Pinkston Reservoir

2019 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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July 31, 2020

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Survey and Management Summary

Fish populations in Pinkston Reservoir were surveyed in 2018 and 2019 using electrofishing. Anglers were surveyed from March through May 2018 with a creel survey. Historical data are presented with the 2018-2019 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: Pinkston Reservoir is an impoundment of Sandy Creek, a tributary of the Attoyac Bayou in the Neches River Basin. The City of Center is the controlling authority. Primary uses are water supply and recreation. This reservoir has a surface area of 447 acres at conservation pool (300 feet above mean sea level), a shoreline length of 4 miles, and an average depth of 20 feet. Water level fluctuations average 1 - 3 feet annually. Boat access is provided via two boat ramps, but they are in need of repair. Bank access is limited to areas around the public boat ramps and the dam.

Management History: Largemouth Bass are the primary sport fish, but crappies are also present. The 14-18 inch slot-length limit for Largemouth Bass (implemented in 1991) was changed to a 14-21 inch slot-length limit in 2001. Prior to 2000, hydrilla had been problematic, and coverage exceeded 50% of the reservoir surface area. In 1997, the City of Center stocked triploid Grass Carp at a rate of 7 fish/vegetated acre (2,100 fish total) in an attempt to reduce hydrilla coverage to 30%. Since 2000, hydrilla coverage has varied considerably (range = 2 - 255 acres). Although giant salvinia was discovered in the reservoir in 2006, it was eradicated via manual removal several months after introduction.

Fish Community

- **Prey species:** Gizzard Shad, Threadfin Shad, Bluegill, and Redear Sunfish were the most abundant prey species and provided ample forage for sport fish.
- **Largemouth Bass:** Largemouth Bass were abundant. Size structure has remained consistent over the last three survey years with a high abundance of fish within the protective slot length limit. Largemouth Bass had desirable growth rates and were in average body condition. Over 85% of anglers fished for Largemouth Bass, angler catch rates were high (1.4 fish/h), and no harvest was observed.
- **Crappie:** Anecdotal information indicated that the crappie fishery has historically been cyclical but productive during some years. No directed angling effort was observed during spring creel surveys in 2008 and 2012. However, in 2018 anglers directed 13% of fishing effort to crappie. Catch was low (0.1 fish/h) and no harvest was observed. Trap netting was discontinued in 2003 due to low catch (<0.6/nn).

Management Strategies: Continue to manage Largemouth Bass with 14-21 inch slot-length limit. In 2020, explore angler opinion regarding a potential change to a 16-inch maximum length limit. Permit lakeside homeowners to control hydrilla (at homeowner expense) adjacent to their property with a TPWD-approved Aquatic Vegetation Treatment Proposal. Continue to inform the City of Center of funding opportunities from the Boating Access Program for boat ramp improvements.

Introduction

This document is a summary of fisheries data collected from Pinkston Reservoir in 2018-2019. 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 2018-2019 data for comparison.

Reservoir Description

Pinkston Reservoir was constructed in 1976 on Sandy Creek. It is located in Shelby County approximately 10 miles west of Center and is operated and controlled by the City of Center. Primary water uses included municipal water supply and recreation. The reservoir has a surface area of 447 acres at conservation pool (300 feet above mean sea level), a shoreline length of 4 miles, and an average depth of 20 feet. Water level fluctuations average 1 - 3 feet annually. Habitat at time of sampling consisted of standing timber and aquatic vegetation (primarily hydrilla). Most of the land surrounding the reservoir is used for agriculture, timber production, and residential development. Other descriptive characteristics for Pinkston Reservoir are in Table 1.

Angler Access

Pinkston Reservoir has two public boat ramps, and both were in poor condition at time of survey. Both ramps need to be extended to offer access during periods of low water levels. Parking areas at both ramps are unpaved and need proper grading and surfacing. Additional boat ramp characteristics are in Table 2. Shoreline access is limited to the public boat ramp areas and the dam.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Ashe and Driscoll 2016) included:

1. Conduct annual vegetation surveys to monitor hydrilla coverage. If hydrilla coverage prompts public complaints, consult with the City of Center and the angling public to develop management strategies.

   Action: Aquatic vegetation surveys were conducted annually from 2016 to 2019. In the summer of 2019, hydrilla coverage was 38% of reservoir surface area (historical high = 50% coverage). No public complaints were received.

2. Encourage the City of Center to improve access and parking.

   Action: Recommendations were provided to the City of Center. Possible grant opportunities through the Boating Access Program were explored but the city lacked matching funds.

3. Monitor success of the 14- to 21-inch slot-length limit for Largemouth Bass.

   Action: A spring electrofishing survey were conducted in 2018 and a fall electrofishing survey was conducted in 2019. Largemouth Bass growth was examined in 2019.

Harvest regulation history: Sport fishes in Pinkston Reservoir are currently managed with statewide regulations with the exception of Largemouth Bass (Table 3). From 1991 to 2001, Largemouth Bass were managed with a 14- to 18-inch slot-length limit. A 14- to 21-inch slot-length limit was implemented in 2001 to increase the abundance of large fish.

Stocking history: ShareLunker Largemouth Bass fingerlings were stocked in 2006 and 2008 as part of selective breeding research. Triploid Grass Carp were stocked in 1997. Florida Largemouth Bass were stocked in 1976. The complete stocking history is in Table 4.

Vegetation/habitat management history: Prior to 2000, hydrilla was problematic for the City of Center relative to municipal water use, as coverage exceeded 50% of the reservoir surface area. In 1997, triploid Grass Carp were stocked at a rate of 7 fish/vegetated acre (2,100 fish total) in an attempt to reduce hydrilla coverage to 30%. Since 2000, hydrilla has not caused any issues with municipal water use or required treatment. In 2006, giant salvinia was found, but it was quickly eradicated with manual removal. No giant salvinia has been observed since 2006.

