

# Lake Bryan

## 2018 Fisheries Management Survey Report

PERFORMANCE REPORT

As Required by

FEDERAL AID IN SPORT FISH RESTORATION ACT

TEXAS

FEDERAL AID PROJECT F-221-M-3

INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

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## Survey and Management Summary

Fish populations in Lake Bryan were surveyed in 2017 and 2018 using electrofishing and gillnetting. Historical data are presented with the 2017 and 2018 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 Bryan is an 818-acre reservoir in Brazos County, Texas, built by Bryan Texas Utilities (BTU) to provide water for power-plant cooling. The lake has a small 1.97 square mile watershed with a water-well owned by BTU to help maintain water level. The lake is located within a public park, and access for both boat and bank angling is excellent. The primary fish habitat is limestone riprap and scattered native emergent vegetation.

**Management History:** Primary sport fishes in Lake Bryan include Largemouth Bass, Blue Catfish, and Channel Catfish. A variety of sunfish species are also present with Bluegill and Green Sunfish available in high densities along the rip-rap. Sport fish species are managed under statewide length and bag limits with the exception that the Largemouth Bass population has been under an 18-inch minimum length limit since September 1996; however, the Largemouth Bass length limit will change to the 14-inch minimum length limit on September 1, 2018.

### Fish Community

- **Prey species:** Bluegill, Green Sunfish, and Longear Sunfish comprised most of the available prey. Bluegill were the most abundant of the sunfish species, and all were < 7 inches in length.
- **Catfishes:** Channel Catfish and Blue Catfish were both available to anglers although densities were low. Blue Catfish were noted for the first time in the 2010 gill net sample following stocking in 2009.
- **Largemouth Bass:** Largemouth Bass up to 18 inches were available to anglers. Body condition of Largemouth Bass was good ( $W_r > 90$  and  $< 120$ ); however, growth was slow. Average age at 14 inches was 4.0 years.
- **Crappies:** Both White Crappie and Black Crappie have been present in Lake Bryan. Although only one White Crappie and no Black Crappie were collected in 2017 and 2018, anecdotal information indicates a crappie fishery exists at Lake Bryan.
- **Red Drum:** Red Drum were stocked annually from 2015–2017. Anecdotal reports indicated limited catch up to 14 inches by anglers, but no Red Drum were collected during 2017 by survey methods.

**Management Strategies:** Low primary productivity limits the Lake Bryan fishery. The majority of the littoral fish production is associated with the extensive limestone rip-rap along the levees; therefore, electrofishing samples are focused in those areas. The length limit for Largemouth Bass will change from the current 18-inch minimum length limit to the statewide 14-inch minimum length limit beginning September 1, 2018 to allow more harvest opportunities. If Red Drum catches continue to be reported and water quality conditions continue to be suitable, Red Drum stockings will continue to be requested. Blue Catfish will be requested for stocking in 2019 to augment the developing Blue Catfish fishery. A spring creel survey will be planned for 2019 to better assess overall angling activity.

## Introduction

This document is a summary of fisheries data collected from Lake Bryan in 2017 and 2018. 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 2017 and 2018 data for comparison.

## Reservoir Description

Lake Bryan is an 818-acre reservoir in Brazos County, Texas, built by Bryan Texas Utilities (BTU) to provide water for power-plant cooling. The lake has a small watershed of only 1.97 square miles and is fed by a well owned by BTU to help maintain water level. The lake is located within a public park, and access for both boat and bank angling is excellent. The primary fish habitat is limestone riprap and scattered native emergent vegetation. Although there are no water-level data available for Lake Bryan, the reservoir generally remains within four feet of conservation pool which is 355.5 feet above sea level. Other descriptive characteristics for Lake Bryan are listed in Table 1.

## Angler Access

Lake Bryan has one public boat ramp and no private boat ramps. The reservoir is contained completely within the Lake Bryan Park and has excellent shoreline access. The boat ramp provided good boat access even during drought. Additional boat ramp characteristics are listed in Table 2.

## Management History

**Previous management strategies and actions:** Management strategies and actions from the previous survey report (Webb and Best, 2014) included:

1. Continue to communicate with BTU regarding fisheries management at Lake Bryan. If BTU becomes interested, explore a fertilization program to increase primary productivity.
 

**Action:** Recent conversations with BTU on various lake management activities at Lake Bryan have been positive. Efforts to cooperate with the controlling authority and increase productivity of the fishery are ongoing.
2. Sample Lake Bryan water in summer of 2014 to determine if overall water chemistry is conducive to Red Drum stocking. If parameters are appropriate, recommend Red Drum stocking at 5/acre.
 

**Action:** Water chemistry and salinity-depth profiles were surveyed in 2014 and Red Drum fingerlings were stocked in 2015, 2016, and 2017. Anecdotal reports indicated limited catch by anglers, but no fish were collected by electrofishing, gill net, or hook and line surveys.
3. Gather opinion information from area bass anglers regarding a potential change to the statewide 14-inch minimum length limit.
 

**Action:** The Largemouth Bass 18-inch minimum length limit will change to the statewide 14-inch minimum length limit on September 1, 2018. No negative feedback was received from anglers during the regulation-proposal process, either in writing or during conversations with local anglers.

**Harvest regulation history:** Harvest has been regulated with statewide regulations except that Largemouth Bass harvest has been managed with an 18-inch minimum length limit since 1996 to

increase the relative abundance of larger fish available to anglers. Current regulations are found in Table 3.

**Stocking history:** Stockings at Lake Bryan have included Florida Largemouth Bass in 1993, Threadfin Shad in 1992, hybrid crappie in 1997, Blue Catfish in 2009, and Red Drum from 2015–2017. The complete stocking history is recorded in Table 4.

**Vegetation/habitat management history:** Habitat is limited in Lake Bryan. Limestone riprap is the most abundant littoral habitat available to juvenile fish. Historically, native emergent plants including cattails, bulrush, and spike rush provided limited littoral habitat. Bulrush and spike rush were introduced into the reservoir by TPWD in the late 1990s as part of a fish kill mitigation project funded by the City of Bryan. In 2017 limited stands of cattail and bulrush totaling less than 5 acres were observed at Lake Bryan (Tables 6 and 7).

**Water transfer:** Lake Bryan is used as a cooling water supply for the gas-fired Dansby Electric Production Facility. The reservoir is located on top of a hill and has a very small watershed. Water level is maintained by a water well. No inter-basin transfers exist.

