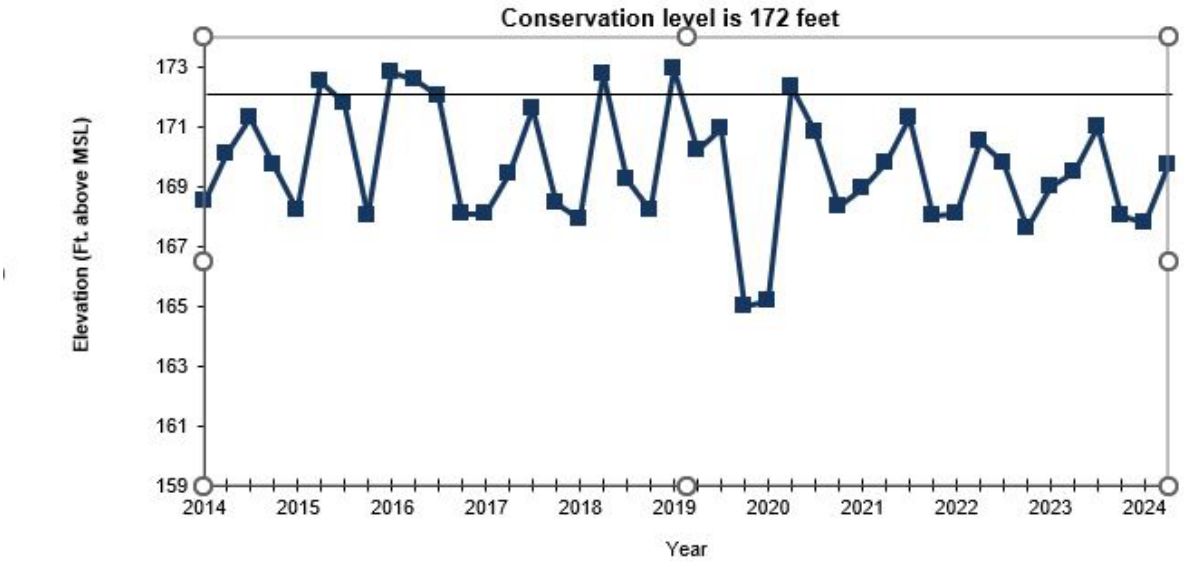

Figure 1. Quarterly water level elevations in feet above mean sea level (MSL) recorded for Toledo Bend Reservoir, Texas.

Table 1. Characteristics of Toledo Bend Reservoir, Texas.

Characteristic	Description
Year constructed	1966
Controlling authority	Sabine River Authority
County	Newton, Sabine, and Shelby
Reservoir type	Mainstem
Shoreline Development Index	21.2
Conductivity	120 µS/cm

Table 2. Boat ramp characteristics for Toledo Bend Reservoir, Texas, April 2024. Reservoir elevation at time of survey was 265 feet above mean sea level.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
Andersons	31.162648 93.583517	Y	40	162	Excellent
Newton County	31.153861 93.594517	Y	12	164	Adequate
Paradise Point	31.205157 93.659961	Y	20	163	Excellent
Willow Oak	31.211520 93.733369	Y	14	164	Excellent
Six Mile	31.238681 93.755865	Y	30	162	Excellent
Twin Oaks	31.246955 93.758859	Y	15	162	Adequate
Fin and Feather	31.279031 93.720730	Y	62	162	Excellent
Jack’s 944	31.298236 93.753221	Y	10	164	Adequate
White Oak	31.310339 93.698019	Y	10	161	Adequate
Indian Mounds	31.328243 93.694740	Y	30	162	Excellent
Lowes Creek	31.372340 93.716929	Y	25	163	Adequate
Harborlight	31.409432 93.781470	Y	12	165	Adequate
Mid Lake Campground	31.416172 93.778926	Y	4	163	Poor, limited parking, rough ramp
Alpine Marina	31.426599 93.749389	Y	10	158	Adequate
Chateau Shores	31.458580 93.759177	Y	10	164	Adequate
Frontier Park	31.454580 93.769585	Y	6	165	Adequate

Pendleton Harbor	31.463457 93.751533	Y	50	168	Adequate
Holly Park #1	31.522311 93.801259	Y	10	157	Adequate
Holly Park #2	31.522290 93.801305	Y	20	166	Adequate
Bean's VIP	31.514980 93.779075	Y	6	166	Poor, rough road and ramp
Newell's Fishing World	31.516551 93.771824	Y	30	162	Poor, rough road and parking lot
Shamrock Marina	31.522458 93.786841	Y	20	165	Adequate
East Hamilton	31.597306 93.839628	Y	20	160	Excellent
Nath Road	31.598265 93.846441	Y	4	164	Poor, dirt road, not accessible when wet
Ragtown	31.681047 93.828269	Y	20	165	Closed due to storm damage and related woody debris
Bayou Siepe	31.732396 93.829848	Y	8	161	Adequate
Huxley Bay Marina	31.751496 93.844425	Y	30	161	Adequate
Bill's Landing	31.821105 93.906238	Y	15	164	Adequate
Tenaha Creek	31.843365 93.941008	Y	8	165	Adequate
William's Camp	31.882399 93.940378	Y	8	165	Poor, rough road and parking
Swede Johnson	31.919395 93.968925	Y	30	160	Excellent
Joaquin	31.972200 94.008469	Y	12	165	Adequate

Table 3. Harvest regulations for Toledo Bend Reservoir, Texas.

Species	Bag limit	Length limit
Gar, Alligator	1[a]	None
Catfish: Channel and Blue Catfish, their hybrids and subspecies	50 (in any combination)	None[b]
Catfish, Flathead	10	18-inch minimum
Bass, White	25	None
Bass, Striped	5	None[c]
Bass, Largemouth	8[d]	14-inch minimum
Bass, Spotted	8[d]	None
Crappie: White and Black Crappie, their hybrids and subspecies	25 (in any combination)	None

[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] Only 5 Channel or Blue Catfish $\geq$ 30 inches may be retained each day.
[c] Only 2 Striped Bass $\geq$30 inches may be retained each day.
[d] Bag limit for Spotted and Largemouth Bass is 8 in the aggregate.

Table 4. Stocking history of Toledo Bend Reservoir, Texas. FGL = fingerling; AFGL = advanced fingerling; UNK = unknown; FRY = fry.

Species	Year	Number	Size
Channel Catfish	1967	544,745	AFGL
Flathead Catfish	1973	400	
Florida Largemouth Bass	1985	225,300	FGL
	1985	107,323	FRY
	1988	150,000	FRY
	1990	446,797	FRY
	1991	194,714	FGL
	1991	207,291	FRY
	1992	406,497	FGL
	1993	204,653	FGL
	1993	1,616,523	FRY
	1994	370,104	FGL
	1994	733,997	FRY
	1995	400,007	FGL
	1996	450,015	FGL
	1997	234,875	FGL
	1998	162,837	FGL
	1998	237,898	FRY
	1999	1,206,777	FGL
	2000	321,974	FGL
	2001	508,505	FGL
	2002	740,373	FGL
	2003	961,015	FGL
	2004	492,536	FGL
	2005	849,436	FGL
	2007	502,918	FGL
	2008	512,768	FGL
	2009	860,614	FGL
	2010	509,034	FGL
	2011	499,321	FGL
	2012	500,666	FGL
	2013	604,447	FGL
	2015	508,034	FGL
	2016	502,971	FGL
	2017	486,918	FGL
	2018	740,541	FGL
	2019	830,073	FGL
	2020	423,665	FGL
	2021	510,448	FGL
	2024 [a]	67,500	FGL
	Total	19,289,365	
Largemouth Bass	1967	1,689,700	FRY
	1967	284,300	UNK
	1987	305	AFGL
	1987	22,900	FGL

Species	Year	Number	Size
Largemouth Bass	1967	1,689,700	FRY
	1967	284,300	UNK
	1987	305	AFGL
	1987	22,900	FGL
	Total	1,997,205	
Lone Star Bass [b]	2022	502,940	FGL
	2023	501,732	FGL
	2024	499,025	FGL
	Total	1,503,697	
Paddlefish	1992	106,234	FRY
	1995	15,334	FRY
	Total	121,568	
ShareLunker Largemouth Bass [c]	2006	4,592	FGL
	2008	2,604	FGL
	2012	9,051	FGL
	2013	4,677	FGL
	2014	14,078	FGL
	2024	20,001	FGL
	Total	55,003	
Striped Bass	1974	16,290	FGL
	1976	60,178	UNK
	1977	100,200	UNK
	1979	95,000	UNK
	1981	96,249	UNK
	1983	104,133	UNK
	1984	406,920	FGL
	1985	484,500	FGL
	1986	203,000	FRY
	1988	719,115	FGL
	1988	29,200	FRY
	1991	240,364	FGL
	2002	272,179	FGL
	Total	2,827,328	

[a] These fish are tentatively classified as Florida Largemouth Bass pending genetic testing confirmation. Once genetic results are received the number will be adjusted to reflect the proportion that test as pure Florida and Largemouth Bass accordingly.

[b] ShareLunker Largemouth Bass are 1st generation offspring from angler-donated Largemouth Bass ≥ 13 pounds from the Toyota ShareLunker program.

[c] 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 Toledo Bend 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	
	Size structure	PSD, length frequency	N ≥ 50
	Prey availability	IOV	N ≥ 50
Threadfin Shad [a]	Abundance	CPUE – total	
Gill netting			
Blue Catfish	Abundance	CPUE– stock	RSE-stock ≤ 25
	Size structure	PSD, length frequency	N ≥ 50 stock
	Condition	W_r	10 fish/inch group (max)
Channel Catfish[a]	Abundance	CPUE– stock	
	Size structure	PSD, length frequency	
	Condition	W_r	
Creel survey[b]			
Black basses	Trend information on angler utilization	Angler effort, CPUE, total harvest and size composition	
Crappies	Trend information on angler utilization	Angler effort, CPUE, total harvest and size composition	
Catfishes	Trend information on angler utilization	Angler effort, CPUE, total harvest and size composition	

[a] No additional effort will be expended to achieve an RSE ≤ 25 for CPUE of Bluegill, Gizzard Shad, Threadfin Shad, or Channel Catfish, if not reached from designated Largemouth Bass or Blue Catfish sampling effort.
[b] Angler utilization data and associated statistics will be calculated for all sport fish.