Water transfer: Pinkston Reservoir is primarily used for municipal water supply and recreation. There are no plans for inter-basin transfer of water.

Methods

Surveys were conducted to achieve survey and sampling objectives in accordance with the objective-based sampling (OBS) plan for Pinkston Reservoir (Ashe and Driscoll 2016). 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 2017).

Electrofishing – Largemouth Bass, sunfishes, Gizzard Shad, and Threadfin Shad were collected by electrofishing (one 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 13 randomly-selected fish (range 13.0 to 14.9 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 (W_r)] 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.

Creel survey – A spring quarter access-point creel survey was conducted from March through May. Angler interviews were conducted on 5 weekend days and 4 weekdays per quarter to assess angler use and fish catch/harvest statistics in accordance with the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2017).

Habitat – A structural habitat survey was conducted in 2007. Vegetation surveys were conducted in 2016–2019 to estimate hydrilla coverage and monitor for giant salvinia presence. Habitat was assessed with the digital shapefile method (TPWD, Inland Fisheries Division, unpublished manual revised 2017).

Results and Discussion

Habitat: A habitat survey conducted in 2007 indicated that the littoral zone included primarily dead timber, concrete, and hydrilla (Ashe and Driscoll 2008). Historically, hydrilla has comprised nearly all of the vegetative cover and has provided beneficial fish habitat. During 2007 – 2014, coverage ranged from 30% to 57% of reservoir surface area. However, from 2015 - 2018 hydrilla coverage was < 10% (Table 6). High water levels and turbid runoff from heavy spring and early summer rains likely impeded growth and survival. However, hydrilla rebounded to 38% coverage in 2019.

Creel: Over the last three survey periods, directed fishing effort was consistently highest for Largemouth Bass (87% - 97% of total directed effort) (Table 7). In 2018, 13% of the effort was directed at crappies, whereas no directed effort was observed in 2008 or 2012. In 2018, total fishing effort (4,463 h) and direct expenditures ($23,165) were lower than observed in 2008 (8,550 h; $37,101) and 2012 (7,766 h; $32,326) (Table 8). Most anglers were local, traveling 25 miles or less (Appendix D).

Prey species: Electrofishing surveys indicated an adequate forage base for sport fishes. Catch rates of Gizzard Shad, Bluegill and Redear Sunfish in 2019 were 18.0/h, 274.0/h and 24/h, respectively (Figures 1 - 3). Index of vulnerability (IOV) for Gizzard Shad was 0 in 2019, which indicated no fish were small enough to be consumed by existing predators. However, 46% of Gizzard Shad were available as forage in 2015. Total CPUE of Bluegill in 2019 (274.0/h) was greater than that from 2015 (141.0/h) but lower than observed in 2007 (450.0/h); size structure was dominated by small individuals. Threadfin Shad were present during the 2019 electrofishing survey (Appendix A) and comprise the majority of the clupeid population.

Largemouth Bass: Electrofishing surveys reflected an abundant Largemouth Bass population with high recruitment rates. Total catch rate (260.0/h) from the 2019 fall electrofishing survey was higher than in 2015 (98.0/h) and 2007 surveys (218.0/h) (Figure 4). The higher catch rate in 2019 was likely due to the

increase in hydrilla coverage (i.e., more fish present in the littoral zone). Size structure (PSD range = 41 – 81) and body condition (relative weight above 85 for most size classes) have remained desirable over the past three surveys. Growth of Largemouth Bass was average; mean age at 14 inches (13.5 to 14.5 inches) was 2.3 years (N = 13; range = 2 - 4 years). Spring electrofishing catch rates were consistently high over the last three surveys (range = 212.0 – 290.0/h) with relatively stable population structure and high recruitment into the slot-length limit (PSD range = 83 – 87) (Figure 5). The spring electrofishing survey in 2020 was cancelled due to heavy hydrilla coverage and related sampling inefficiency.

Similar to previous years, Largemouth Bass accounted for nearly all of the angling effort during the 2018 spring quarter creel survey (86.7%) (Table 7). Directed effort in 2018 (8.7 h/acre) was approximately half of that observed in 2008 (15.5 h/acre) and 2012 (16.9 h/acre) (Table 9). However, angler catch rates in 2018 (1.4/h) were higher than 2008 (0.5/h) and 2012 (0.7/h), and 100% of legal-sized fish were released. During 2018, an estimated 493 fish 4.0 – 6.9 pounds were caught, while no fish > 7.0 pounds were observed. Nearly all anglers interviewed (90%) in 2018 reported that they always practice catch and release, which was a considerable increase compared to 2012 (51%) (Appendix C). In 2008, 34% of anglers indicated they might harvest a fish > 21 inches, compared to only 5% in 2018.

Crappie: Historically, trap net catch rates of crappie have been low ($\leq$0.6/nn). Trap net surveys were discontinued in 2003. No directed angler effort was observed during the spring 2008 and 2012 creel surveys (Table 7). However, in 2018 anglers directed 13% of fishing effort to crappie. Catch was low (0.1 fish/h) and no harvest was observed (Table 10).

Fisheries Management Plan for Pinkston Reservoir, Texas

Prepared – July 2020

ISSUE 1: Hydrilla provides beneficial habitat in Pinkston Reservoir, but coverage has exceeded 50% and impeded municipal use and angler access. Hydrilla covered 38% of the reservoir in 2019. Potential increases in coverage may affect municipal use or prompt public complaints. In addition, reintroduction of giant salvinia is likely.

MANAGEMENT STRATEGIES

1. Continue to monitor aquatic vegetation annually (2020-2023). If hydrilla coverage prompts public or controlling authority complaints, meet with city officials and angling public to develop vegetation management strategies.
2. Permit lakeside homeowners (at their expense) to treat hydrilla adjacent to their property under a TPWD-approved Aquatic Vegetation Treatment Proposal.