## Methods

Surveys were conducted to achieve survey and sampling objectives in accordance with the objective-based sampling (OBS) plan for Lake Bryan (TPWD unpublished). Primary components of the OBS plan are listed in Table 5. Gill net survey sites were randomly selected, daytime electrofishing survey sites were biologist-chosen, 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, Threadfin Shad, and other forage fishes were collected by daytime electrofishing with biologist-chosen stations (1 hour at 12, 5-min stations). Data for prior years was collected using standard night time electrofishing methods with randomly chosen 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 15 randomly-selected fish (range 13.0 to 14.9 inches).

**Gillnetting** – Blue Catfish, Channel Catfish and White Crappie were collected by gill netting (5 nets set overnight). Catch per unit effort (CPUE) for gillnetting was recorded as fish/net night (f/nn).

**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 statistics.

## Results and Discussion

**Habitat:** The majority of Lake Bryan's shoreline is natural. Although rocky rip rap along the dam and causeway provides significant structure, scattered native emergent vegetation is also present. No submersed or floating-leaved vegetation was observed (Tables 6 and 7).

**Prey species:** Prey species in Lake Bryan consisted primarily of Bluegill and Green Sunfish with electrofishing catch rates of 369/h and 133/h respectively in 2017 (Figures 1 and 2; Appendix A). Other major components of the forage fish community included Longear Sunfish (63/h), Inland Silverside (41/h), Blue Tilapia (14/h), Threadfin Shad (9/h) and Gizzard Shad (2/h) (Appendix A).

**Catfishes:** The Channel Catfish population continued to have low relative abundance. The gill net catch rate was 1.6/nn in 2018 and 0.2/nn in 2014 (Figure 4). Abundance of stock sized Blue Catfish has increased since stocking in 2009. Gill net catch rate of Blue Catfish in 2018 was 4.4/nn, up from 0.8/nn in 2014 and 0.2/nn in 2010 (Figure 3).

**Largemouth Bass:** The total electrofishing catch rate and catch rate of stock-size Largemouth Bass were 36/h in 2017. Generally, catch rates were higher for this sampling period than in years prior due changing sampling methods from randomly-selected to biologist-chosen sites. Although data did not meet total catch objectives of over 50 stock sized Largemouth Bass, an RSE of 24 indicates that data are relatively representative of the Largemouth Bass population in rip rap areas. The Largemouth Bass at Lake Bryan are generally in good condition ( $W_r > 90$  and  $< 120$ ) (Figure 5); however, growth was slow. Average age at 14 inches (13.0 to 14.9 inches) was 4.0 years (N = 15; range = 3–7 years) (Figure 6).

**Crappies:** White Crappie continue to be present in Lake Bryan with five individuals being captured during spring gill netting efforts in 2018. Catch rates are historically low for this species with 2.8/nn in 2006, 0.6/nn in 2017, and 1.0/nn in 2018 (Figure 7).

**Red Drum:** Red Drum were stocked annually from 2015–2017. Anecdotal reports indicated limited catch up to 14 inches by anglers, but no Red Drum were collected during 2017 by survey methods.

# Fisheries Management Plan for Lake Bryan, Texas

Prepared – July 2018

**ISSUE 1:** Lake Bryan suffers from low productivity due to its small watershed. In addition, water from a deep well used to maintain the reservoir level tends to be saline and alkaline. Although the lake itself is infertile, 24% of Lake Bryan's shoreline is comprised of rip rap, which provides habitat for centrarchids due to periphyton growth and tight interstitial spaces.

## MANAGEMENT STRATEGY

1. Continue to work with BTU regarding fisheries management at Lake Bryan. Explore a fertilization program to increase primary productivity and a native aquatic vegetation establishment program to improve fish habitat.
2. Focus on promoting littoral fisheries associated with the abundant limestone rip-rap along the levees via press releases and social media.

**ISSUE 2:** Because of the unusual water chemistry of Lake Bryan, stocking Red Drum is an option to increase angler interest in the reservoir, but recent surveys to determine stocking success were inconclusive.

## MANAGEMENT STRATEGIES

1. Continue monitoring of Lake Bryan water conductivity and temperature in 2018 to determine if overall water chemistry is conducive to further Red Drum stocking. If parameters are appropriate, recommend Red Drum stocking at 200/acre.
2. Determine if red drum are present in sufficient numbers to sustain a fishery and determine the extent of angling effort and catch for red drum.

**ISSUE 3:** Blue Catfish have successfully survived in Lake Bryan since stocking in 2009; however, few small individuals were observed in 2014 or 2018, indicating possible low Blue Catfish recruitment and reduced future Blue Catfish abundance.

## MANAGEMENT STRATEGY

1. Recommend Blue Catfish stocking at 100/acre if fingerling fish are available in 2019 or as appropriate if other blue catfish are available.
2. Determine if stocked Blue Catfish are naturally reproducing.

**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 (2018–2022)

Sport fishes in Lake Bryan include Red Drum, Blue Catfish, Channel Catfish, Largemouth Bass, Black Crappie, and White Crappie. Known important forage species include Bluegill, Green Sunfish, Longear Sunfish, Tilapia, Gizzard Shad, and Threadfin Shad. Future sampling will be conducted to achieve the following objectives (Table 8).

All sport species at Lake Bryan contribute to the overall fishery and justify sampling effort.

### Red Drum

Red Drum were stocked in 2015, 2016, and 2017. Stocking success of Red Drum is unknown at this time. In order to justify continued stockings, the population status, the fishery, or both must be determined. Red Drum presence/absence will be determined during daytime electrofishing efforts and spring gill net sampling in 2021 and 2022. TWPD staff will attempt to collect Red Drum in January and February each year from the hot water cooling basin of the power plant by electrofishing and hook and line. Because Red Drum are difficult to sample using traditional gear, a creel survey in 2022 will also be used to determine the extent of the fishery and as a surrogate indicator of population structure and stocking success.

### Catfish

Historically, catfish have been sampled with five randomly selected gill net sites, with catch rates ranging from 0.2–4.4 fish/nn (2006–2018). Based on bootstrap analysis of historical data, it would take > 20 net nights to attain acceptable precision ( $RSE \leq 25$ ,  $N > 50$ ) for either catfish species. However, some indication of catfish relative density and size structure over time is important to management at Lake Bryan even if precision is low. Catfish relative abundance and size structure will be measured with CPUE and size structure, respectively, with standard 5 net night spring gill net surveys in 2022. Low frequency electrofishing will also be used in 2022 to attempt to collect Blue Catfish smaller than 12 inches in order to determine if natural reproduction has occurred in the lake.

