

PERFORMANCE REPORT

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INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

2016 Fisheries Management Survey Report

Lake Wright Patman

Prepared by:

Timothy J. Bister, District Management Supervisor
and
Joseph D. Lechelt, Assistant District Management Supervisor

Inland Fisheries Division
Marshall District
Marshall, Texas



Carter Smith
Executive Director

Craig Bonds
Director, Inland Fisheries

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TABLE OF CONTENTS

Survey and Management Summary	1
Introduction.....	2
Reservoir Description.....	2
Angler Access	2
Management History	2
Methods.....	4
Results and Discussion.....	4
Fisheries Management Plan	6
Objective-Based Sampling Plan and Schedule	7
Literature Cited.....	9
Figures and Tables	10-30
Water Level (Figure 1)	10
Reservoir Characteristics (Table 1)	10
Boat Ramp Characteristics (Table 2).....	11
Harvest Regulations (Table 3)	12
Stocking History (Table 4).....	13
Objective Based Sampling Plan for 2016-2017 (Table 5).....	14
Structural Habitat Survey (Table 6).....	15
Aquatic Vegetation Survey (Table 7)	15
Percent Directed Angler Effort per Species (Table 8).....	16
Total Fishing Effort and Fishing Expenditures (Table 9).....	16
Gizzard Shad (Figure 2).....	17
Bluegill (Figure 3)	18
Redear Sunfish (Figure 4).....	19
Catfishes (Figures 5-7; Table 10)	20
White Bass (Figure 8)	23
Largemouth Bass (Figures 9-10; Table 11)	24
Crappies (Figures 11-13; Table 12)	27
Proposed Sampling Schedule (Table 13)	30
Appendix A	
Catch Rates for all Species from all Gear Types	31
Appendix B	
Map of 2016-2017 Sampling Locations	32
Appendix C	
Reporting of Creel ZIP Code Data	33

SURVEY AND MANAGEMENT SUMMARY

Fish populations in Lake Wright Patman were surveyed in 2016 using electrofishing and trap netting and in 2017 using gill netting. Anglers were surveyed from June 2016 through May 2017 with a creel survey. Vegetation surveys were conducted in 2013-2016 and an angler access survey was conducted in 2017. Historical data are presented with the 2016-2017 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:** Lake Wright Patman is a 20,143-acre impoundment located on the Sulphur River. The reservoir is located in Bowie and Cass Counties approximately 10 miles southwest of Texarkana.
- **Management History:** Important sport fish include Blue and Channel Catfishes, Largemouth Bass, and Crappie. All sport fish at Lake Wright Patman have historically been managed with statewide harvest regulations. Florida Largemouth Bass have been stocked in this reservoir to improve the quality of the Largemouth Bass fishery. Hydrilla, water hyacinth, and giant salvinia were discovered in the reservoir in 2000, 2005, and 2012 respectively. Giant salvinia was eradicated, and water hyacinth and hydrilla do not pose any management concern at this time.
- **Fish Community**
 - **Prey species:** No Threadfin Shad were observed during 2016 electrofishing. Electrofishing catch of Gizzard Shad was higher than previous surveys, but most were too large to be available as prey to most sport fish. Bluegill were the most abundant sunfish species observed during electrofishing.
 - **Catfishes:** Catfishes were the third most sought species by anglers during the 2016/2017 creel survey. However, the directed angling effort toward catfishes was much lower compared to a survey conducted in 2008/2009. Blue Catfish abundance in gill nets was similar to previous years. The catch rate of Channel Catfish in gill nets was lower in 2017 compared to 2013, but similar to 2009. Of the catfish harvested in 2016/2017, most were Channel Catfish.
 - **White Bass:** Only 23 White Bass were collected during the 2017 spring gill netting survey. Directed angling effort toward White Bass was only 0.1% of the total angling effort in the 2016/2017 creel survey.
 - **Largemouth Bass:** Largemouth Bass electrofishing catch rate was similar to previous surveys, but population abundance was low. Growth was fast. Directed angling effort for Largemouth Bass was second highest during 2016/2017. Harvested fish ranged from 15 to 19 inches. All fish released by anglers weighed less than 7 pounds.
 - **White Crappie:** Crappie were the most popular species targeted by anglers during 2016/2017. White Crappie were more abundant than Black Crappie, although the catch of White Crappie in trap nets was much lower in 2016 than in previous years.

Management Strategies: Conduct exploratory low-frequency electrofishing in summer 2020 to collect Blue Catfish and Flathead Catfish population data. Conduct aquatic plant surveys annually to monitor the spread or introduction of invasive aquatic plant species and recommend control measures to USCOE as necessary. Maintain signage at spillway to inform anglers of the threat of Asian carp (Bighead and Silver Carp) and work with the USACE to prevent movement of Asian carp upstream of the dam.

INTRODUCTION

This document is a summary of fisheries data collected from Lake Wright Patman in 2016-2017. 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 2016-2017 data for comparison.

Reservoir Description

Lake Wright Patman is a 20,143-acre impoundment constructed in 1956 on the Sulphur River. It is located in Bowie and Cass Counties approximately 10 miles southwest of Texarkana. The controlling authority is the U.S. Army Corps of Engineers (USACE). Primary water uses are flood control, municipal and industrial water supply, and public recreation. It has a drainage area of approximately 3,443 square miles and a shoreline length of 170 miles. USACE manipulates downstream flow releases in an attempt to manage for a summer conservation pool of 227.5 msl and a winter conservation pool of 220.6 msl. Average annual water fluctuation is usually 7-8 feet but water levels were extremely high during parts of 2015 and 2016 (Figure 1). Other descriptive characteristics for Lake Wright Patman are in Table 1.

Angler Access

Lake Wright Patman has 14 public boat ramps available to anglers. There were no issues identified at boat ramps. Additional boat ramp characteristics are in Table 2. Bank fishing access is limited.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Bister and Wright 2013) included:

1. Monitor water hyacinth and other invasive aquatic plants.
Action: Annual surveys have been conducted.
2. Promote underutilized White Bass and Blue Catfish fisheries.
Action: Information about these fisheries were discussed with anglers during creel surveys and other routine contacts.
3. Promote awareness of Bighead Carp presence in the Sulphur River below the Lake Wright Patman spillway.
Action: Bighead Carp presence has been discussed during presentations. District staff assisted with research project which studied the distribution of Asian carp in Texas using electrofishing and eDNA.
4. Conduct survey of Flathead Catfish population.
Action: Low-pulse electrofishing was conducted during fall 2016, but no Flathead Catfish were observed.

Harvest regulation history: All sport fishes in Lake Wright Patman are currently managed with statewide regulations (Table 3).

Stocking history: Florida Largemouth Bass (FLMB) were introduced into Lake Wright Patman in 1978. Additional stockings have been conducted periodically, most recently in 2008, in an attempt to increase the frequency of FLMB alleles. Paddlefish were stocked in 1992 and 1994 as part of a restoration project. Palmetto Bass were stocked annually from 1994-1999 and in 2002, but stockings were discontinued in 2002 so these fish are no longer abundant enough to support a fishery. Walleye stockings in 1974 and 1975 were unsuccessful in establishing a viable population. The complete stocking history is in Table 4.

Vegetation/habitat management history: Historically, Lake Wright Patman has been characterized as having small quantities of aquatic vegetation. Relatively turbid water and seasonal water level fluctuations are major factors that limit plant growth. Hydrilla is present in the lake and was discovered in 2000 (Ryan and Brice 2001). In 2004, hydrilla had increased to 5 acres (Brice 2005) and by 2008 it increased to an area of 102 acres (Brice and Bister 2009). During the 2012 survey hydrilla coverage was estimated at 2 acres. In 2006, trace amounts of water hyacinth were found adjacent to a popular marina in the mid-lake area. In 2007, an additional area in the upper end of the reservoir was found to be infested with water hyacinth. During the 2008 vegetation survey water hyacinth was found in both of these areas (Brice and Bister 2009). Water hyacinth has shown some expansion in coverage in the past and may require management from time to time. Giant salvinia was discovered in fall 2012 and was treated with herbicide.

Water transfer: No interbasin transfers are known to exist.

METHODS

Surveys were conducted to achieve survey and sampling objectives in accordance with the objective-based sampling (OBS) plan for Lake Wright Patman (TPWD unpublished). 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 2015).

Electrofishing – Largemouth Bass, Sunfishes, Gizzard Shad, and Threadfin Shad were collected by electrofishing during the daytime (1.25 hours at 15, 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 13.10 to 14.8 inches).

Trap netting – Crappie were collected using trap nets (10 net nights at 10 stations). CPUE for trap netting was recorded as the number of fish caught per net night (fish/nn). Ages for White Crappie were determined using otoliths from 12 randomly-selected fish (range 9.0 to 10.8 inches).

Gill netting – Channel Catfish, Blue 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).

Low-frequency electrofishing – Flathead Catfish and Blue Catfish sampling was proposed using low-frequency electrofishing during fall 2016.

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 ($RSE = 100 \times SE$ of the estimate/estimate) was calculated for all CPUE and creel statistics.

Creel survey – An annual roving creel survey was conducted from June 2016 through May 2017. 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 2015).

Habitat – Vegetation surveys were conducted in 2012 – 2016 to monitor coverage of water hyacinth and to detect any new introductions of other invasive aquatic plant species. Habitat was assessed with the digital shapefile method (TPWD, Inland Fisheries Division, unpublished manual revised 2015).

Water level – Source for water level data was the United States Geological Survey (USGS 2017).

RESULTS AND DISCUSSION

Habitat: There has been no perceived changes in structural habitat since the survey reported by Brice (2005). Littoral zone structural habitat consisted primarily natural shoreline (Table 6). The coverage of water hyacinth has declined in recent surveys (Table 7). Due to extremely high water during 2016, no aquatic vegetation was observed.

Creel: Directed fishing effort was highest for crappie (33%), followed by anglers fishing for Largemouth Bass (30%) followed by catfish (19%) (Table 8). Total fishing effort for all species declined from 238,719 hours during the 2008/2009 creel survey to 148,390 hours in 2016/2017 (Table 9). Direct expenditures were also lower in 2016/2017 compared to the previous survey (Table 9). The majority of anglers

interviewed during the 2016/2017 creel survey were from ZIP codes within a 50-mile radius of the reservoir (Appendix C).

Prey species: Electrofishing catch rate of Gizzard Shad was 336.0/h in 2016 and Index of vulnerability (IOV) indicated only 39% were available as prey to existing predators (Figure 2). Total CPUE of Bluegill in 2016 was 114.4/h (Figure 3). Daytime electrofishing catch rates of Gizzard Shad and Bluegill were within the range of catches normally seen during nighttime sampling, which indicated daytime electrofishing can provide useful trend data in the future. Redear Sunfish were present in low numbers (Figure 4). Threadfin Shad were not observed during 2016 electrofishing; however this may have been related to sampling during daylight instead of at night.