ISSUE 2: Parking lots at both boat ramps are unpaved and in poor condition. Boat ramps need extensions to provide access at lower water levels.

MANAGEMENT STRATEGY

1. Continue to recommend access point improvements and funding opportunities from the Boating Access Program to the City of Center.

ISSUE 3: Data indicate the 14- to 21-inch slot-length limit for Largemouth Bass is producing desirable results. Density of 14- to 21-inch fish is relatively high and growth rates are adequate. Recruitment of Largemouth Bass into the protective slot length limit is high and stable.

MANAGEMENT STRATEGY

1. Continue to manage the Largemouth Bass population with the 14- to 21-inch slot length limit.

ISSUE 4: Angler desire to harvest Largemouth Bass > 21 inches has declined over the last three creel survey years. Thus, anglers may be receptive to increased harvest protection for larger bass to increase trophy fish potential.

MANAGEMENT STRATEGIES

1. During the spring quarter creel survey in 2022, collect angler opinion regarding a potential regulation change to a 16-inch maximum length limit. Cooperate with local game wardens on survey implementation to increase angler sample size.
2. Document angler catch of Largemouth Bass $\geq$ 8 pounds via the TPWD ShareLunker Program to justify future Florida Largemouth Bass stockings. Increase angler awareness and participation in program by promoting when opportunities arise.

ISSUE 5: 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) existing and future inter-basin water transfers to facilitate potential invasive species responses.

Objective-Based Sampling Plan and Schedule (2020–2024)

Sport fish, forage fish, and other important fishes
Sport fishes in Pinkston Reservoir include Largemouth Bass and crappie. Important forage species Bluegill, Gizzard Shad, and Threadfin Shad.

Low-density fisheries
Anecdotal information indicates that historically the crappie fishery was cyclical but productive during some years. However, directed angling effort has been low during spring quarter creel surveys. Trap netting was discontinued in 2003 due to low catch (<0.6/nn). Although no future directed sampling is planned, the crappie fishery will be monitored via spring quarter creel surveys (2022, and every four years thereafter) directed at the Largemouth Bass fishery.

In 1987, a Channel Catfish stocking exceeding 300 fish/acre had limited success, as none have been collected since 1989. There was no observed directed angler effort for catfish during the last three spring creel surveys. Channel Catfish recruitment is likely limited by Largemouth Bass predation. In addition, high vegetative cover during most years likely limits nutrients available for preferred food items (i.e., benthic invertebrates). Gillnetting was discontinued in 2012. Although no future directed sampling is planned, the catfish fishery will be monitored via spring quarter creel surveys (2022, and every four years thereafter) directed at the Largemouth Bass fishery.

Survey objectives, fisheries metrics, and sampling objectives
Largemouth Bass: Largemouth Bass are the most popular sport fish in Lake Pinkston, accounting for approximately 90% of the annual angling effort. The reservoir currently supports an abundant, high-quality Largemouth Bass fishery. Largemouth Bass have been managed with a 14-21 inch slot length limit since 2001. Creel surveys were conducted in 2008, 2012 and 2018 to collect trend data on angling catch, effort, and harvest. Since 2005, trend data on CPUE, size structure, and body condition have been collected every four years with fall electrofishing, and biennially with spring electrofishing. The population is abundant, recruitment rates have been high and steady, and size structure has been desirable and stable. Continuation of trend data with night electrofishing in the fall (2023, and every four years thereafter), spring electrofishing (biennially, 2022 and 2024), and a spring quarter creel survey (2022) will allow for determination of any large-scale changes in the Largemouth Bass population and fishery that may spur further investigation (Table 11). 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 $\leq$ 25) is 6-8 stations with 80% confidence. In addition, average age of Largemouth Bass between 13.0 and 14.9 inches (Category 2; N = 13) will be estimated in 2023, and every four years thereafter

Prey species: Bluegill, Gizzard Shad, and Threadfin Shad are the primary forage at Lake Pinkston. Fall electrofishing every four years (Table 11), sampling the minimum of 12 random sites, will result in sufficient numbers of Bluegill to achieve sampling objectives (N = 50 stock-size fish; RSE-S is $\leq$ 25). No additional effort will be expended to achieve an RSE- Total $\leq$ 25 for Gizzard Shad and Threadfin Shad, but Largemouth Bass body condition (fish $\geq$ 8” TL) will be used to provide additional information on forage abundance and vulnerability.

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Ashe, D., and T. Driscoll. 2016. Statewide freshwater fisheries monitoring and management program survey report for Pinkston Reservoir, 2015. Texas Parks and Wildlife Department, Federal Aid Report F-221-M-6, Austin.

DiCenzo, V. J., M. J. Maceina, and M. R. Stimpert. 1996. Relations between reservoir trophic state and Gizzard Shad population characteristics in Alabama reservoirs. North American Journal of Fisheries Management 16:888-895.

Guy, C. S., R. M. Neumann, D. W. Willis, and R. O. Anderson. 2007. Proportional size distribution (PSD): a further refinement of population size structure index terminology. Fisheries 32(7):348.

Tables and Figures

Table 1. Characteristics of Pinkston Reservoir, Texas.

Characteristic	Description
Year constructed	1976
Controlling authority	City of Center
County	Shelby
Reservoir type	Tributary
Shoreline Development Index	5.05
Conductivity	85 µS/cm

Table 2. Boat ramp characteristics for Pinkston Reservoir, Texas, September, 2019. Reservoir elevation at time of survey was 296 feet above mean sea level.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
East Ramp	31.70464 -94.33678	Y	10	293	Parking area poor, ramp extension needed
Dam	31.71018 -94.36289	Y	8	294	Parking area poor, ramp extension needed

Table 3. Harvest regulations for Pinkston Reservoir, Texas.

