Pat Mayse Reservoir

2020 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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TEXAS PARKS & WILDLIFE

SPORT FISH RESTORATION

Contents

Survey and Management Summary

Fish populations in Pat Mayse Reservoir were surveyed in 2020 using electrofishing and in 2021 using gill netting. Access and aquatic vegetation surveys were conducted in August 2020. Historical data are presented with the 2020-2021 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: Pat Mayse Reservoir is a 5,940-acre impoundment located in Lamar County, Texas, on Sanders Creek, a tributary of the Red River. It was constructed by the U.S. Army Corps of Engineers in 1967 for flood control, and as a municipal and industrial water supply. Pat Mayse was eutrophic with a mean TSI chl-a of 58.28 (Texas Commission on Environmental Quality 2020). Aquatic vegetation coverage was less than 1% of reservoir surface area and was composed of native emergent species. Although hydrilla has been reported in the past, none was observed during the summer 2020 vegetation survey.

Management History: Important sport fish include Largemouth Bass, crappie, Channel Catfish and White Bass. A creel survey was last conducted at the reservoir from 1998 to 2000 with a spring quarter creel conducted each year. Information from those creels resulted in terminating the stocking of Palmetto Bass because of low directed effort. The fisheries management plan from the 2016 survey report recommended re-initiating stocking of Florida Largemouth Bass and monitoring the Largemouth Bass population every four years through fall electrofishing.

Fish Community

- **Prey species:** Clupeid (Threadfin and Gizzard Shad) and sunfish populations provide the major prey species for sport fish populations. Body conditions of Largemouth Bass, Channel Catfish and White Bass indicate availability of adequate prey fish populations.

- **Catfishes:** Channel Catfish remained abundant in the reservoir, and numerous fish over 20-inches were collected in the 2021 gill net survey. The results of the last three surveys suggest a stable population with consistent recruitment to legal size. The relative abundance and size structure of Channel Catfish suggest the potential to develop a quality fishery.

- **Temperate basses:** White Bass populations have been subject to periodic fish kills and subsequent reductions in abundance. However, the 2021 White Bass gill net catch rate suggested an increase in White Bass from 2017.

- **Black basses:** Catch rate of Largemouth Bass in the most recent sample suggests a stable population that is dominated by fish below the minimum length limit. However, catch rates of legal-size fish continue to gradually increase and growth to legal harvest length was desirable. Historically, Spotted Bass have been present in the reservoir, but none have been collected during the last two electrofishing surveys (2016 and 2020).

- **Crappie:** Although White Crappie and Black Crappie are present in the reservoir, no sampling was conducted for these species in 2020 due to low and variable catch rates in previous surveys.

Management Strategies: Continued biennial stocking of Florida Largemouth Bass in 2022 and 2024, promote Channel Catfish fishery, improve littoral habitat through deploying natural fish habitat and planting native aquatic vegetation. Continue to manage all sportfish under statewide harvest regulations.

Introduction

This document is a summary of fisheries data collected from Pat Mayse Reservoir in 2020 and 2021. 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 species of fishes was collected, this report deals primarily with major sport fishes and important prey species. Historical data are presented with the 2020 and 2021 data for comparison.

Reservoir Description

Pat Mayse Reservoir is a 5,940-acre impoundment located in Lamar County, Texas, on Sanders Creek in the Red River basin. The reservoir is located approximately 13 miles north-northwest of Paris, Texas, and is operated and controlled by the U. S. Army Corps of Engineers (USACE). Primary water uses included flood control, municipal and industrial water supply, and recreation. Pat Mayse was eutrophic with a mean TSI chl-a of 58.28 (Texas Commission on Environmental Quality 2020). Total aquatic vegetation coverage was less than 1% of reservoir area. Water elevation has remained within three feet of conservation pool since 2017 (Figure 1). Other descriptive characteristics for Pat Mayse Reservoir are presented in Table 1.

Angler Access

Pat Mayse Reservoir has nine boat ramps maintained by the USACE. Shoreline access is adequate within USACE recreation areas surrounding the reservoir. Access to the reservoir is good. Additional boat ramp characteristics are presented in Table 2.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Storey and Cartabiano 2017) included:

1. Request stockings of FLMB (1,000/km) in 2018 and 2019.

   Action: Florida Largemouth Bass were stocked in 2018 (N = 76,258) and 2020 (N = 70,075).

2. Establish native emergent vegetation in deeper water to improve sport fish recruitment.

   Action: Further evaluations of establishing water willow in deeper water eventually suggested poor results beyond one growing season and plans to replicate the deep-water willow establishment at Pat Mayse was canceled.

Harvest regulation history: All sport fishes in Pat Mayse Reservoir are currently managed with statewide harvest regulations (Table 3).

Stocking history: Florida Largemouth Bass (FLMB) were introduced in 1981, and periodically stocked between 1983 to 2020. Channel Catfish were introduced in 1967 and have developed a quality self-sustaining fishery. Stocking of Palmetto Bass was conducted periodically from 1973 to 1986, and annually from 1991 to 2000. Stocking of Palmetto Bass was discontinued after 2000 due to low directed fishing pressure. A complete stocking history is found in Table 4.

Habitat/vegetation management history: Although hydrilla has been documented in Pat Mayse Reservoir, it has not been observed during vegetation surveys since 2000. It has never negatively impacted boat and angler access, and never been considered problematic for the reservoir. Historical vegetation surveys indicate a low abundance of vegetation dominated by native submersed and emergent species.

Water transfer: Currently no interbasin transfers exist.

Methods

Surveys were conducted to achieve survey and sampling objectives in accordance with the objective-based sampling (OBS) plan for Pat Mayse Reservoir (Storey and Cartabiano 2017). Primary components of the OBS plan are listed in Table 5. All survey sites were randomly selected and all surveys were conducted per the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2017).

Electrofishing – Largemouth Bass, sunfishes, Gizzard Shad, and Threadfin Shad were collected by electrofishing in fall 2020 (1.5 h at 18, 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 harvest length for Largemouth Bass were determined using otoliths from 14 randomly selected fish (range 13.2 to 14.8 inches).

