

Kurth Reservoir

2022 Fisheries Management Survey Report

PERFORMANCE REPORT

As Required by

FEDERAL AID IN SPORT FISH RESTORATION ACT

TEXAS

FEDERAL AID PROJECT F-221-M-4

INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

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Survey and Management Summary

Largemouth Bass in Kurth Reservoir were surveyed in 2021 and 2023 using spring electrofishing. Reservoir permit holders from 2022 were surveyed in 2023 with a mail-out questionnaire. Historical data are presented with the 2019-2023 data for comparison. This report summarizes the results of the surveys and contains a management plan for the reservoir based on those findings.

Reservoir Description: Kurth Reservoir is an impoundment on a small, unnamed tributary of the Angelina River in the Neches River Basin. The City of Lufkin is the controlling authority and primary use of the reservoir is recreation. At conservation pool, Kurth Reservoir is 726 acres in size, has a shoreline length of 15 miles, and a mean depth of 15 feet. Boat and bank access is adequate, with one boat ramp present. Habitat in the lake consists of flooded timber and aquatic vegetation (primarily hydrilla). Most of the land surrounding the reservoir is used for timber production.

Management History: Important sport fish include Largemouth Bass and Black Crappie. Largemouth Bass are managed with a 16-inch maximum length limit, which was implemented in 2013. All other sport fish are managed with statewide regulations. Hydrilla was first documented in Kurth Reservoir in 1999, and coverage reached 34% of reservoir surface area by 2002. In 2002, at the request of the controlling authority, 2,000 triploid Grass Carp were stocked at a rate of 5 fish/vegetated acre in an attempt to reduce hydrilla coverage to 10-15%. This stocking had little effect on hydrilla coverage. During the last five years, hydrilla coverage has been relatively consistent, ranging from 26 to 38% of the reservoir surface area.

Fish Community

- **Prey species:** Prey abundance is normally assessed with fall electrofishing surveys for most Texas reservoirs. Fall surveys have not been conducted since 2003 due to gear inefficiency related to dense, matted vegetation coverage over 15 feet in depth. However, Threadfin and Gizzard Shad, Bluegill, and Redear Sunfish were observed during the spring electrofishing surveys. Largemouth Bass size structure, growth, and body condition reflected adequate prey abundance.
- **Catfishes:** Historically, catfish abundance at Kurth Reservoir has been limited. No Blue Catfish were caught during the last two gill net surveys. Channel Catfish catch rates from the last three survey years ranged from 0 to 0.8/nn. Gill netting was discontinued in 2015. No anglers surveyed in 2023 were targeting catfish.
- **Largemouth Bass:** The Largemouth Bass fishery was the most popular (89% of directed fishing effort). Spring electrofishing surveys reflected an abundant and high-quality Largemouth Bass population. Population size structure indicated high and consistent recruitment and an abundance of fish 10 to 18 inches in length. In 2023, catch rates of 6 to 10-inch fish increased considerably. The 2023 angler mail-out questionnaire indicated that trophy fish were also relatively abundant. A total of 692 Largemouth Bass 7-9.9 pounds and 29 fish \geq 10.0 pounds were estimated as caught.
- **Crappies:** Black Crappie were observed during spring electrofishing surveys in 2019, 2021, and 2023. Crappies are the second most popular fishery, accounting for 7% of the directed fishing effort.

Management Strategies: Continue to manage Largemouth Bass harvest with a 16-inch maximum length limit to maintain angling quality. Collect angler catch of trophy Largemouth Bass via a mail survey in 2027 and promote participation in the ShareLunker Program to justify Lone Star Bass stockings. Request annual stockings of Lone Star Bass to maximize trophy fish abundance.

Introduction

This document is a summary of fisheries data collected from Kurth Reservoir in 2019-2023. The purpose of the document is to provide fisheries information and make management recommendations to protect and improve the sport fishery. Historical data is presented with the 2019-2023 data for comparison.

Reservoir Description

Kurth Reservoir is a 726-acre impoundment constructed in 1950 on a small, unnamed tributary of the Angelina River in the Neches River Basin (Table 1). It is located approximately 5 miles north of Lufkin and is operated and controlled by the City of Lufkin. Currently, the reservoir is only used for recreation, but future water use may include industrial and municipal needs. Secchi disc readings typically exceed six feet. Habitat at time of sampling consisted of overhanging brush, concrete, some standing timber, and emergent and submerged vegetation. Hydrilla was first documented in 1999, and reservoir surface area coverage has ranged from 25 to 40% during most years. Water levels are relatively stable and maintained within two feet of full pool via pumping from the Angelina River.