Species	Bag limit	Length limit
Catfish, Channel[a]	25	12-inch minimum
Bass, Largemouth	5 (only 1 > 21 inches)	14- to 21-inch slot
Crappie: White and Black Crappie, their hybrids and subspecies	25 (in any combination)	10-inch minimum

[a] Use of trotlines is prohibited.

Table 4. Stocking history of Pinkston Reservoir, Texas. AFGL = advanced fingerling; UNK = unknown.

Species	Year	Number	Size
Channel Catfish	1976	40,000	AFGL
	1987	165,040	AFGL
	Total	205,040	
Flathead Catfish	1977	2,000	UNK
Florida Largemouth Bass	1976	85,000	FRY
Northern Pike	1976	24,000	UNK
ShareLunker Largemouth Bass	2006	11,150	AFGL
	2008	10,967	AFGL
	Total	22,117	
Triploid Grass Carp	1997	2,100	AFGL
Threadfin Shad	1979	1,500	AFGL

Table 5. Objective-based sampling plan components for Pinkston Reservoir, Texas, 2018-2019.

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

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

Table 6. Survey of aquatic vegetation, Pinkston Reservoir, Texas, 2015–2019. Surface area (acres) is listed with percent of total reservoir surface area in parentheses.

Species	2015	2016	2017	2018	2019
American lotus	0 (0)	0 (0)	0 (0)	0 (0)	2 (<1)
Spikerush	21 (5)	11 (2)	11 (2)	11 (2)	6 (1)
Giant cutgrass	0 (0)	1 (<1)	0 (0)	1 (<1)	0 (0)
Eurasian watermilfoil	1 (<1)	0 (0)	1 (<1)	1 (<1)	0 (0)
Hydrilla (Tier III)*	2 (<1)	41 (9)	41 (9)	37 (8)	168 (38)

*Tier III is Watch Status

Table 7. Percent directed angler effort by species for Pinkston Reservoir, Texas, 2008, 2012 and 2018. Survey periods were from 1 March through 31 May.

Species	2008	2012	2018
Sunfishes	1.6	0.0	0.0
Largemouth Bass	86.7	97.2	86.7
Crappies	0.0	0.0	13.3
Anything	11.7	2.8	0.0

Table 8. Total fishing effort (h) for all species and total directed expenditures at Pinkston Reservoir, Texas, 2008, 2012 and 2018. Survey periods were from 1 March through 31 May. Relative standard error is in parentheses.

Creel statistic	2008	2012	2018
Total fishing effort	8,550 (20)	7,766 (20)	4,463 (37)
Total directed expenditures	$37,101 (48)	$32,326 (58)	$23,165 (73)

Gizzard Shad

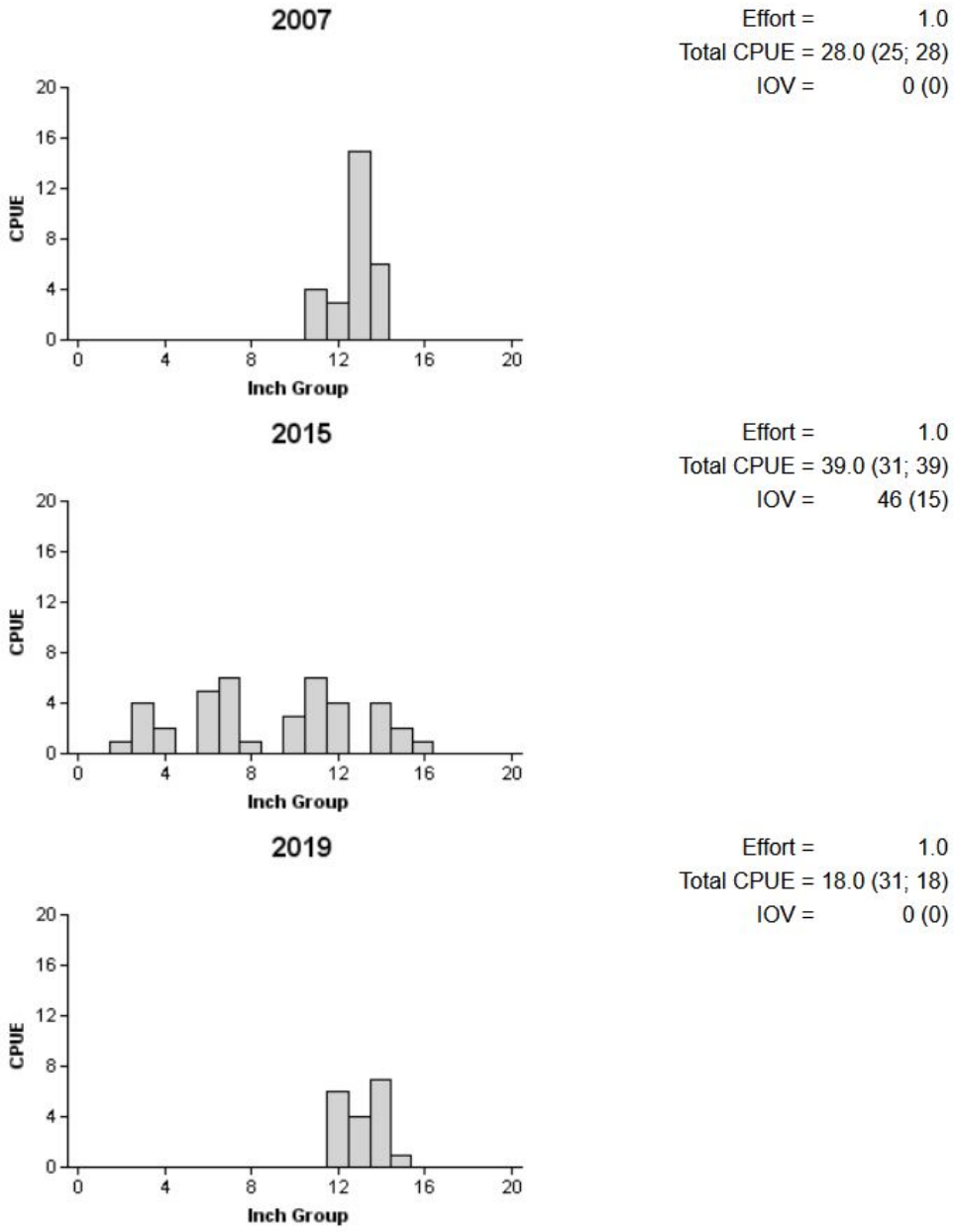
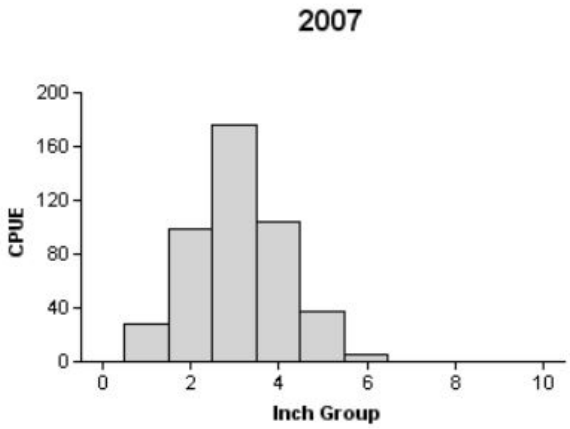
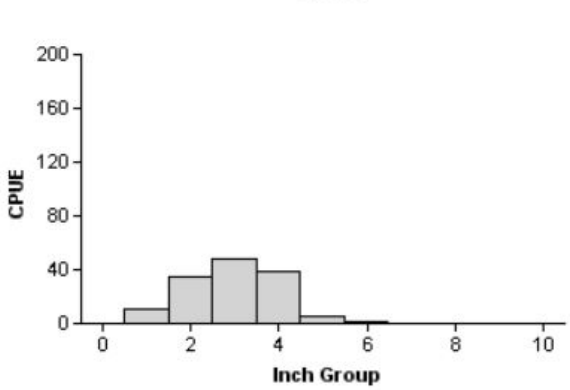