Gill netting – Channel Catfish and White Bass were collected by gill netting (10 net nights at 10 stations). CPUE for gill netting was recorded as the number of fish caught per net night (fish/nn). Age at harvest length for Channel Catfish were determined using otoliths from 13 randomly selected fish (range 11.2 to 12.8 inches).

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

Habitat – An aquatic vegetation survey was performed per the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2017). Shoreline distances and areas of vegetation were estimated using ESRI ArcGIS software.

Access survey – An access survey was conducted in August 2020 to determine the number, type, and condition of fishing access facilities on Pat Mayse Reservoir (TPWD, Inland Fisheries Division, unpublished manual revised 2017).

Water level – Source for water elevation data was the USACE Tulsa District Water Control Home Page website (USACE 2021).

Results and Discussion

Habitat: Vegetation has historically been composed of emergent vegetation including buttonbush and giant cut grass; fluctuating water levels have prevented consistent growth of submersed species. The total vegetation during the 2020 survey was less than 1% of reservoir surface area (Table 6). Aquatic vegetation consisted of the following native emergent species; buttonbush, giant bulrush, giant cut grass, water-willow, bull tongue, and slender spike rush. Native submersed species and Hydrilla have not been documented in any vegetation surveys conducted after the lake elevation dropped in 2013 – 2014 (Storey and Cartabiano 2017; Figure 1). The last structural survey was conducted in 2012 and indicated that 97% of shoreline habitat was natural (Bennett and Storey 2013). No residential development or large-scale shoreline modification projects have occurred since the last structural survey.

Prey species: Primary prey species included Gizzard Shad, Threadfin Shad, and Bluegill. Electrofishing CPUE of Gizzard Shad in 2020 (92.7/h) was lower than 2016 (216.7/h) but comparable to 2012 (94.0/h). Gizzard Shad availability as prey (IOV) was also lower in 2020 (66%) compared to 2016 (89%; Figure 2). Bluegill were the most abundant sunfish species (Appendix A) and the electrofishing CPUE in 2020 (334/h) was higher than previous years (Figure 3). Average relative weights of most size classes of game fishes exceeded 90 indicating an ample supply of prey fish in Pat Mayse Reservoir.

Channel Catfish: Channel Catfish relative abundance in Pat Mayse remained stable over the last three gill net surveys (8.4nn, 7.3/nn and 9.7/nn in 2013, 2017, and 2021 respectively; Figure 4). The Channel Catfish population continues to be dominated by legal-size fish (PSD-12 = 97) and several fish over 20 inches were collected. Growth was adequate; average age at 12 inches (11.2 to 12.8 inches inches) was 2.6 years (N = 13; range = 2-3 years).

White Bass: White Bass CPUE from gill netting in 2021 (5.0/nn) was higher than 2017 (1.8/nn) but lower than 2013 (10.7/nn; Figure 5). It is likely that the White Bass population will continue to fluctuate in relation to reservoir elevation, precipitation, and inflow during the spawning season.

Black basses: Electrofishing CPUE of Largemouth Bass in 2020 (72.7/h) was lower than in 2016 (107.3/h) and was dominated by fish less than the legal minimum length (14 inches; Figure 6). However, abundance of fish greater than 14 inches (i.e., CPUE-14) has steadily increased since 2012 and size structure was notably higher than previous surveys (PSD = 74). Growth was desirable; average age at 14 inches (13.2 to 14.8 inches) was 2.0 years (N = 14; range = 2 years). Genetic sampling was postponed until 2024 to allow several generations of stocked Florida Largemouth Bass to recruit to reproducible age. Spotted Bass were not observed in 2020, although they have been collected in previous surveys at low abundances (Bennett and Storey 2013).

Crappie: White and Black Crappie have been present in Pat Mayse Reservoir. Data from the 1998-2000 spring quarter creel surveys coupled with anecdotal reports from anglers and USACE staff indicate a high amount of angler effort directed toward crappies. Trap net sampling was discontinued in 2008 due to historically inefficient captures. Plans from the 2017 OBS plan called for a baited tandem hoop net survey in the spring of 2021 as an alternative method to sample crappie. Due to variable results on previous trap net crappie surveys, limited knowledge on the gear's size selectivity and scheduling constraints, the survey was postponed.

Fisheries Management Plan for Pat Mayse Reservoir, Texas

Prepared – July 2021

ISSUE 1: Pat Mayse Reservoir supports a popular Largemouth Bass fishery and is a venue for numerous fishing tournaments; fish over 8 pounds are frequently weighed in. For example, the 2021 Brannan's Customer Appreciation Tournament had 124 anglers participate and the heaviest bass weighed in was 9.18 pounds. An increase in FLMB allele frequency was documented in 2016 and attributed to stocking FLMB fingerlings in 2011. The trophy potential documented in anecdotal reports and tournament results coupled with the recent increase in FLMB allele frequency suggest that Pat Mayse Reservoir would likely benefit from continued stocking efforts.

MANAGEMENT STRATEGIES

1. Continue biennial stocking of FLMB (1,000/km) in 2022 and 2024.

2. Assess potential effects of biennial stocking via genetic sampling in 2024.

3. Determine if continued stocking of FLMB fingerlings is justified using habitat, vegetation, and size structure data collected during the next report cycle (2024/2025).

ISSUE 2: The Channel Catfish population at Pat Mayse Reservoir exhibits good natural recruitment and is characteristic of a minimally exploited population. However, data from the 1998-2000 spring quarter creel surveys coupled with anecdotal reports from anglers and USACE staff indicated a low amount of effort directed toward Channel Catfish. This fishery could benefit from additional promotion.

MANAGEMENT STRATEGY

1. Promote the Channel Catfish fishery through news releases, social media, and communication with local angling groups.

ISSUE 3: Aquatic vegetation in Pat Mayse Reservoir is limited (<1% reservoir surface area) and is dominated by giant cutgrass and other native emergent species. Vegetation is limited to narrow shoreline bands which are subjected to fluctuations in reservoir elevation. Additionally, reservoir ageing has diminished available structural habitat throughout the reservoir. Natural recruitment of multiple sportfish species and angler success would benefit from improved littoral habitat.

MANAGEMENT STRATEGIES

1. Develop partnership with USACE and other potential stakeholders to implement needed habitat enhancement projects, including artificial and natural habitat structures.