Table 6. Survey of aquatic vegetation, Toledo Bend Reservoir, September 2018 - 2023. Surface area (acres) is listed (both Texas and Louisiana) with percent of total reservoir surface area in parentheses.

Species	2018	2019	2020	2021	2022	2023
American lotus	222 (<1)	70 (<1)	60 (<1)	6 (<1)	15 (<1)	33 (<1)
Giant salvinia (Tier II)[a]	2,583 (1)	168 (<1)	528 (<1)	343 (<1)	1,091 (1)	681 (<1)
Hydrilla (Tier III)[a]	562(<1)	Trace			1,011 (1)	3,786 (2)
Torpedograss			47 (<1)	Trace	13 (<1)	
Water hyacinth (Tier II)[a]	Trace	Trace				

[a] Tier II is Maintenance, Tier III is Watch Status

Table 7. Percent directed angler effort by species for Toledo Bend Reservoir, Texas, 2015–2024. For black basses, proportions of tournament-angler effort are in parentheses. Survey periods were from 1 June through 31 May.

Species	2015/2016	2019/2020	2023/2024
Catfishes	2.3	1.6	2.0
Temperate basses	0.6	0.0	0.5
Sunfishes	0.8	0.3	0.6
Black basses	84.4 (27.4)	71.7 (17.9)	72.7 (27.4)
Crappies	10.4	25.5	23.6
Anything	1.5	0.9	0.6

Table 8. Total fishing effort (h) for all species and total directed expenditures at Toledo Bend Reservoir, Texas, 2015-2024. Survey periods were from 1 June through 31 May. Relative standard error is in parentheses.

Creel statistic	2015/2016	2019/2020	2023/2024
Total fishing effort	411,413 (16)	345,319 (20)	410,594 (30)
Total directed expenditures	$3,945,419 (23)	$3,104,282 (26)	$5,263,380 (34)

Gizzard Shad

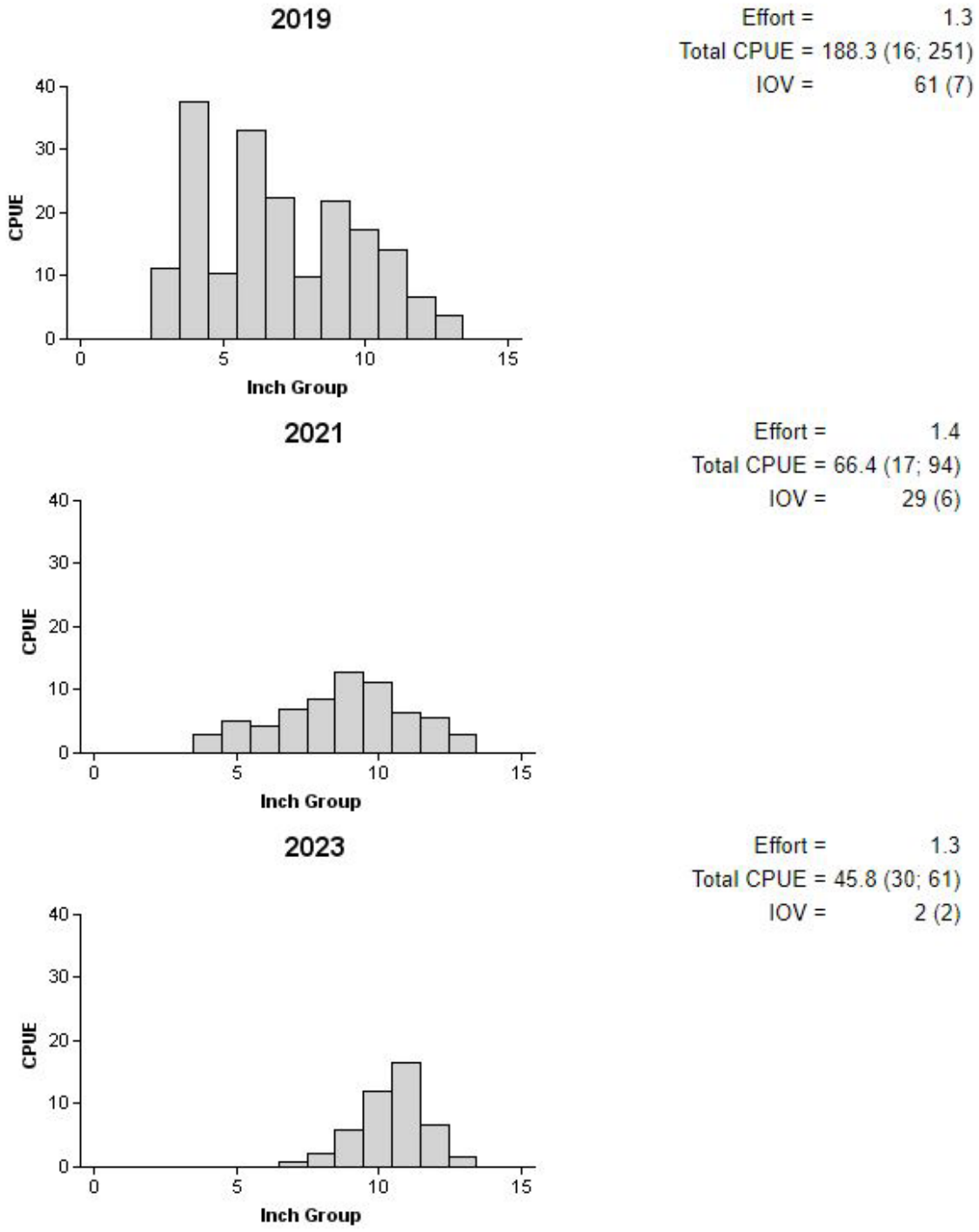

Figure 2. Number of Gizzard Shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Toledo Bend Reservoir, Texas, 2019, 2021, and 2023.

Bluegill

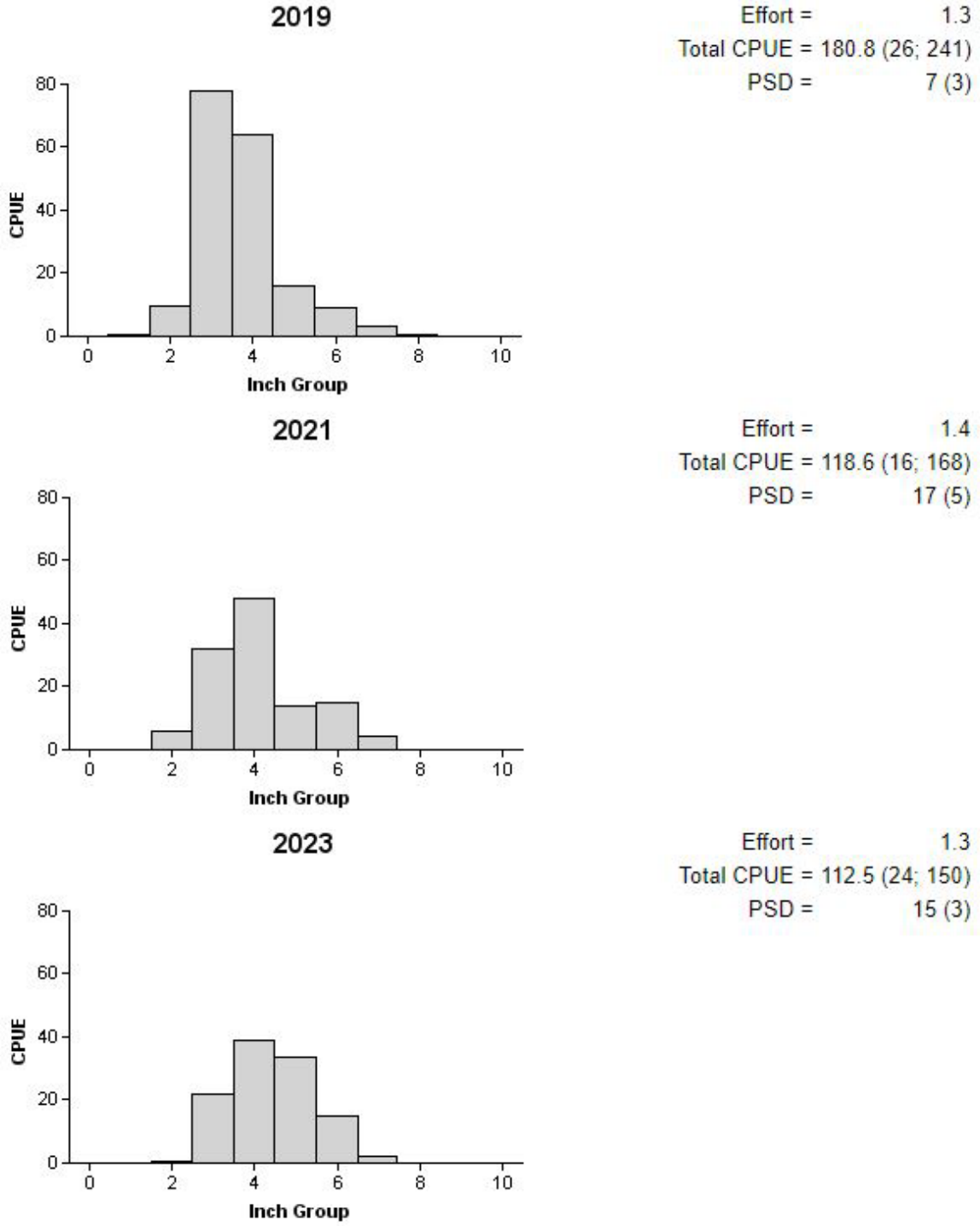

Figure 3. Number of Bluegill caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Toledo Bend Reservoir, Texas, 2019, 2021, and 2023.