Figure 1. Number of Gizzard Shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Pinkston Reservoir, Texas, 2007, 2015, and 2019.

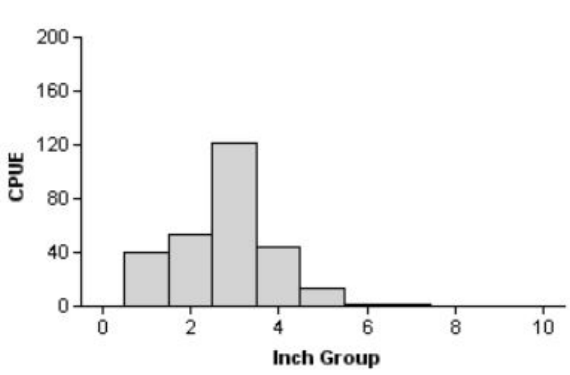
Bluegill



Effort = 1.0
Total CPUE = 450.0 (16; 450)
Stock CPUE = 323.0 (17; 323)
PSD = 2 (1)



Effort = 1.0
Total CPUE = 141.0 (21; 141)
Stock CPUE = 95.0 (24; 95)
PSD = 2 (1)



Effort = 1.0
Total CPUE = 274.0 (14; 274)
Stock CPUE = 181.0 (16; 181)
PSD = 2 (1)

Figure 2. Number of Bluegill caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Pinkston Reservoir, Texas, 2007, 2015, and 2019.