2. Attempt to establish 3 or 4 trial colonies of American waterwillow or other suitable native emergent species of vegetation in 0 to 2 feet of water. If efforts to establish colonies are successful, additional sites will be selected in subsequent years

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 reservoir's access points.

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 using media and the internet.

4. Make a speaking point about invasive species when presenting to constituent and user groups. 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 (2021-2025)

Sport fish, forage fish, and other important fishes

Sport fishes in Pat Mayse Reservoir include Largemouth Bass, White Bass, Channel Catfish, crappies, and sunfishes. Shads and sunfishes are the primary prey species for sport fishes.

Low-density fisheries

Spotted Bass: Spotted Bass are present in low abundance in Pat Mayse Reservoir. CPUE from electrofishing surveys in 2000, and 2012 were 2.0/h, and 4.7/h respectively. No fish were collected in surveys in 2002, 2004, 2008, 2016 and 2020. Anecdotal information suggests this species is caught primarily in the lower section of the reservoir and they are periodically included in tournament weigh-ins. This species does not provide a significant fishery and any fish observed in future standard electrofishing surveys will be measured and recorded.

Survey objectives, fisheries metrics, and sampling objectives

Channel Catfish: Gill net CPUE of Channel Catfish from surveys conducted in 2003, 2005, 2007, 2009, 2013, 2017 and 2020 were 4.8/nn, 3.1/nn, 8.3/nn, 7.2/nn, 8.4/nn, 7.3/nn, and 9.7, respectively. Historical gill netting data suggests that sampling objectives (RSE-S ≤ 25, N > 50) can be met with 10 randomly selected sampling sites. Sampling will monitor relative abundance, size structure and body condition (measured by CPUE, PSD, and W_r) every four years. Otoliths from 13 specimens (11.0 - 12.9 inches) will be collected in 2025 to determine mean age at legal harvest length (Table 7).

White Bass: Gill net CPUE of White Bass from surveys conducted in 2003, 2005, 2007, 2009, 2013, 2017, and 2020 were 7.6/nn, 10.5/nn, 1.6/nn, 3.3/nn, 10.7/nn, 1.8/nn, and 5.0/nn respectively. This population has a documented history of periodic fish kills, explaining some of the variability in catch rates. No sampling objectives will be set for White Bass due to variability in historic catch rates, however large-scale changes in

relative abundance (CPUE) and size structure (PSD) will be monitored in accordance with the Channel Catfish sampling effort of 10 nets.

Largemouth Bass: Pat Mayse Reservoir supports a low to moderately abundant Largemouth Bass population managed using a 14-inch minimum-length limit. Sampling will monitor relative abundance, size structure and body condition (measured by CPUE, PSD, and W_r) every four years. These data will allow for determination of any large-scale changes in the Largemouth Bass population. A minimum effort of 18 randomly selected nighttime electrofishing stations will be sampled in fall 2024 (Table 7). An additional six random stations will also be generated in the event additional sampling is required to meet sampling objectives (RSE-S <25 and 50 stock-length fish) for Largemouth Bass. Otoliths will be removed from 13 specimens (13.0 to 14.9 inches) to calculate average age at the legal minimum length. Genetic sampling to assess trend data in FLMB allele frequencies will be conducted on an eight-year rotation with the next survey occurring in 2024.

Sunfish and other prey species: Gizzard Shad, Bluegill, and Threadfin Shad are the primary prey species in Pat Mayse Reservoir. Long-term monitoring trend data is desired for these populations to evaluate their relative abundance (CPUE) and size structure (PSD; IOV). Relative weights of the Largemouth Bass population, along with relative abundance (CPUE) of other sunfish and Threadfin Shad, will also be used to gauge prey fish availability for sport fishes. No additional sampling effort beyond that needed to obtain sampling objectives for Largemouth Bass will be expended for prey species.

Crappie: Both White and Black Crappie are present in Pat Mayse Reservoir, although White Crappie are usually more abundant. Combined results of the 1998 and 1999 spring creel surveys indicate that Crappie were the most frequently sought sportfish among anglers (35% of anglers). CPUE of the combined species from single-cod, shoreline trap netting surveys in 1997, 2000, 2002, 2004, and 2008 were 3.7/nn, 0.6/nn, 17.4/nn, 3.7/nn, and 1.3/nn respectively. This sampling method was discontinued after 2008 because catch rates were variable and typically insufficient to assess the population. As an alternative, tandem hoop nets will be deployed in spring 2023 to collect data on crappie populations and assess gear performance (Table 7). A minimum sampling effort of 10 hoop net series will be employed to assess abundance, size structure, and condition of crappie populations. This is exploratory sampling and no specific sampling objective are yet necessary. If available, otoliths from individuals 9.0-10.9 inches will be collected to assess the average age of fish at the legal minimum length

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Tables and Figures

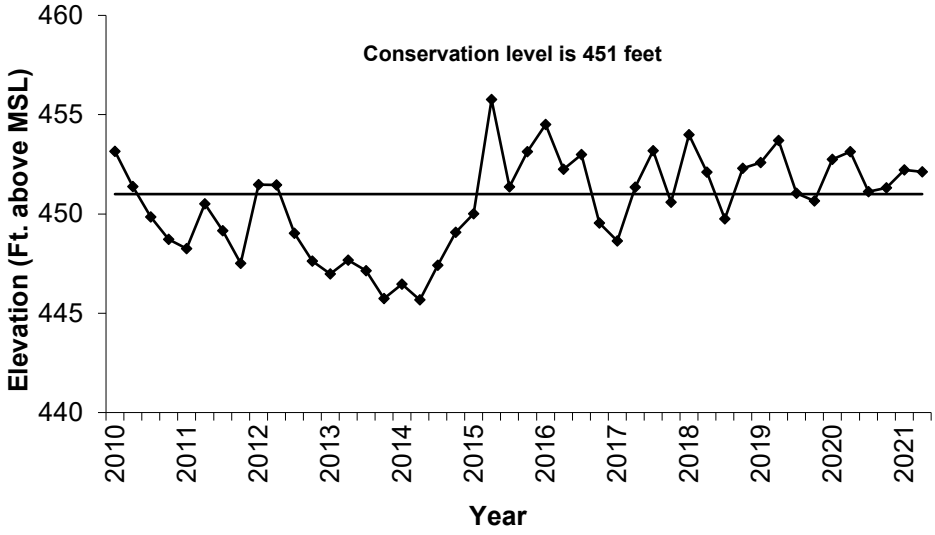


Figure 1. Average monthly reservoir elevations in feet above mean sea level (ft. msl) recorded for Pat Mayse Reservoir, Texas.