### Largemouth Bass

Historically, Largemouth Bass have been managed with an 18-in minimum length limit regulation at Lake Bryan; however, to the regulation will change to the statewide 14-in minimum length limit in an effort to simplify state-wide regulations on 1 September 2018. Bootstrap analysis of fall 2017 daytime electrofishing data (12 biologist-selected 5-minute stations) suggests it would take > 15 stations to attain acceptable precision ( $RSE \leq 25$ ,  $N > 50$ ). However, some indication of Largemouth Bass relative density and size structure is important to management at Lake Bryan even if precision is low; therefore, the survey objective is to measure Largemouth Bass data as CPUE and size structure during fall daytime electrofishing sampling efforts in 2021 at 12 biologist-selected stations.



## Crappie

Historically, crappie have been sampled with 15 single-cod, shoreline set trap nets in late fall, with catch rates ranging from 0.2–1.2 fish/nn from 2005–2013. Based on bootstrap analysis of historical data, it would take > 30 trap nets to attain acceptable precision ( $RSE < 25$ ,  $N > 50$ ). Therefore, crappie presence/absence will be determined during daytime electrofishing efforts and spring gill net surveys in 2021 and 2022.

## Prey Species

Bluegill, Green Sunfish, Longear Sunfish, Tilapia, Gizzard Shad, Threadfin Shad, and Inland Silversides are the primary forage at Lake Conroe. Trends in forage fish relative abundance and size structure will be measured with CPUE and size structure, respectively, with 12 biologist-chosen daytime electrofishing stations. Largemouth Bass body condition can provide information on forage abundance, vulnerability, or both relative to predator density.

## Creel Survey

In order to better determine the extent of all fisheries at Lake Bryan a creel survey will measure fishing effort, catch, and expenditures with a 9-day winter creel survey in 2021 and a spring creel survey in 2022.

## Literature Cited

- Anderson, R. O., and R. M. Neumann. 1996. Length, weight, and associated structural indices. Pages 447–482 in B. R. Murphy and D. W. Willis, editors. *Fisheries techniques*, 2nd edition. American Fisheries Society, Bethesda, Maryland.
- 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.
- Webb, M. and A Best. 2014 Lake Bryan, 2014 Fisheries Management Survey Report. Texas parks and Wildlife Department, Federal Aid Report F-221-M-3, Austin, Texas.

## Tables and Figures

Table 1. Characteristics of Lake Bryan, Texas.

Characteristic	Description
Year constructed	1973
Controlling authority	Bryan Texas Utilities
County	Brazos
Reservoir type	Power-plant
Shoreline Development Index	1.80
Conductivity	1,200 $\mu\text{S}/\text{cm}$
Conservation pool elevation	355.5 ft
Salinity	3.0–4.0 ppt

Table 2. Boat ramp characteristics for Lake Bryan, Texas, August 2017. Reservoir elevation at time of survey was 355.5 feet above mean sea level.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
Lake Bryan Park	30.70399 -96.46957	Y	20	353	Good

Table 3. Harvest regulations for Lake Bryan, 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, Largemouth	5	18-inch minimum
Crappie: White and Black crappie, their hybrids and subspecies	25 (in any combination)	10-inch minimum
Drum, Red	3	20-inch minimum

Table 4. Stocking history of Lake Bryan, Texas. FGL = fingerling; AFGL = advanced fingerling; ADL = adults.

Year	Number	Size
	<u>Threadfin Shad</u>	
1992	2,000	ADL
	<u>Blue Catfish</u>	
2009	100,011	FGL
	<u>Channel Catfish</u>	
1974	120,000	FGL
	<u>Florida Largemouth Bass</u>	
1993	83,401	FGL
	<u>Hybrid Crappie</u>	
1997	80,490	FGL
	<u>Walleye</u>	
1974	200,000	FGL
<u>1977</u>	<u>90,000</u>	FGL
Species Total	290,000	
	<u>Red Drum</u>	
1983	39,800	FGL
2015	53,180	FGL
2016	207,136	FGL
<u>2017</u>	<u>164,242</u>	FGL
Species Total	464,358	

Table 5. Objective-based sampling plan components for Lake Bryan, Texas, 2017–2018.

Gear/target species	Survey objective	Metrics	Sampling objective
<i>Electrofishing – Daytime Biologist-Selected Stations</i>			
Largemouth Bass	Abundance	CPUE–Stock	RSE–Stock $\leq 25$
	Size structure	PSD, length frequency	N $\geq 50$ stock
Bluegill <sup>a</sup>	Abundance	CPUE–Total	RSE $\leq 25$
	Size structure	PSD, length frequency	N $\geq 50$
Gizzard Shad <sup>a</sup>	Abundance	CPUE–Total	RSE $\leq 25$
	Size structure	PSD, length frequency	N $\geq 50$
	Prey availability	IOV	N $\geq 50$
Crappie, White and Black	Presence / Absence		N > 0
Red Drum	Presence / Absence		N > 0
<i>Gill Netting</i>			
Catfish, Channel and Blue	Abundance	CPUE–Stock	RSE–Stock $\leq 25$
	Size structure	PSD, length frequency	N $\geq 50$ stock
Red Drum	Presence / Absence		N > 0
<i>Hook and Line</i>			
Red Drum	Presence / Absence		N > 0

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

Table 6. Survey of structural habitat types, Lake Bryan, Texas, 2017. Shoreline habitat type units are in miles and vegetation is in acres.

Habitat type	Estimate	% of total
Natural	7.6 miles	76
Rocky	2.4 miles	24

Table 7. Survey of aquatic vegetation, Lake Bryan, Texas, 2017–2018. Surface area (acres) is listed with percent of total reservoir surface area in parentheses.