Redear Sunfish

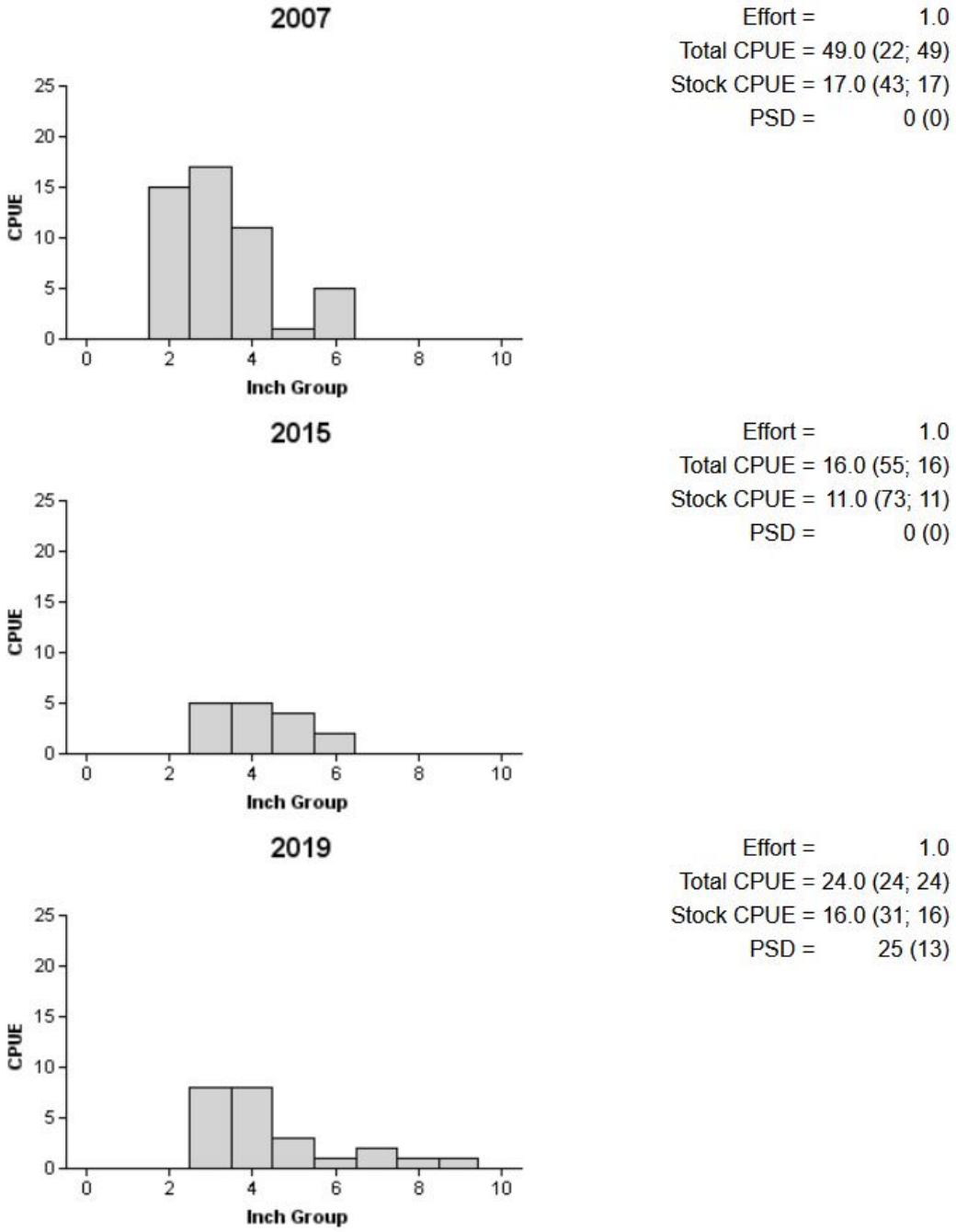


Figure 3. Number of Redear Sunfish caught per net night (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Pinkston Reservoir, Texas, 2007, 2015, and 2019.

Largemouth Bass

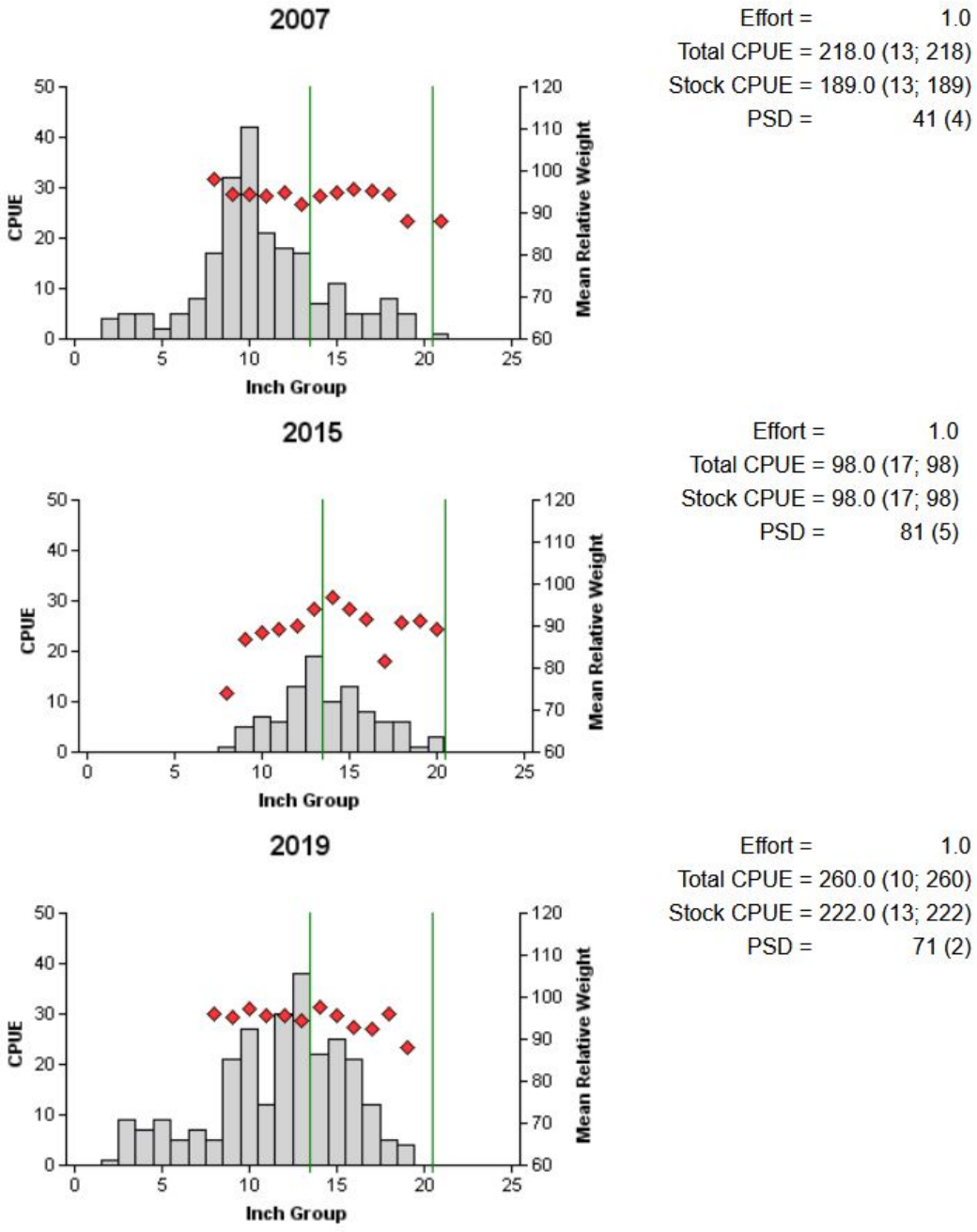


Figure 4. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Pinkston Reservoir, Texas, 2007, 2015, and 2019. Vertical lines indicate slot limit.