Table 1. Characteristics of Pat Mayse Reservoir, Texas.

Characteristic	Description
Year constructed	1967
Controlling authority	U. S. Army Corps of Engineers
County	Lamar
Reservoir type	Tributary
Shoreline Development Index (SDI)	1.9
Conductivity	280 µS/cm

Table 2. Boat ramp characteristics for Pat Mayse Reservoir, Texas, August 2020. Reservoir elevation at time of survey was at conservation pool.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft. msl)	Condition
CR 34950	33.836445 -95.545683	Y	Campers only	446. 5	No public parking area
Lamar Point	33.827800 -95.628676	Y	24	447.0	No access issues
PM East Recreation Area Loop B-A	33.840081 -95.592307	Y	10	446.5	No access issues
PM East Recreation Area East Park Rd.	33.838110 -95.583670	Y	17	444.5	No access issues
PM West Recreation Loop A	33.841614 -95.609577	Y	15	444.0	Access to camping area, Fishing pier close to ramp
PM West Recreation Loop Calle	33.840855 -95.600375	Y	Campers only	446.5	No public parking area
Red Bluff	33.817027 -95.650853	Y	12	444.5	Unpaved surface on access road and parking area
Sanders Cove A	33.844271 -95.542731	Y	38	445.5	Courtesy docks on either side of ramp. No access issues
Sanders Cove B	33.841093 -95.542240	Y	14	445.5	Courtesy dock next to ramp. No access issues No access issues

Table 3. Harvest regulations for Pat Mayse Reservoir, Texas.

Species	Bag limit	Length limit
Catfish: Channel and Blue Catfish, their hybrids and subspecies	25 (in any combination)	12-inch minimum
Catfish, Flathead	5	18-inch minimum
Bass, White	25	10-inch minimum
Bass, Palmetto	5	18-inch minimum
Bass, Largemouth	5[a]	14-inch minimum
Bass, Spotted	5[a]	None
Crappie: White and Black crappie, their hybrids and subspecies	25 (in any combination)	10-inch minimum

[a]Daily bag limit for Largemouth Bass and Spotted Bass = 5 fish in any combination

Table 4. Stocking history of Pat Mayse Reservoir, Texas. FGL = fingerling; ADL = adults.

Year	Number	Size
	Threadfin Shad	
1986	1,000	ADL
	1,000	
	Channel Catfish	
1967	162,400	FGL
	162,400	
	Palmetto Bass	
1973	46,303	FGL
1974	60,000	FGL
1975	59,773	FGL
1976	60,000	FGL
1979	30,000	FGL
1982	63,000	FGL
1986	89,495	FGL
1991	95,000	FGL
1992	98,700	FGL
1993	49,284	FGL
1994	89,758	FGL
1995	121,525	FGL
1996	42,801	FGL
1997	42,175	FGL
1998	42,200	FGL
1999	21,084	FGL
2000	42,027	FGL
	1,053,125	

Year	Number	Size
	Largemouth Bass	
1967	505,000	FGL
1968	901,000	FGL
	1,406,000	
	Florida Largemouth Bass	
1981	7,980	FGL
1983	289,375	FGL
1991	289,390	FGL
1994	301,790	FGL
2003	298,658	FGL
2004	147,910	FGL
2011	298,130	FGL
2018	76,258	FGL
2020	70,075	FGL
	1,789,566	

Table 5. Objective-based sampling plan components for Pat Mayse Reservoir, Texas 2020–2021.

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
	Condition	W_r	10 fish/inch group (max)
	Genetics	% FLMB	N = 30, any age
	Age-and-growth	Age at 14 inches	N = 13, 13. 0 – 14. 9 inches
Bluegill [a]	Abundance	CPUE – Total	
	Size structure	PSD, length frequency	
Gizzard Shad [a]	Size structure	PSD, length frequency	
	Prey availability	IOV	
Gill netting			
Channel Catfish	Abundance	CPUE – stock	RSE-Stock ≤ 25
	Size structure	PSD, length frequency	N = 50
	Age-and-growth	Age at 12 inches	N = 13, 11. 0 – 12. 9 in
White Bass	Abundance	CPUE	
	Size structure	PSD, length frequency	
Tandem hoop netting			
Crappie	Abundance	CPUE– stock	
	Size structure	PSD, length frequency	
	Condition	W_r	

[a] No sampling objectives have been set for prey species so no additional sampling effort beyond that designated for Largemouth Bass will be conducted. Instead, Largemouth Bass body condition can provide information on forage abundance, vulnerability, or both relative to predator density.

Table 6. Survey of aquatic vegetation, Pat Mayse Reservoir, Texas, 2012, 2016, and 2020. Surface area (acres) is listed with percent of total reservoir surface area in parentheses. Water elevation at the time of the survey in August 2020 was 0.42 feet below conservation pool. Individual native species observed during surveys are listed in footnotes.

