

# Palo Pinto Reservoir

## 2023 Fisheries Management Survey Report

PERFORMANCE REPORT

As Required by

FEDERAL AID IN SPORT FISH RESTORATION ACT

TEXAS

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INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

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## Survey and Management Summary

Fish populations in Palo Pinto Reservoir were surveyed in 2022 using gill netting. Historical data are presented with the 2022 data for comparison. This report summarizes the results of the survey and contains a management plan for the reservoir based on those findings.

**Reservoir Description:** Palo Pinto Reservoir is a 2,399-acre impoundment located in Palo Pinto County on Palo Pinto Creek in the Brazos River Basin approximately 80 miles west of Fort Worth. It was constructed in 1964 to provide municipal water for Mineral Wells, Texas, and cooling water for the Brazos Electric power plant. It has a primarily rocky shoreline with boat docks and standing timber as dominant habitat features. Palo Pinto Reservoir is considered eutrophic with a Carlson's Trophic State Index Chl  $\alpha$  of 53.24 which is higher than the previous sample (Texas Commission on Environmental Quality 2022). As of June 2024, all public boat accesses were available following a low water period. Periodic turbidity, fluctuating water levels, and rocky substrate inhibit the growth of most aquatic vegetation. Water level stayed over eight feet below conservation pool through the sampling season and cut off boat access.

**Management History:** Important sport fishes include White Bass, hybrid striped bass, Largemouth Bass, White Crappie, and catfishes. The management plan from the 2019 survey report included stocking hybrid striped bass at 15 fish/acre every year. The hatchery system replaced Palmetto Bass with Sunshine Bass after 2020. Thus, Sunshine Bass fry were stocked in 2020 and fingerlings stocked in 2021, 2022 and 2023. Florida Largemouth Bass were last stocked in 2016 in response to the reservoir filling up after a prolonged drought period.

### Fish Community

- **Prey species:** Gizzard Shad and Bluegill were present in the reservoir.
  - **Catfishes:** Blue Catfish catch rate was near the historical average with good body condition and size structure. Channel Catfish were sampled for the first time since 2012, at a low relative abundance.
  - **Temperate basses:** White Bass abundance remained the same, while hybrid striped bass abundance increased from previous surveys. Both species provide legal length specimens.
  - **Largemouth Bass:** Largemouth Bass were present in reservoir. A lunker class Largemouth Bass was entered into the TPWD Toyota ShareLunker program in 2024.
- White Crappie:** White Crappie were present in the reservoir.

**Management Strategies:** Conduct an electrofishing and gill netting survey during the fall of 2024 and spring of 2025, respectively. Monitor the construction progress of Turkey Peak Reservoir. Stock hybrid striped bass fingerlings annually to maintain the fishery. Monitor the fisheries populations with electrofishing, trap and gill netting in 2027-2028.

## Introduction

This document is a summary of fisheries data collected from Palo Pinto Reservoir from 2022-2024. 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 2022-2024 data for comparison.

## Reservoir Description

Palo Pinto Reservoir is a 2,399-acre impoundment constructed in 1964 on Palo Pinto Creek in the Brazos River watershed. It is located in Palo Pinto County approximately 80 miles west of Fort Worth. Primary uses are municipal water supply for Mineral Wells, Texas, and cooling water for the Brazos Electric power plant. Mean depth is 17 feet. Primary aquatic habitat included natural and rocky shoreline, standing timber, and boat docks. Periodic turbidity, fluctuating water levels (Figure 1) and rocky substrate has historically inhibited the abundance of aquatic vegetation. Other descriptive characteristics are in Table 1.

## Angler Access

Palo Pinto Reservoir has one public boat ramp and two private boat ramps available to the public. Since June 2024, all ramps are available following a yearlong low water event that cut off public boat access. Additional boat ramp characteristics are in Table 2. Shoreline access is limited to the public boat ramp area and the causeway area by the power plant.

## Management History

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

1. A hybrid striped bass fishery has been present since 2002 due to annual stockings.
 

**Action:** Palmetto Bass were last stocked in 2017. The TPWD hatchery system switched to producing Sunshine Bass instead of Palmetto Bass in 2020. Sunshine Bass fry were stocked in 2020 and fingerlings in 2021, 2022 and 2023. An additional gill net survey was completed in 2022 and eleven fish were aged and used for genetic analysis.
2. A section of Palo Pinto Reservoir provides few targeted species during survey work.
 

**Action:** Sampling site selection was weighted to an area outlined by the Power plant as the border to the south and extends to the public boat ramp to the north and east to the dam. Going forward no stratification will be used to select sampling locations.
3. Turkey Peak Reservoir construction was to begin in 2023.
 

**Action:** District staff have stayed up to date on the construction of the reservoir. No construction is taking place at this time. New construction start date is sometime in 2025.

**Harvest regulation history:** Sport fish species in Palo Pinto Reservoir were managed using statewide regulations. Blue and Channel Catfish statewide regulation changed to no minimum length-limit but only 10 fish can be over 20 inches in length as part of the combined 25 fish bag limit on September 1, 2021 (Table 3).

**Stocking history:** Hybrid striped bass were requested annually. Palmetto Bass were last stocked in 2017, due to Texas Parks and Wildlife hatcheries changing to producing Sunshine Bass. Sunshine Bass fry were stocked in 2020 and fingerlings in 2021, 2022, and 2023. Florida Largemouth Bass were last stocked in 2016. The complete stocking history is in Table 4.

**Vegetation/habitat management history:** Palo Pinto Reservoir has no significant vegetation or habitat management history. Noxious vegetation has not been a problem at the reservoir.

**Water transfer:** There are no interbasin transfers from Palo Pinto Reservoir. The city of Mineral Wells uses water released through the dam as a municipal water source via pumping from the creek about 15 miles downstream of the reservoir.

## Methods

Surveys were conducted to achieve survey and sampling objectives in accordance with the objective-based sampling (OBS) plan for Palo Pinto Reservoir (Mauk 2020). Primary components of the OBS plan are listed in Table 5. The survey sites for gill netting were randomly selected from a stratified area composed of the public boat ramp to power plant and dam area. Other than selection, the survey was 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** – No electrofishing was conducted during the fall of 2023 as planned by the 2020-2024 OBS sampling plan due to low water and no access for the electrofishing boat.

**Trap netting** – No trap netting occurred during the fall of 2023 as planned by the 2020-2024 OBS sampling plan due to low water and no access by boat.

**Gill netting** – In 2022, catfishes, White Bass, and hybrid striped bass were collected by gill netting (7 net nights at 7 stations). CPUE for gill netting was recorded as the number of fish caught per net night (fish/nn). No gill netting occurred in the spring of 2024 as planned by the 2020-2024 OBS sampling plan due to low water and no access by boat.

**Genetics** – Genetic analysis of hybrid striped bass was conducted according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2022). Micro-satellite DNA analysis was used to determine genetic composition of individual fish since 2005.

**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). Hybrid striped bass PSD was calculated according to Dumont and Neely (2011). TPWD has stocked both hybrid striped bass crosses (palmetto bass and sunshine bass) in the past. Most hybrid striped bass currently produced by TPWD hatcheries are sunshine bass. Even though PSD length categories and standard weight equation were developed based on palmetto bass populations, they are applied to sunshine bass under the assumption that there is little difference in the growth of the two hybrids. 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 ( $RSE = 100 \times SE \text{ of the estimate/estimate}$ ) was calculated for all CPUE and creel statistics.