Angler Access

Kurth Reservoir has one public boat ramp (Table 2). Shoreline access is minimal and limited to the immediate boat ramp area. Due to issues with vandalism, angler access is controlled via a locked gate, and annual (\$120) or 3-day permits (\$15) are required and can be purchased from the City of Lufkin.

Management History

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

1. Continue to monitor aquatic vegetation annually. If hydrilla coverage expands beyond acceptable coverage prompting controlling authority or recurrent public complaints, meet with all constituents to develop a vegetation management plan.

Action: Vegetation surveys were conducted annually and hydrilla coverage ranged from 28 to 38%.

2. Maintain the 16-inch maximum length limit, 5-fish daily bag limit and request Florida Largemouth Bass (FLMB) annually at a rate of 1,000 fish/km of shoreline. Monitor success of the regulation via biennial spring electrofishing surveys and an angler mail survey.

Action: The length and bag limits have been maintained. FLMB were stocked in 2019 and 2020 and Lone Star Bass (LSB) were stocked in 2022. LSB are 2nd generation offspring of pure Florida-strain ShareLunker Largemouth Bass (\geq 13 pounds). Spring electrofishing surveys were conducted in 2021 and 2023. In 2023, a mail survey was sent to all 2022 permit holders.

Harvest regulation history: In 2013, a 16-inch maximum length limit was implemented for Largemouth Bass. All other sport fishes are currently managed with statewide regulations (Table 3).

Stocking history: Triploid Grass Carp were stocked in 2002 (2,000 fingerlings). FLMB were stocked periodically from 1977-2002, and most years from 2008-2020. Sharelunker Largemouth Bass were stocked in 2018. LSB were stocked in 2022. Blue Catfish were introduced in 1995. Palmetto Bass were stocked annually from 1994-1998. The complete stocking history is in Table 4.

Vegetation/habitat management history: Hydrilla was first documented in Kurth Reservoir in 1999. In 2002, hydrilla coverage had expanded to cover 34% of the reservoir surface area. At this time, Abitibi Consolidated owned the reservoir. Due to potential concerns regarding industrial water usage at their paper mill, Abitibi requested a Triploid Grass Carp stocking in an effort to reduce hydrilla coverage to 10-15%. Coverage initially declined following the stocking, then quickly rebounded. No additional hydrilla control efforts have occurred since this single stocking event. Water hyacinth and common salvinia are present but coverages rarely exceed five acres. Aquatic Habitat Enhancement staff conducts herbicide treatments when necessary, most recently in 2012 (water hyacinth) and 2022 (common salvinia).

Water transfer: No interbasin water transfers exist. Kurth Reservoir is currently used for recreation, but future water uses may include industrial and municipal needs.

Methods

Surveys were conducted to achieve survey and sampling objectives in accordance with the objective-based sampling (OBS) plan for Kurth Reservoir (Ashe and Driscoll 2019). Primary components of the OBS plan are listed in Table 5. All survey sites were randomly selected, and all surveys were conducted according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2022).

Electrofishing – Largemouth Bass were collected by spring electrofishing (1 hour at 12, 5-min stations). Catch per unit effort (CPUE) for electrofishing was recorded as the number of fish caught per hour (fish/h) of actual electrofishing. Ages for Largemouth Bass were determined using otoliths from 14 randomly-selected fish (range 13.0 to 14.9 inches) that were collected in the fall of 2022.

Statistics – Sampling statistics (CPUE for various length categories) and structural indices [Proportional Size Distribution (PSD), terminology modified by Guy et al. 2007] were calculated for Largemouth Bass according to Anderson and Neumann (1996). Standard error (SE) was calculated for structural indices. Relative standard error (RSE = $100 \times \text{SE of the estimate} / \text{estimate}$) was calculated for Largemouth Bass CPUE statistics.

Creel survey – All reservoir permit holders were sent a mail-out questionnaire in January 2023 to estimate 2022 angling frequency, satisfaction, directed fishing effort, and trophy bass catch (Appendix C). The mean responses were calculated from returned surveys and expanded to account for non-reporting.

Habitat – A structural habitat survey was conducted in 2006 (Ashe and Driscoll 2007). Annual vegetation surveys were conducted from 2019 to 2022 to monitor hydrilla coverage. Habitat was assessed with the digital shapefile method (TPWD, Inland Fisheries Division, unpublished manual revised 2022).