Vegetation	2012	2016	2020
Native emergent	38.0 (0.70)	33.7 (0.6)	11.38 (0.2)[1]
Native submersed	187.3 (3.5)	0 (0)	0 (0)

[1] *Buttonbush, giant bulrush, giant cut grass, water-willow, bull tongue, slender spike rush*

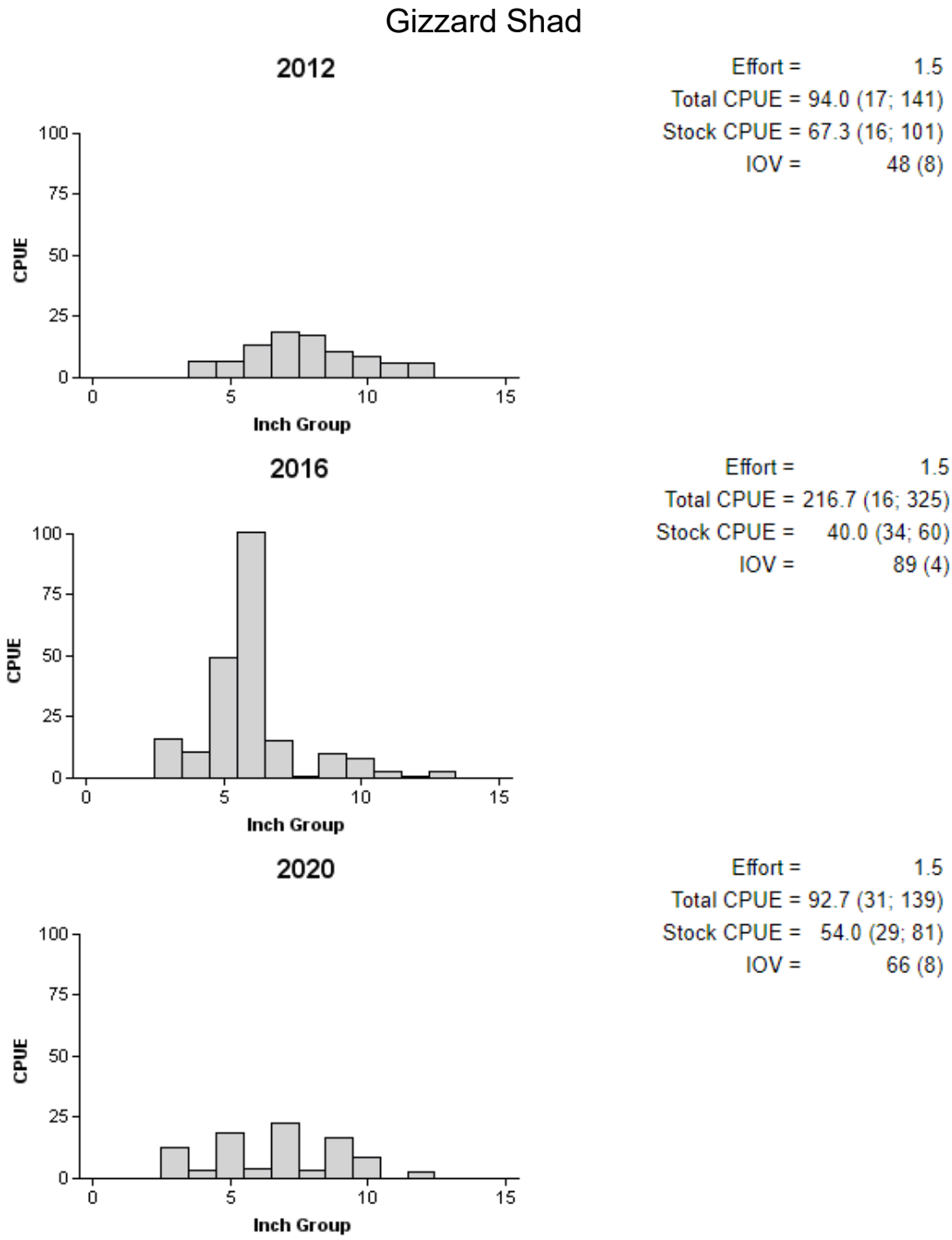


Figure 2. Number of Gizzard Shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Pat Mayse Reservoir, Texas, 2012, 2016, and 2020.