Vegetation	2009	2010	2011	2012
Native emergent				4.5 (< 1)

## Bluegill

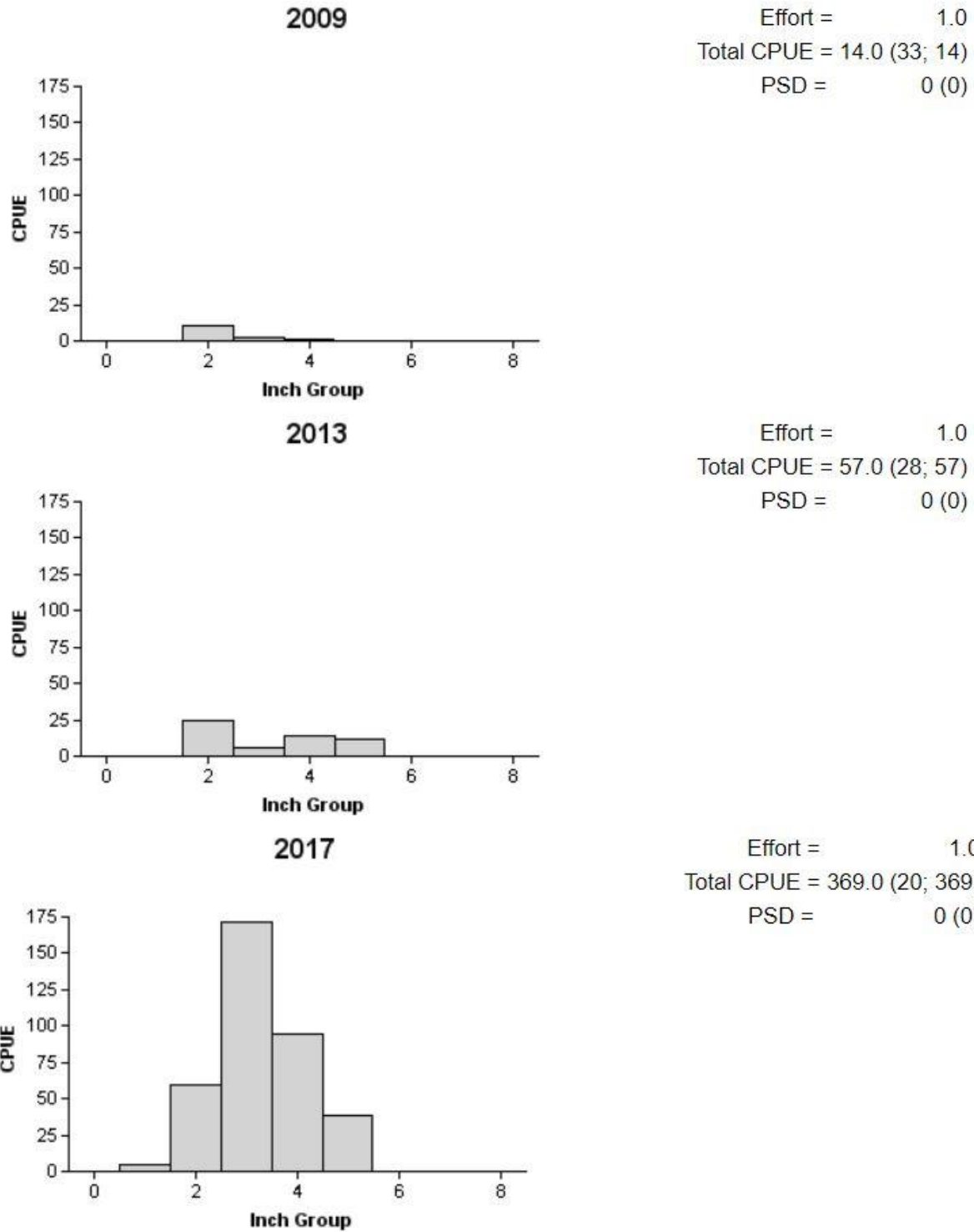


Figure 1. Number of Bluegill caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure) are in parentheses) for fall daytime electrofishing surveys, Lake Bryan, Texas, 2009, 2013, and 2017. Data from 2009 and 2013 were from randomly chosen stations while 2017 data were from biologist-chosen stations.