Catfishes: Low-frequency electrofishing was conducted during fall 2016 to collect Flathead Catfish and Blue Catfish according to the OBS Plan, however, no fish were observed. Therefore, using this sampling gear during fall was not effective. Standard gill netting was successful for obtaining population samples of Blue Catfish and Channel Catfish during spring 2017. The sampling objectives for gill netting were met with 10 nets. The gill net catch rate of Blue Catfish was 3.9/nn in 2017, which was similar to previous surveys (Figure 5). Channel Catfish gill netting CPUE was 8.0/nn, which was lower than 2013 (22.6/nn) but similar to 2009 (5.4/nn) (Figure 6). Directed fishing effort for catfishes was much lower during the 2016/2017 creel survey compared to the 2008/2009 survey (Table 10). However, angling catch rate per hour was higher (1.9 fish/h) than the previous survey (1.4 fish/h) (Table 10). Directed effort for Blue Catfish was observed during 2016/2017, but the majority of effort was for catfishes in general. The catfish fishery was harvest-oriented, as only 1.4% of the legal-sized fish were released (Table 10). Harvest observed in the 2016/2017 survey showed good angler compliance (Figure 7).

White Bass: The gill net catch rate of White Bass was 2.3/nn in 2017, which was lower than 2013 (6.3/nn) but similar to 2009 (2.1/nn) (Figure 8). Only 23 fish were collected during 2017 gill netting, which did not meet sampling objectives. However, low gill netting catch rates combined with virtually no directed angling effort indicated that there is a negligible White Bass fishery at Lake Wright Patman.

Largemouth Bass: The daytime electrofishing total CPUE of Largemouth Bass in 2016 was within the range of catches normally seen during nighttime surveys, which indicated sampling during the day can provide useful trend data in the future. The CPUE of stock-size fish in 2016 was 44.8/h (Figure 9). Growth of Largemouth Bass in Lake Wright Patman was fast; average age at 14 inches (13.1 to 14.8 inches) was 1.6 years (N = 13; range = 1 – 2 years). Body condition was good (relative weight >90) for most size classes of fish and was similar to body condition in previous surveys (Figure 9). Directed fishing effort, catch per hour, and total harvest for Largemouth Bass was 44,240 h, 1.2 fish/h, and 4,499 fish, respectively, from June 2016 through May 2017 (Table 11). All released Largemouth Bass were < 7 pounds (Table 11). Most legal Largemouth Bass (79%) were released by non-tournament anglers (Table 11). Harvested fish observed in the 2016/2017 creel survey ranged in length from 15 to 19 inches (Figure 10).

White Crappie: The trap net catch rate of White Crappie was 7.6/nn in 2016, which was much lower than in 2012 (19.4/nn) and 2008 (21.5/nn) (Figure 11). Trap net CPUE of Black Crappie was higher in 2016 (5.1/nn) compared to previous surveys (Figure 12). White Crappie growth was fast; average age at 10 inches (9.0 to 10.8 inches) was 1.4 years (N = 12; range = 1 -2 years). Directed angling effort for crappie during the 2016/2017 creel survey (48,524 h) was about 50% lower than the directed effort during the 2008/2009 survey (98,762 h) (Table 12). Total angling catch rate (1.6/h) was also lower than in the previous survey (2.7/h). Anglers did not release any legal-sized crappie during the 2016/2017 survey (Table 12). Harvested fish ranged in length from 10 to 15 inches (Figure 13).

Fisheries management plan for Lake Wright Patman, Texas

Prepared – July 2017

ISSUE 1: Water hyacinth and giant salvinia have been observed in Lake Wright Patman in previous surveys. Treatment of giant salvinia was conducted as part of a rapid response protocol upon its discovery and it has not been detected in recent years. Water hyacinth has been present for many years and has established a seed bank. It has occasionally expanded to inhibit boat travel near the Texas State Highway 8 Bridge in the upper end of the reservoir.

MANAGEMENT STRATEGIES

1. Monitor the presence of invasive aquatic vegetation during annual inspections.
2. Recommend best management actions to USACE as needed to control vegetation growth.

ISSUE 2: Flathead Catfish are present in Lake Wright Patman but traditional gill netting has not provided adequate fish population data. Recent attempts to collect baseline data with low-frequency electrofishing during fall 2016 were unsuccessful. Conducting the survey during the summer may be more effective. This sampling method should also be used to attempt to collect population data on Blue Catfish.

MANAGEMENT STRATEGIES

1. Conduct low-frequency electrofishing during summer 2020 to collect population data on Flathead Catfish and Blue Catfish.

ISSUE 3: An invasive Asian carp species, the Bighead Carp (*Hypophthalmichthys nobilis*), is present in the Sulphur River downstream of Lake Wright Patman. The dam is a barrier to their upstream migration, but anglers must be informed of the threat of their expansion. A new regulation was enacted in 2012 to prevent the spread of Bighead and Silver Carp. This regulation made it illegal to transport live non-game fishes from the Sulphur River downstream of the Wright Patman dam along with identical restrictions at two other areas in the state where Asian carp are also present.

MANAGEMENT STRATEGIES

1. Maintain signage at spillway to inform anglers of the threat of Asian carp (Bighead and Silver Carp).
2. Work with the USACE to ensure future actions at the spillway do not result in the possible movement of Asian carp upstream of the dam.

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 (*Dreissena polymorpha*) 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 (*Salvinia molesta*) 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 2017-2021

Sport fish, forage fish, and other important fishes

Sport fishes in Lake Wright Patman include White Crappie, Black Crappie, Channel Catfish, Blue Catfish, White Bass, and Largemouth Bass. Known important forage species include Bluegill, Gizzard Shad, and Threadfin Shad. The proposed sampling schedule can be found in Table 13.

Low-Density Fisheries

White Bass: White Bass relative abundance has been variable in Lake Wright Patman. Creel surveys have not been able to document substantial directed angling effort for this species. Even though the White Bass fishery is negligible, we will collect population data during routine spring gill netting in 2021 although no additional effort will be expended to sample this species. While there will be no specific sampling objectives, we will look for opportunities to inform the public about angling opportunities for White Bass when the population is abundant.

Survey objectives, fisheries metrics, and sampling objectives

Largemouth Bass: Trend data on relative abundance and size structure has been collected ever 4 years. The Largemouth Bass population in Lake Wright Patman has exhibited consistently low abundance. The past three fall nighttime electrofishing surveys resulted in CPUE-S of 27.5 to 28.0 fish/h with just over 50 stock size fish caught in each survey. Daytime electrofishing at 15 randomly-selected 5-minute stations was sufficient to collect trend data on size structure, condition, and age-and-growth during fall 2016. Fall 2020 electrofishing will be conducted during the day to collect trend data to detect large-scale changes in the population that might require further investigation. Sampling objectives for Largemouth Bass will include size structure (PSD and length frequency), growth (mean age at 14 inches using a sample size of 13 fish between 13.0 and 14.9 inches), condition (mean Wr using lengths and weights from 10 fish per inch group). The target sample size for Largemouth Bass is 50 stock size fish. A maximum of 24 stations will be sampled.

Crappie: Directed angling effort was highest (32.7% of total effort) for crappie during the June 2016-May 2017 creel survey. Black Crappie and White Crappie are both present in Lake Wright Patman. Sampling objectives will be based on catches of all crappie combined during the fall trap netting survey. Trend data on relative abundance, size structure, age-and-growth, and condition have been collected every 4 years. A minimum number of 10 single-cod trap nets set for one night at random locations will be used to collect White Crappie and Black Crappie during fall 2020 to collect trend data to detect large-scale changes in the population that might require further investigation. An additional 5 nets will be set if 50 stock size White Crappie are not collected in the first 10 nets. A maximum of 15 net nights will be sampled. Due to past variability in CPUE, we will not increase sampling to achieve RSE of CPUE-S < 25.

Data collected will include size structure (PSD and length frequency), growth (mean age at 10 inches using a sample size of 13 fish between 9.0 and 10.9 inches), relative abundance (CPUE-total and CPUE-stock), and condition (mean Wr using lengths and weights from 10 fish per inch group).

Catfish: Channel Catfish, Blue Catfish, and Flathead Catfish are present in Lake Wright Patman. Trend data has been collected every 4 years with spring gill netting (15 net nights). This level of effort has captured a sufficient number of Channel Catfish with acceptable precision. However, catches of Blue Catfish and Flathead Catfish have been inadequate to meet sampling objectives.

We will continue to use spring gill nets (10 nets minimum) to collect trend data on Channel Catfish to detect any large-scale changes in the population that might require further investigation. Sampling objectives will be to collect 50 stock length fish for size structure and length frequency, with CPUE-S ($RSE < 25$) for relative abundance. Fish body condition will be assessed using 10 fish per inch group to calculate mean W_r . If sampling objectives are not met in the first 10 nets, we will set an additional 5 nets. A maximum of 15 nets will be sampled.

Low-frequency electrofishing was attempted in fall 2016 to collect Blue Catfish and Flathead Catfish, but no fish were observed. We will attempt another exploratory low-frequency electrofishing attempt in summer 2020 to collect information on Blue Catfish and Flathead Catfish populations. A minimum of 10 randomly-selected stations that catch at least one fish will be surveyed. For each species, sampling objectives are to catch a minimum of 200 fish to collect trend data on size structure and length frequency, mean relative weight (10 fish per inch group), and relative abundance.

Forage Fish: Trend data on relative abundance and size structure of sunfish, Gizzard Shad and Threadfin Shad have been collected every 4 years. Continuation of sampling, as per Largemouth Bass above, will allow for monitoring of large-scale changes in sunfish and shad relative abundance and size structure. No additional effort will be expended beyond effort necessary to achieve Largemouth Bass objectives. Instead, Largemouth Bass body condition can provide information on forage abundance, vulnerability, or both relative to predator density.