Sunfishes

Table 9. Creel survey statistics for sunfishes at Toledo Bend Reservoir, Texas from June 2015 through May 2016, June 2019 through May 2020, and June 2023 through May 2024. Total catch per hour is for anglers targeting sunfishes, and total harvest is the estimated number of sunfishes harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	Year		
	2015/2016	2019/2020	2023/2024
Surface area (acres)	70,469	70,469	70,469
Directed effort (h)	3,165 (61)	1,110 (102)	2,645 (63)
Directed effort/acre	0.04 (61)	0.02 (102)	0.04 (63)
Total catch per hour	4.60 (52)	3.17 (47)	1.92 (40)
Total harvest	6,315 (85)	2,121 (178)	13,958 (90)
Harvest/acre	0.09 (85)	0.03 (85)	0.20 (85)
Percent legal released	85	93	26

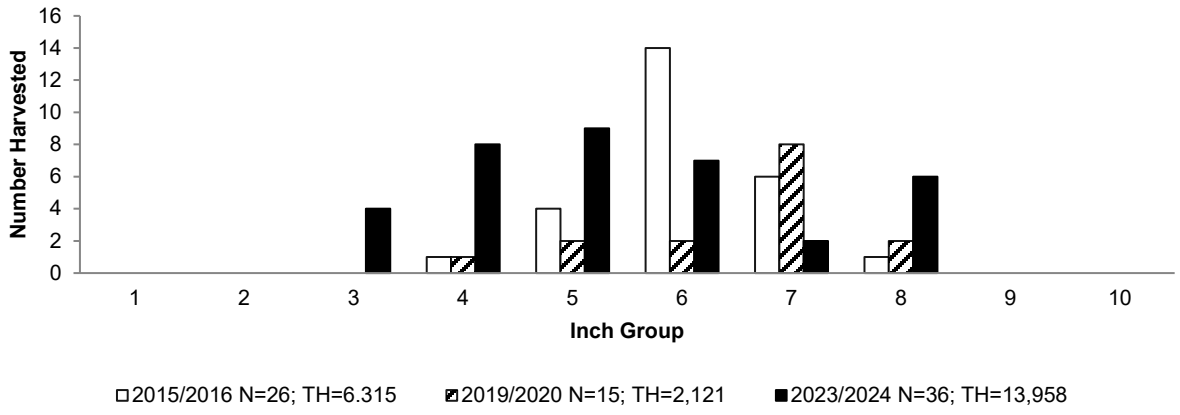

Figure 4. Length frequency of harvested Bluegill observed during creel surveys at Toledo Bend Reservoir, Texas, June through May 2015/2016, 2019/2020, and 2023/2024, all anglers combined. N is the number of harvested Bluegill observed during creel surveys, and TH is the total estimated harvest for the creel period.

Blue Catfish

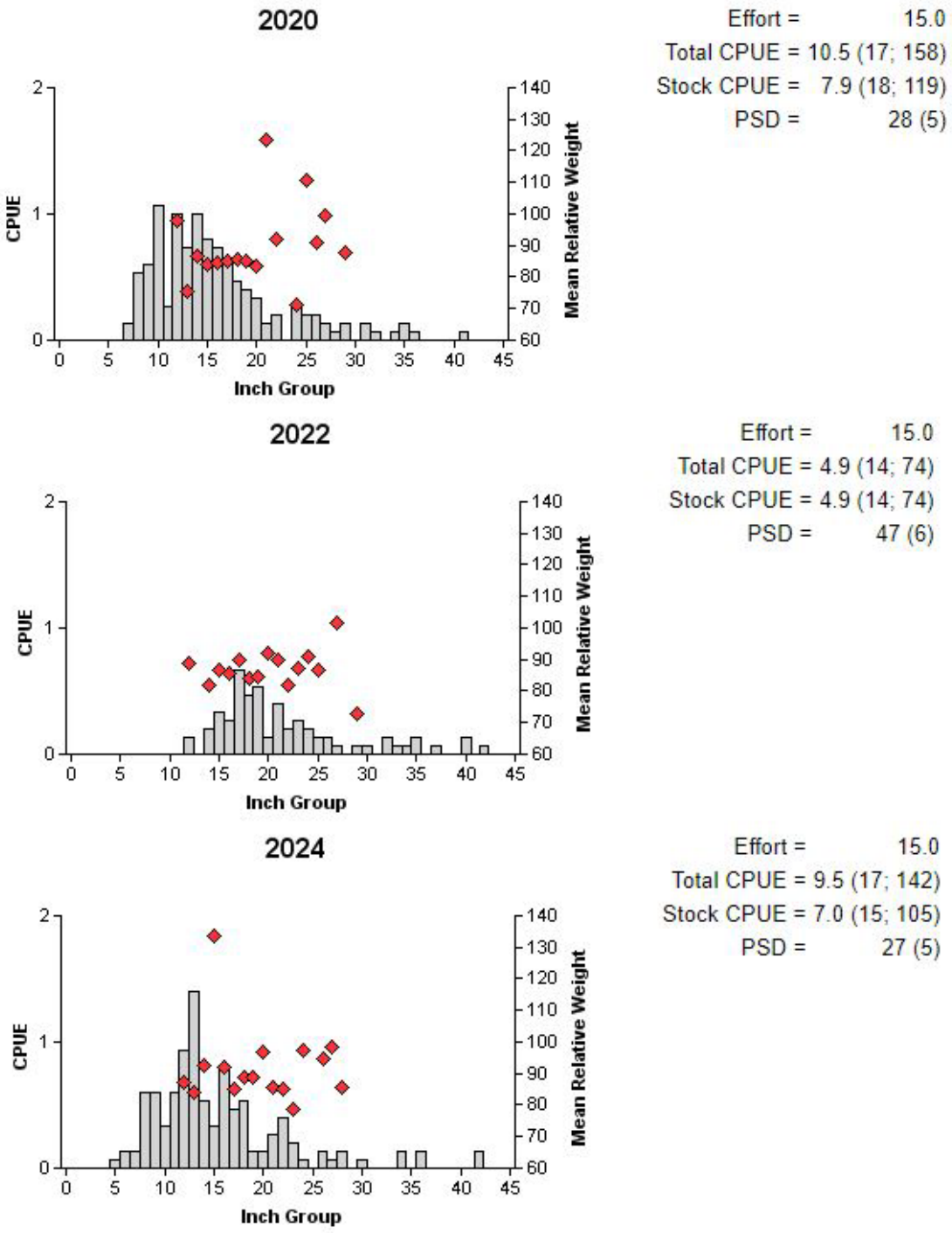

Figure 5. Number of Blue Catfish caught per net night (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Toledo Bend Reservoir, Texas, 2020, 2022, and 2024.

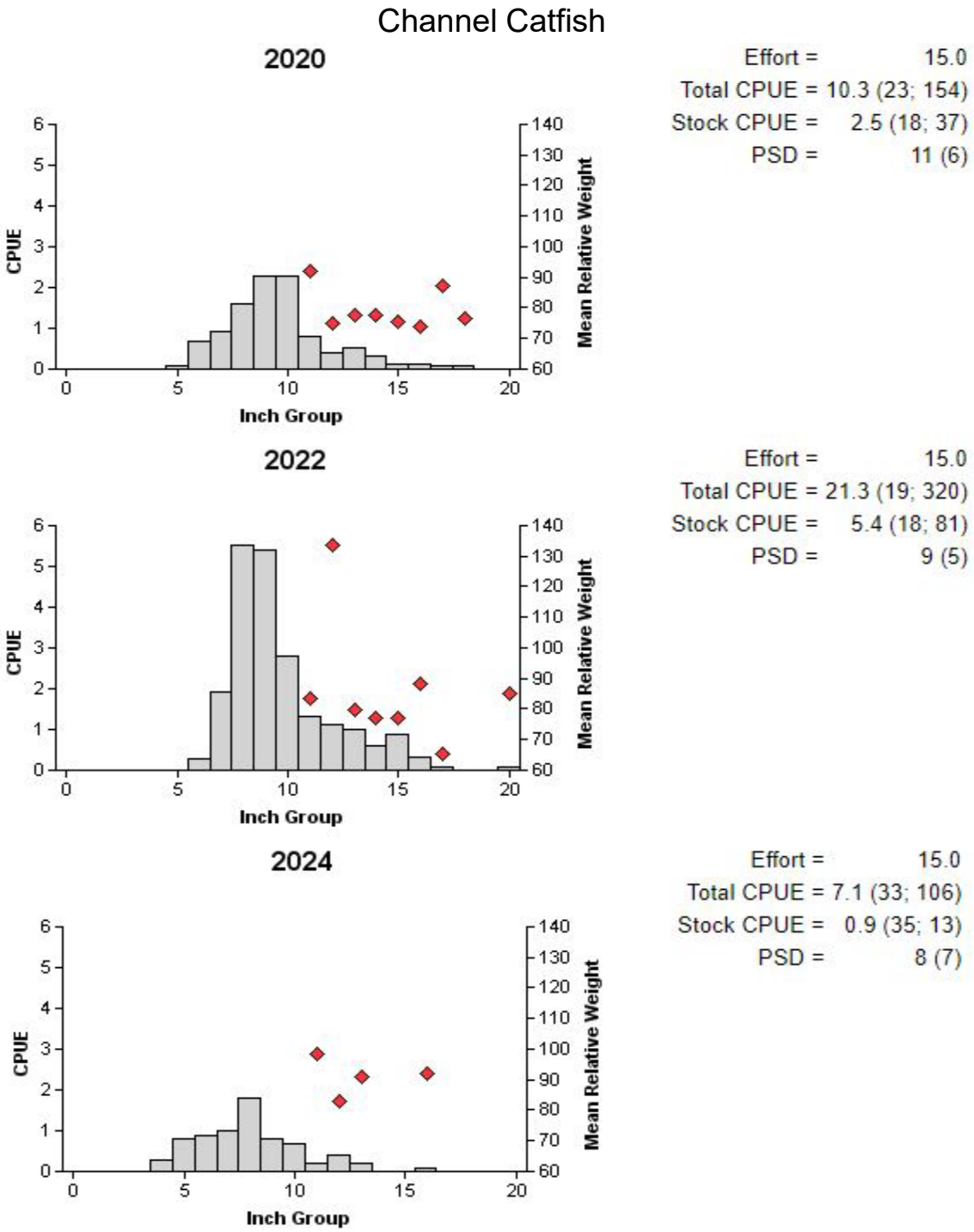

Figure 6. Number of Channel Catfish caught per net night (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Toledo Bend Reservoir, Texas, 2020, 2022, and 2024.