## Green Sunfish

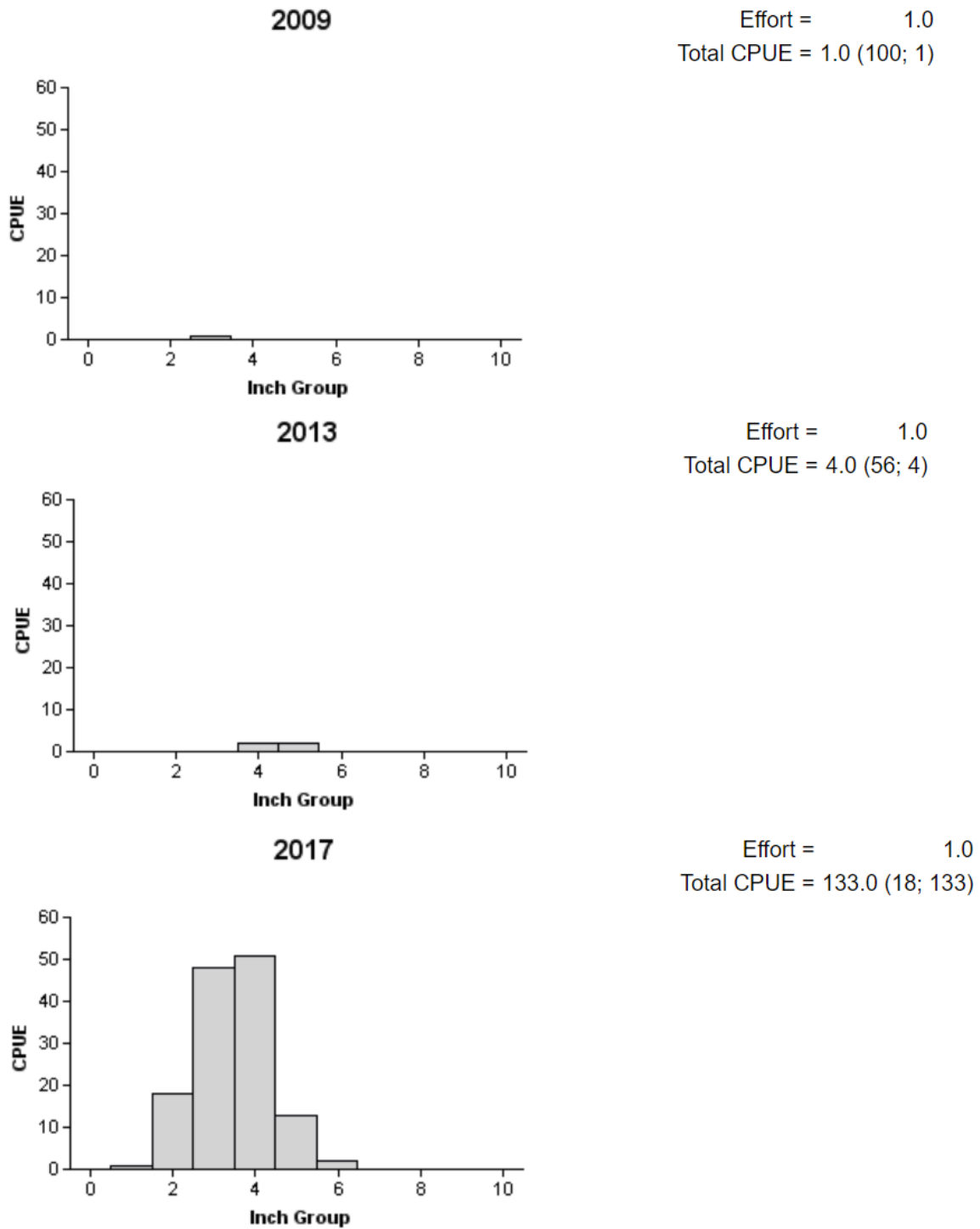


Figure 2. Number of Green Sunfish caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall daytime electrofishing surveys, Lake Bryan, Texas, 2009, 2013, and 2017. Data from 2009 and 2013 were from randomly chosen stations while 2017 data were from biologist-chosen stations.



### Blue Catfish

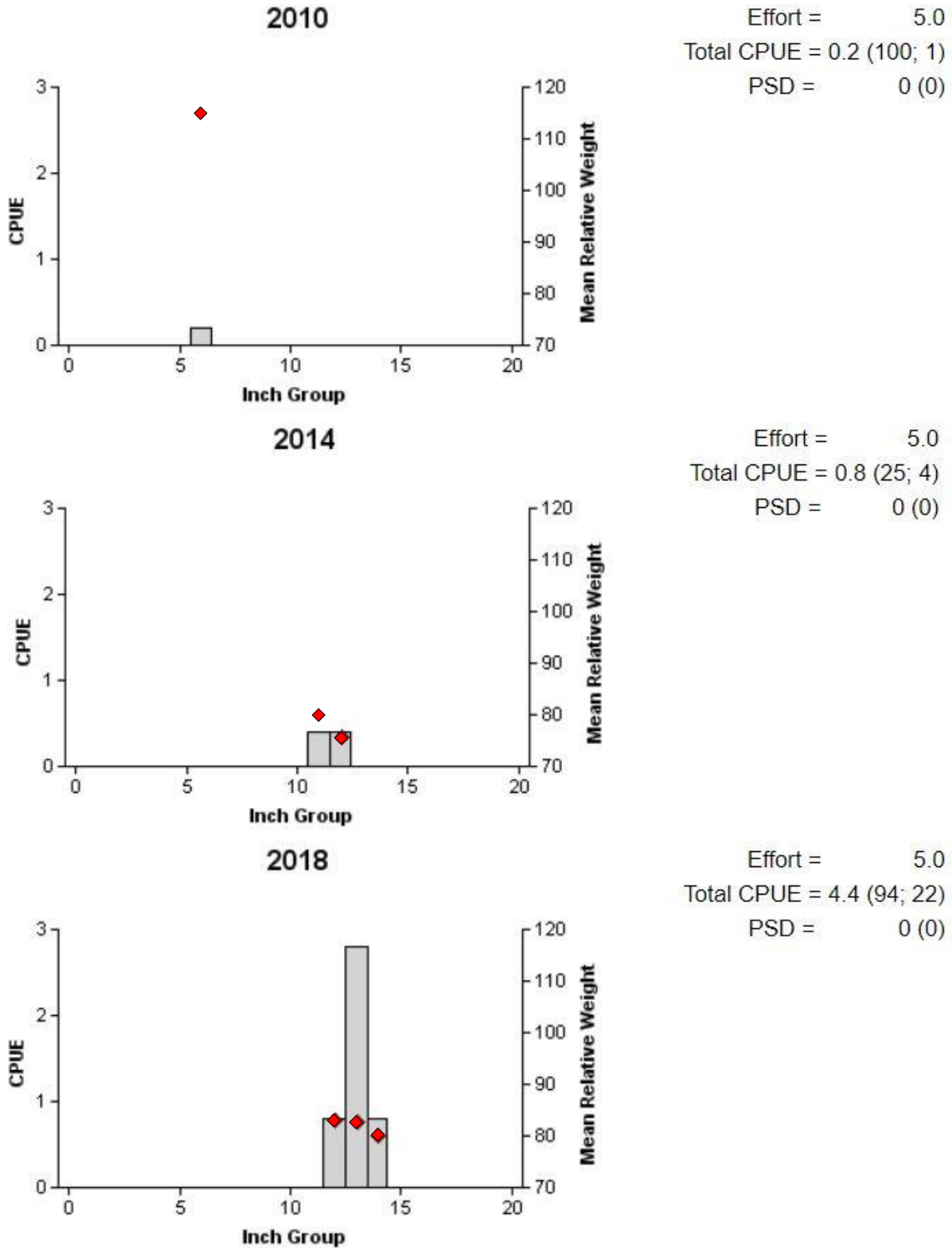


Figure 3. Number of Blue Catfish caught per net night (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Lake Bryan, Texas, 2010, 2014, and 2018.