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Water Level

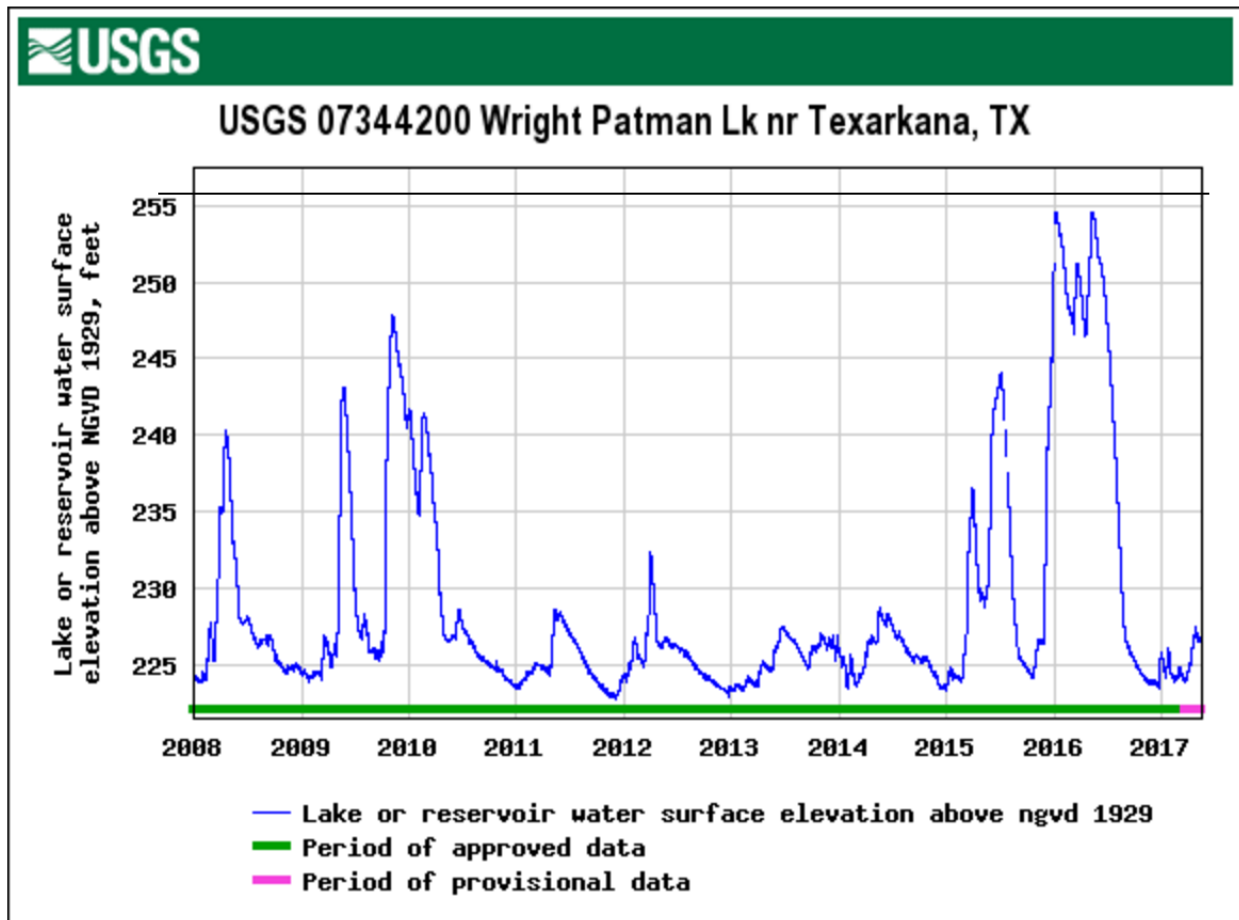


Figure 1. Water level elevations in feet above mean sea level (MSL) recorded for Lake Wright Patman, Texas. Conservation pool level is 220.6 ft-msl and summer pool level is 227.5 ft-msl.

Table 1. Characteristics of Lake Wright Patman, Texas.

Characteristic	Description
Year constructed	1956
Controlling authority	U.S. Army Corps of Engineers
Counties	Bowie and Cass
Reservoir type	Mainstream
Shoreline Development Index (SDI)	8.5
Conductivity	190 umhos/cm

Table 2. Boat ramp characteristics for Lake Wright Patman, Texas, May, 2017. Reservoir elevation at time of survey was 227.0 feet above mean sea level.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
Malden Lake	33.26437 -94.34804	Y	40	217	Excellent, no access issues
Herron Creek	33.28753 -94.32867	Y	10	215	Excellent, no access issues
Berry Farm Park	33.26086 -94.26554	Y	10	217	Excellent, no access issues
Kelly Creek Marina	33.28784 -94.25136	Y	10	217	Excellent, no access issues
Big Creek Marina	33.31562 -94.24062	Y	10	220	Excellent, no access issues
Clear Springs	33.35441 -94.19714	Y	16	2118	Excellent, no access issues
North Shores	33.35048 -94.17752	Y	35	216	Excellent, no access issues
Intake Hill	33.32087 -94.16454	Y	19	220	Excellent, no access issues
Cass County Park	33.26502 -94.19272	Y	10	221	Excellent, no access issues
Rocky Point	33.28580 -94.17209	Y	20	219	Excellent, no access issues
Piney Point	33.29993 -94.17267	Y	50	217	Excellent, no access issues
Overcup Landing	33.23769 -94.36632	Y	10	220	Excellent, no access issues
Jackson Creek	33.22491 -94.30289	Y	10	220	Excellent, no access issues
Atlanta State Park	33.23462 -94.25736	Y	30	220	Excellent, no access issues

Table 3. Harvest regulations for Lake Wright Patman, 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 for Largemouth Bass, Spotted Bass = 5 fish in any combination.

Table 4. Stocking history for Lake Wright Patman, Texas. Life stages are fry (FRY), fingerlings (FGL), advanced fingerlings (AFGL), adults (ADL) and unknown (UNK). Life stages for each species are defined as having a mean length that falls within the given length range. For each year and life stage the species mean total length (Mean TL; in) is given. For years where there were multiple stocking events for a particular species and life stage the mean TL is an average for all stocking events combined.

Species	Year	Number	Life Stage	Mean TL (in)
Florida Largemouth Bass	1978	295,460	FGL	2.0
	1991	80,745	FGL	1.2
	1991	419,682	FRY	0.8
	1992	499,718	FGL	1.2
	1994	400,854	FGL	1.2
	1994	106,524	FRY	1.0
	2002	500,228	FGL	1.6
	2003	500,240	FGL	1.7
	2008	503,509	FGL	1.6
	Total	3,306,960		
Paddlefish	1992	11,991		7.4
	1994	4,976	FGL	2.3
	Total	16,967		
Palmetto Bass (Striped X White Bass hybrid)	1994	208,174	FGL	1.5
	1995	530,541	FGL	1.4
	1996	152,271	FGL	1.3
	1997	105,274	FGL	1.5
	1998	184,564	FGL	1.3
	1999	91,254	FGL	1.5
	2002	100,444	FGL	1.3
	Total	1,372,522		
Walleye	1974	334,317	FRY	0.2
	1975	338,000	FRY	0.2
	Total	672,317		

Table 5. Objective-based sampling plan components for Lake Wright Patman, Texas 2016 – 2017.

Gear/target species	Survey objective	Metrics	Sampling objective
<i>Electrofishing</i>			
Largemouth Bass	Size structure	PSD, length frequency	$N \geq 50$ stock
	Age-and-growth	Age at 14 inches	$N = 13$, 13.0 – 14.9 inches
	Condition	W_r	10 fish/inch group
<i>Trap netting</i>			
Crappie	Size structure	PSD, length frequency	$N = 50$
	Age-and-growth	Age at 10 inches	$N = 13$, 9.0 – 10.9 inches
<i>Low-frequency electrofishing</i>			
Flathead Catfish	Abundance	CPUE – stock	$RSE\text{-Stock} \leq 25$
	Size structure	Length frequency	$N \geq 200$
	Condition	W_r	10 fish/inch group
Blue Catfish	Abundance	CPUE – stock	$RSE\text{-Stock} \leq 25$
	Size structure	Length frequency	$N \geq 200$
	Condition	W_r	10 fish/inch group
<i>Gill netting</i>			
Channel Catfish	Abundance	CPUE– stock	$RSE\text{-Stock} \leq 25$
	Size structure	PSD, length frequency	$N \geq 50$ stock
	Condition	W_r	10 fish/inch group
White Bass	Abundance	CPUE– stock	$RSE\text{-Stock} \leq 25$
	Size structure	PSD, length frequency	$N \geq 50$ stock
	Condition	W_r	10 fish/inch group
	Age-and-growth	Age at 10 inches	$N = 13$, 9.0 – 10.9 inches

Table 6. Survey of structural habitat types, Lake Wright Patman, Texas (Brice 2005). Shoreline habitat type units are in miles.

Habitat type	Estimate	% of total
Natural	167.0 miles	98.2
Rocky	3.0 miles	1.8

Table 7. Survey of aquatic vegetation, Lake Wright Patman, Texas, 2013 – 2016. Surface area (acres) is listed with percent of total reservoir surface area in parentheses.

Vegetation	2013	2014	2015	2016
Native submersed				0
Native floating-leaved				0
Native emergent				0
Non-native				
Giant salvinia (Tier III)*				0
Hydrilla (Tier I)*	4 (< 0.1)	8 (< 0.1)		0
Water hyacinth (Tier III)*	68 (0.3)	57 (0.3)	< 1 (trace)	0
Alligatorweed	< 1 (trace)			0

*Tier I is immediate Response, Tier III is Watch Status

Table 8. Percent directed angler effort by species for Lake Wright Patman, Texas, 2008/2009 and 2016/2017. Survey periods were from 1 June through 31 May.

Species	2008/2009	2016/2017
Sunfishes	0.8	9.1
Catfish	30.7	19.3
White Bass		0.1
Yellow Bass	0.4	
Largemouth Bass	24.0	29.8
Crappie	41.4	32.7
Anything	2.7	9.0

Table 9. Total fishing effort (h) for all species and total directed expenditures at Lake Wright Patman, Texas, 2008/2009 and 2016/2017. Survey periods were from 1 June through 31 May. Relative standard error is in parentheses.

Creel statistic	2008/2009	2016/2017
Total fishing effort	238,719 (17)	148,390 (16)
Total directed expenditures	\$1,015,609 (30)	\$665,690 (30)