Catfishes

Table 10. Creel survey statistics for catfishes at Toledo Bend Reservoir, Texas, from June 2015 through May 2016, June 2019 through May 2020, and June 2023 through May 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		
	2015/2016	2019/2020	2023/2024
Surface area (acres)	70,469	70,469	70,469
Directed effort (h)	9,475 (33)	5,435 (45)	8,194 (38)
Directed effort/acre	0.13 (33)	0.08 (33)	0.12 (38)
Total catch per hour	1.30 (20)	2.76 (45)	1.25 (145)
Total harvest	5,554 (120)	11,046 (131)	19,247 (108)
Harvest/acre	0.08 (120)	0.16 (131)	0.27 (108)
Percent legal released	74	78	53

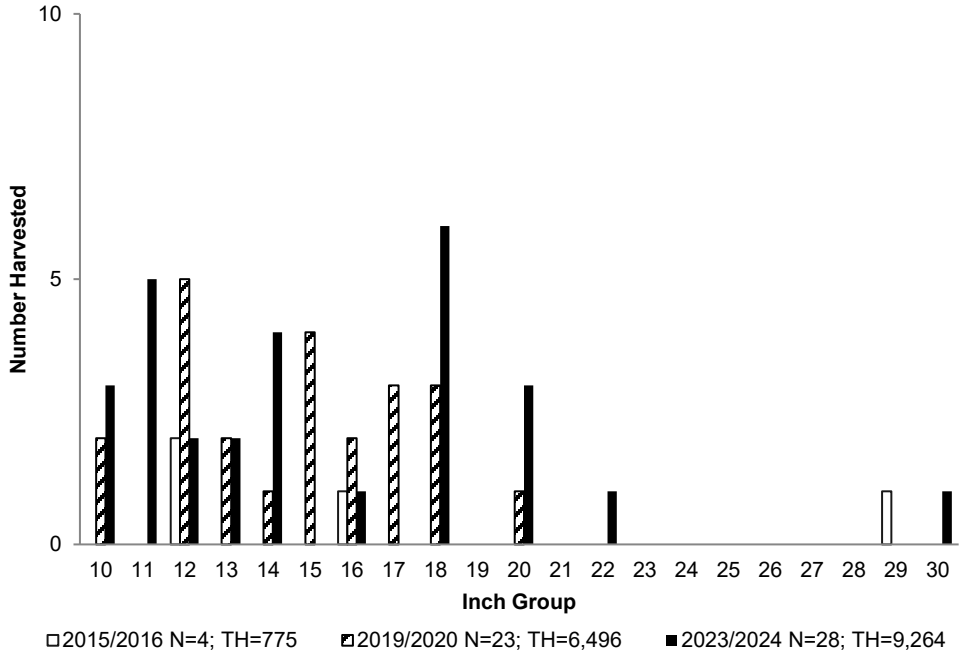

Figure 7. Length frequency of harvested Blue Catfish observed during creel surveys at Toledo Bend Reservoir, Texas, June through May 2015/2016, 2019/2020, and 2023/2024, all anglers combined. N is the number of harvested Blue Catfish observed during creel surveys, and TH is the total estimated harvest for the creel period.

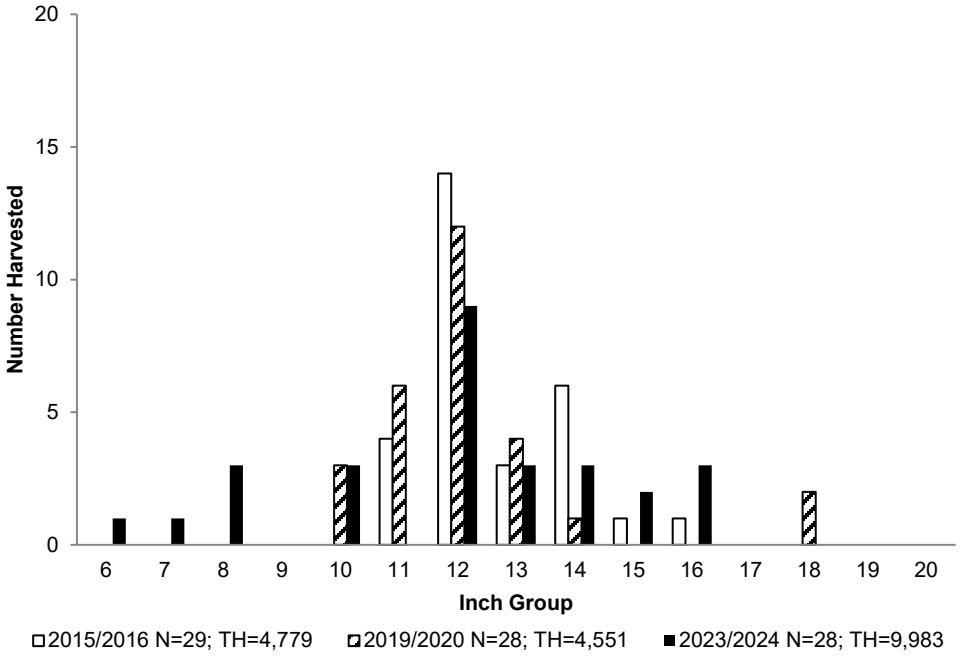

Figure 8. Length frequency of harvested Channel Catfish observed during creel surveys at Toledo Bend Reservoir, Texas, June through May 2015/2016, 2019/2020, and 2023/2024, all anglers combined. N is the number of harvested Channel Catfish observed during creel surveys, and TH is the total estimated harvest for the creel period.

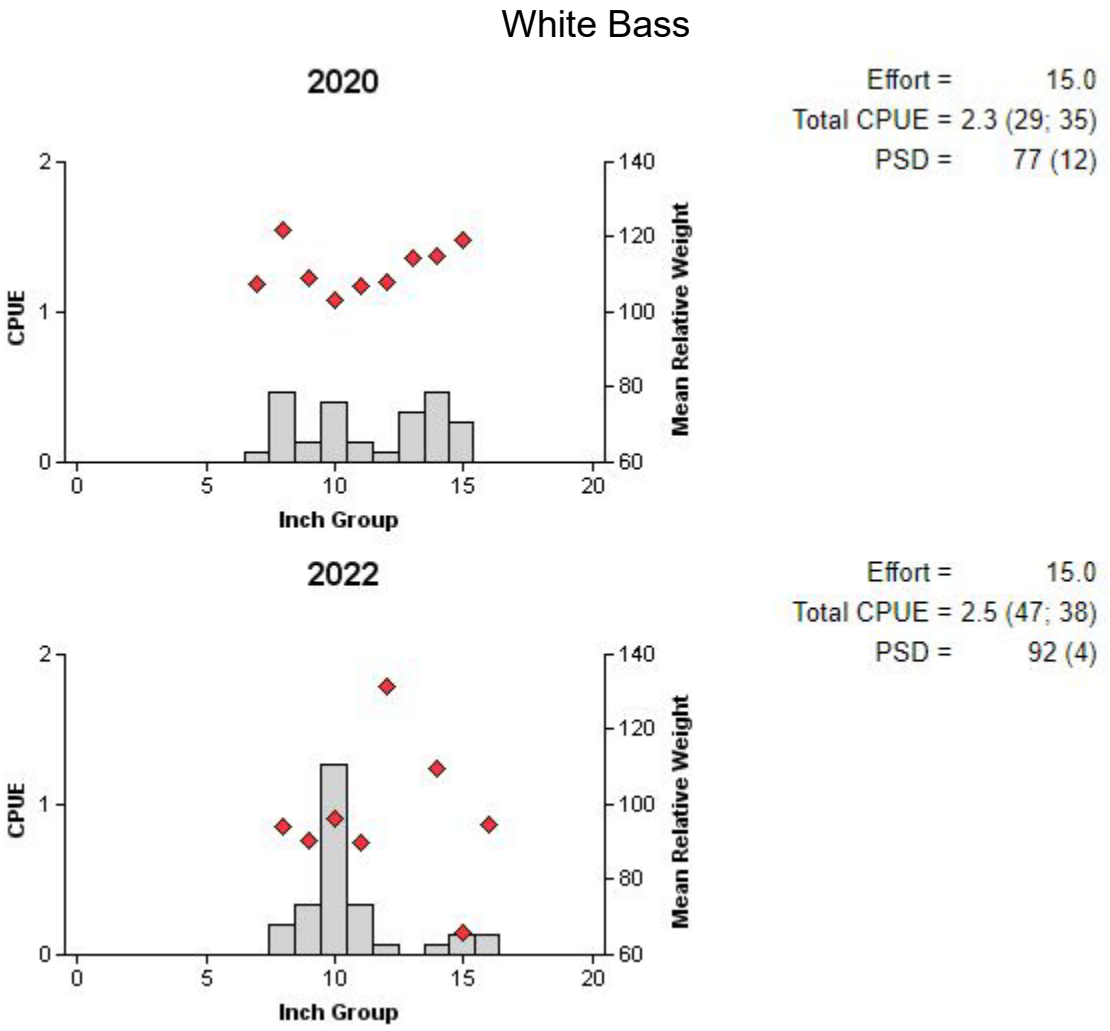

Figure 9. Number of White Bass caught per net night (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Toledo Bend Reservoir, Texas, 2020 and 2022. No White Bass were collected in 2024.