Results and Discussion

Habitat: Littoral zone structural habitat has remained consistent since the last survey and consisted primarily of submerged vegetation, concrete, and overhanging brush (Ashe and Driscoll 2007). During the last five years, hydrilla coverage has been relatively consistent and at desirable levels, ranging from 26 to 38% of the reservoir surface area (Table 6). Beginning in 2020, coontail began to grow in deeper areas of the reservoir (18 to 22 feet) and comprised 14% of the surface area in 2022. When vegetative coverage exceeds 25%, a few anglers complain regarding excess vegetation. However, even when coverage approaches 45%, the Largemouth Bass population displays no negative effects (i.e., growth rates are adequate and body condition is desirable). The City of Lufkin has not reported problems with the current hydrilla coverage. Anglers have reported a vegetation satisfaction level of 2.5 on a score of 1-3 with 1 being the lowest and 3 being the highest level of satisfaction.

Creel: Mail surveys were sent to all reservoir permit holders to assess fishing activity for 2010 (122), 2014 (320), 2018 (403), and 2022 (450) and reporting rates were 43%, 46%, 46%, and 41%, respectively (Appendix A). Similar to previous survey years, directed angling effort was highest for Largemouth Bass (89%), followed by anglers fishing for crappies (7%) and sunfishes (4%) (Table 7). Total angling effort was high in 2022 (41.2 h/acre) but lower than in 2018 (59.1 h/acre) (Appendix A). Average days fished/respondent were similar among the four years of mail surveys (range = 13 to 18), but total estimated fishing days increased from 2,159 to 5,651 due to the increased number of permit holders.

Prey species: Prey species have not been monitored with fall electrofishing since 2003 due to abundant, surface-matted hydrilla (shoreline to 18-foot depths) that restricts sampling efficiency. However, growth rates and body condition of Largemouth Bass reflect abundant prey populations. A minor sunfish fishery was present and accounted for approximately 5% of directed angler effort.

Catfishes: Historically, catfish abundance at Kurth Reservoir has been limited. Although Blue Catfish were introduced in 1995 (Table 4), few have been caught during gill net surveys, with none observed from the last two surveys (2007 and 2011). Similarly, Channel Catfish gill net catch rates from the last three gillnet surveys (2004, 2007, and 2011) ranged from 0 to 0.8/nn (Ashe and Driscoll 2011). Beginning in 2015, gill net surveys were discontinued. There was no reporting by anglers targeting catfish in 2022.

Largemouth Bass: As with the prey species Largemouth Bass has not been monitored via fall electrofishing since 2003 due to abundant surface-matted hydrilla that restricts sampling efficiency. Spring electrofishing surveys reflected high and increasing Largemouth Bass abundance and recruitment, with catch rates of 195.0/h, 218.0/h, and 318.0/h, in 2019, 2021, and 2023, respectively (Figure 1). The considerable increase in 2023 was primarily due to a high catch of 7 to 10-inch fish, likely indicating a robust 2022 year class. The PSD and PSD-16 values ranged from 46 to 88 and 29 to 33, indicating high abundance of quality-sized fish. Body condition of Largemouth Bass was excellent with average W_s of 103 and 99 in 2021 and 2023. Growth of Largemouth Bass was fast; average age at 14 inches was 1.6 years (N = 14; range = 1 to 3 years).

The 2023 mail survey estimated anglers spent nearly 40 h/acre targeting Largemouth Bass (Appendix A) in 2022. As reflected by the increase in permit holders and overall number of days fished, directed effort for Largemouth Bass has increased substantially since 2010. An estimated 692 fish 7 to 9.9 pounds and 29 fish \geq 10 pounds were caught during 2022, reflecting high trophy potential.

Crappies: Black Crappie were observed during spring electrofishing surveys in 2019, 2021, and 2023. Data from the mail survey reflected that 7% of the directed angler effort was for crappie in 2022, which is consistent with results from previous creel surveys (Table 7).

Fisheries Management Plan for Kurth Reservoir, Texas

Prepared – July 2023

ISSUE 1: Historically, hydrilla has been problematic, interfering with water intake for industrial purposes when the reservoir was owned and operated by the Abitibi Corporation. Currently, the City of Lufkin owns / operates the reservoir solely for recreation and no water is withdrawn, however the city purchased the reservoir with the intent of eventually using the water for municipal and industrial purposes. The Largemouth Bass population continues to exhibit desirable growth, abundance, and size structure at hydrilla coverages ranging from 25 to 40%. However, the City's water use practices may change and some of the angling public has expressed that dense coverage is undesirable.

MANAGEMENT STRATEGY

1. Continue to monitor aquatic vegetation annually. If hydrilla coverage expands beyond acceptable coverage within the next four years prompting increased complaints from the angling public or controlling authority, meet with stakeholders to develop a vegetation management plan that maintains hydrilla at $\geq 25\%$ of reservoir surface area.