Largemouth Bass

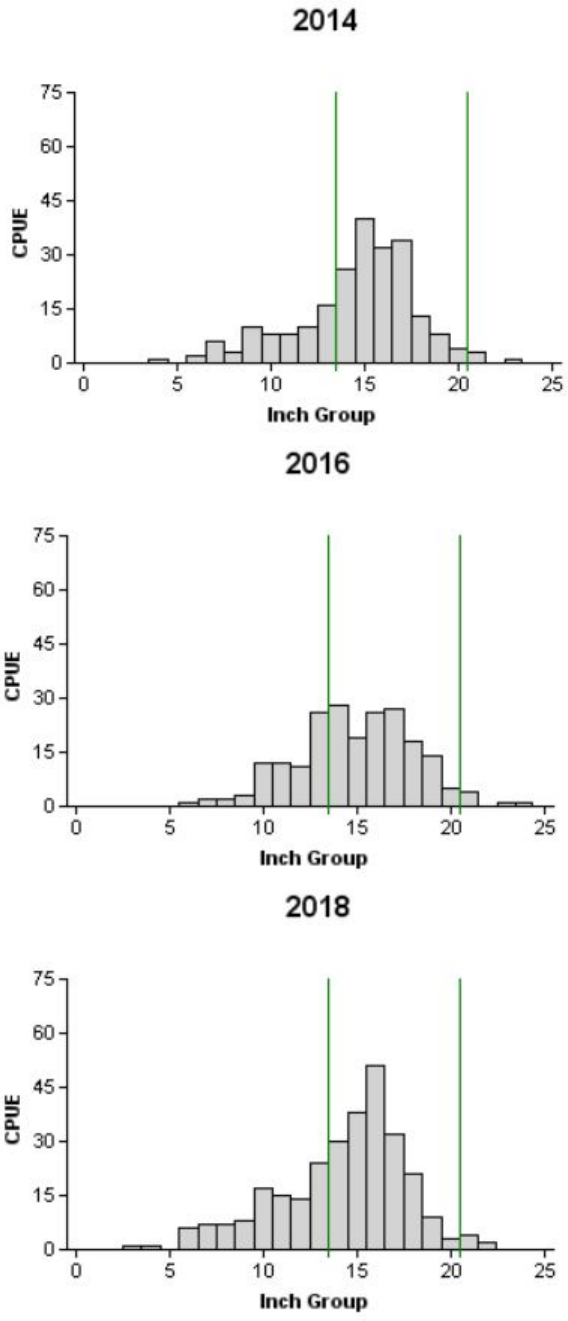


Figure 5. Number of Largemouth Bass caught per hour (CPUE, bars), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring electrofishing surveys, Pinkston Reservoir, Texas, 2014, 2016, and 2018. Vertical lines indicate slot limit.

Table 9. Creel survey statistics for Largemouth Bass at Pinkston Reservoir, Texas, 2008, 2012 and 2018. Survey periods were from 1 March through 31 May. Catch rate and total catch are for all anglers targeting Largemouth Bass. For estimated catch of 4, 7, and 10-pound fish, the percentages of total catch are provided. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	Year		
	2008	2012	2018
Surface area (acres)	447	447	447
Directed angling effort (h)	6,935.8 (22)	7,549.6 (19)	3,870.5 (38)
Angling effort/acre[a]	15.5 (22)	16.9 (19)	8.7 (38)
Catch rate (number/h)	0.5 (18)	0.7 (30)	1.4 (18)
Total catch	3,453	6,578 (37)	7,284 (54)
< 4.0 lbs	3,292 – 95.3%	5,686 – 86.4%	6,796 – 93.2%
4.0-6.9 lbs	161 - 4.7%	872 – 13.3%	493 – 6.8%
7.0-9.9 lbs	0 – 0%	20 – 0.3%	0 – 0%
≥ 10lbs	0 – 0%	0 – 0%	0 – 0%
Harvest	310 (85)	60 (72)	0
Harvest/acre	0.7 (85)	0.1 (72)	0
Percent legal released	76.1	97.3	100.0

[a] No tournament angling was observed.

Crappie

Table 10. Creel survey statistics for crappie at Pinkston Reservoir, Texas, 2008, 2012 and 2018. Survey periods were from 1 March through 31 May. Total catch per hour is for anglers targeting crappie and total harvest is the estimated number of crappie harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	Year		
	2008	2012	2018
Surface acres (acres)	447	447	447
Directed effort (h)	0.0	0.0	592.0 (67)
Directed effort/acre	0.0	0.0	1.3 (67)
Total catch per hour	0.0	0.0	0.1 (41)
Total harvest	89.0 (128)	23.0 (111)	0.0
Harvest/acre	0.2 (82)	0.1 (111)	0.0
Percent legal released	0.0	0.0	100.0

Proposed Sampling Schedule

Table 11. Proposed sampling schedule for Pinkston Reservoir, Texas. Survey period is June through May. Electrofishing surveys are conducted in the fall and spring. Standard survey denoted by S and additional survey denoted by A.

	Survey year			
	2020-2021	2021-2022	2022-2023	2023-2024
Angler Access				S
Vegetation	A	A	A	S
Electrofishing – Fall				S
Electrofishing – Spring		A		A
Creel survey		A		
Report				S

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

Number (N) and catch rate (CPUE) (RSE in parentheses) of all target species collected from all gear types from Pinkston Reservoir, Texas, 2018-2019. Sampling effort was 1 hour for electrofishing.