Temperate basses

Table 11. Creel survey statistics for temperate basses at Toledo Bend Reservoir, Texas, from June 2015 through May 2016, June 2019 through May 2020, and June 2023 through May 2024. Total catch per hour is for anglers targeting temperate basses and total harvest is the estimated number of temperate basses harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	Year		
	2015/2016	2019/2020	2023/2024
Surface area (acres)	70,469	70,469	70,469
Directed effort (h)	2,425 (87)	0	2,008 (76)
Directed effort/acre	0.03 (87)	0.00	0.03 (76)
Total catch per hour	3.20 (23)	0.00	8.88 (NA)
Total harvest	12,130 (91)	2,064 (715)	16,831 (228)
Harvest/acre	0.17 (91)	0.03 (715)	0.24 (228)
Percent legal released	69	59	14

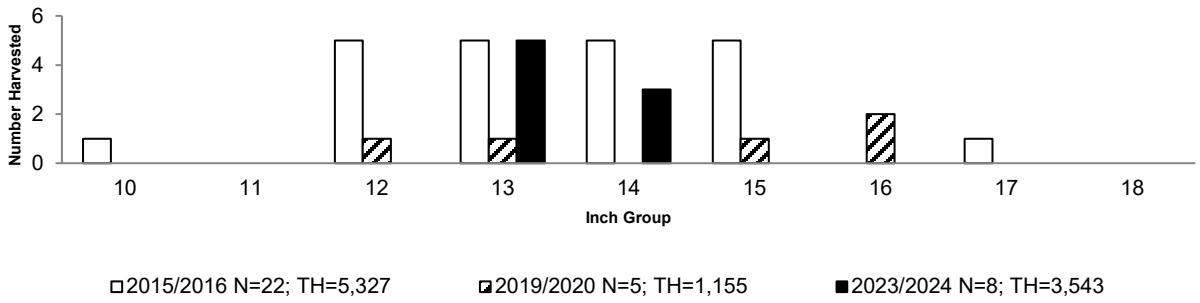

Figure 10. Length frequency of harvested White Bass observed during creel surveys at Toledo Bend Reservoir, Texas, June through May 2015/2016, 2019/2020, and 2023/2024, all anglers combined. N is the number of harvested White Bass observed during creel surveys, and TH is the total estimated harvest for the creel period.

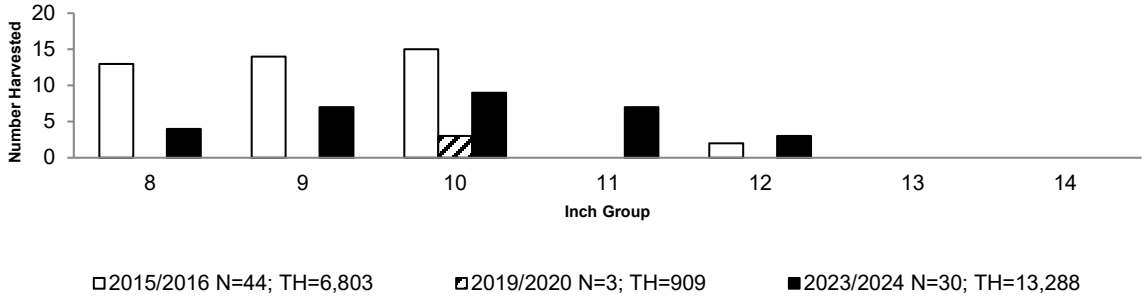

Figure 11. Length frequency of harvested Yellow Bass observed during creel surveys at Toledo Bend Reservoir, Texas, June through May 2015/2016, 2019/2020, and 2023/2024, all anglers combined. N is the number of harvested Yellow Bass observed during creel surveys, and TH is the total estimated harvest for the creel period.

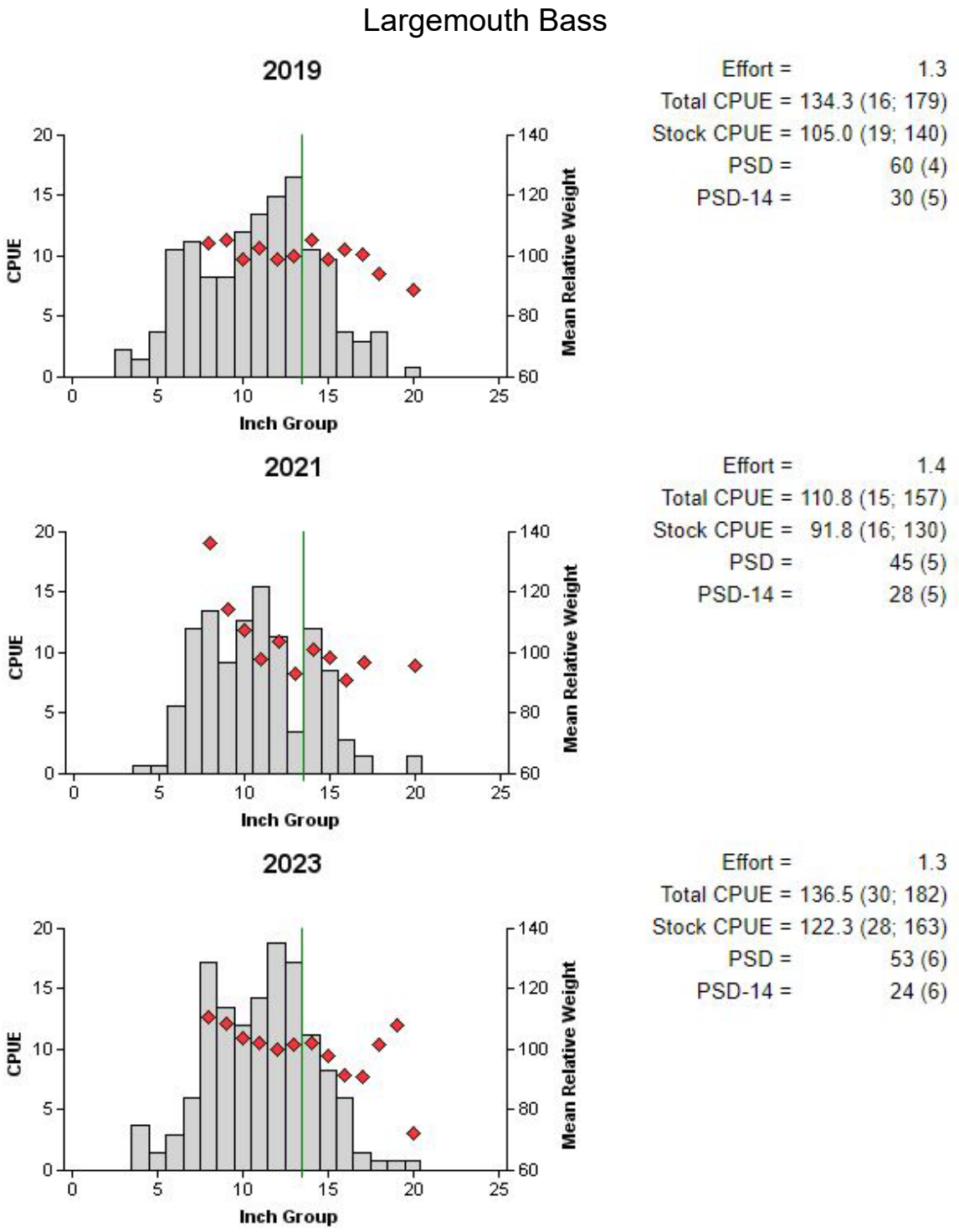

Figure 12. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Toledo Bend Reservoir, Texas, 2019, 2021, and 2023. Vertical lines represent the minimum length limit.