Gizzard Shad

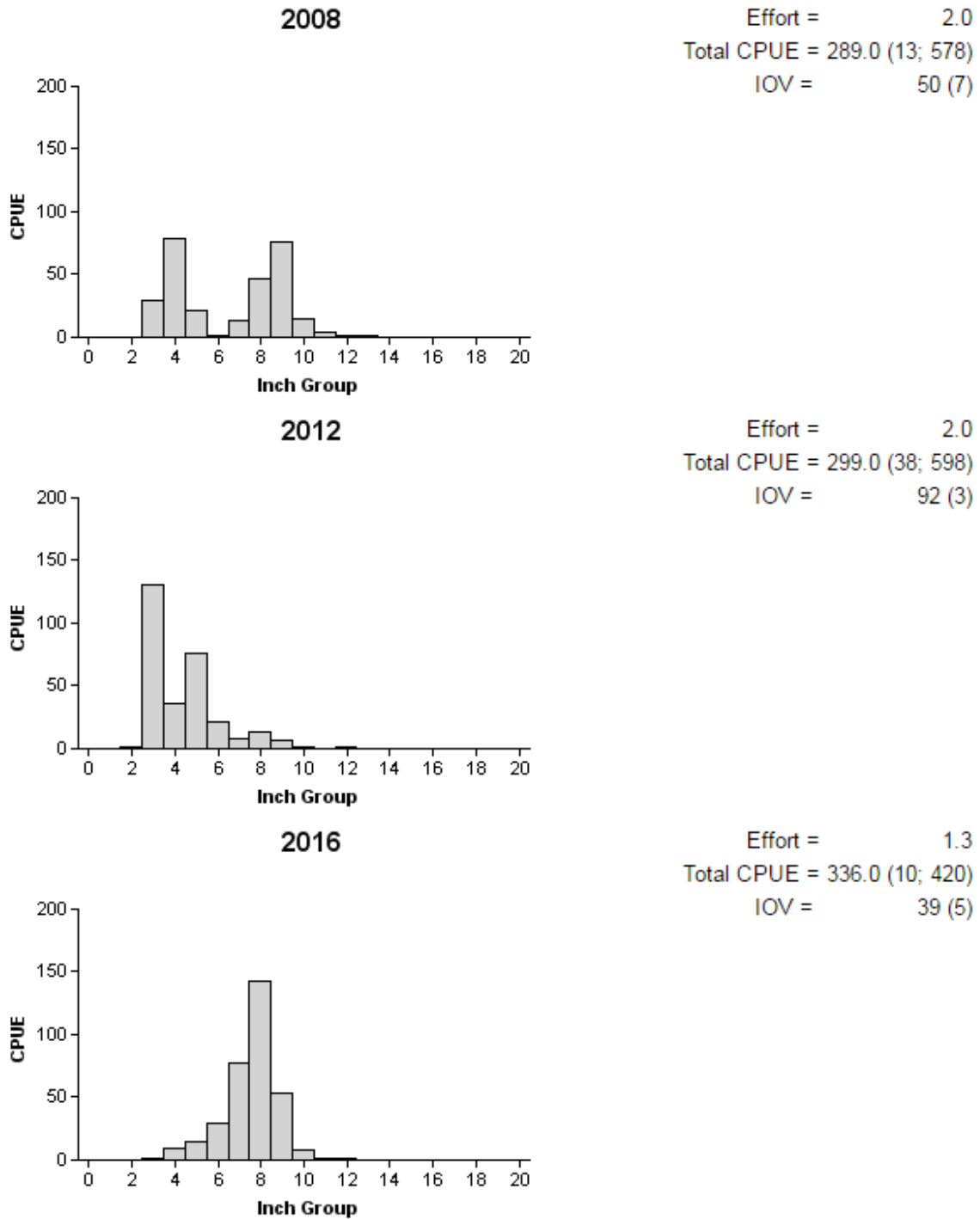


Figure 2. Number of Gizzard Shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Lake Wright Patman, Texas, 2008, 2012, and 2016. The 2016 survey was conducted during daytime.

Bluegill

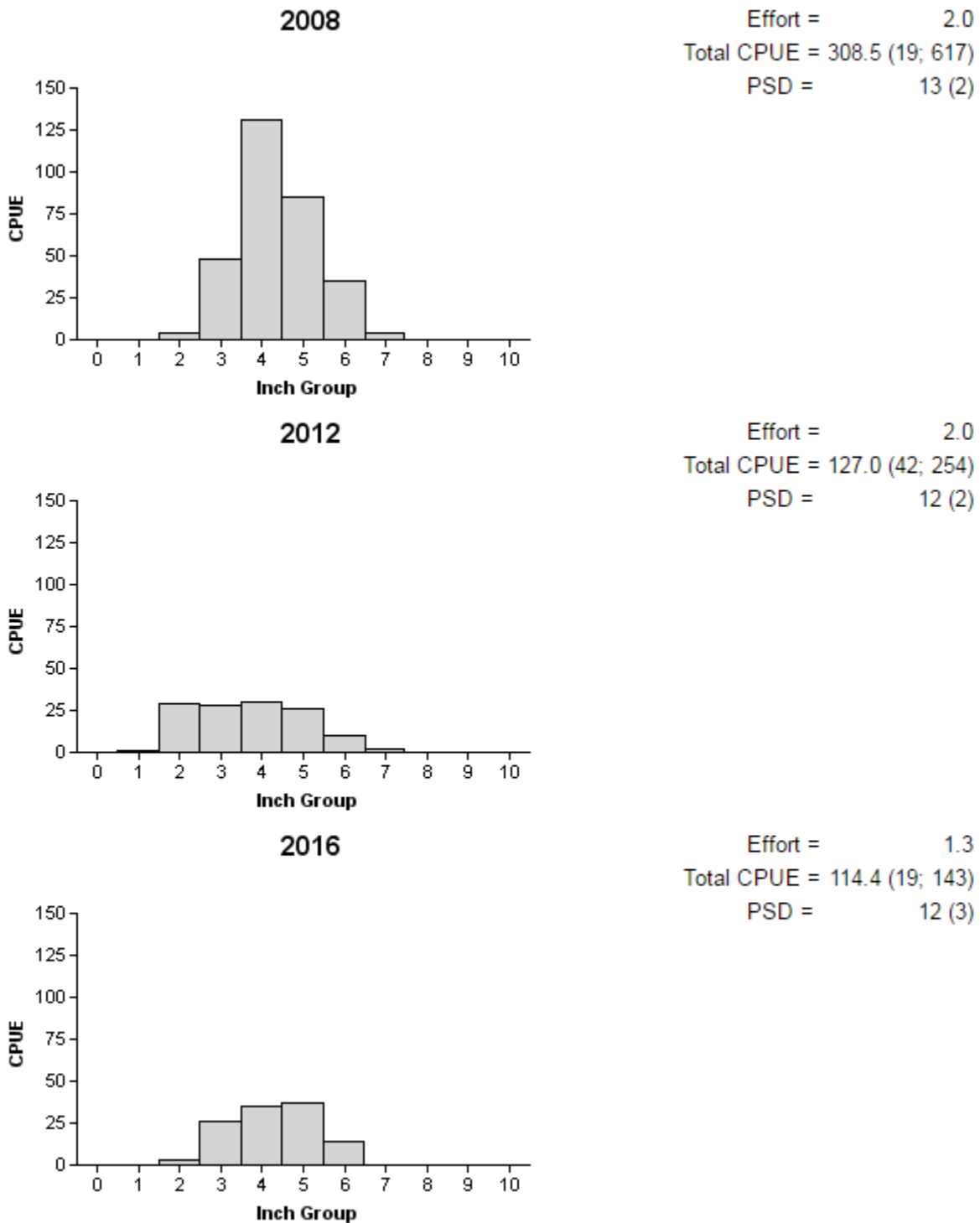


Figure 3. Number of Bluegill caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Lake Wright Patman, Texas, 2008, 2012, and 2016. The 2016 survey was conducted during daytime.

Redear Sunfish

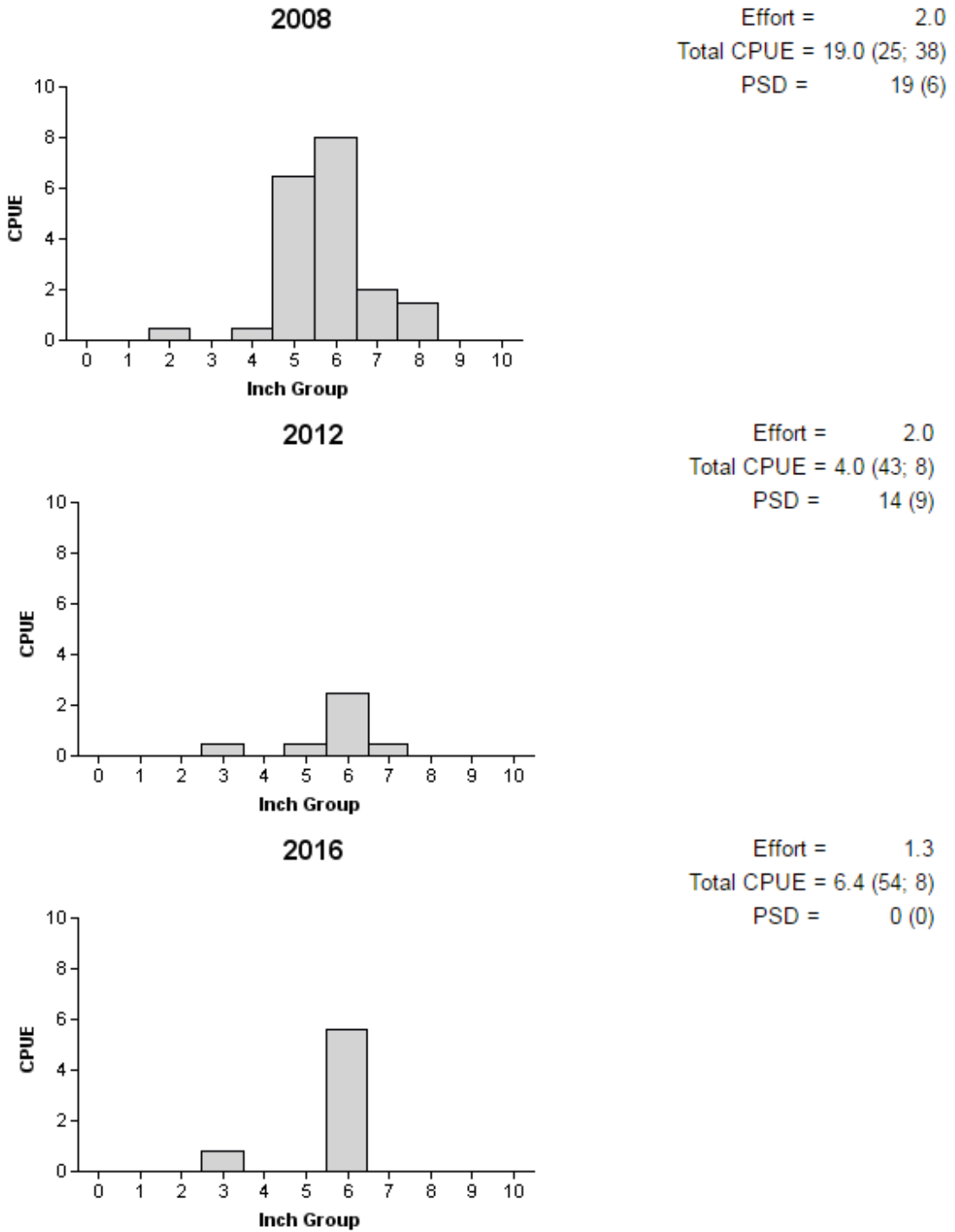


Figure 4. Number of Redear Sunfish caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Lake Wright Patman, Texas, 2008, 2012, and 2016. The 2016 survey was conducted during daytime.