**Habitat** – A structural habitat survey was last conducted in 2015. A vegetation survey was not conducted due to low water levels in 2023. Habitat and aquatic vegetation surveys were 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 habitat survey was last conducted in 2015 (Mauk and Lang 2016). Habitat consisted of natural (8.0 miles) and rocky (6.5 miles) shorelines with 223.3 acres of standing timber (Table 6). A vegetation survey was planned for 2023, but due to extremely low water and no boat access it was not completed.

**Prey species:** No electrofishing took place during the 2023 sampling season due to low water and no boat access. Gizzard Shad and Bluegill were present in the reservoir. The 2022 gill netting survey sampled 20 Gizzard Shad and 1 Bluegill (Appendix A). The objectives set for the 2020-2024 OBS plan were not met.

**Blue Catfish:** Blue Catfish catch rate (1.9/nn CPUE, Figure 2) in 2022 was similar to the historical average (1.8/nn CPUE, Appendix C). The 2022 catch per unit effort decreased from the 2020 sample of 3.0/nn CPUE (Figure 2). Body condition as measured by relative weight ( $W_r$ ) was good with a range of  $W_r$  from 69 to 102. Size structure was balanced with an even split of stock length fish ( $\geq 12$ -inches) and quality length fish ( $\geq 20$ -inches, Figure 2). Length of fish ranged from 8-inches to 40-inches in length (Figure 2).

**Channel Catfish:** Channel Catfish were sampled in Palo Pinto Reservoir in 2022 for the first time since 2012. During the 2022 gill netting survey two Channel Catfish were sampled (Figure 3). The two fish measured nine inches and eighteen inches in length. The body condition as measured by  $W_r$  of the larger fish was good with a relative weight of 132 (Figure 3). No sampling objectives were set in the 2020-2024 OBS sampling plan (Table 5).

**White Bass:** White Bass were present during the 2022 gill netting survey. The catch rate from 2020 to 2022 remained similar at 7.2 CPUE and 7.0 CPUE respectively (Figure 4). No White Bass were sampled during the 2016 survey. Relative weight for all lengths were above 90 and increased as the fish length increased to 122 (Figure 4). Size structure favored quality length (9-inches) or larger fish (Figure 4). White Bass lengths ranged from 7-inches to 16-inches in length (Figure 4). For the 2020-2024 OBS plan no sampling objectives were set (Table 5).

**Hybrid striped bass:** The gill net catch rate of hybrid striped bass was 1.6/nn in 2022, up from 0.6/nn in 2020 (Figure 5). Size structure was balanced during the 2022 survey (Figure 5). No hybrid striped bass were sampled during the 2016 survey. Both hybrid striped bass crosses (Palmetto Bass and Sunshine Bass) were sampled during the 2022 survey (Table 7). Fish were sampled from the 2016 and 2017 Palmetto Bass fingerling stockings. Sunshine Bass fry were stocked in 2020 and were not represented during the survey, but a fingerling stocking in 2021 was the highest age class sampled. Sampling objectives were met for hybrid striped bass according to the 2020-2024 OBS plan (Table 5).

**Largemouth Bass:** No electrofishing for Largemouth Bass took place during the 2023 sampling season due to low water and no boat access during the fall. Largemouth Bass are present in the reservoir, and one was sampled during the 2022 gill netting survey (Appendix A). Also, in the spring of 2024 a lunker class (between 8.0 lbs. and 9.9 lbs.) ShareLunker was caught and submitted through the Toyota ShareLunker program. In total, three lunker class ShareLunkers were submitted to the Toyota ShareLunker program since 2021. The objectives set for the 2020-2024 OBS plan were not met.

**White Crappie:** Crappie were not sampled with trap nets during the 2023 sampling season due to low water and no boat access during the fall. During the 2022 gill netting survey 17 White Crappie were enumerated (Appendix A). The objectives set for the 2020-2024 OBS plan were not met.

**Proposed Turkey Peak Reservoir:** Plans have been drawn up and permits acquired for construction of Turkey Peak Reservoir (Appendix E). This new reservoir will connect to Palo Pinto reservoir at the spillway which will be lowered four feet to form the connection. Purchasing the properties is currently underway with construction anticipated to begin 2025. Turkey Peak Reservoir will be 648 surface acres

at conservation pool with an average depth of 35 feet and a capacity of 22,577 acre/feet. Currently Palo Pinto is 2,399 surface acres with an average depth of 12.5 feet and a capacity of 27,215acre/feet. The plans call for construction of a public boat ramp and for no removal of standing trees. Current plans call for an underwater pipe to connect the two sections and control water flow from Palo Pinto Reservoir into Turkey Peak Reservoir. The city of Mineral Wells will draw municipal water from Turkey Peak Reservoir while keeping Palo Pinto as near to full pool as possible by closing the pipe between the two reservoirs. This is being done to ensure that the Brazos Electric's R. W. Miller Power Plant situated on Palo Pinto Reservoir will have plenty of water available for cooling and that property owners will have adequate water for recreation. The result of these operation plans will be that often the two waterbodies will be at different elevations and watercraft movement between the two will be limited. It is anticipated that both reservoirs will be near full pool around 20% of the time, usually in the spring.



# Fisheries Management Plan for Palo Pinto Reservoir, Texas

Prepared – July 2024

**ISSUE 1:** Hybrid striped bass have been a part of the fishery at Palo Pinto Reservoir since 2002. Annual stockings of hybrid striped bass are required to sustain the population and maintain the fishery. The 2022 gill netting survey catch rate was the second highest on record. Recruitment of the 2020 fry stocking has not been documented in the population.

## MANAGEMENT STRATEGIES

1. Request an annual stocking of hybrid striped bass fingerlings at 15 fish/acre.
2. A gill net survey will be completed during the spring of 2025.
3. A regular gill net survey will be conducted during the spring of 2028.
4. Perform age and growth on hybrid striped bass that succumb to the gill net survey.

**ISSUE 2:** It is anticipated that construction of the Turkey Peak Reservoir that will be connected to Palo Pinto Reservoir will begin sometime in 2025 if plans progress as expected. This will increase the acreage of water in the reservoir and will create new habitat in the reservoir.

## MANAGEMENT STRATEGIES

1. Continue to stay informed on the project. Current plans are for no removal of standing timber and construction of a boat ramp on new portion of reservoir.
2. Stocking and sampling plans will be adjusted whenever the new reservoir is filled.
3. Turkey Peak and Palo Pinto Reservoirs will only be connected for watercraft passage between the two reservoirs when both reservoirs are near full. This will need to be monitored since it might involve trailering a boat from one section to another.

**ISSUE 3:** Very limited fisheries sampling took place during the 2020-2024 OBS sampling plan due to low water level when it was time to sample the reservoir.

## MANAGEMENT STRATEGY

1. Conduct an electrofishing and gill netting survey in the fall of 2024 and spring of 2025, respectively, due to water levels increasing and allowing boat access in the early summer of 2024.