ISSUE 2: Largemouth Bass abundance and size structure reflect a quality population. Trophy bass production continues to be high. The mail survey for 2022 estimated an annual angler catch of 692 Largemouth Bass ≥ 7 pounds and 29 fish ≥ 10 pounds. Three 8-9.9 pound and two 10-12.9 pound Largemouth Bass have been reported to the Sharelunker program.

MANAGEMENT STRATEGIES

1. To maximize trophy fish production, maintain the current 16-inch maximum length limit, 5-fish bag limit.
2. Continue collecting angler catch of trophy Largemouth Bass by conducting an angler mail-out survey of all permit holders in 2027 and encouraging angler participation in the ShareLunker Program.
3. Conduct annual stockings of LSB (1,000 fingerlings per kilometer of shoreline; approximately 20,000 total) to maximize trophy fish abundance.

ISSUE 3: Many invasive species threaten aquatic habitats and organisms in Texas and can adversely affect the state ecologically, environmentally, and economically. For example, zebra mussels can multiply rapidly and attach themselves to any available hard structure, restricting water flow in pipes, fouling swimming beaches, and plugging engine cooling systems. Giant salvinia and other invasive vegetation species can form dense mats, interfering with recreational activities like fishing, boating, skiing, and swimming. The financial costs of controlling and/or eradicating these types of invasive species are significant. Additionally, the potential for invasive species to spread to other river drainages and reservoirs via watercraft and other means is a serious threat to all public waters of the state.

MANAGEMENT STRATEGIES

1. Cooperate with the controlling authority to post appropriate signage at access points around the reservoir.
2. Educate the public about invasive species through the use of media and the internet.
3. Make a speaking point about invasive species when presenting to constituent and user groups.
4. Keep track of (i.e., map) existing and future inter-basin water transfers to facilitate potential invasive species responses.

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

Sport fish, forage fish, and other important fishes

Sport fishes in Kurth Reservoir include Largemouth Bass, crappies, and sunfishes. Important forage species include Bluegill and Threadfin Shad.

Low-density fisheries

Historically, anecdotal information indicates that the crappie fishery has been cyclical but productive during some years. However, the percent of annual angling effort directed at crappies has only averaged approximately 10%. Trap netting was discontinued in 2006 due to low catch ($<1.0/\text{nn}$). No future directed sampling is planned. The annual angling effort directed at crappies will be monitored via mail-out surveys to all lake permit holders in 2027.

Survey objectives, fisheries metrics, and sampling objectives

Largemouth Bass: Largemouth Bass are the most popular sport fish in Kurth Reservoir, accounting for approximately 85% of the annual angling effort. The reservoir currently supports an abundant, high-quality Largemouth Bass fishery. Largemouth Bass have been managed with a 16-inch maximum length limit since 2013 to increase trophy bass numbers. Since 2003, trend data on CPUE and size structure have been collected biennially with spring electrofishing. The population is abundant, recruitment rates have been high and stable, and size structure has been desirable and stable. Continuation of trend data with night electrofishing in the spring (biennially, 2025 and 2027) will allow for determination of any large-scale changes in the Largemouth Bass population that may spur further investigation. The minimum of 12 randomly selected 5-min electrofishing sites will be sampled, but the anticipated effort to meet sampling objectives ($N = 50$ stock-size fish; $RSE-S$ is ≤ 25) is 6 to 8 stations with 80% confidence.

The Largemouth Bass fishery (i.e., angling effort and satisfaction, harvest, and annual catch of fish > 7 and > 10 pounds) will be monitored with a mail survey sent to all lake permit holders in January 2027.

In addition, average age of Largemouth Bass between 330 and 381 mm (Category 2; $N = 13$) will be estimated in 2026. Fish will be supplementally collected during the fall instead of from spring sampling when annuli formation could confound age estimates.

Prey species: Bluegill and Threadfin Shad are the primary forage at Kurth Reservoir. No directed sampling has occurred for prey species since 2003 due to inefficiencies related to fall electrofishing. Few sunfish and shad are observed during spring electrofishing surveys targeting Largemouth Bass. However, growth rate and relative weight of Largemouth Bass will provide insight regarding prey species abundance and availability.