Bluegill

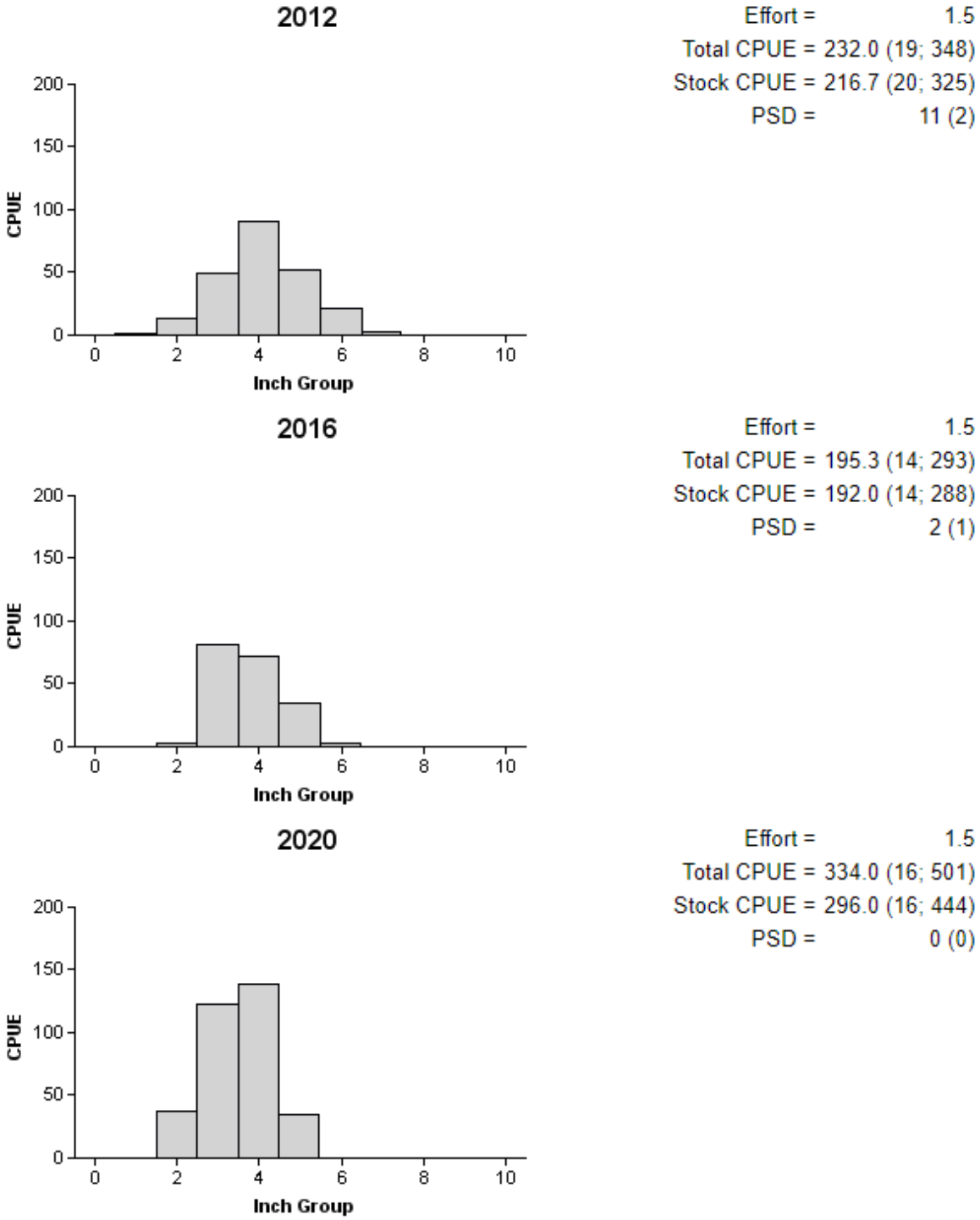


Figure 3. Number of Bluegill caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Pat Mayse Reservoir, Texas, 2012, 2016, and 2020.

Channel Catfish

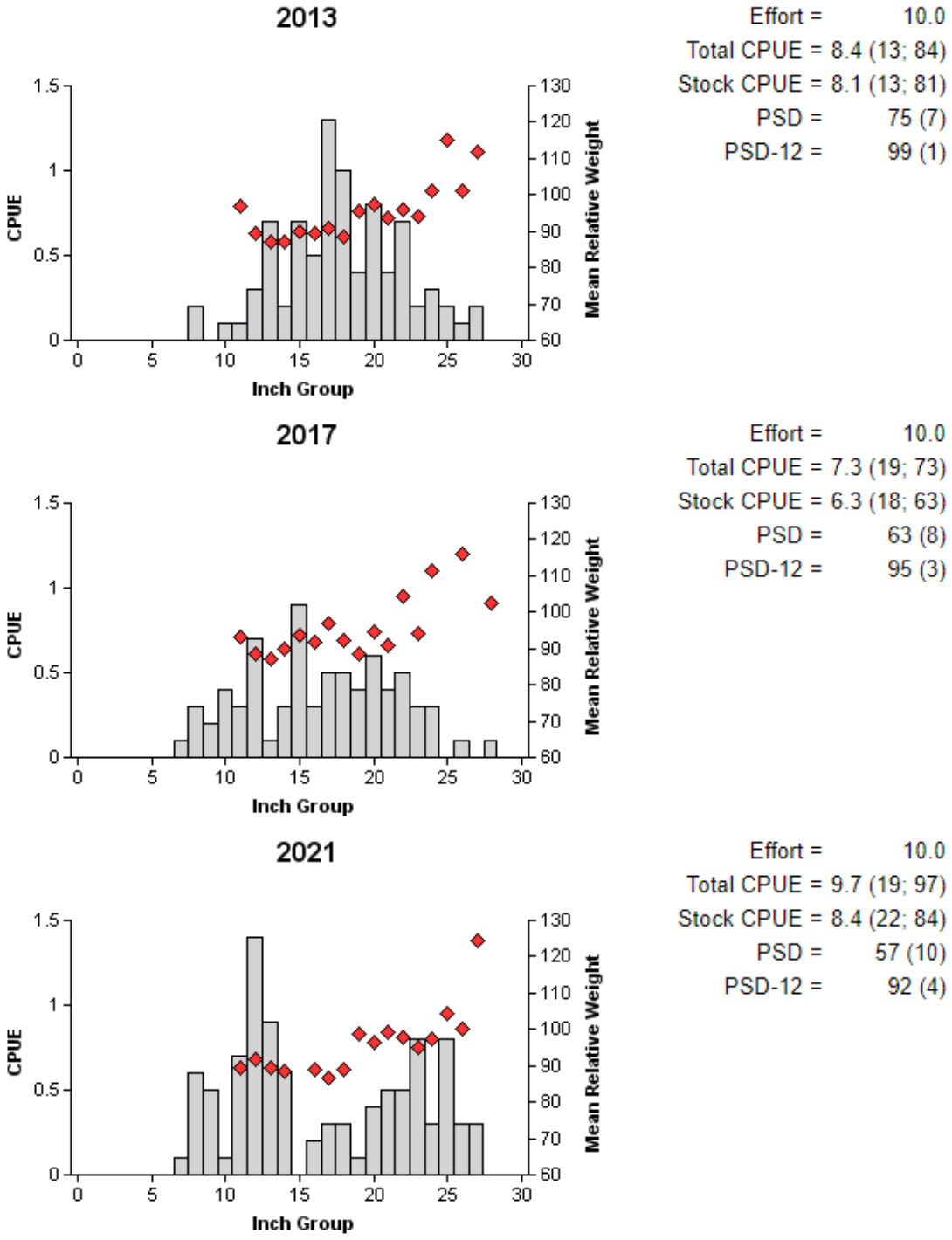


Figure 4. Number of Channel Catfish caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Pat Mayse Reservoir, Texas, 2013, 2017, and 2021. Vertical lines indicate minimum length limit at time of survey.