**ISSUE 4:** 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. Contact and educate marina owners about invasive species, and provide them with posters, literature, etc... so that they can in turn educate their customers.
3. Educate the public about invasive species through the use of media and the internet.
4. Make a speaking point about invasive species when presenting to constituent and user groups.
5. Keep track of (i.e., map) future interbasin water transfers to facilitate potential invasive species responses.

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

### Sport fish, forage fish, and other important fishes

Sport fishes in Palo Pinto Reservoir have historically included Blue Catfish, hybrid striped bass, Largemouth Bass, and White Crappie. The primary forage species have been Bluegill and Gizzard Shad.

### Low-density fisheries

Channel and Flathead Catfish are present in the reservoir in low abundance in the gill netting surveys. White Bass are present with fair abundance, but a creel survey completed in 2012-2013 found low percentage of anglers targeting White Bass, Channel and Flathead Catfish. These species will be assessed through gill netting with no sampling objectives to achieve.

### Survey objectives, fisheries metrics, and sampling objectives

**Largemouth Bass:** No electrofishing surveys took place during the 2020-2024 OBS plan due to low water. The reservoir received ample water during the late spring of 2024 and will allow a fall electrofishing survey to be conducted at 12 random sites for presence/absence with practical effort of Largemouth Bass in 2024 to assess the population following the low water event. In 2027, another fall electrofishing survey will be conducted at 12 random sites for general monitoring of Largemouth Bass. The goal of the survey would be a collection of 50 stock-length bass for meaningful size structure analysis and a CPUE-S with a RSE  $\leq 25$  for meaningful CPUE-S estimates. All stock-length Largemouth Bass will be weighed for relative weight estimates. Historically 12 sampling sites was adequate to meet the objectives.

**Bluegill and Gizzard Shad:** No electrofishing surveys took place during the 2020-2024 OBS plan due to low water. The reservoir received ample water during the late spring of 2024 and will allow a fall electrofishing survey to be conducted at 12 random sites for presence/absence with practical effort of Bluegill and Gizzard Shad in 2024 to assess the population following the low water event. In 2027, a fall electrofishing survey will be conducted at 12 random sites for general monitoring of Bluegill and Gizzard Shad. The goal of the survey would be a collection of 50 fish of each species for meaningful size structure analysis and a CPUE-S with a RSE  $\leq 25$  for meaningful CPUE-S estimates. Index of Vulnerability for Gizzard Shad will be estimated from the 50 fish. No additional effort will be expended to achieve an RSE  $\leq 25$  for CPUE of Bluegill and Gizzard Shad if not reached from designated Largemouth Bass sampling effort. Instead, Largemouth Bass body condition can provide information on forage abundance, vulnerability, or both relative to predator density.

**White Crappie:** White Crappie will be sampled using 5 random trap net sites during the fall of 2027. This sample will be general monitoring with an objective of meaningful abundance estimate with CPUE-S RSE  $\leq 25$  and a sample of 50 stock-length crappie for meaningful size structure estimates. Relative weight estimates will be made by weighing all stock-length or greater crappie.

**Blue Catfish:** No gill netting took place in 2024 as planned in the last OBS plan due to low water levels. Water levels increased in the early summer of 2024 to allow boat access. With the increased water levels a gill net survey will take place during the spring of 2025 and another gill net survey will be performed in the spring of 2028. Both surveys objectives will be general monitoring with no stock CPUE RSE goals set since historically we do not come close to an RSE  $\leq 25$ . No size structure or body condition objectives will be set since historically we have not approached the needed 50 stock-length or 10 fish per inch group required. The sample will consist of 7 randomly selected sites. If the population ever becomes stable and mature, then objectives can be evaluated and established.

**Hybrid striped bass:** No gill netting took place in 2024 as planned in the last OBS plan due to low water level. Water levels increased in the early summer of 2024 to allow boat access. With the increased water levels a gill net survey will take place during the spring of 2025 and another gill net survey will be performed during the spring of 2028. Sampling will take place at 7 randomly selected sites. For both surveys, hybrid striped bass objectives will be general monitoring with no CPUE-Stock RSE goals set since historically we do not come close to an RSE  $\leq 25$ . Age and growth will be completed on hybrid striped bass that succumb to the gill nets to monitor stocking success.

**Creel Survey:** A creel survey will be conducted from June 1, 2025, through May 31, 2026.

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## Tables and Figures

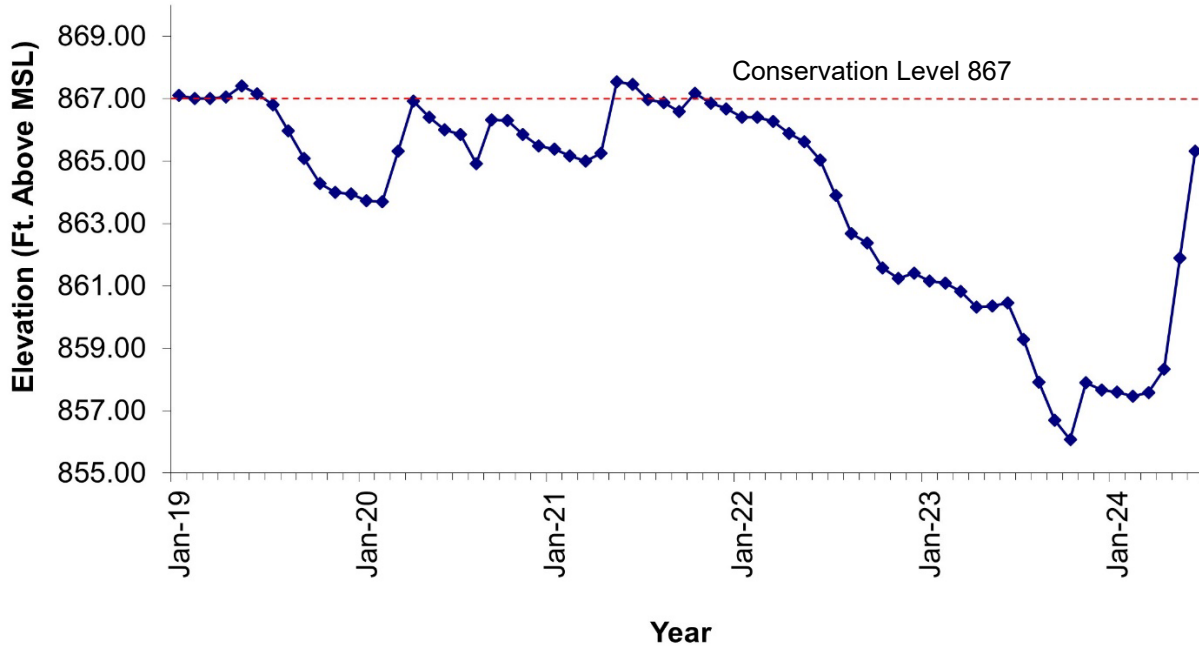


Figure 1. Monthly water level elevations in feet above mean sea level (MSL) recorded for Palo Pinto Reservoir, Texas.