Species	Spring Electrofishing		Fall Electrofishing	
	N	CPUE	N	CPUE
Gizzard Shad			18	18.0 (31)
Threadfin Shad			48	48.0 (28)
Warmouth			2	2.0 (67)
Bluegill			274	274.0 (14)
Redear Sunfish			24	24.0 (24)
Redspotted Sunfish			1	1.0 (100)
Largemouth Bass	290	290.0 (10)	260	260.0 (10)

APPENDIX B – Map of sampling locations

Location of sampling sites, Pinkston Reservoir, Texas, 2018-2019. Fall and spring electrofishing stations are indicated by F and S, respectively. Water level was near full pool at time of sampling.

APPENDIX C – Supplemental angler harvest questions

Which one of the following best describes your harvest practices for largemouth bass at Lake Pinkston under the current regulation (14 to 21 inch slot limit, 1 fish bag per day over 21 inches)?

1. I always practice catch and release regardless of the size of the bass I catch.

2. I practice catch and release for fish that are larger than 21 inches but may keep bass I catch that are less than 14 inches.

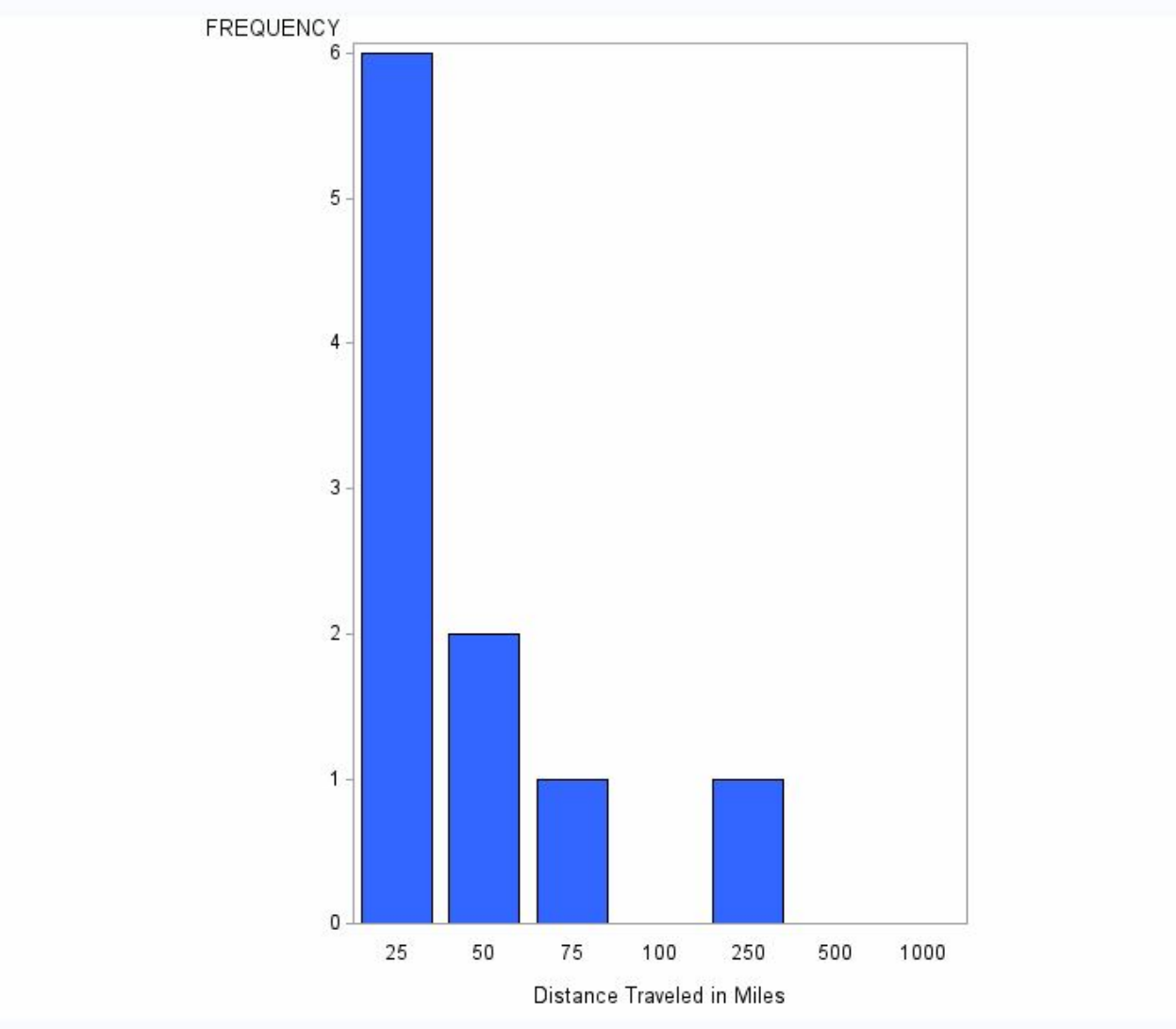
3. I practice catch and release for bass that are less than 14 inches but may harvest a bass that is larger than 21 inches.

4. I always harvest bass that are outside the slot limit (less than 14 inches or 1 bass larger than 21 inches).

Results of additional creel questions used to identify potential harvest practices of anglers at Pinkston Reservoir. Values are the percent of anglers that responded with each answer.

Creel question	2008 (N = 25)	2012 (N = 19)	2018 (N = 21)
1	32	51	90
2	18	31	5
3	34	13	5
4	16	5	0

APPENDIX D – Reporting of creel ZIP code data



Frequency of anglers that traveled various distances (miles) to Pinkston Reservoir, Texas, as determined from the March through May 2018 creel survey.

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