Blue Catfish

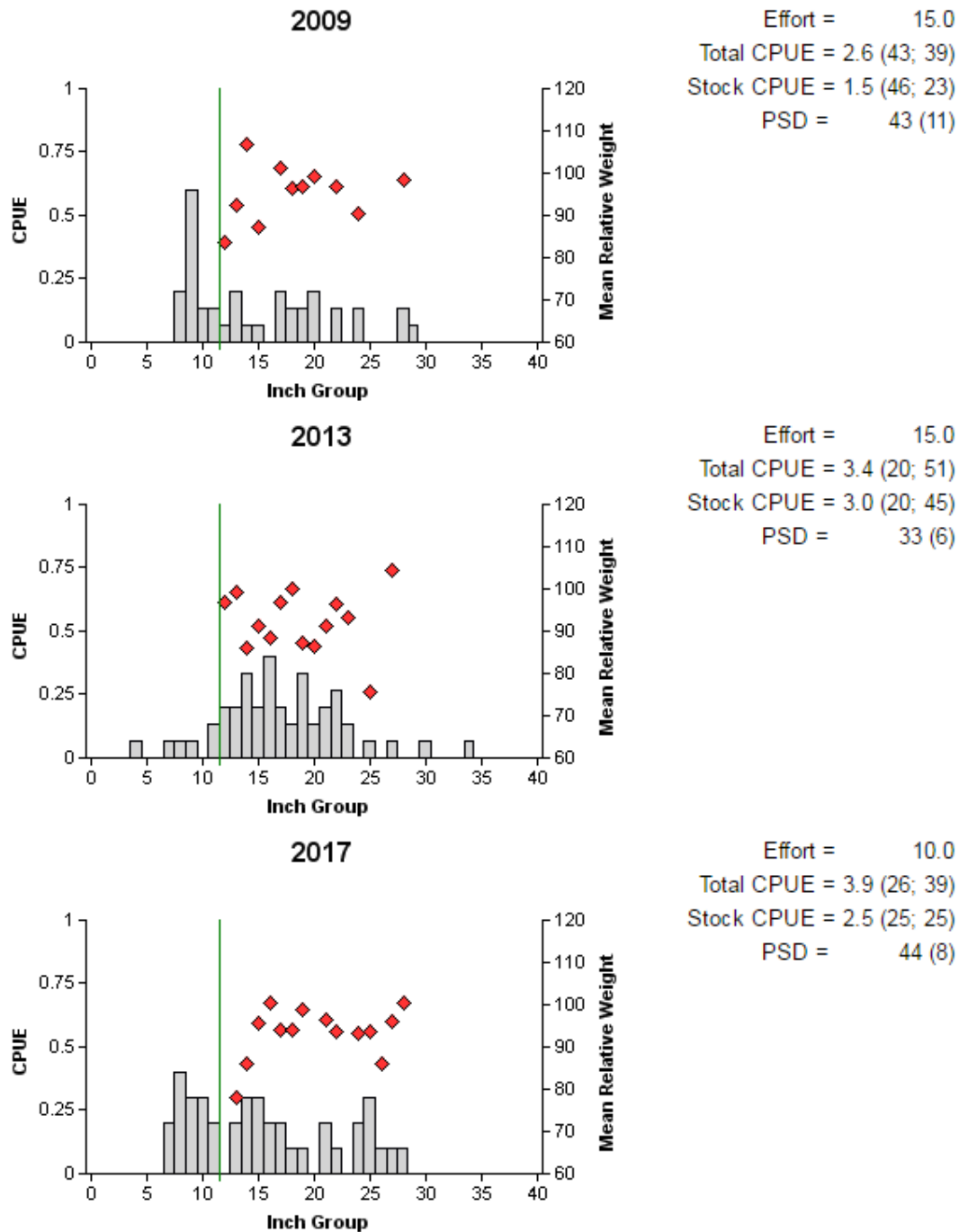


Figure 5. Number of Blue Catfish caught per net night (CPUE; bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Lake Wright Patman, Texas, 2009, 2013, and 2017. Vertical lines indicate the minimum length limit at time of survey.

Channel Catfish

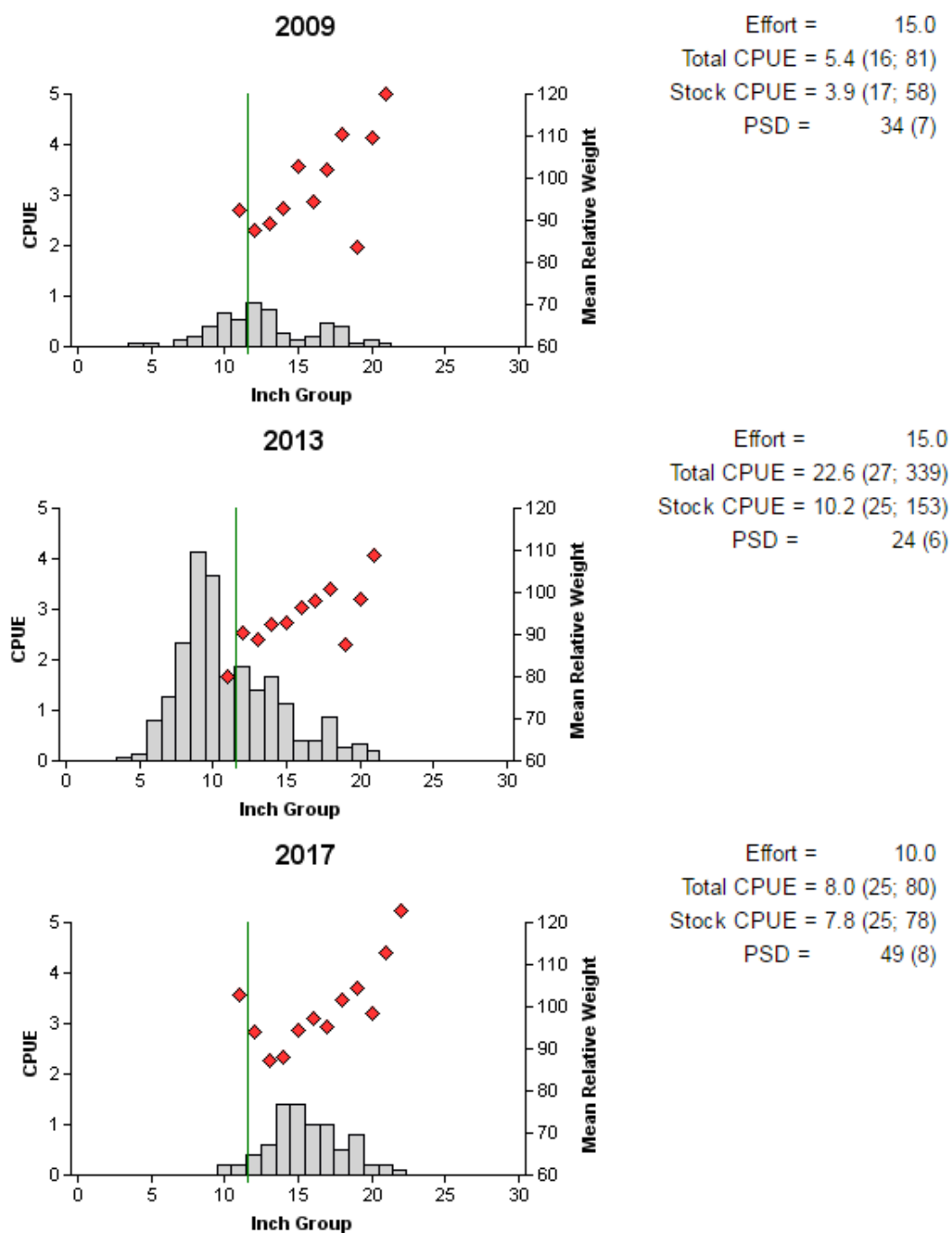


Figure 6. Number of Channel Catfish caught per net night (CPUE; bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Lake Wright Patman, Texas, 2009, 2013, and 2017. Vertical lines indicate the minimum length limit at time of survey.

Catfishes

Table 10. Creel survey statistics for catfishes at Lake Wright Patman, Texas, from June 2008 through May 2009 and June 2016 through May 2017. Total catch per hour is for anglers targeting all catfishes and total harvest is the estimated number of catfishes harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel Survey Statistic	2008/2009	2016/2017
Surface area (acres)	20,143	20,143
Directed effort (h)	73,243 (18)	28,571 (21)
Directed effort/acre	3.6 (18)	1.4 (21)
Total catch per hour	1.4 (43)	1.9 (41)
Total harvest	60,741 (27)	42,469 (37)
Blue Catfish	0	2,809 (168)
Channel Catfish	60,741 (27)	39,660 (28)
Harvest/acre	3.0 (27)	2.1 (37)
Blue Catfish	0	0.1 (168)
Channel Catfish	3.0 (27)	2.0 (28)
Percent legal released	6.1	1.4

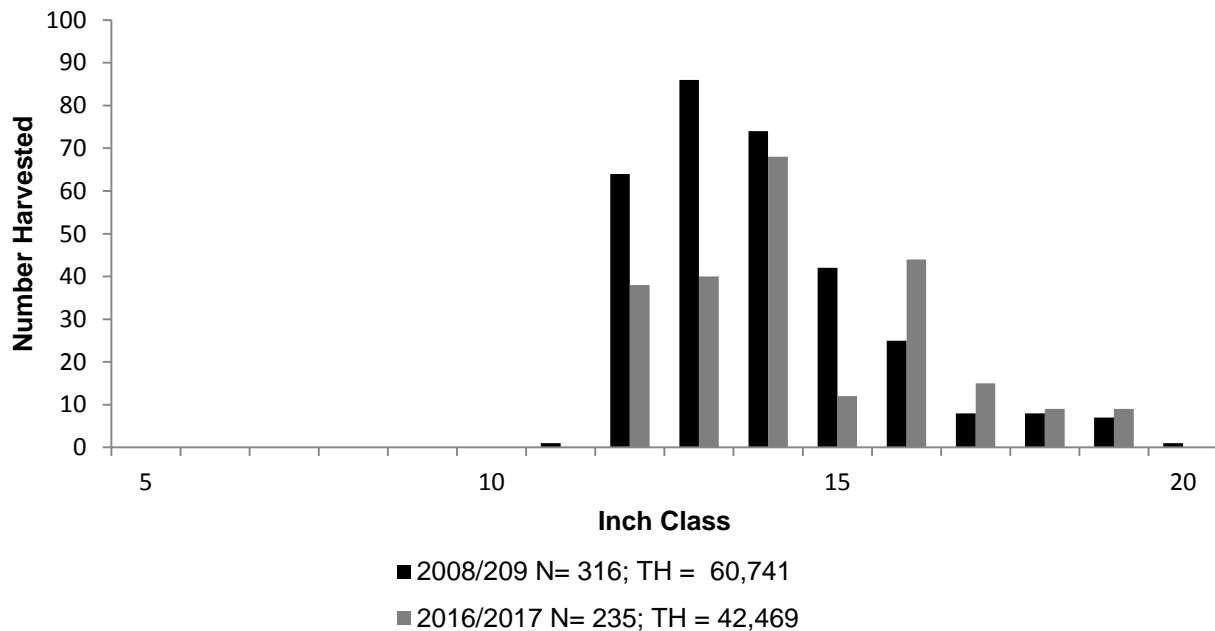


Figure 7. Length frequency of harvested catfishes observed during creel surveys at Lake Wright Patman, Texas, June 2008 through May 2009 and June 2016 through May 2017, all anglers combined. N is the number of harvested catfish observed during creel surveys, and TH is the total estimated harvest for the creel period.