Literature Cited

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Tables and Figures

Table 1. Characteristics of Kurth Reservoir, Texas.

| Characteristic | Description |
|-----------------------------|----------------|
| Year constructed | 1950 |
| Controlling authority | City of Lufkin |
| County | Angelina |
| Reservoir type | Tributary |
| Shoreline Development Index | 3.75 |
| Conductivity | 175 uS/cm |

Table 2. Boat ramp characteristics of Kurth Reservoir, Texas, April 2023. Reservoir elevation at time of sampling was 196 feet above mean sea level.

| Boat ramp | Latitude Longitude (dd) | Public | Parking capacity (N) | Elevation at end of boat ramp (ft) | Condition |
|-----------|-------------------------------|--------|----------------------------|--|-----------|
| Public | 31.44976 -94.70399 | Y | 20 | 192 | Adequate |

Table 3. Harvest regulations for Kurth Reservoir, Texas.

| Species | Bag limit | Length limit |
|--|----------------------------------|-----------------|
| Catfish: Channel and Blue Catfish, their hybrids and subspecies | 25 (only 10 \geq 20 inches) | None |
| Catfish, Flathead | 5 | 18-inch minimum |
| Bass, Largemouth | 5 ^{a, b} | 16-inch maximum |
| Bass, Spotted | 5 ^a | None |
| Crappie: White and Black Crappie, their hybrids and subspecies | 25 (in any combination) | 10-inch minimum |

^a Bag limit for Spotted and Largemouth Bass is 5 in the aggregate.

^b Only fish 24 inches or greater may be retained alive in a livewell and immediately weighed using personal scales. Bass weighing 13 pounds or more may be donated to the ShareLunker Program; otherwise fish must be immediately released.

Table 4. Stocking history of Kurth Reservoir, Texas. FGL = fingerling; ADL = adult; FRY = fry; UNK = unknown.

| Species | Year | Number | Size |
|--|---------|--------|------|
| Black Crappie | 1969 | 2,000 | FGL |
| | Total | 2,000 | |
| Blue Catfish | 1995 | 60,041 | FGL |
| | 1996 | 41 | ADL |
| | Total | 60,082 | |
| Florida Largemouth Bass | 1977 | 32,000 | FRY |
| | 1994 | 41,572 | FGL |
| | 1998 | 40,000 | FGL |
| | 2001 | 13,996 | FGL |
| | 2002 | 56,851 | FGL |
| | 2008 | 78,129 | FGL |
| | 2009 | 75,404 | FGL |
| | 2010 | 73,743 | FGL |
| | 2011 | 74,116 | FGL |
| | 2012 | 74,172 | FGL |
| | 2015 | 49,385 | FGL |
| | 2016 | 68,610 | FGL |
| | 2017 | 80,169 | FGL |
| | 2018 | 68,541 | FGL |
| | 2019 | 20,079 | FGL |
| | 2020 | 204 | ADL |
| 2020 | 29,800 | FGL | |
| Total | 876,771 | | |
| Sharelunker Largemouth Bass ^a | 2018 | 8,957 | FGL |
| | Total | 8,957 | |
| Lone Star Bass ^b | 2022 | 16,882 | FGL |
| | Total | 16,882 | |

| Species | Year | Number | Size |
|---------------------|-------|---------|------|
| Palmetto Bass | 1982 | 5,795 | UNK |
| | 1994 | 8,835 | FGL |
| | 1995 | 103,845 | FRY |
| | 1996 | 11,787 | FGL |
| | 1997 | 12,230 | FGL |
| | 1998 | 12,708 | FGL |
| | Total | 155,200 | |
| Tripliod Grass Carp | 2002 | 2,000 | FGL |
| | Total | 2,000 | |

^a ShareLunker Largemouth Bass are 1st generation offspring from angler-donated Largemouth Bass \geq 13 pounds from the Toyota ShareLunker program.

^b Lone Star Bass are 2nd generation offspring of pure Florida-strain ShareLunker Largemouth Bass (fish \geq 13 pounds).

Table 5. Objective-based sampling plan components for Kurth Reservoir, Texas 2022–2023.

| Gear/target species | Survey objective | Metrics | Sampling objective |
|-----------------------|---|---|----------------------------|
| <i>Electrofishing</i> | | | |
| Largemouth Bass | Abundance | CPUE–Stock | RSE-Stock \leq 25 |
| | Size structure | PSD, length frequency | N \geq 50 stock |
| | Age-and-growth | Age at 14 inches | N = 13, 13.0 – 14.9 inches |
| <i>Mail survey</i> | | | |
| Black basses | Trend information on angler utilization | Angler effort, harvest, and catch of large fish (> 7 lbs) | |
| Crappies | Trend information on angler utilization | Angler effort | |
| Sunfishes | Trend information on angler utilization | Angler effort | |

Table 6. Survey of aquatic vegetation, Kurth Reservoir, Texas, 2018–2022. Surface area (acres) is listed with percent of total reservoir surface area in parentheses.