Table 1. Characteristics of Palo Pinto Reservoir, Texas.

| Characteristic              | Description           |
|-----------------------------|-----------------------|
| Year constructed            | 1964                  |
| Controlling authority       | City of Mineral Wells |
| County                      | Palo Pinto            |
| Reservoir type              | Tributary             |
| Shoreline Development Index | 2.62                  |
| Conductivity                | 423 $\mu$ S/cm        |

Table 2. Boat ramp characteristics for Palo Pinto Reservoir, Texas, May 2024. Reservoir elevation at time of survey was 863.25 feet above mean sea level.

| Boat ramp                    | Latitude<br>Longitude<br>(dd) | Public | Parking<br>capacity<br>(N) | Elevation at<br>end of boat<br>ramp (ft) | Condition |
|------------------------------|-------------------------------|--------|----------------------------|------------------------------------------|-----------|
| FM 3137 (Public)             | 32.66504<br>-98.30230         | Y      | 20                         | 861                                      | Good      |
| Love Ramp (Private)          | 32.65195<br>-98.29687         | Y      | 0                          | 860                                      | Good      |
| Deer Haven Road<br>(Private) | 32.64604<br>-98.30193         | Y      | 5                          | 863                                      | Good      |

Table 3. Harvest regulations for Palo Pinto Reservoir, Texas.

| Species                                                            | Bag limit                        | Length limit    |
|--------------------------------------------------------------------|----------------------------------|-----------------|
| Catfish: Channel and Blue Catfish,<br>their hybrids and subspecies | 25<br>(only 10 $\geq$ 20 inches) | None            |
| Catfish, Flathead                                                  | 5                                | 18-inch minimum |
| Bass, White                                                        | 25                               | 10-inch minimum |
| Bass, hybrid striped                                               | 5                                | 18-inch minimum |
| Bass, Largemouth                                                   | 5                                | 14-inch minimum |
| Crappie: White and Black crappie,<br>their hybrids and subspecies  | 25<br>(in any combination)       | 10-inch minimum |

Table 4. Stocking history of Palo Pinto Reservoir, Texas. FRY = fry, FGL = fingerling; AFGL = advanced fingerling.

| Species                                          | Year  | Number         | Life |
|--------------------------------------------------|-------|----------------|------|
| Black crappie x White crappie                    | 1993  | 125,480        | FRY  |
|                                                  | 1994  | 134,000        | FRY  |
|                                                  | 1995  | <u>26,774</u>  | FGL  |
|                                                  | Total | 286,254        |      |
| Blue catfish                                     | 2007  | 120,555        | FGL  |
|                                                  | 2008  | <u>120,666</u> | FGL  |
|                                                  | Total | 241,221        |      |
| Channel catfish                                  | 1986  | 79,831         | AFGL |
|                                                  | 1997  | 13,325         | AFGL |
|                                                  | 2000  | <u>27,016</u>  | FGL  |
|                                                  | Total | 120,172        |      |
| Florida largemouth bass                          | 1975  | 53,000         | FRY  |
|                                                  | 1982  | 53,823         | FGL  |
|                                                  | 1983  | 64,960         | FGL  |
|                                                  | 1983  | 116,984        | FRY  |
|                                                  | 1985  | 119,150        | FRY  |
|                                                  | 1997  | 133,648        | FGL  |
|                                                  | 2008  | 120,900        | FGL  |
|                                                  | 2015  | 45,720         | FGL  |
|                                                  | 2016  | <u>44,975</u>  | FGL  |
|                                                  | Total | 753,160        |      |
| Largemouth bass                                  | 1970  | 100,000        | UNK  |
|                                                  | 1982  | <u>17,681</u>  | UNK  |
|                                                  | Total | 117,681        |      |
| Palmetto Bass (striped X white bass hybrid)      | 2002  | 13,342         | FGL  |
|                                                  | 2004  | 12,107         | FGL  |
|                                                  | 2006  | 12,084         | FGL  |
|                                                  | 2008  | 12,469         | FGL  |
|                                                  | 2011  | 18,169         | FGL  |
|                                                  | 2013  | 12,016         | FGL  |
|                                                  | 2015  | 7,724          | FGL  |
|                                                  | 2016  | 34,179         | FGL  |
|                                                  | 2017  | <u>40,000</u>  | FGL  |
|                                                  | Total | 162,090        |      |
| Sunshine Bass (white bass x striped bass hybrid) | 2020  | 124,520        | FRY  |
|                                                  | 2021  | 38,123         | FGL  |
|                                                  | 2022  | 36,737         | FGL  |
|                                                  | 2023  | <u>36,119</u>  | FGL  |
|                                                  | Total | 234,499        |      |

Table 4. Objective-based sampling plan components for Palo Pinto Reservoir, Texas 2020-2024.

| 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        |
|                           | Condition         | $W_r$                 | 10 fish/inch group (max) |
| Bluegill <sup>a</sup>     | Abundance         | CPUE–Total            | RSE $\leq 25$            |
|                           | Size structure    | PSD, length frequency | $N \geq 50$              |
| Gizzard Shad <sup>a</sup> | Abundance         | CPUE–Total            | RSE $\leq 25$            |
|                           | Size structure    | PSD, length frequency | $N \geq 50$              |
|                           | Prey availability | IOV                   | $N \geq 50$              |
| <i>Gill netting</i>       |                   |                       |                          |
| Blue Catfish              | Abundance         | CPUE–stock            | Practical effort         |
| Hybrid Striped Bass       | Abundance         | CPUE–stock            | Practical effort         |
|                           | Age and Growth    | Stocking assessment   | All fish                 |
|                           | Genetics          | Stocking assessment   | All fish                 |
| <i>Trap netting</i>       |                   |                       |                          |
| Crappie                   | Abundance         | CPUE–Total            | RSE $\leq 25$            |
|                           | Size structure    | PSD, length frequency | $N \geq 50$ stock        |

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



Table 5. Survey of structural habitat types, Palo Pinto Reservoir, Texas, 2015. Shoreline habitat type units are in miles and standing timber is acres.

| Habitat type             | Estimate    | % of total |
|--------------------------|-------------|------------|
| Bulkhead                 | 0.4 miles   | 1.6        |
| Bulkhead with boat docks | 2.6 miles   | 10.3       |
| Natural                  | 8.0 miles   | 31.7       |
| Rocky                    | 6.5 miles   | 25.8       |
| Rocky with boat docks    | 7.7 miles   | 30.6       |
| Standing timber          | 223.3 acres | 9.3        |