White Bass

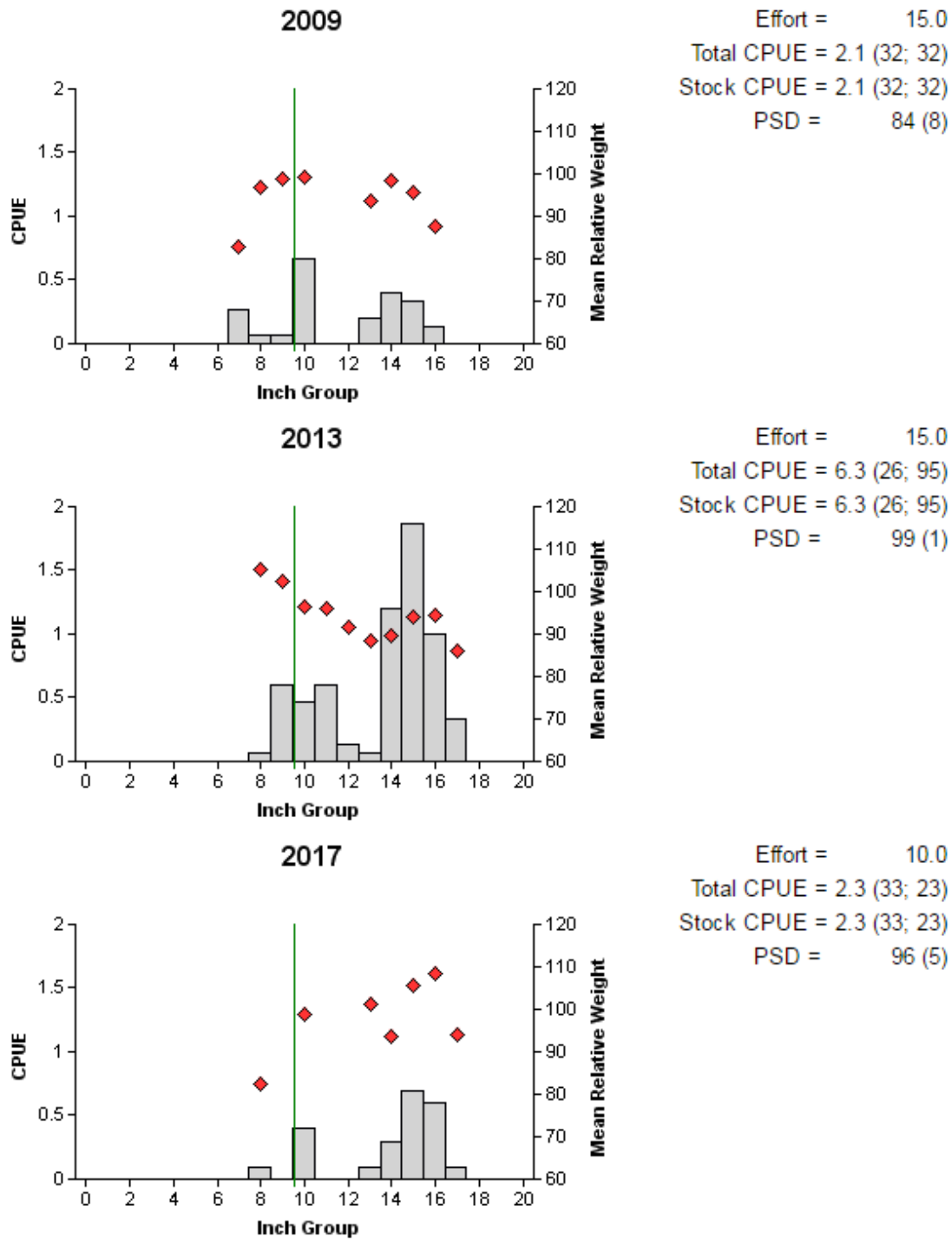


Figure 8. Number of White Bass caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Lake Wright Patman, Texas, 2009, 2013, and 2017. Vertical lines indicate minimum length limit at time of survey.

Largemouth Bass

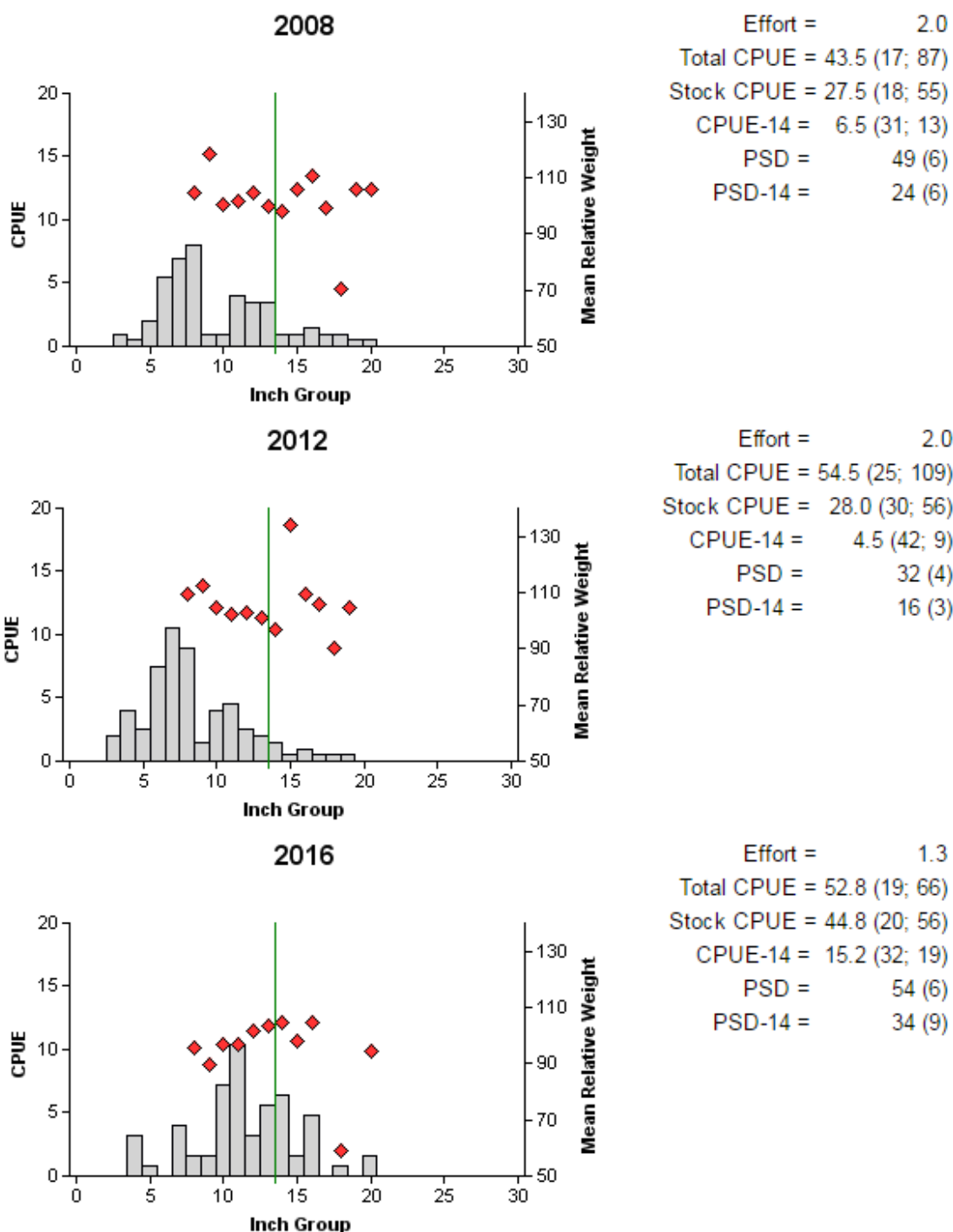


Figure 9. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Lake Wright Patman, Texas, 2008, 2012, and 2016. The 2016 survey was conducted during daytime. Vertical lines indicate the minimum length limit at time of survey.

Largemouth Bass

Table 11. Creel survey statistics for Largemouth Bass at Wright Patman, Texas, from June 2008 through May 2009 and from June 2016 through May 2017. Catch rate is for all anglers targeting Largemouth Bass. Harvest is partitioned by the estimated number of fish harvested by non-tournament anglers and the number of fish retained by tournament anglers for weigh-in and release. The estimated number of fish released by weight category is for anglers targeting Largemouth Bass (these data were not collected during the 2008/2009 survey). Relative standard errors (RSE) are in parentheses.

Statistic	2008/2009	2016/2017
Surface area (acres)	20,143	20,143
Directed angling effort (h)		
Tournament	18,850 (31)	20,632 (28)
Non-tournament	38,413 (22)	23,608 (23)
All black bass anglers combined	57,263 (21)	44,240 (20)
Angling effort/acre	2.8 (21)	2.2 (20)
Catch rate (number/h)	0.9 (25)	1.2 (22)
Harvest		
Non-tournament harvest	6,592 (65)	4,499 (74)
Harvest/acre	0.3 (65)	0.2 (74)
Tournament weigh-in and release	8,763 (77)	5,905 (74)
Release by weight		
<4.0 lbs		47,521 (45)
4.0-6.9 lbs		3,129 (80)
7.0-9.9 lbs		0
≥10.0 lbs		0
Percent legal released (non-tournament)	44	79

Largemouth Bass

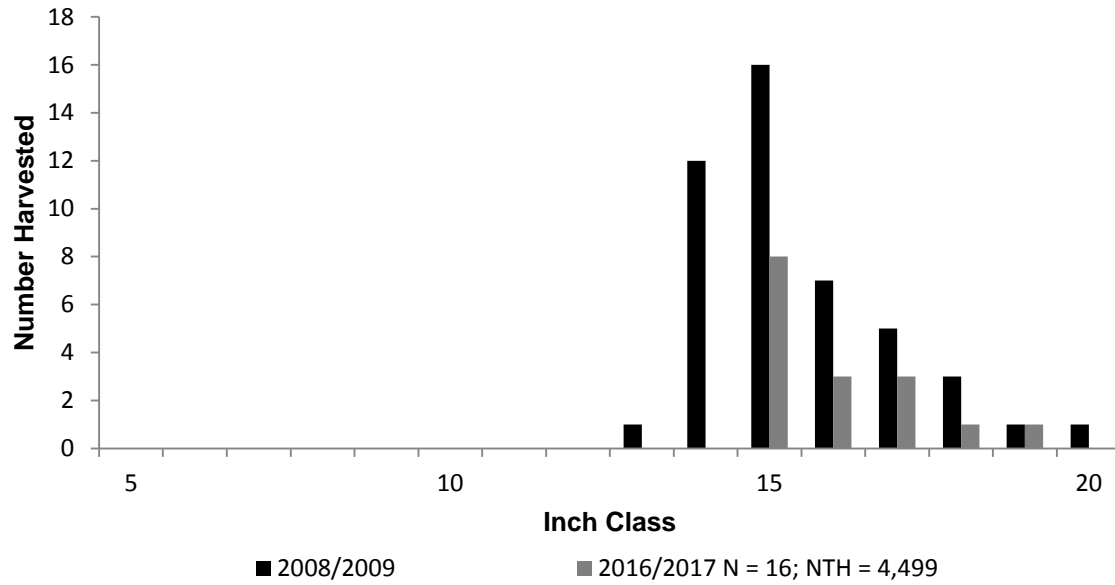


Figure 10. Length frequency of non-tournament harvested Largemouth Bass observed during creel surveys at Lake Wright Patman, Texas, June 2008 through May 2009 and June 2016 through May 2017, all anglers combined. N is the number of harvested Largemouth Bass observed during creel surveys, and NTH is the estimated non-tournament harvest for the 2016/2017 creel period.