| Species | 2018 | 2019 | 2020 | 2021 | 2022 |
|------------------|------------|------------|------------|------------|------------|
| American lotus | 26 (3.6) | 22 (3.0) | 34 (4.7) | 25 (3.4) | 3 (<1) |
| Spikerush | 3 (<1) | 3 (<1) | 2 (<1) | 3 (<1) | 2 (<1) |
| Cattail | 21 (2.9) | 29 (4.0) | 3 (<1) | 18 (2.5) | 15 (2.1) |
| Pondweed | 4 (<1) | 26 (3.6) | 1 (<1) | 4 (<1) | 15 (2.1) |
| Hydrilla | 188 (25.9) | 276 (38.0) | 247 (34.0) | 206 (28.4) | 244 (33.6) |
| Bulrush | <1 (<1) | 0 | 0 | <1 (<1) | <1 (<1) |
| Coontail | 0 | 0 | 64 (8.8) | 70 (9.6) | 101 (13.9) |
| Watershield | 0 | 0 | 0 | <1 (<1) | <1 (<1) |
| White water lily | 0 | 0 | 0 | 0 | 7 (1.0) |

Table 7. Percent directed angler effort by species for Kurth Reservoir, Texas, 2011, 2018, and 2022. Survey periods were from 1 March through 31 May for 2011, and 1 January through 31 December for 2018 and 2022. Directed effort for 2011 was determined via an access-point creel survey, whereas 2018 and 2022 data were collected via a mail survey to all permit holders.

| Species | 2011 | 2018 | 2022 |
|--------------|------|------|------|
| Sunfishes | 5.1 | 5.0 | 4.0 |
| Black basses | 83.4 | 87.0 | 89.0 |
| Crappies | 11.5 | 8.0 | 7.0 |