### Channel Catfish

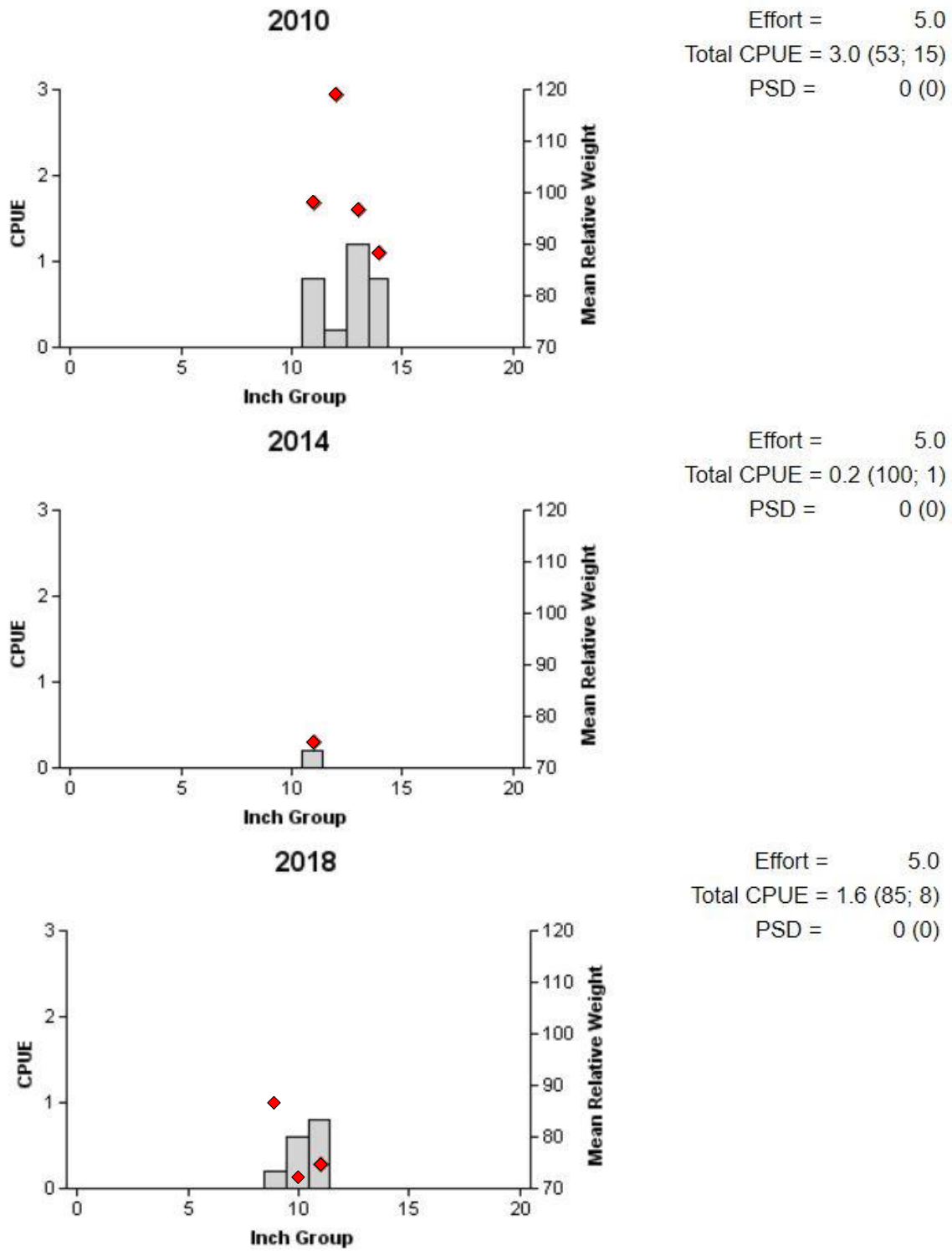


Figure 4. Number of Channel Catfish caught per net night (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Lake Bryan, Texas, 2010, 2014, and 2018.

## Largemouth Bass

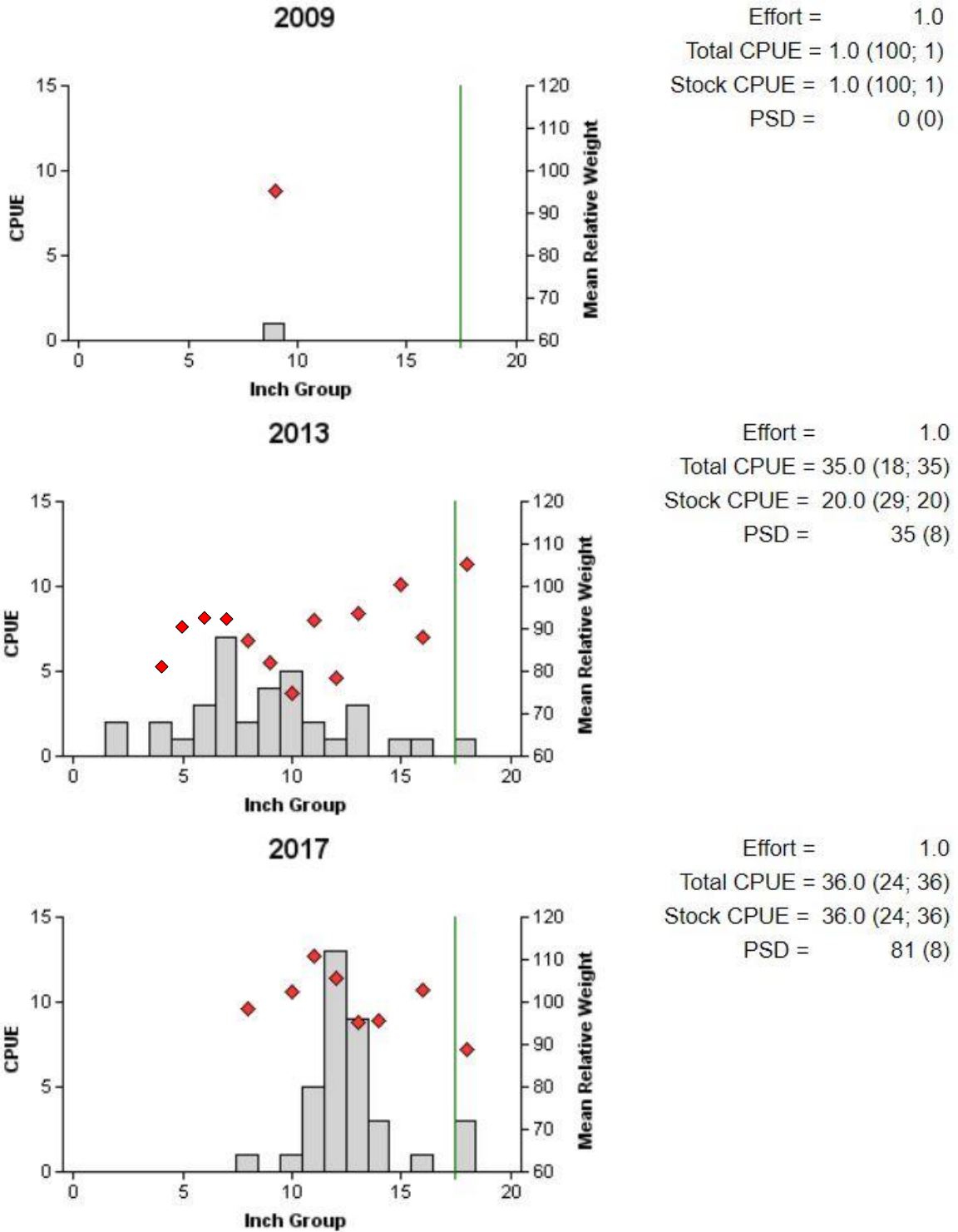


Figure 5. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall daytime electrofishing surveys, Lake Bryan, Texas, 2009, 2013, and 2017. Data from 2009 and 2013 were from randomly chosen stations while 2017 data were from biologist-chosen stations.