## Blue Catfish

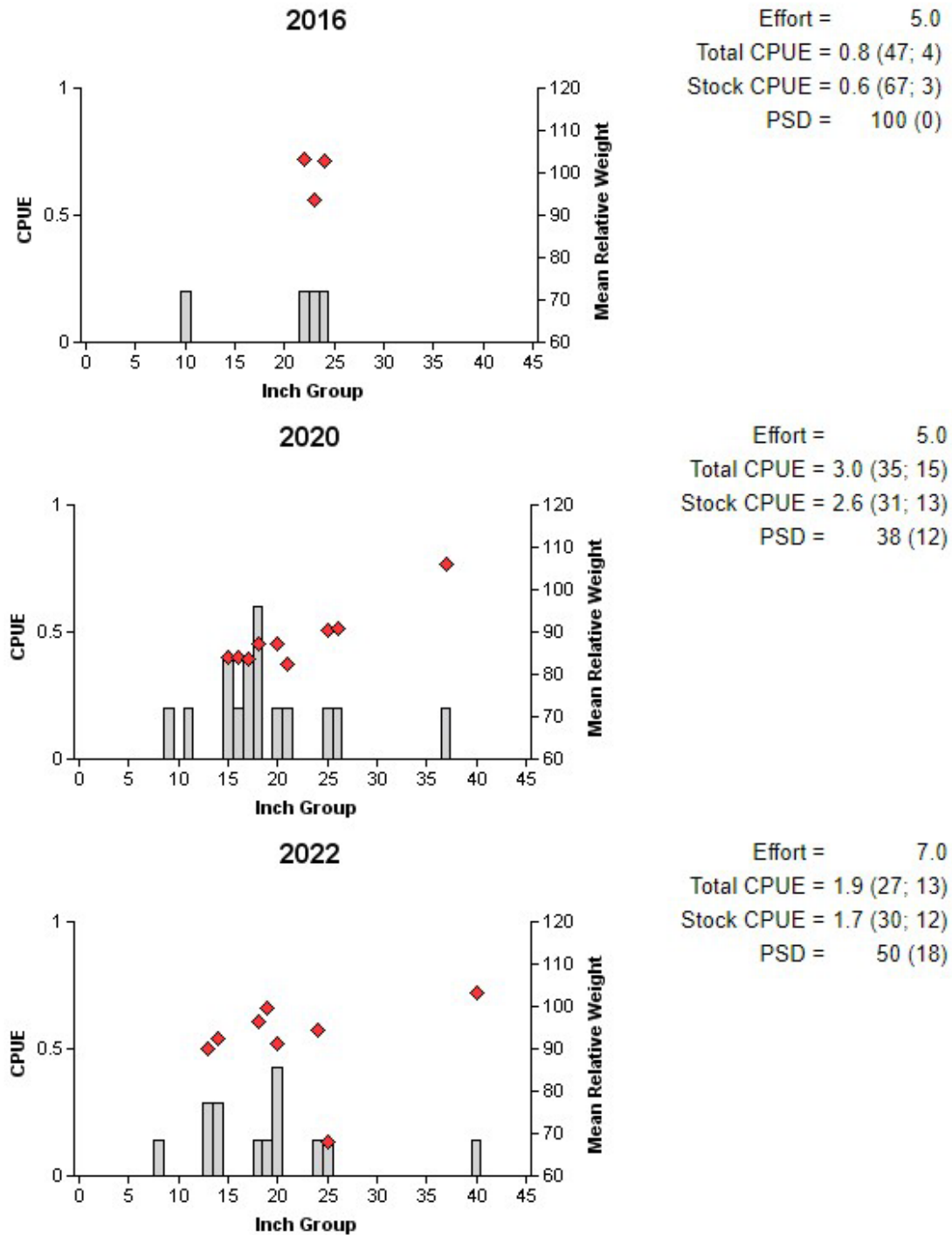


Figure 2. Number of Blue Catfish caught per net night (CPUE), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Palo Pinto Reservoir, Texas, 2016, 2020, and 2022.

## Channel Catfish

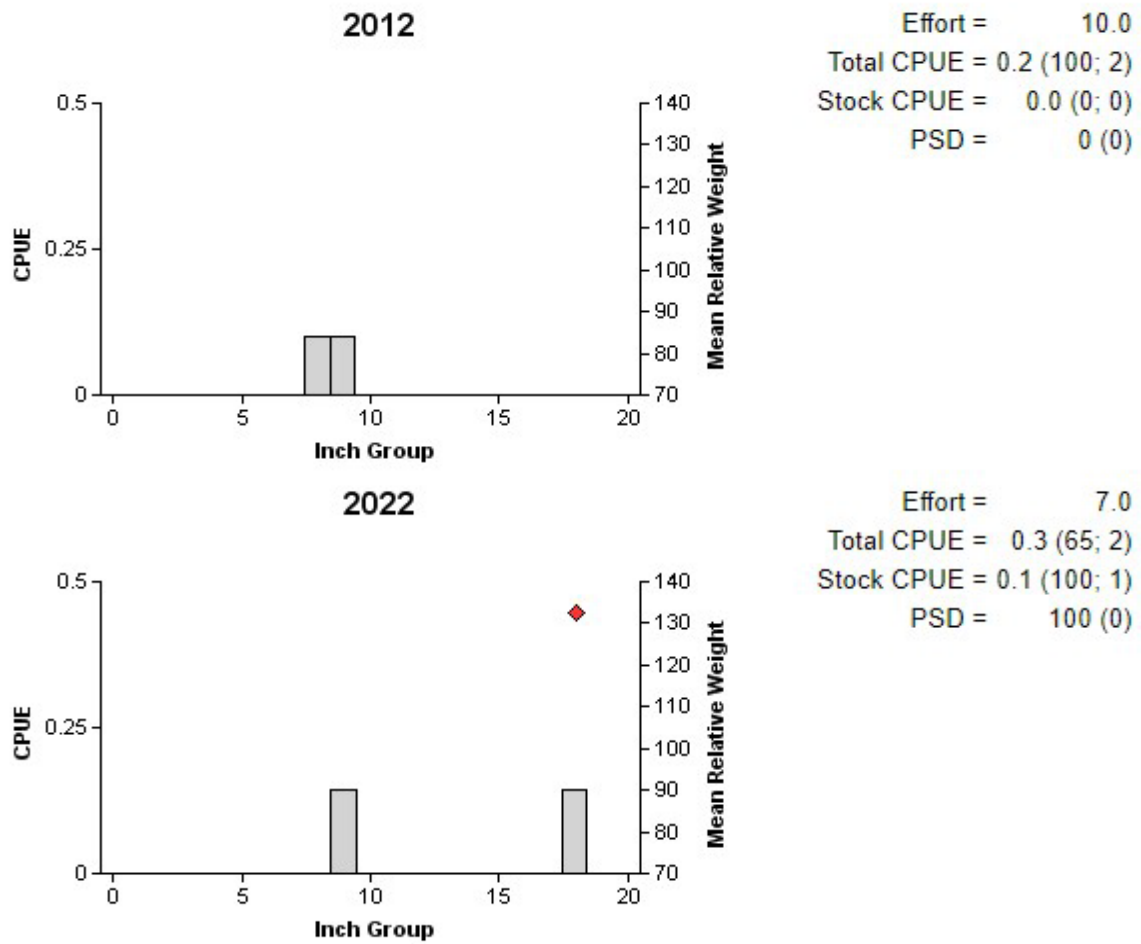


Figure 3. Number of Channel Catfish caught per net night (CPUE), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Palo Pinto Reservoir, Texas, 2012 and 2022. No Channel Catfish were caught during the 2016 and 2020 gill netting surveys.