White Bass

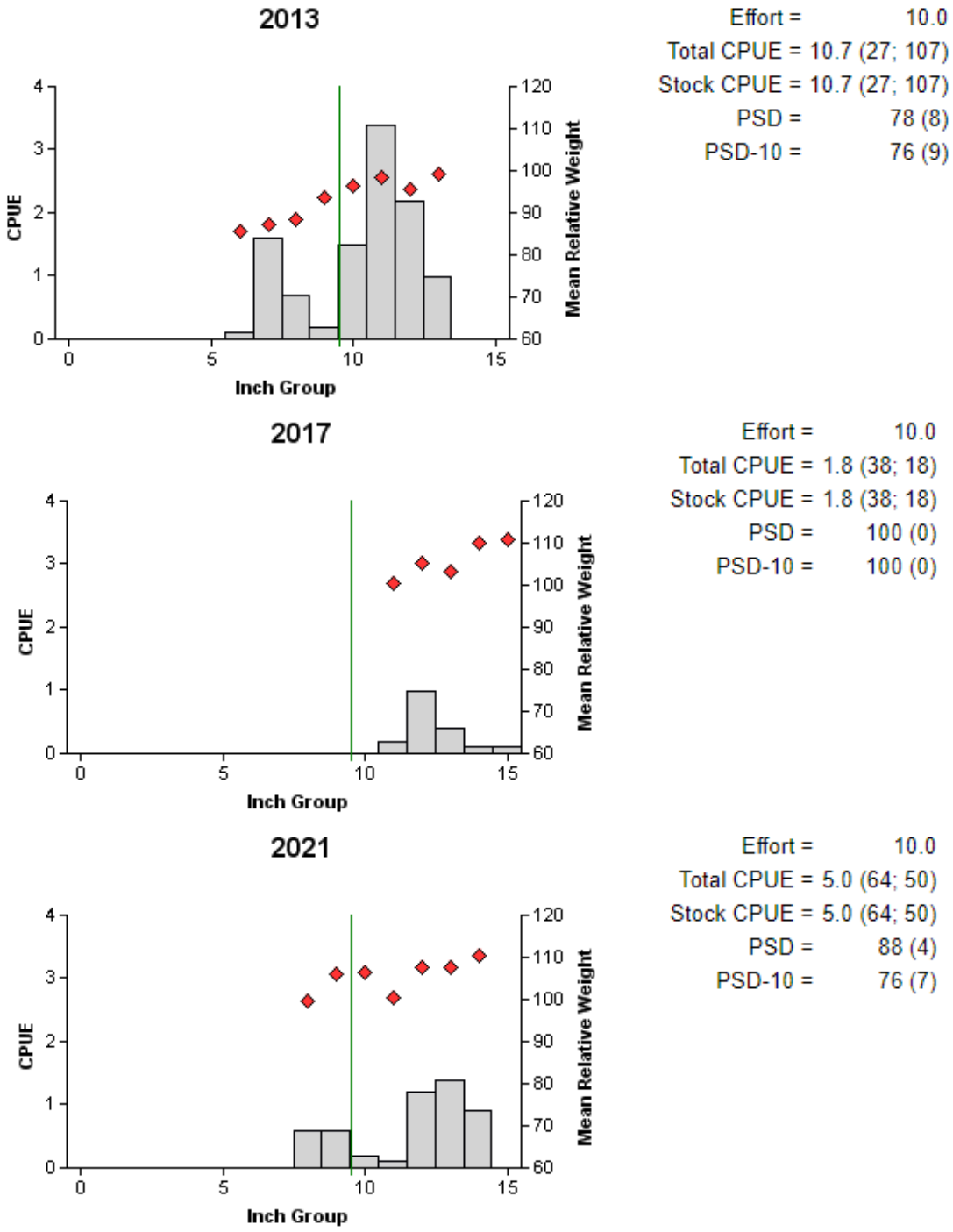
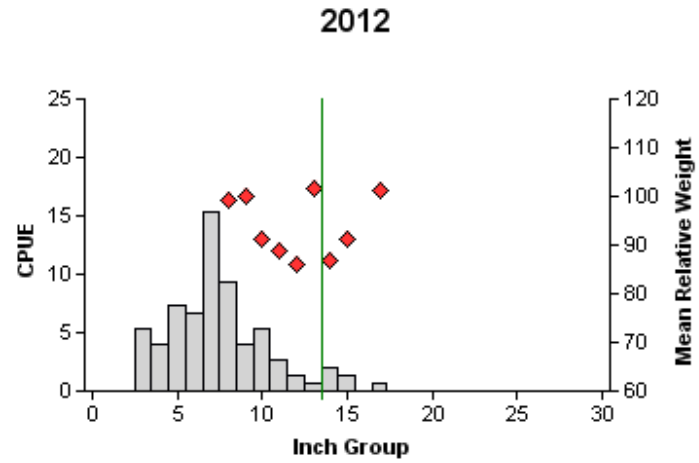
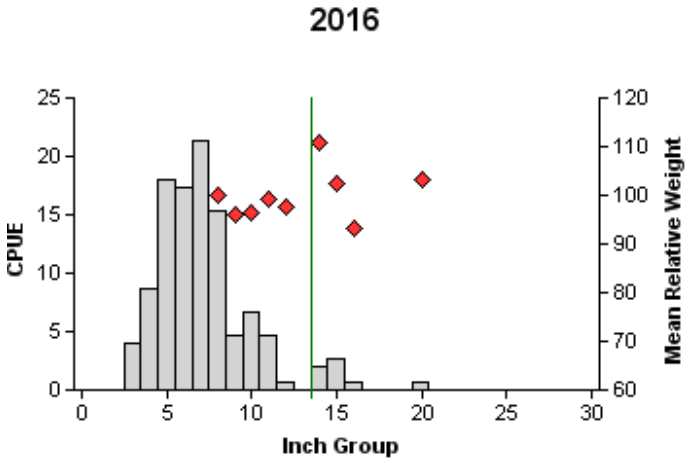


Figure 5. Number of White Bass caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N are in parentheses) for spring gill net surveys, Pat Mayse Reservoir, Texas, 2013, 2017, and 2021. Vertical lines indicate minimum length limit at time of survey.

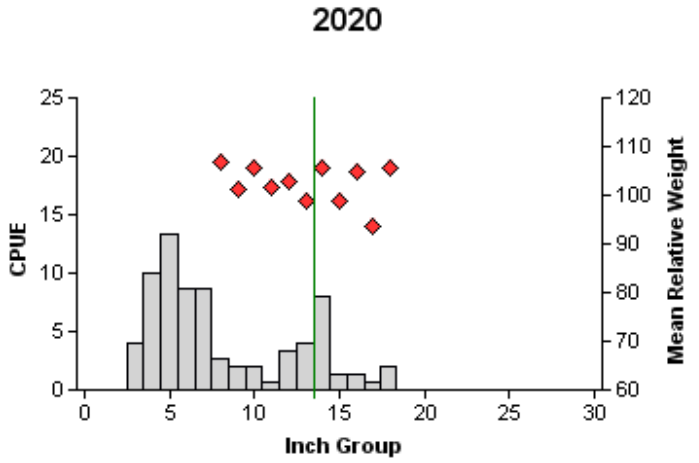
Largemouth Bass



Effort = 1.5
Total CPUE = 66.0 (19; 99)
Stock CPUE = 27.3 (20; 41)
CPUE-14 = 4.0 (42; 6)
PSD = 22 (6)



Effort = 1.5
Total CPUE = 107.3 (13; 161)
Stock CPUE = 38.0 (21; 57)
CPUE-14 = 6.0 (40; 9)
PSD = 18 (5)



Effort = 1.5
Total CPUE = 72.7 (14; 109)
Stock CPUE = 28.0 (23; 42)
CPUE-14 = 13.3 (29; 20)
PSD = 74 (7)

Figure 6. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE are in parentheses) for fall electrofishing surveys, Pat Mayse Reservoir, Texas, 2012, 2016, and 2020. Vertical lines indicate minimum length limit at time of survey.