White Crappie

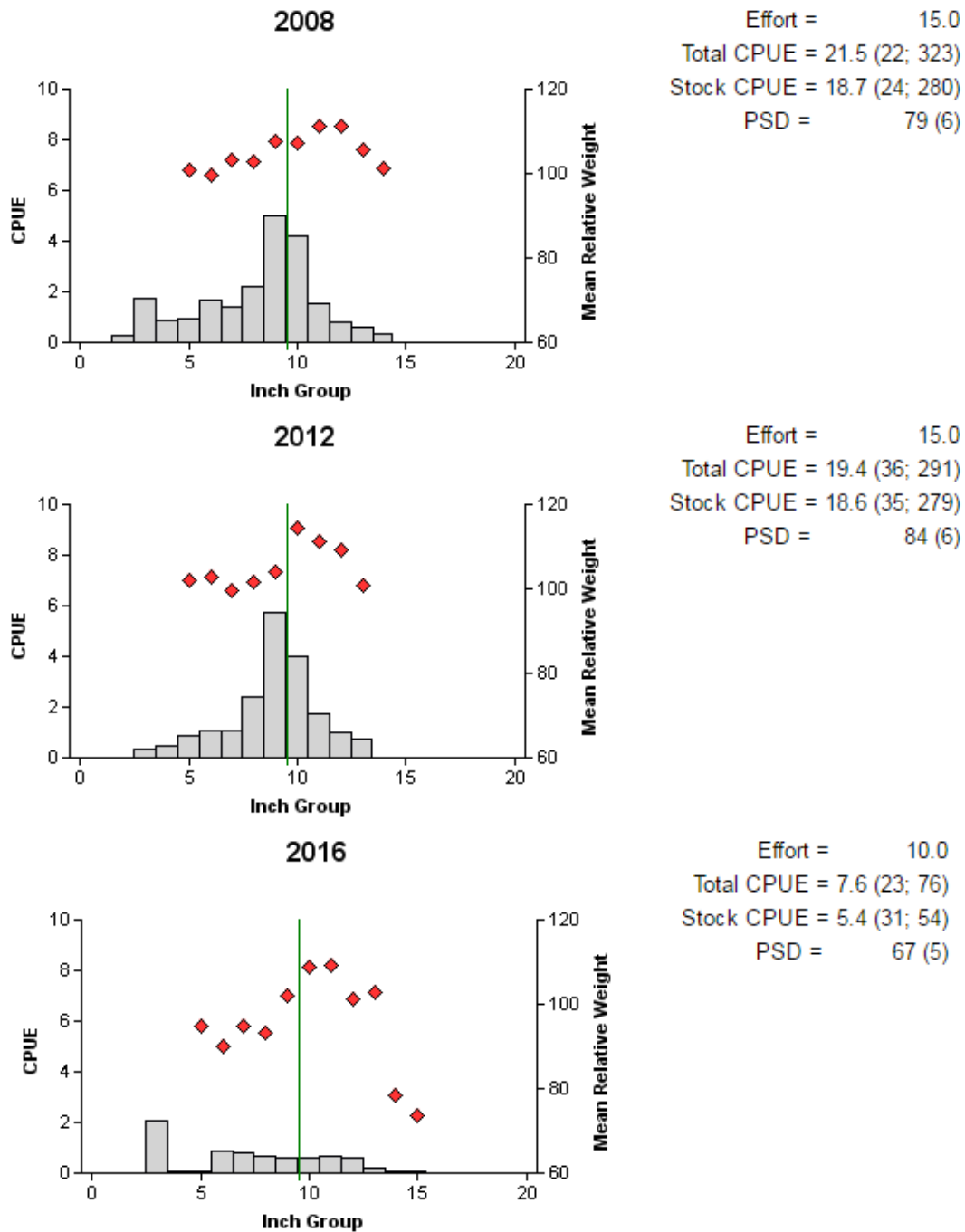


Figure 11. Number of White Crappie caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall trap netting surveys, Lake Wright Patman, Texas, 2008, 2012, and 2016. Vertical lines indicate minimum length limit at time of survey.

Black Crappie

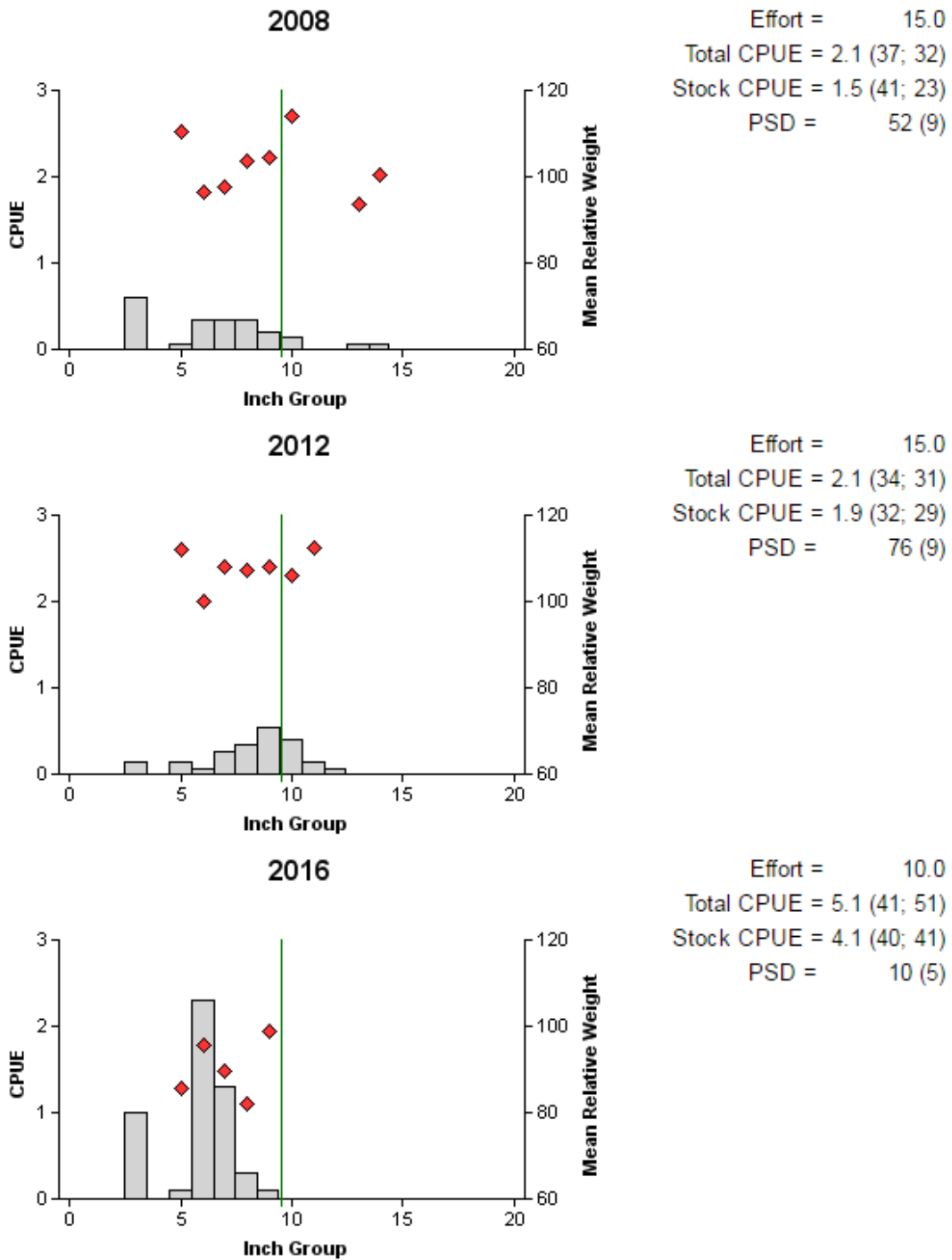


Figure 12. Number of Black Crappie caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall trap netting surveys, Lake Wright Patman, Texas, 2008, 2012, and 2016. Vertical lines indicate minimum length limit at time of survey.

Crappie

Table 12. Creel survey statistics for Crappie at Lake Wright Patman, Texas, from June 2008 through May 2009 and June 2016 through May 2017. 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	2008/2009	2016/2017
Surface area (acres)	20,143	20,143
Directed effort (h)	98,762 (21)	48,524 (20)
Directed effort/acre	4.9 (21)	2.4 (20)
Total catch per hour	2.7 (16)	1.6 (22)
Total harvest	69,896 (51)	49,364 (41)
White Crappie	53,077 (44)	39,225 (33)
Black Crappie	8,068 (71)	10,139 (69)
Crappie (unidentified)	8,751 (71)	0
Harvest/acre	3.5 (51)	2.5 (41)
White Crappie	2.6 (44)	1.9 (33)
Black Crappie	0.4 (71)	0.5 (69)
Crappie (unidentified)	0.4 (71)	0
Percent legal released	1.2	0

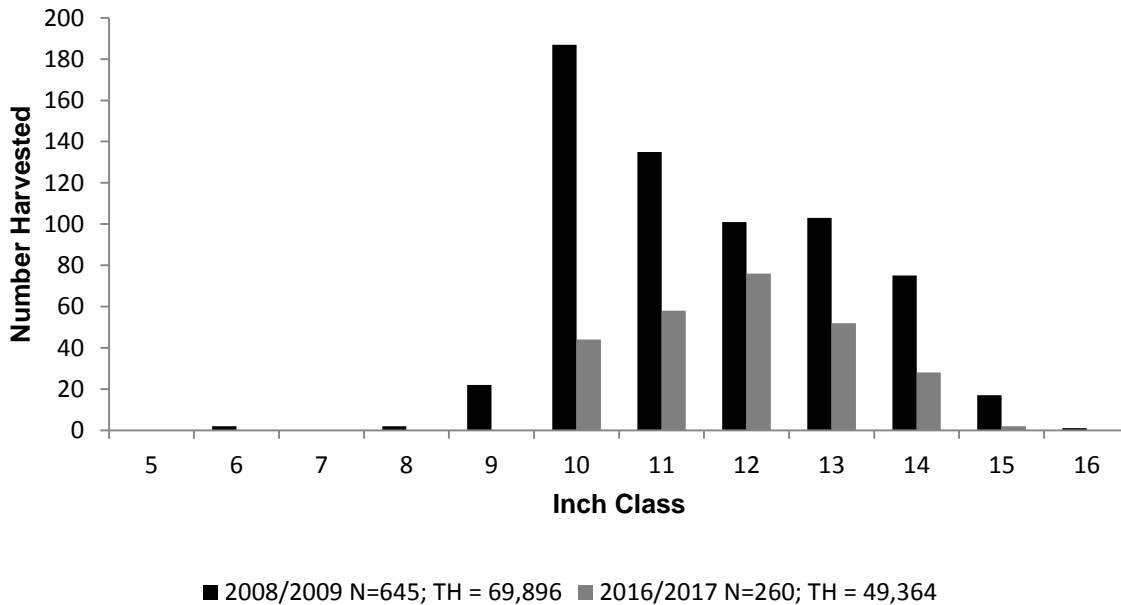


Figure 13. Length frequency of harvested White Crappie and Black Crappie (combined) observed during creel surveys at Lake Wright Patman, Texas, June 2008 through May 2009 and June 2016 through May 2017, all anglers combined. N is the number of harvested Crappie observed during creel surveys, and TH is the total estimated harvest for the creel period.