## White Bass

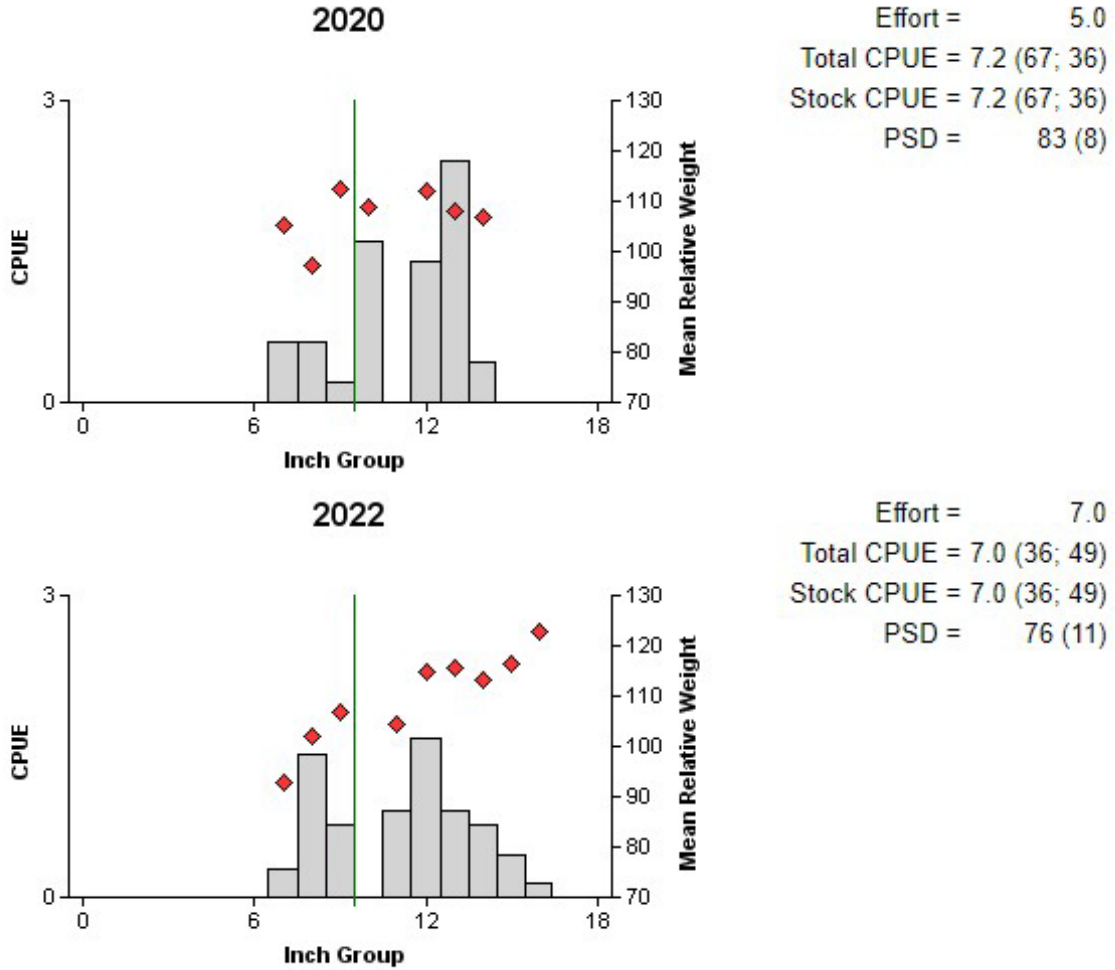


Figure 4. Number of White Bass caught per net night (CPUE), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Palo Pinto Reservoir, Texas, 2020 and 2022. Vertical line indicates minimum length limit. No White Bass were sampled during the 2016 gill net survey.

## Hybrid Striped Bass

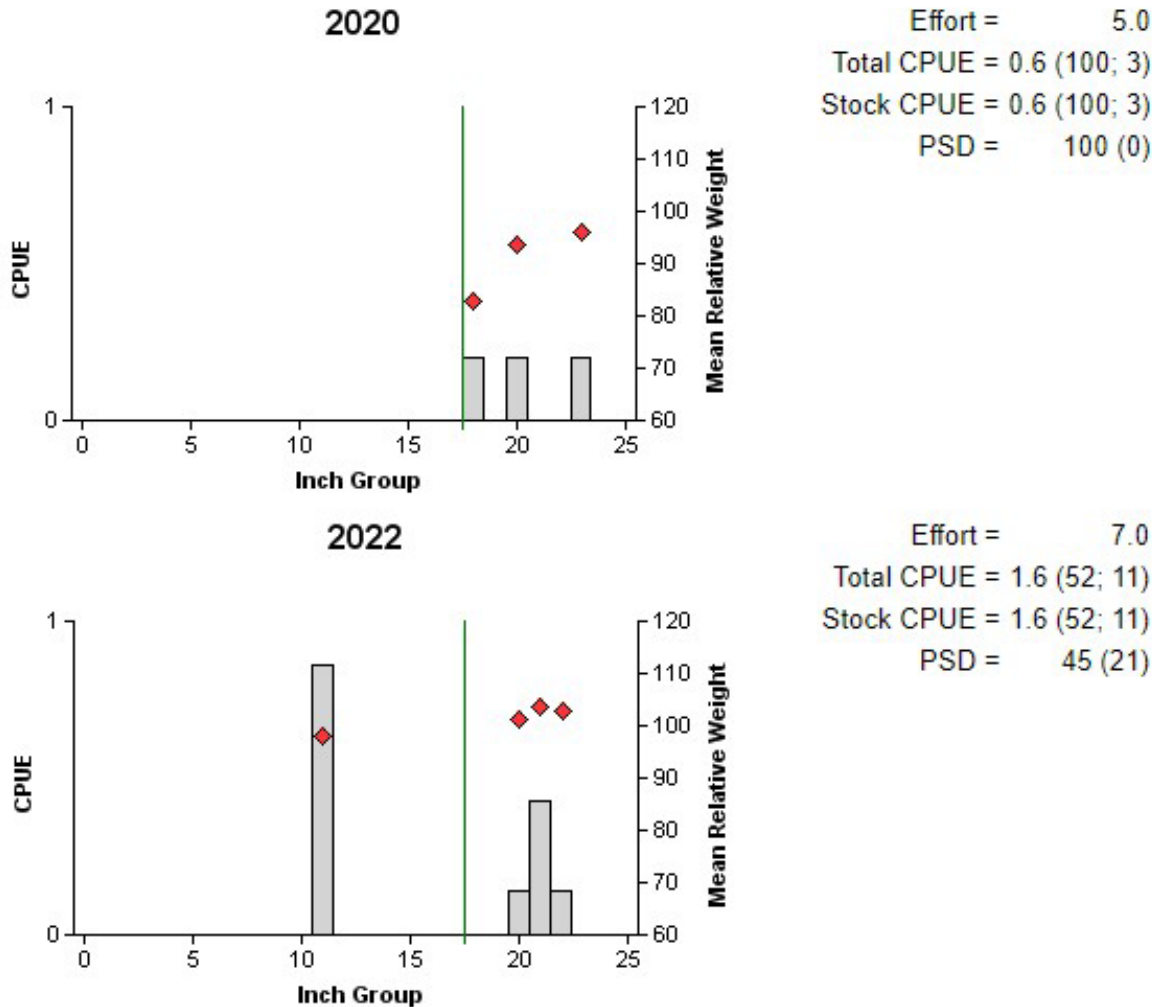


Figure 5. Number of hybrid striped bass caught per net night (CPUE), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Palo Pinto Reservoir, Texas, 2020 and 2022. Vertical line indicates minimum length limit. No hybrid striped bass were caught during the 2016 survey.

Table 7. Results of genetic analysis of hybrid striped bass collected by spring gill netting, Palo Pinto Reservoir, Texas, 2022.

| Year | Sample size | Palmetto Bass | Sunshine Bass |
|------|-------------|---------------|---------------|
| 2022 | 11          | 5             | 6             |

## Proposed Sampling Schedule

Table 6. Proposed sampling schedule for Palo Pinto Reservoir, Texas. Survey period is June through May. Gill netting surveys are conducted in the spring, while electrofishing and trap netting surveys are conducted in the fall.