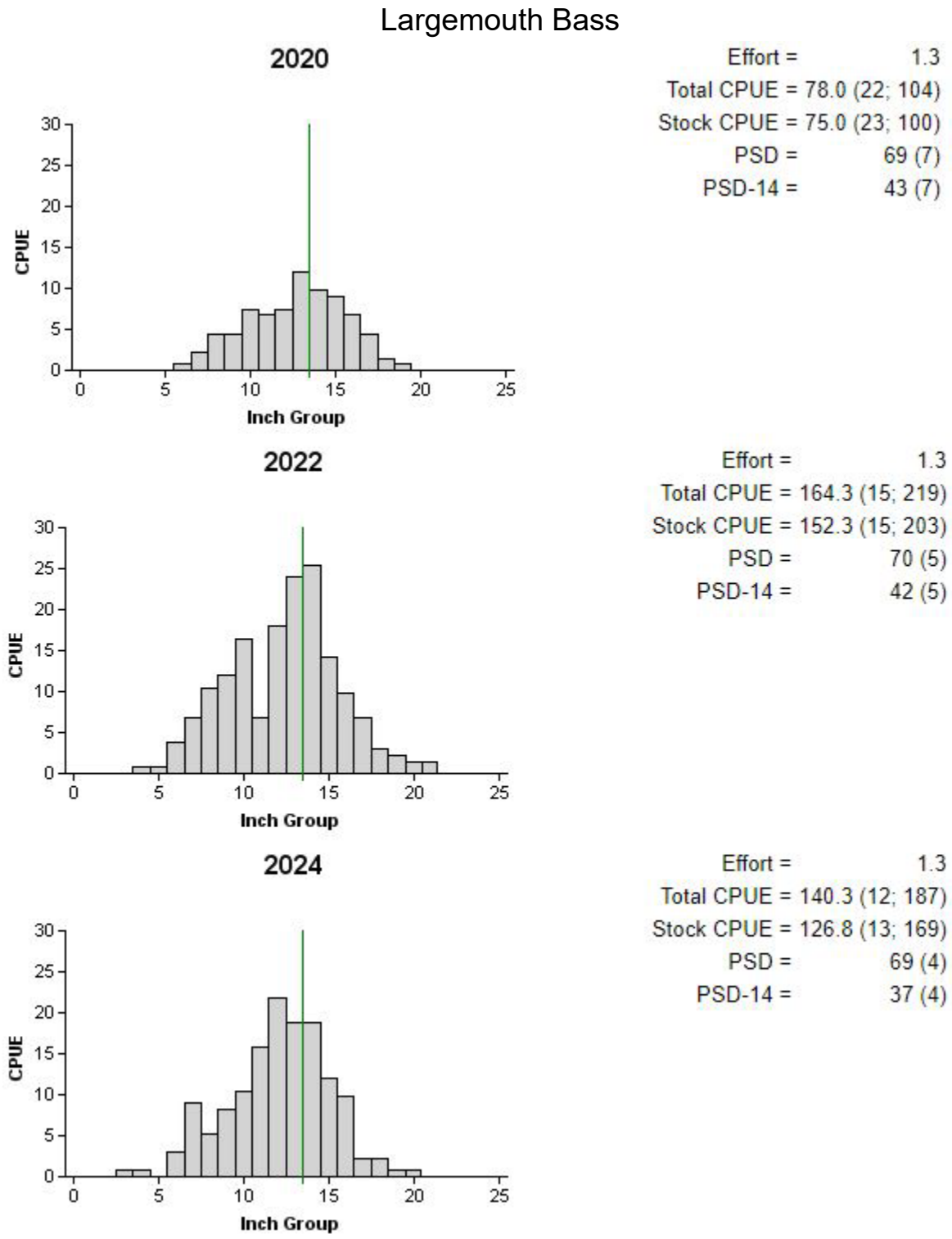

Figure 12. Number of Largemouth Bass caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring electrofishing surveys, Toledo Bend Reservoir, Texas, 2018, 2020, and 2024. Vertical lines represent the minimum length limit.

Black basses

Table 12. Creel survey statistics for black basses at Toledo Bend Reservoir, Texas from June 2015 through May 2016, June 2019 through May 2020, and June 2023 through May 2024. Catch rate is for all anglers targeting black basses. 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 caught by weight category is for all anglers. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	Year		
	2015/2016	2019/2020	2023/2024
Surface area (acres)	70,469	70,469	70,469
Directed angling effort (h)			
Tournament	94,766 (17)	61,794 (26)	112,528 (31)
Non-tournament	251,564 (17)	185,846 (22)	186,147 (39)
All black bass anglers combined	346,331 (16)	247,640 (23)	298,675 (35)
Angling effort/acre	4.91 (16)	3.51 (23)	4.24 (35)
Catch rate (number/h)	1.21 (15)	0.65 (17)	0.97 (16)
Harvest			
Non-tournament harvest	43,572 (29)	39,772 (35)	65,651 (57)
Harvest/acre	0.62 (29)	0.56 (35)	0.93 (57)
Tournament weigh-in and release	25,983 (30)	15,306 (52)	85,458 (46)
Total catch			
<4.0 lbs	410,071 – 96.7%	188,266 – 97.4%	392,426 - 97.0%
4.0-6.9 lbs	12,728 – 3.0%	4,937 – 2.6%	11,356 -2.8%
7.0-9.9 lbs	1,338 – 0.3%	0	647 – 0.2%
≥10.0 lbs	0	0	0
Percent legal released (non-tournament)	58	51	40

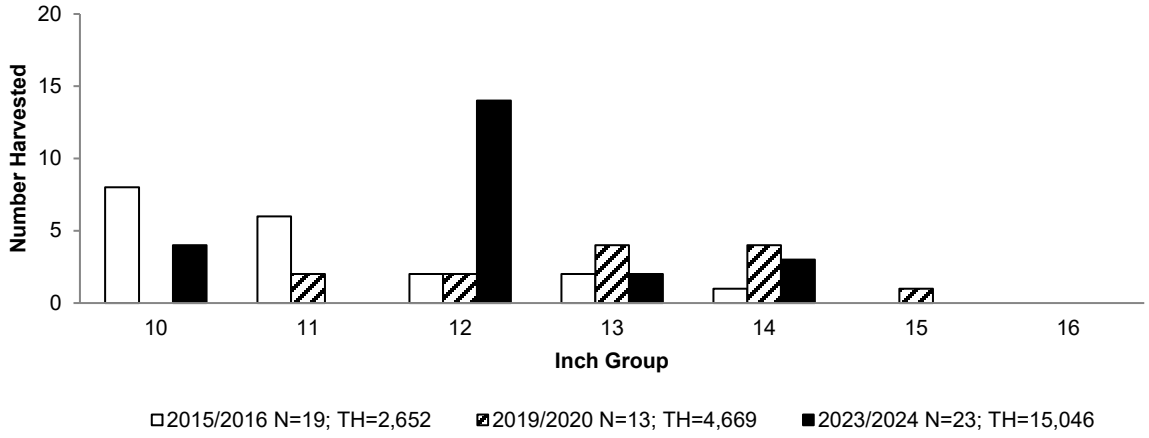

Figure 13. Length frequency of harvested Spotted Bass observed during creel surveys at Toledo Bend Reservoir, Texas, June through May 2015/2016, 2019/2020, and 2023/2024, all anglers combined. N is the number of harvested Spotted Bass observed during creel surveys, and TH is the total estimated harvest for the creel period.

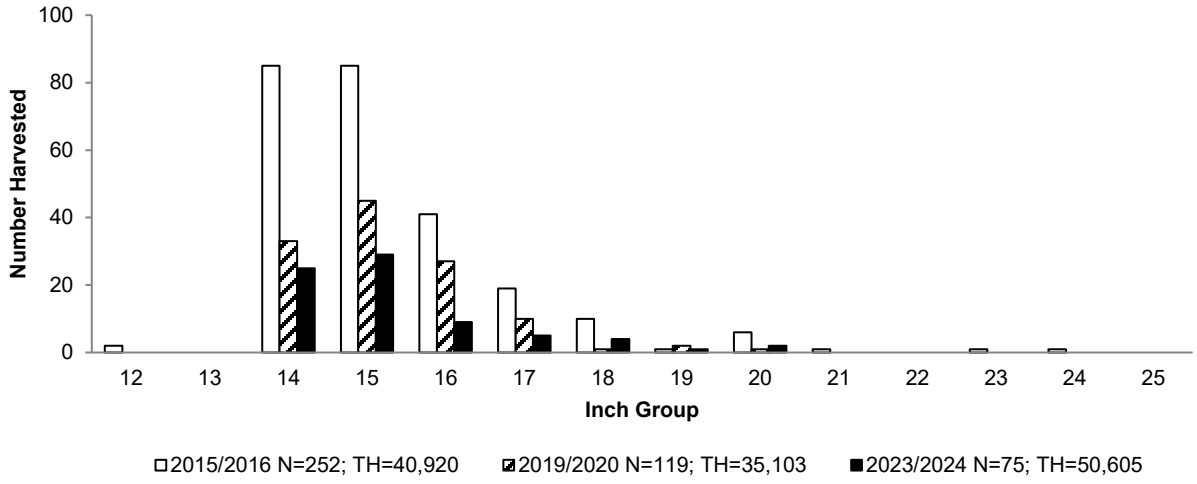

Figure 14. Length frequency of non-tournament harvested Largemouth Bass observed during creel surveys at Toledo Bend Reservoir, Texas, June through May 2015/2016, 2019/2020, and 2023/2024, all anglers combined. N is the number of harvested Largemouth Bass observed during creel surveys, and TH is the total estimated harvest for the creel period.

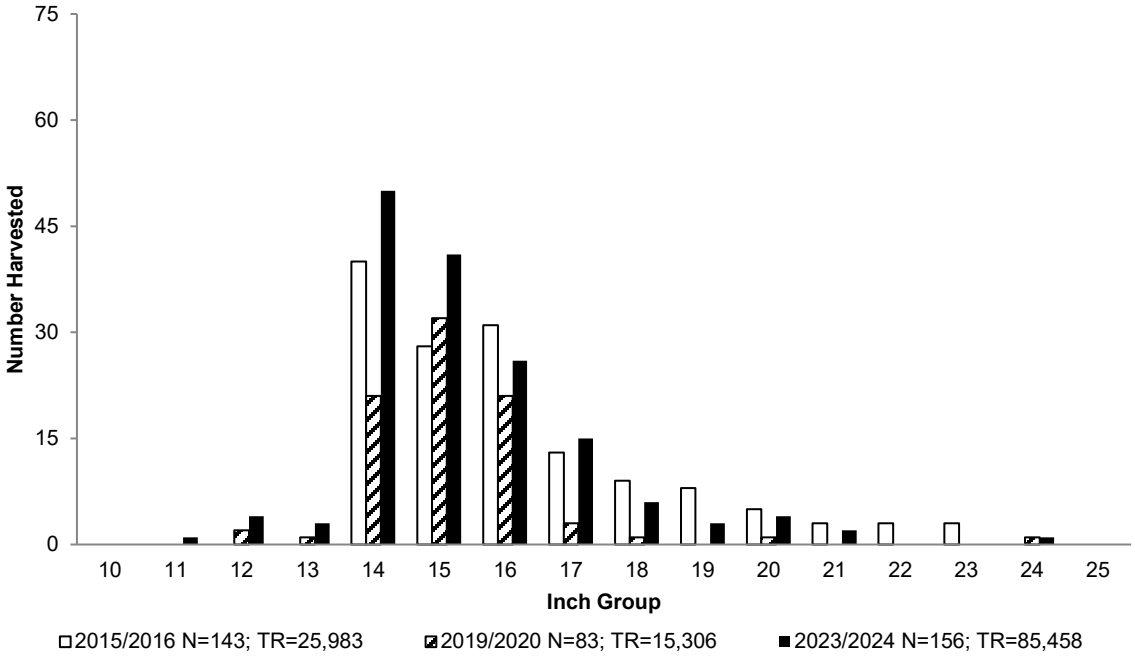

Figure 15. Length frequency of tournament-retained and released black bass observed during creel surveys at Toledo Bend Reservoir, Texas, June through May 2015/2016, 2019/2020, and 2023/2024, all anglers combined. N is the number of retained Largemouth Bass observed during creel surveys, and TR is the total estimated retained fish for the creel period.