Table 13. Proposed sampling schedule for Lake Wright Patman, 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. Standard survey denoted by S and additional survey denoted by A.

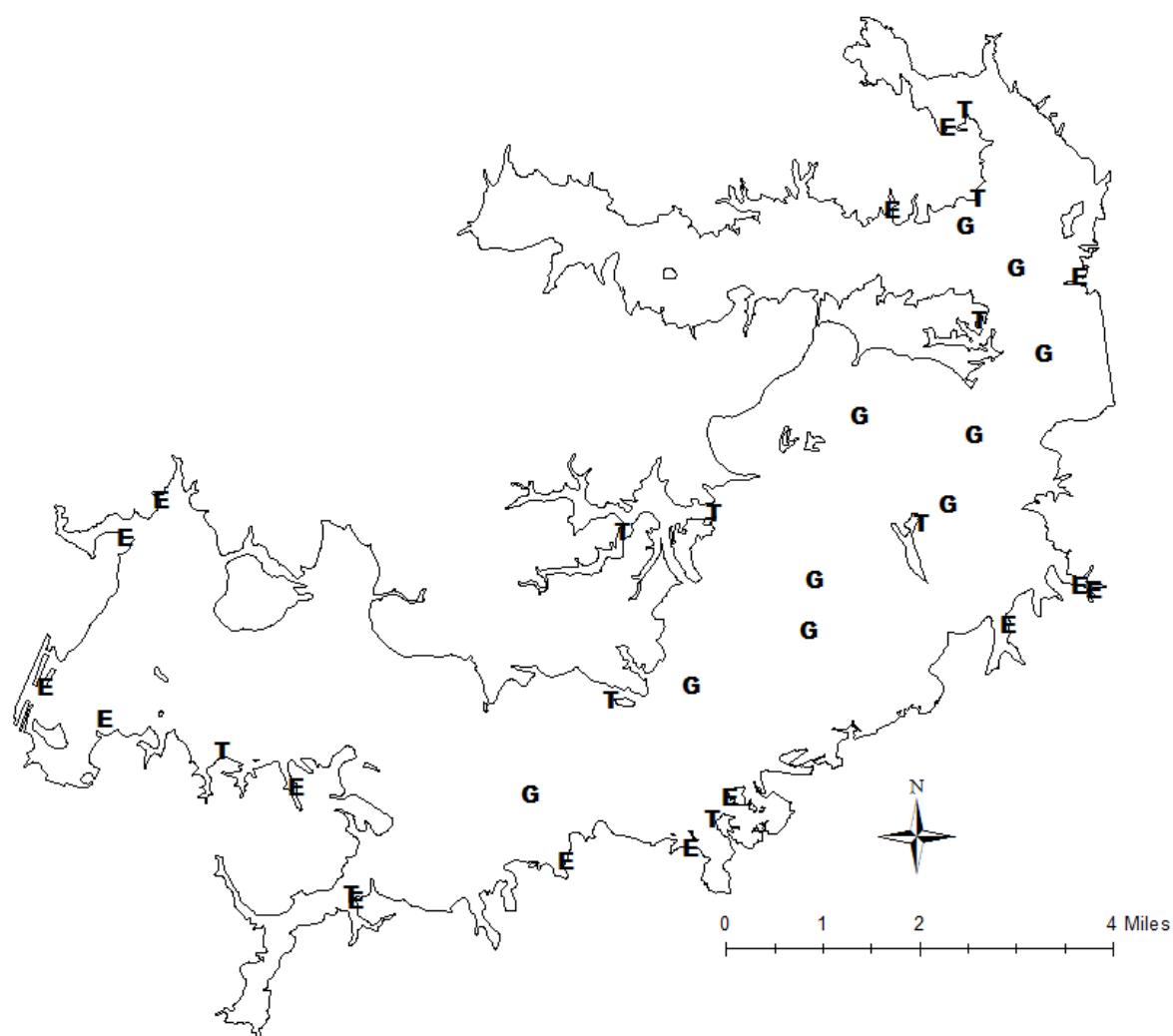
Survey year	Electrofish Fall	Trap net	Gill net	Habitat			Report
				Structural	Vegetation	Access	
2017-2018					A		
2018-2019					A		
2019-2020					A		
2020-2021	S	S	S	S	S	S	S

APPENDIX A

Number (N) and catch rate (CPUE) of all target species collected from all gear types from Lake Wright Patman, Texas, 2016-2017. Sampling effort was 10 net nights for gill netting, 10 net nights for trap netting, and 1.25 hours for electrofishing.

Species	Gill Netting		Trap Netting		Electrofishing	
	N	CPUE	N	CPUE	N	CPUE
Gizzard Shad					420	336.0
Blue Catfish	39	3.9				
Channel Catfish	80	8.0				
White Bass	23	2.3				
Warmouth					6	4.8
Bluegill					143	114.4
Longear Sunfish					32	25.6
Redear Sunfish					8	6.4
Largemouth Bass					66	52.8
White Crappie			76	7.6		
Black Crappie			51	5.1		

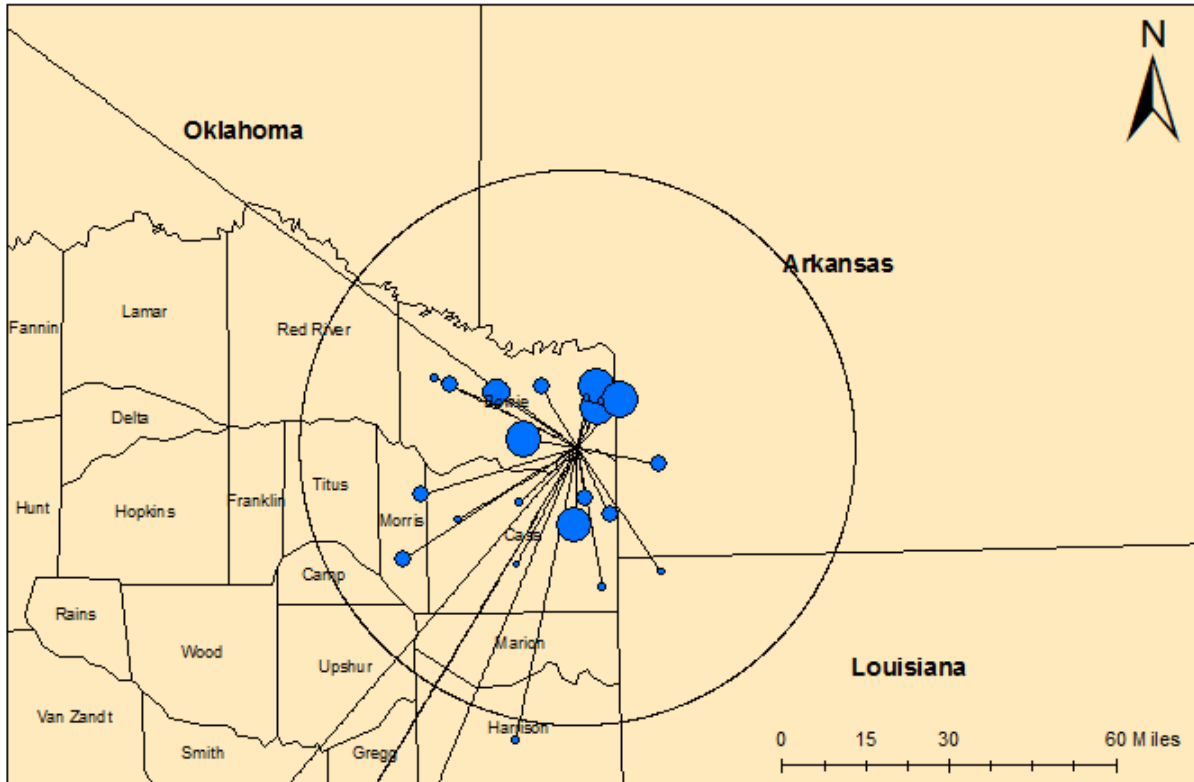
APPENDIX B



Location of sampling sites, Lake Wright Patman, Texas, 2016-2017. Trap net, gill net, and electrofishing stations are indicated by T, G, and E, respectively. Water level was near full pool at time of sampling.

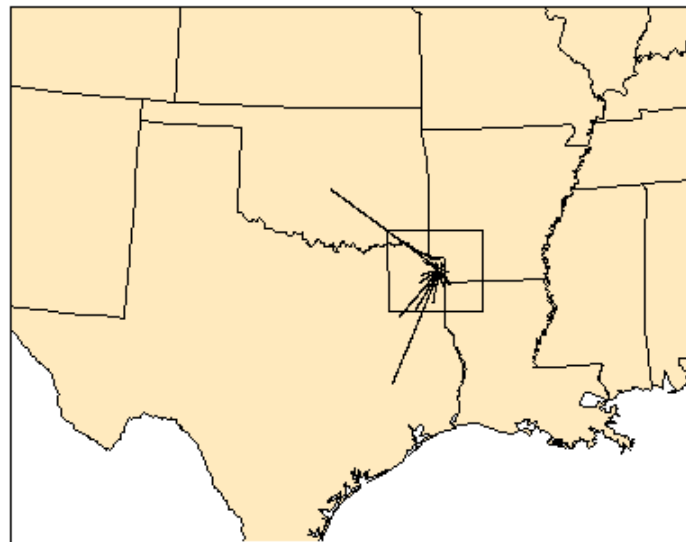
Appendix C

Lake Wright Patman, TX June 2016 to May 2017



Angler Counts by ZIP Codes

- < 5
- 5 - 15
- 15 - 25
- > 25



Location, by ZIP code, and frequency of anglers that were interviewed at Lake Wright Patman, Texas, during the June 2016 through May 2017 creel survey. Circle indicates 50-mile radius from Lake Wright Patman.