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

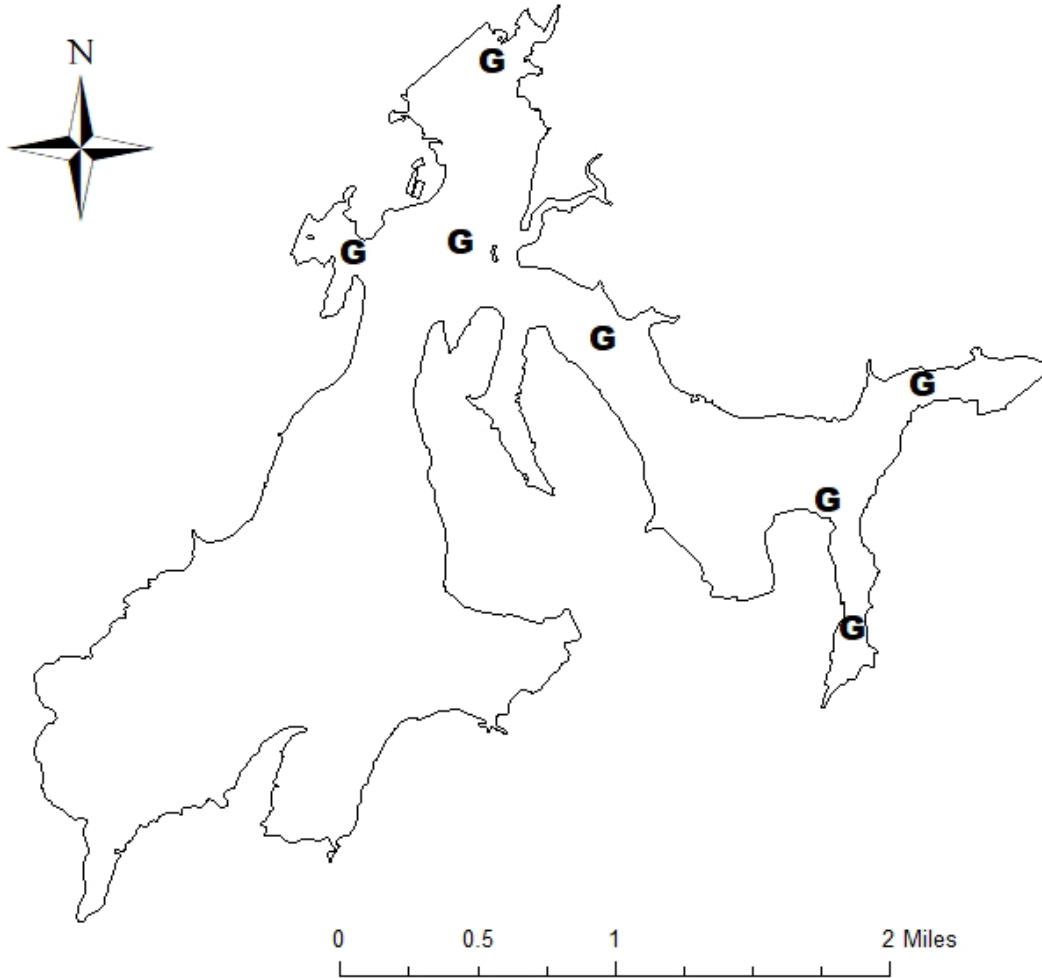
## APPENDIX A – Catch rates for all species from all gear types

Number (N) and catch rate (CPUE) (RSE in parentheses) of all species collected from all gear types from Palo Pinto Reservoir, Texas, 2022. Sampling effort was 7 net nights for gill netting.

| Species             | Gill Netting |          |
|---------------------|--------------|----------|
|                     | N            | CPUE     |
| Longnose Gar        | 15           | 2.1(64)  |
| Gizzard Shad        | 20           | 2.9(45)  |
| Common Carp         | 1            | 0.1(100) |
| Smallmouth Buffalo  | 61           | 8.7(31)  |
| Blue Catfish        | 13           | 1.9(27)  |
| Channel Catfish     | 2            | 0.3(65)  |
| White Bass          | 49           | 7.0(36)  |
| Hybrid striped bass | 11           | 1.6(52)  |
| Bluegill            | 1            | 0.1(100) |
| Largemouth Bass     | 1            | 0.1(100) |
| White Crappie       | 17           | 2.4(43)  |
| Freshwater Drum     | 5            | 0.7(79)  |



## APPENDIX B – Map of sampling locations



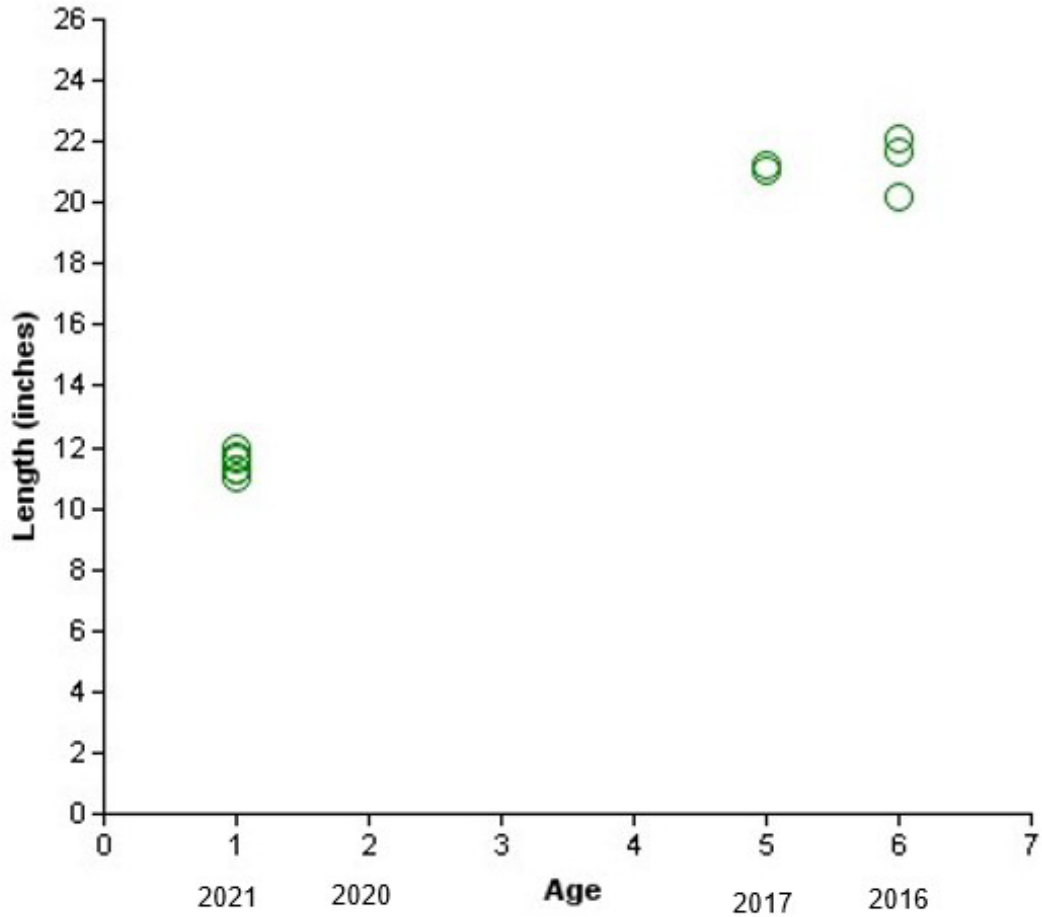
Location of sampling sites, Palo Pinto Reservoir, Texas, 2022. Gill net indicated by G. Water level was a foot and a half below conservation level at time of sampling.