Largemouth Bass

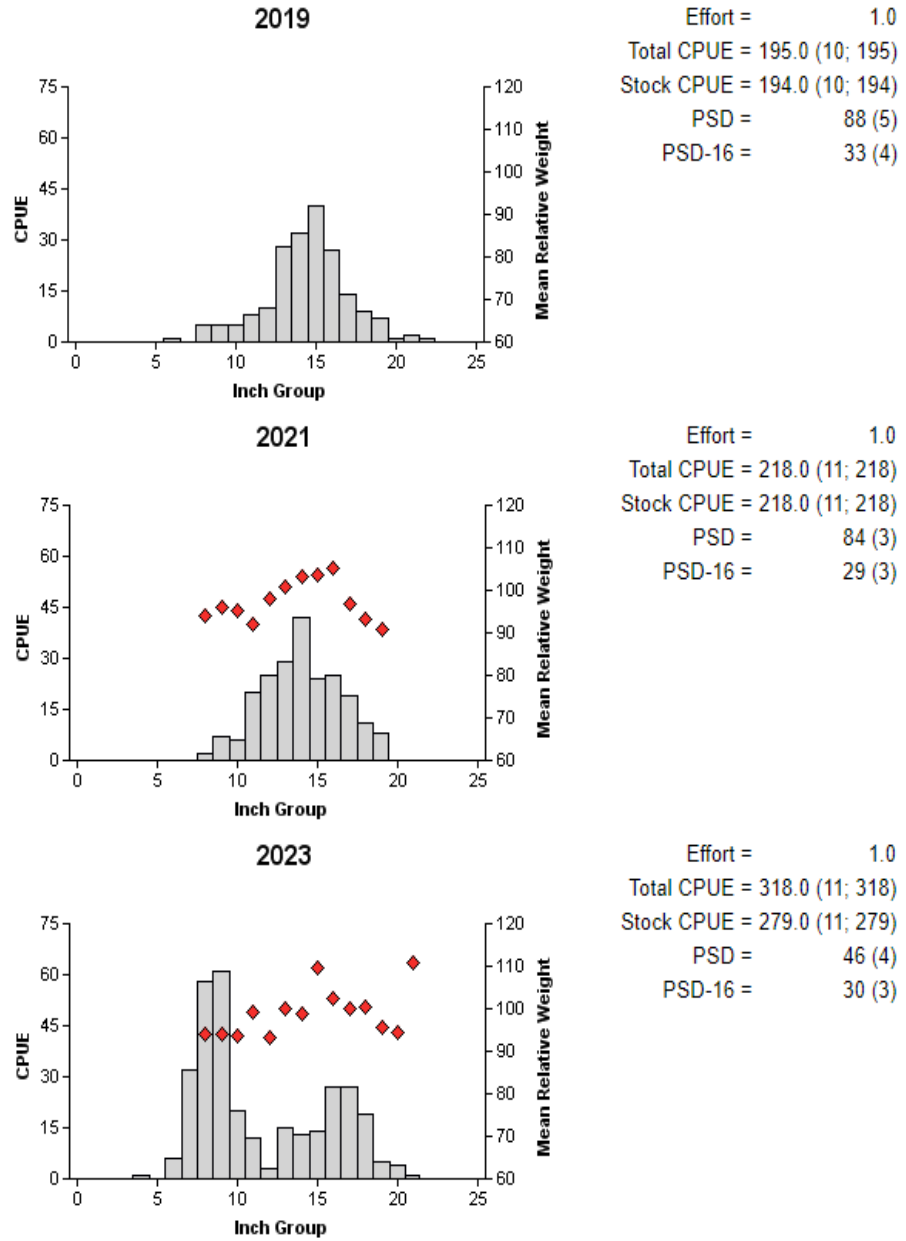


Figure 1. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring electrofishing surveys, Kurth Reservoir, Texas, 2019, 2021, and 2023.

Proposed Sampling Schedule

Table 8. Proposed sampling schedule for Kurth Reservoir, Texas. Survey period is June through May.

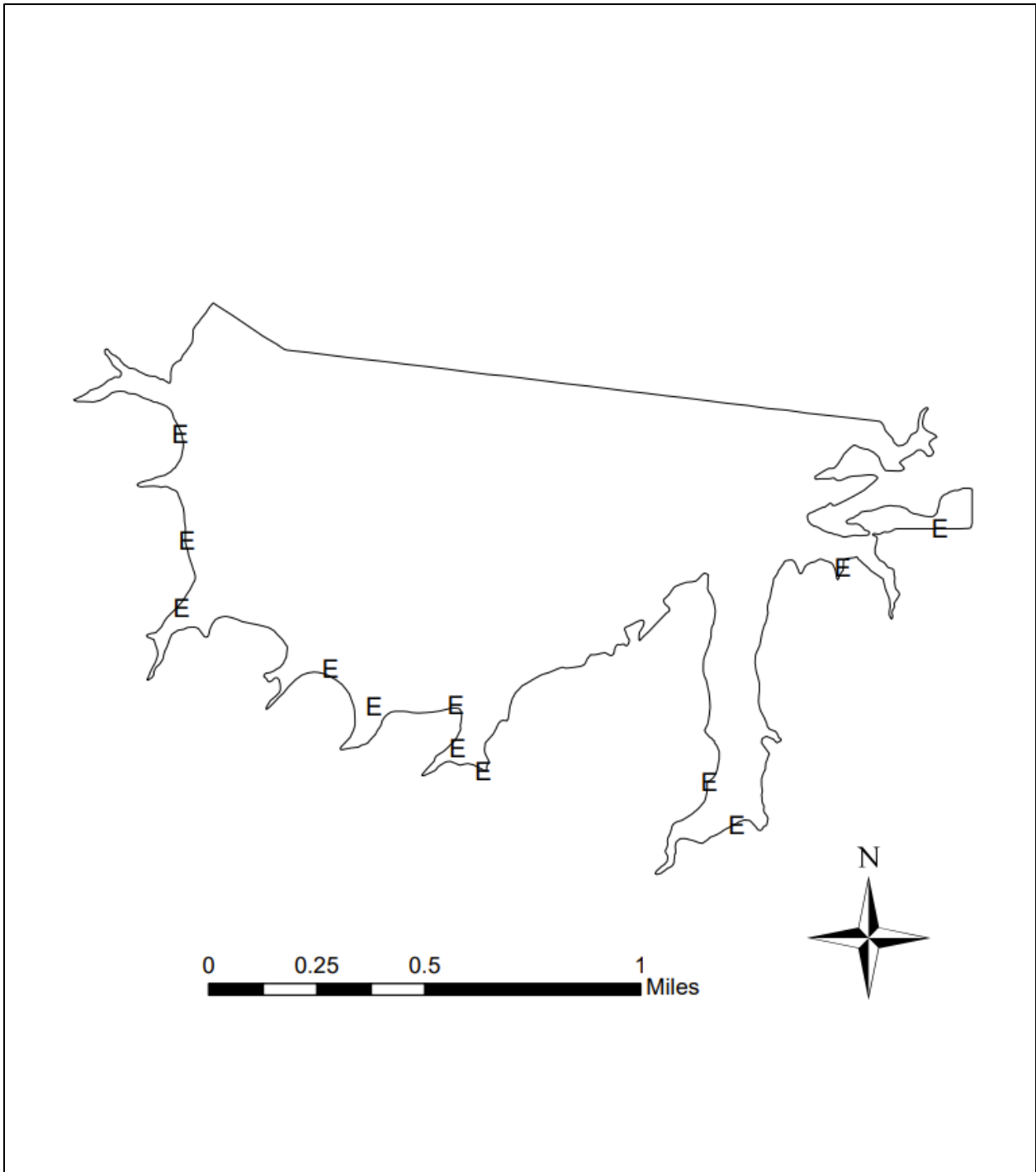
| | Survey year | | | |
|-------------------------|-------------|-----------|-----------|-----------|
| | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 |
| Angler access | | | | X |
| Vegetation | X | X | X | X |
| Structural survey | | | | X |
| Electrofishing – spring | | X | | X |
| Mail creel survey | | | | X |
| Report | | | | X |