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Crappies

Table 13. Creel survey statistics for crappies at Toledo Bend Reservoir, Texas, from June 2015 through May 2016, June 2019 through May 2020, and June 2023 through May 2024. Total catch per hour is for anglers targeting crappies and total harvest is the estimated number of crappies harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel Survey Statistic	Year		
	2015/2016	2019/2020	2023/2024
Surface area (acres)	70,469	70,469	70,469
Directed effort (h)	42,718 (22)	87,907 (22)	96,727 (22)
Directed effort/acre	0.60 (22)	1.25 (22)	1.37 (22)
Total catch per hour	2.19 (36)	0.78 (26)	1.73 (25)
Total harvest	51,898 (38)	73,860 (32)	188,443 (33)
Harvest/acre	0.74 (38)	1.05 (32)	2.67 (33)
Percent legal released	34	41	24

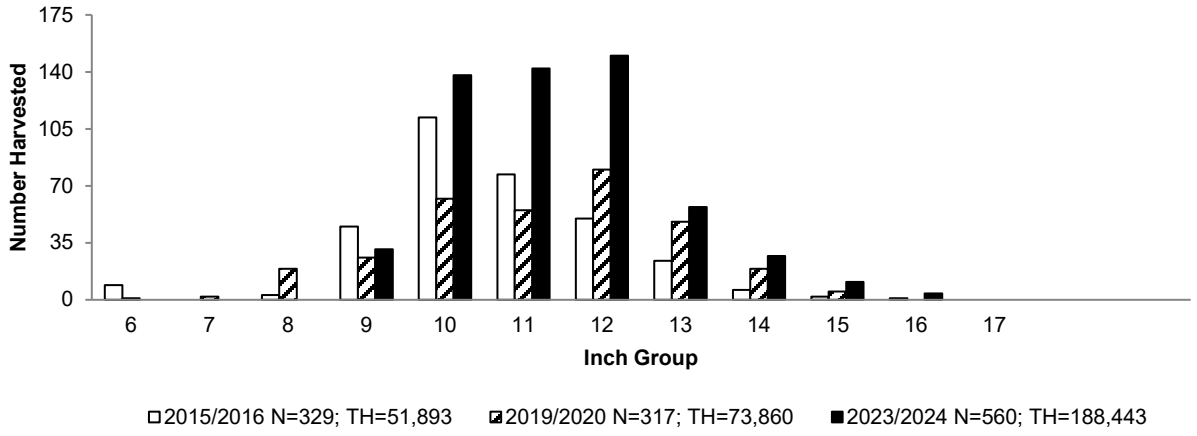


Figure 16. Length frequency of harvested crappies observed during creel surveys at Toledo Bend Reservoir, Texas, June through May 2015/2016, 2019/2020, and 2023/2024, all anglers combined. N is the number of harvested crappies observed during creel surveys, and TH is the total estimated harvest for the creel period.

Proposed Sampling Schedule

Table 14. Proposed sampling schedule for Toledo Bend Reservoir, Texas. Survey period is June through May. Gill netting surveys are conducted in the winter, while electrofishing surveys are conducted in the fall and spring.

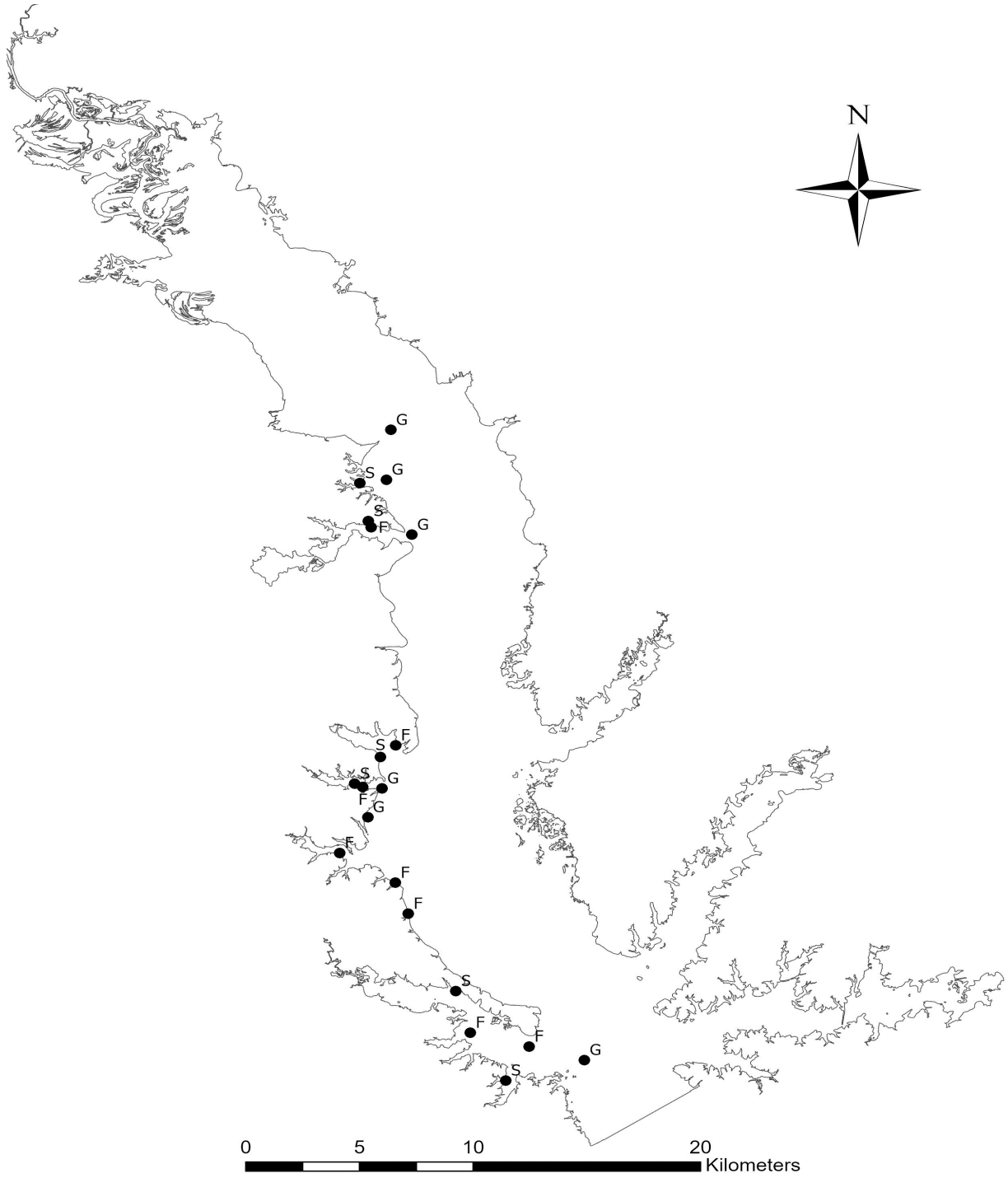
	Survey year			
	2024-2025	2025-2026	2026-2027	2027-2028
Angler Access				X
Vegetation	X	X	X	X
Electrofishing – Fall		X		X
Electrofishing – Spring		X		X
Gill netting		X		X
Creel survey				X
Report				X

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

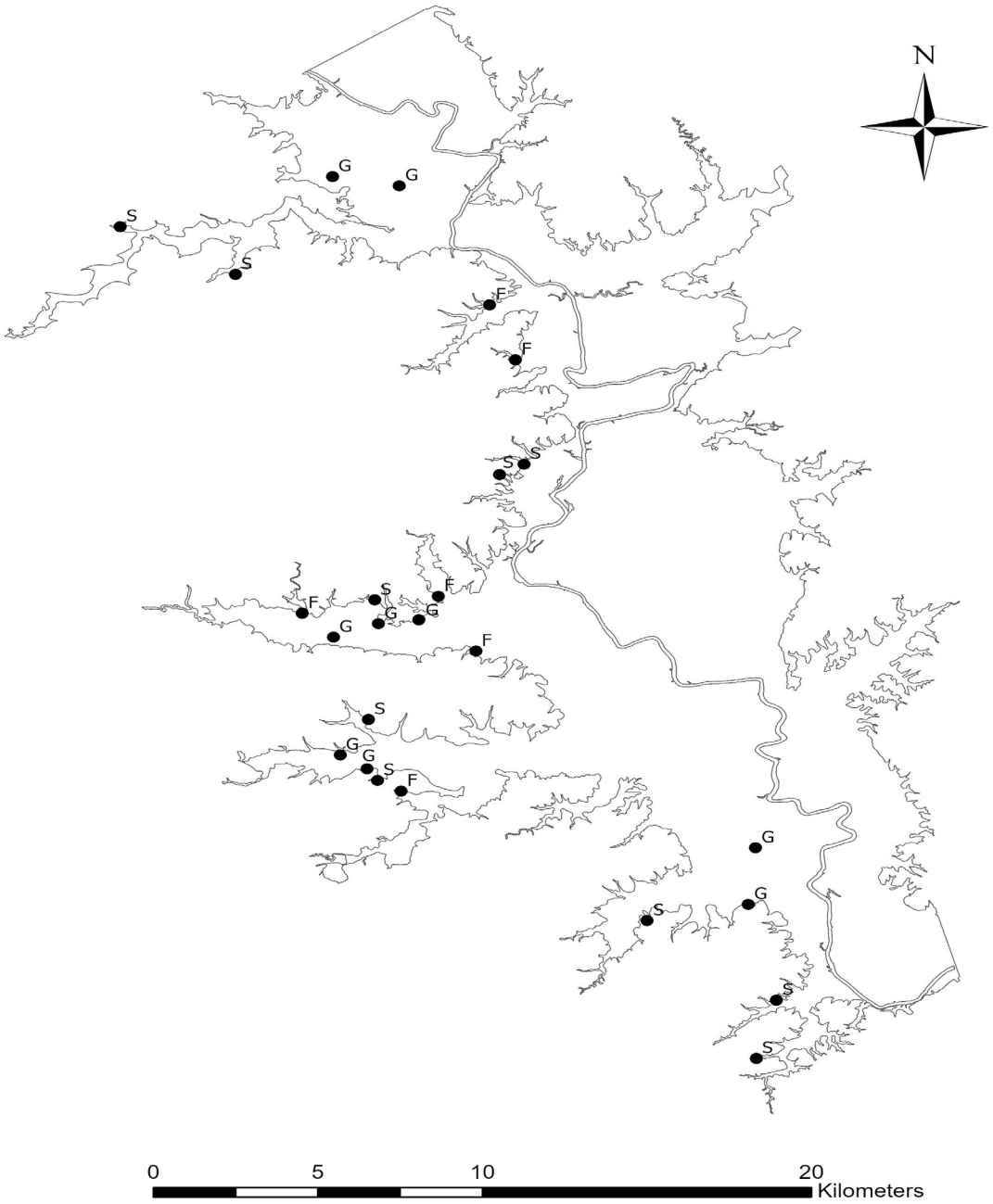
Number (N) and catch rate (CPUE) (RSE in parentheses) of all target species collected from all gear types from Toledo Bend Reservoir, Texas, 2023-2024. Sampling effort was 15 net nights for gill netting and 1.3 hours for electrofishing.