## Appendix C continued

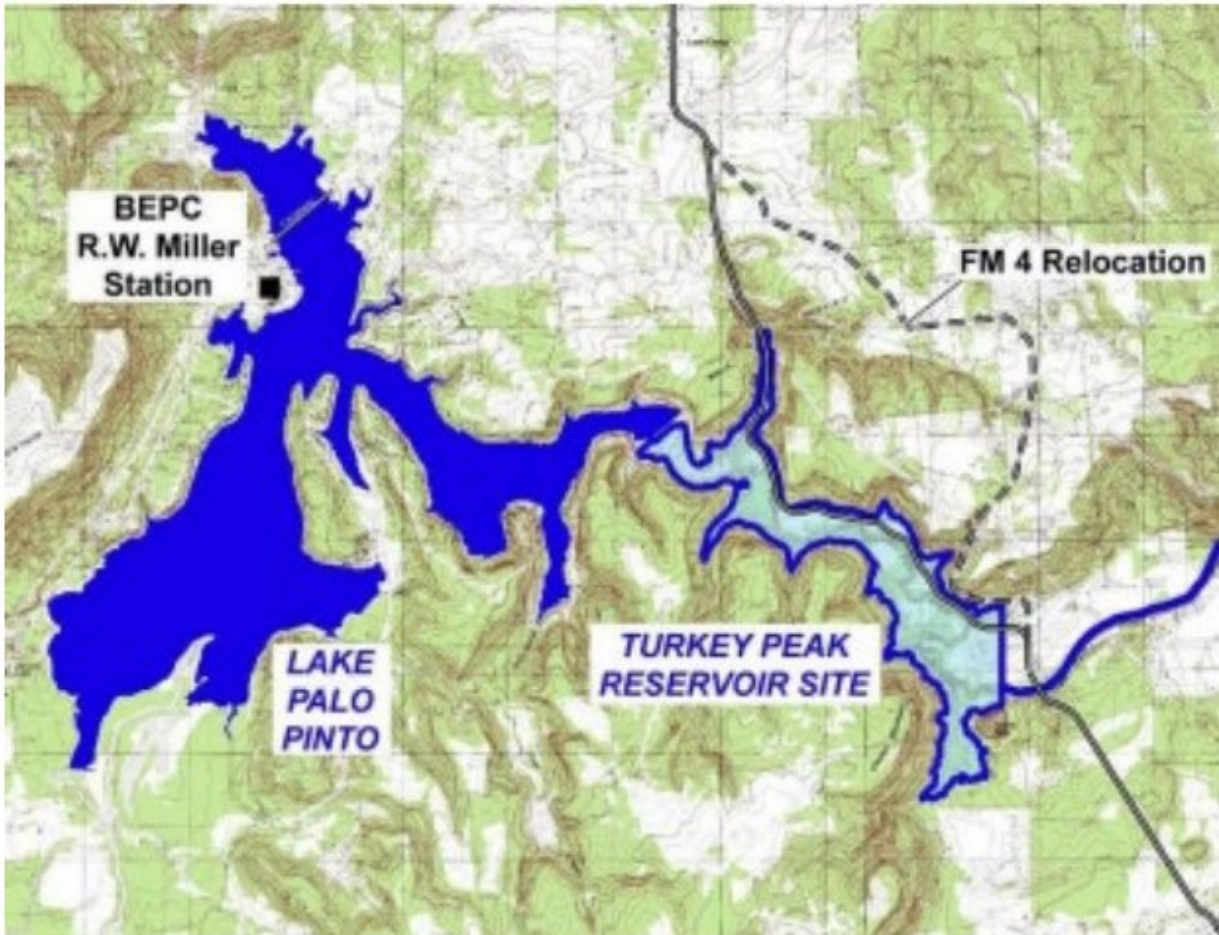
| Gear                                | Species                   | Year |       |      |       |       |      |      | Mean  |
|-------------------------------------|---------------------------|------|-------|------|-------|-------|------|------|-------|
|                                     |                           | 2012 | 2015  | 2016 | 2017  | 2019  | 2020 | 2022 |       |
| Gill Netting<br>(fish/net<br>night) | Blue<br>Catfish           | 1.8  |       | 0.8  |       |       | 3.0  | 1.9  | 1.8   |
|                                     | Channel<br>Catfish        | 0.2  |       | 0.0  |       |       | 0.0  | 0.3  | 0.6   |
|                                     | White Bass                | 0.2  |       | 0.0  |       |       | 7.2  | 7.0  | 2.6   |
|                                     | Hybrid<br>striped<br>bass | 0.1  |       | 0.0  |       |       | 0.6  | 1.6  | 0.6   |
| Electrofishing<br>(fish/hour)       | Gizzard<br>Shad           |      | 297.0 |      | 222.0 | 307.0 |      |      | 204.3 |
|                                     | Threadfin<br>Shad         |      | 199.0 |      | 30.0  | 21.0  |      |      | 62.1  |
|                                     | Green<br>Sunfish          |      | 1.0   |      | 6.0   | 3.0   |      |      | 10.0  |
|                                     | Warmouth                  |      | 0.0   |      | 4.0   | 1.0   |      |      | 5.1   |
|                                     | Bluegill                  |      | 49.0  |      | 134.0 | 116.0 |      |      | 126.3 |
|                                     | Longear<br>Sunfish        |      | 9.0   |      | 56.0  | 48.0  |      |      | 48.3  |
|                                     | Redear<br>Sunfish         |      | 1.0   |      | 2.0   | 8.0   |      |      | 4.8   |
|                                     | Largemouth<br>Bass        |      | 49.0  |      | 48.0  | 50.0  |      |      | 73.3  |
| Trap Netting<br>(fish/net<br>night) | White<br>Crappie          |      | 6.6   |      |       | 30.8  |      |      | 18.6  |
|                                     | Black<br>Crappie          |      | 0.7   |      |       | 0.2   |      |      | 0.4   |
| Low<br>frequency                    | Blue Catfish              |      |       |      |       | 200.0 |      |      | 200.0 |
| Electrofishing<br>(fish/hour)       | Flathead<br>Catfish       |      |       |      |       | 1.7   |      |      | 1.7   |

## APPENDIX D – Age and Growth of hybrid striped bass in 2022



Age and growth of hybrid striped bass collected by spring gill netting, Palo Pinto Reservoir, Texas, 2022. Palmetto Bass fingerlings were stocked in 2016 and 2017. Sunshine Bass fry were stocked in 2020 and Sunshine Bass fingerling stocked in 2021.

## APPENDIX E – Proposed Turkey Peak Reservoir





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