Table 7. Proposed sampling schedule for Pat Mayse Reservoir, Texas. Survey period is June through May. Gill netting and tandem hoop netting surveys are conducted in the spring, while electrofishing surveys are conducted in the fall.

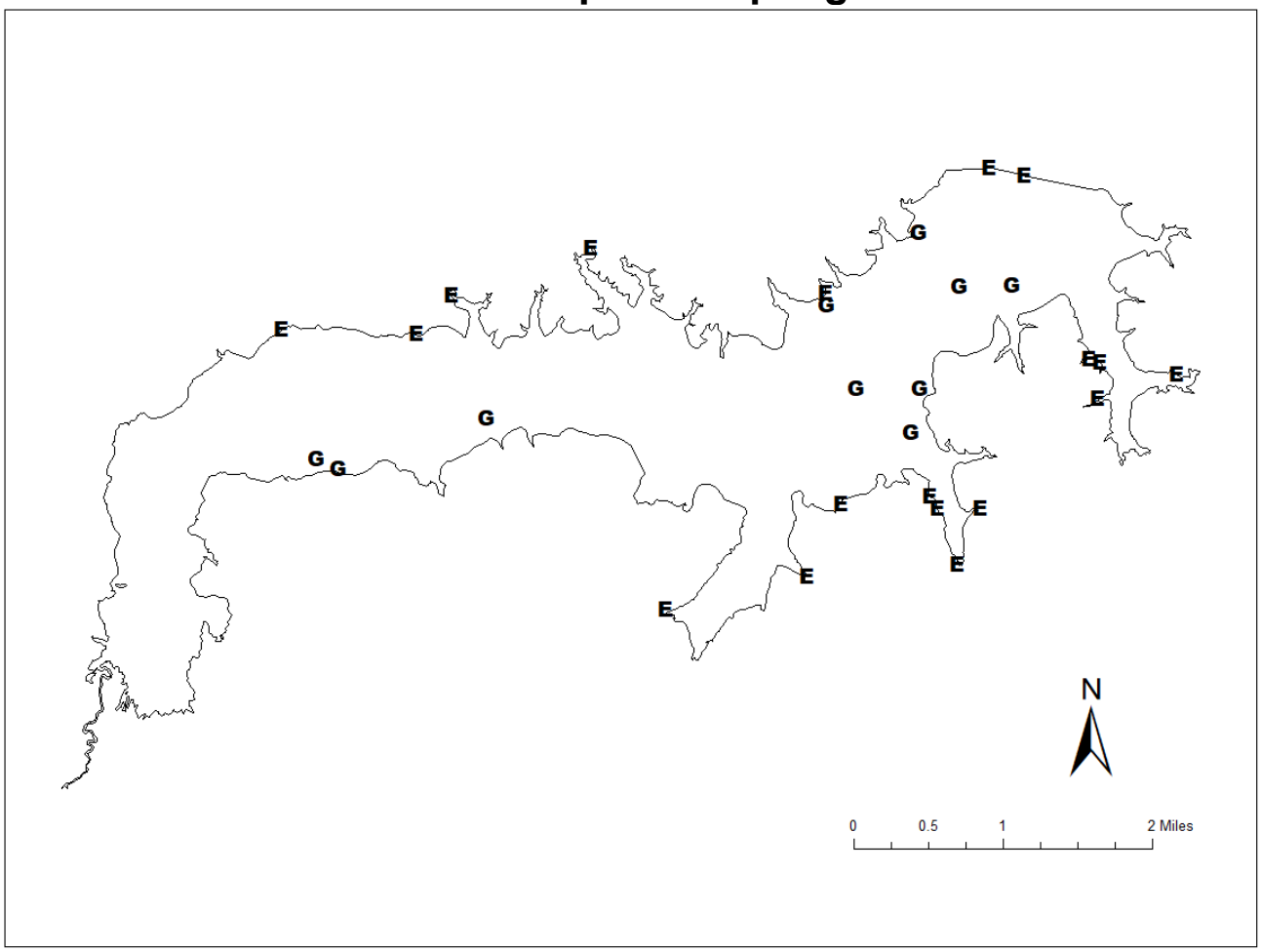
	Survey year			
	2021-2022	2022-2023	2023-2024	2024-2025
Angler Access				X
Vegetation				X
Electrofishing – Fall				X
Tandem hoop netting		X		
Gill netting				X
Report				X

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 by fall electrofishing, and spring gill netting from Pat Mayse Reservoir, Texas, 2020-2021. Sampling effort was 1.5 hours for electrofishing and 10 net nights for gill netting.

	Electrofishing		Gill Netting	
Species	N	CPUE	N	CPUE
Gizzard Shad	139	92.7 (31)		
Threadfin Shad	1963	1,308.7 (41)		
Channel Catfish			97	9.7 (19)
Flathead Catfish			1	0.1 (100)
White Bass			50	5.0 (64)
Warmouth	14	9.3 (40)		
Bluegill	501	334.0 (16)		
Longear Sunfish	39	26.0 (16)		
Redear sunfish	19	12.7 (33)		
Largemouth Bass	109	72.7 (14)		

APPENDIX B – Map of sampling locations



Location of electrofishing (E) and gill netting (G) sites, Pat Mayse Reservoir, Texas, 2020-2021. Water level was near full pool at time of sampling.

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