Species	Gill Netting		Electrofishing	
	N	CPUE	N	CPUE
Gizzard Shad			61	45.8 (30)
Threadfin Shad			6,146	4,609.5 (28)
Blue Catfish	142	9.5 (17)		
Channel Catfish	106	7.1 (33)		
Flathead Catfish	1	0.1 (100)		
Yellow Bass	13	0.9 (50)		
Redbreast Sunfish			40	30.0 (53)
Bluegill			150	112.5 (24)
Longear Sunfish			39	29.3 (66)
Redear Sunfish			28	21.0 (32)
Spotted Bass			17	12.8 (45)
Largemouth Bass			182	136.5 (30)

APPENDIX B – Map of sampling locations



Location of sampling sites, north Toledo Bend Reservoir, Texas, 2023-2024. Gill net, fall electrofishing, and spring electrofishing stations are indicated by G, F, and S, respectively. Water level was 7 feet below full pool for fall electrofishing, and full pool for gill netting and spring electrofishing.



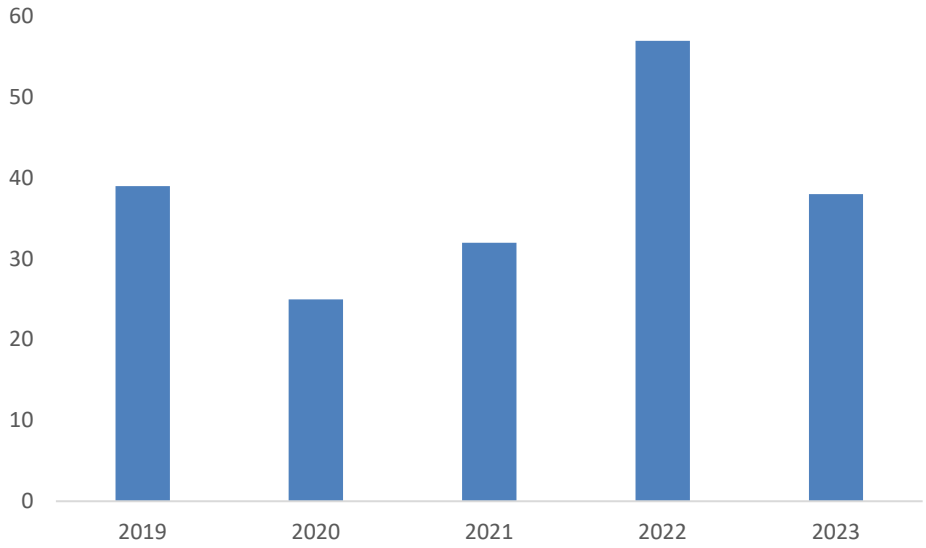
Location of sampling sites, south Toledo Bend Reservoir, Texas, 2023-2024. Gill net, fall electrofishing, and spring electrofishing stations are indicated by G, F, and S, respectively. Water level was 7 feet below full pool for fall electrofishing, and full pool for gill netting and spring electrofishing.

APPENDIX C – Black bass tournament results

Average results from individual and team format bass tournaments at Toledo Bend Reservoir, 2019-2023. Only tournaments with 5-fish bag limits and > 50 individuals or teams were included. Weights are expressed in pounds.

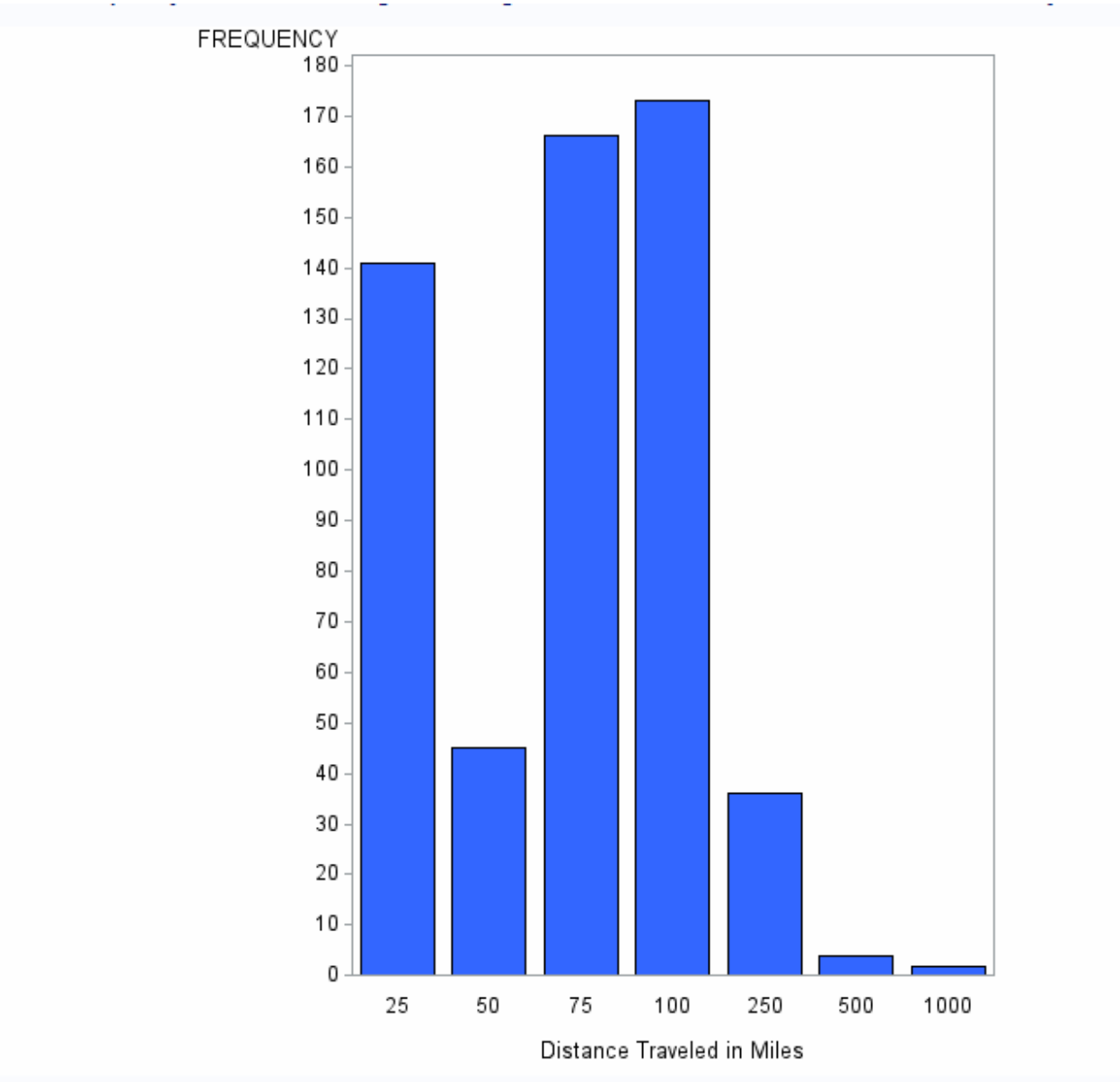
Year	N	1st place weight	2nd place weight	3rd place weight	% total weight > 15 lbs.	% catching limit	Big bass weight
			Individual				
2019	4	23.4	20.7	19.7	8.4	28.0	8.5
2020	5	19.6	17.4	16.5	6.2	26.6	7.2
2021	2	26.6	24.2	23.5	19.3		8.5
2022	1	27.8	26.6	22.6	6.1	16.7	7.7
2023	4	29.7	25.4	22.3	14.4	47.8	10.1
			Team				
2019	1	33.1	30.2	22.5	14.7	25.1	9.6
2020	2	25.6	20.8	20.0	12.8	33.2	10.4
2021	1	25.8	23.0	21.9	27.7	46.9	9.1
2022	3	29.8	27.4	25.9	22.0	42.9	9.6
2023	3	28.2	26.7	23.9	25.7	46.0	11.3

APPENDIX D – Toledo Bend Lake Association lunker bass entries



Annual angler entries of Largemouth Bass ≥ 10 pounds into the Toledo Bend Lake Association (TBLA) Lunker Bass Program. All entries must be weighed at official TBLA weigh stations on certified scales, or an approved tournament scale. The program period is 1 May to 30 April each year.

APPENDIX E – reporting of creel ZIP code data



Frequency of anglers that traveled various distances (miles) to Toledo Bend Reservoir, Texas, as determined from the June 2023 through May 2024 creel survey.

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