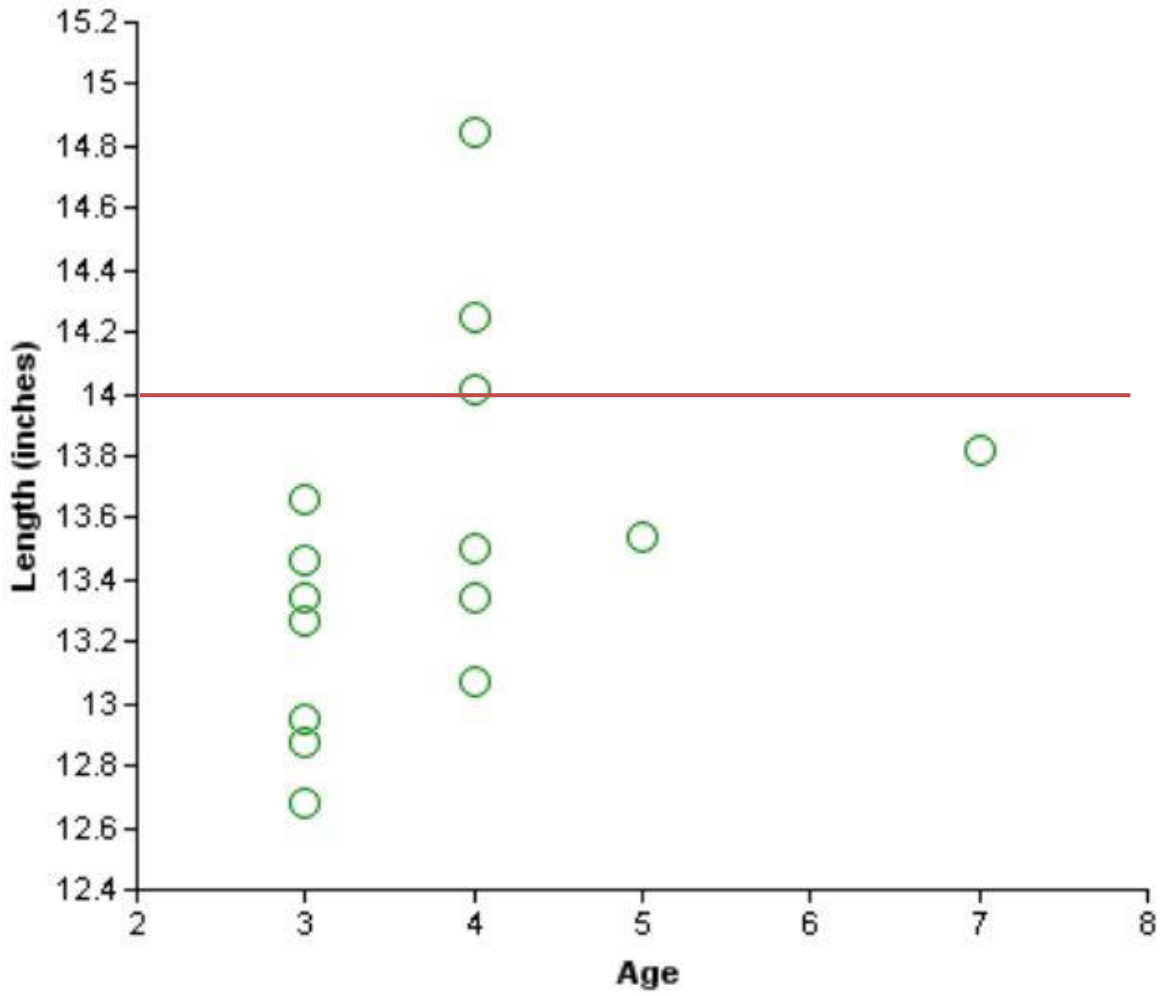


Figure 6. Length at age for Largemouth Bass collected from fall daytime electrofishing efforts at Lake Bryan, Texas, 2017. Horizontal line represents minimum length limit.