APPENDIX A – Mail survey statistics

Mail survey statistics from annual permit holders at Kurth Reservoir, Texas, 2010, 2014, 2018, and 2022. Satisfaction score for fishing quality is on a 1-5 scale (1 - not satisfied, 2 - slightly satisfied, 3 - moderately satisfied, 4 - very satisfied, and 5 - extremely satisfied). Satisfaction score for vegetation coverage is on a 1-3 scale (1 - not enough, 2 - about right, and 3 - too much).

| Survey statistic | 2010 | 2014 | 2018 | 2022 |
|---|-------|-------|-------|-------|
| Number of permit users | 122 | 320 | 403 | 450 |
| Survey reporting rate | 43% | 46% | 46% | 41% |
| Mean number of days fished/respondent | 17.7 | 14.5 | 14.8 | 12.6 |
| Estimated total number of days fished | 2,159 | 4,640 | 5,422 | 5,651 |
| Angling effort/acre | | | 59.1 | 41.2 |
| Largemouth Bass harvest/acre | | | 2.7 | 1.3 |
| Mean satisfaction score of fishing quality | 3.8 | 3.5 | 3.7 | 3.2 |
| Mean satisfaction score of vegetation coverage | 2.5 | 2.5 | 2.5 | 2.5 |
| Average largest Largemouth Bass caught/respondent | 7.0 | 6.0 | 6.1 | 5.2 |
| Estimated number of Largemouth Bass caught 7.0-9.9 pounds | 423 | 672 | 583 | 692 |
| Estimated number of Largemouth Bass caught \geq 10.0 pounds | 28 | 46 | 31 | 29 |

APPENDIX B – Map of sampling locations



Location of sampling sites, Kurth Reservoir, Texas, 2022. Electrofishing stations are indicated E. Water level was near full pool at time of sampling.

APPENDIX C – 2022 mail survey

Texas Parks and Wildlife Department Inland Fisheries Division

You purchased a Kurth Lake fishing permit in 2022. This is a questionnaire that is part of official research by TPWD concerning Kurth Lake. Your answers will enable TPWD to make most informed decisions regarding future fisheries management strategies. Your cooperation is extremely important to the completion of this research. Your answers will not be connected with your name and all information you provide will remain strictly confidential.

Please take the time to complete this questionnaire and return it in the enclosed postage-paid envelope. If you should have any questions, please contact Todd Driscoll, District Fisheries Biologist (409) 698-9114; todd.driscoll@tpwd.texas.gov

1. How many times did you fish at Kurth Lake during calendar year 2022? _____ times
2. Given the total number of days in 2022 you fished from Question 1, how many of these days did you fish for:
Bass: _____ days Crappie: _____ days Sunfish: _____ days Other: _____ days
3. What was the average length in hours of each day you fished Kurth Lake in 2022? _____ hours
4. Overall, how satisfied are you with fishing at Kurth Lake? **(Circle one)**

| | | | | |
|----------------------|--------------------|----------------------|----------------|---------------------|
| Not at all Satisfied | Slightly Satisfied | Moderately Satisfied | Very Satisfied | Extremely Satisfied |
| 1 | 2 | 3 | 4 | 5 |

5. During calendar year 2022, how many total largemouth bass did you and other anglers fishing with you catch that were:
_____ Greater than 7 pounds _____ Greater than 10 pounds
6. In 2022, what was the weight of the largest bass caught by you or other anglers fishing with you? _____ pounds
7. Approximately how many harvestable-sized bass (16 inches in length or less) did you keep in 2022?
_____ fish
8. In terms of recreational fishing, do you believe the amount of aquatic vegetation in Kurth Lake is

| | | |
|------------|-------------|----------|
| Not Enough | About Right | Too Much |
| 1 | 2 | 3 |

Please provide any other comments below (continue on back if necessary):



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