## White Crappie

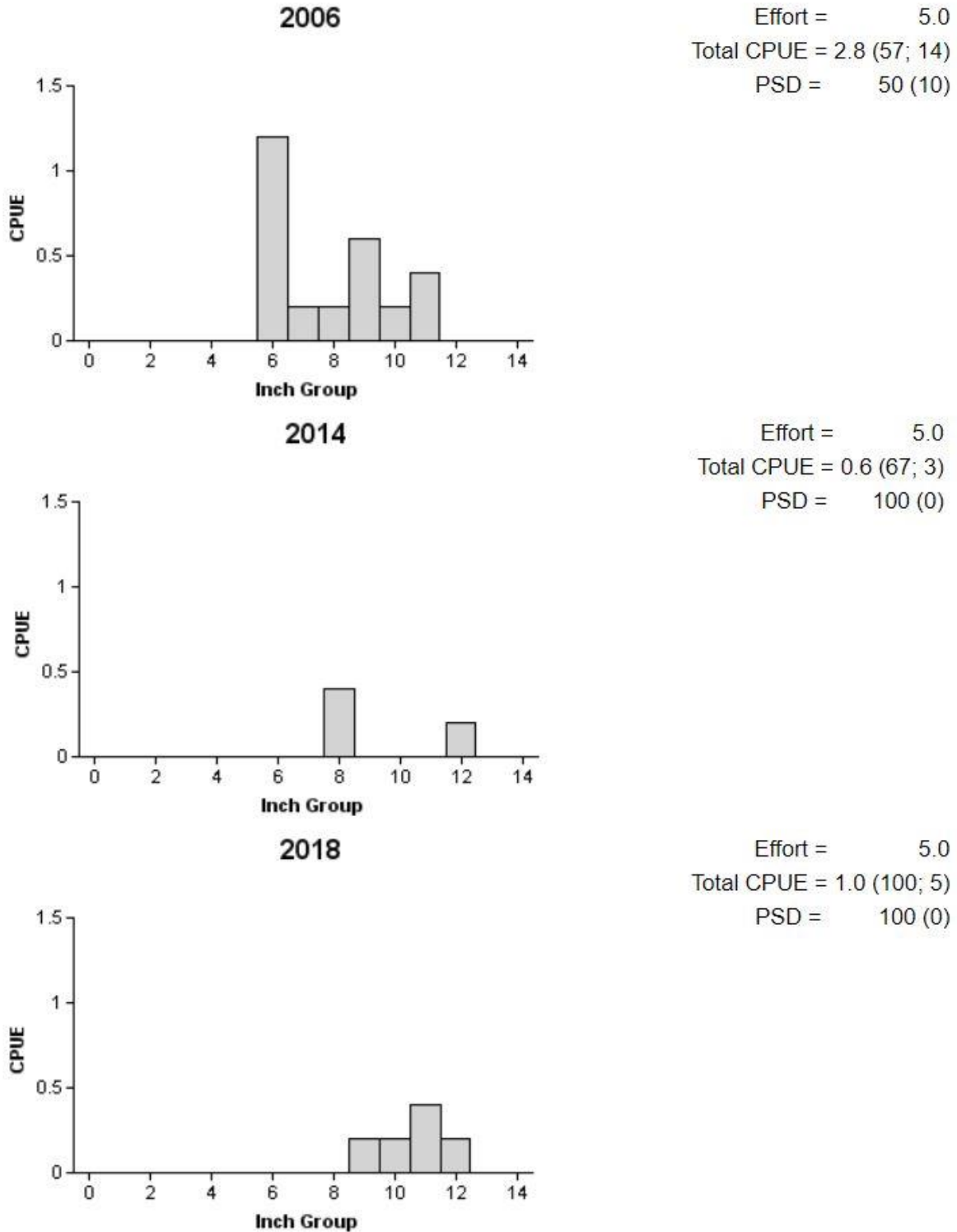


Figure 7. Number of White Crappie caught per net night (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Lake Bryan, Texas, 2006, 2014, and 2018.

## Proposed Sampling Schedule

Table 8. Proposed sampling schedule for Lake Bryan, Texas. Survey period is June through May. Gill netting surveys are conducted in the spring while electrofishing surveys are conducted in the fall. Standard survey denoted by S and additional survey denoted by A.

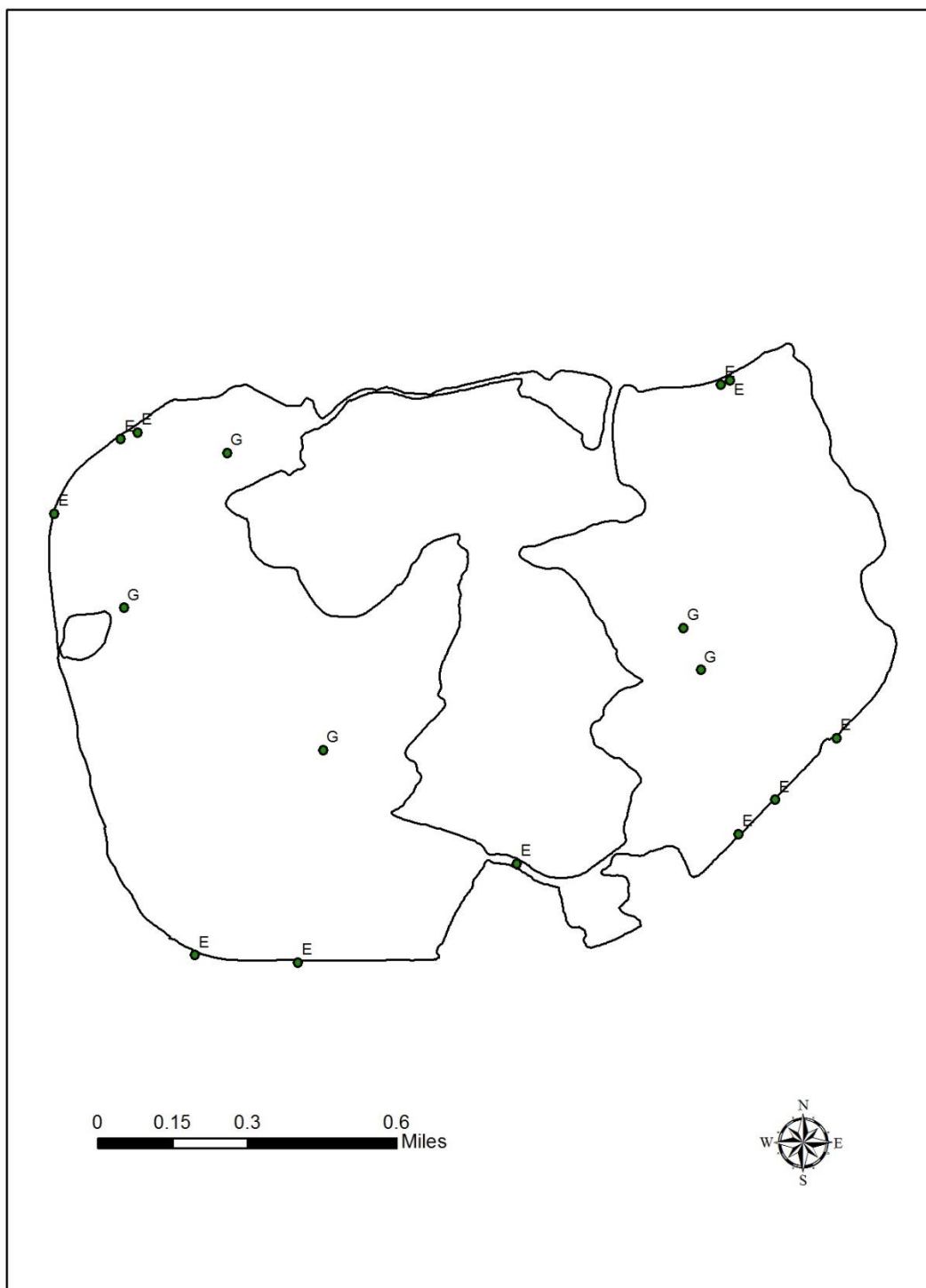
	Survey year			
	2018–2019	2019–2020	2020–2021	2021–2022
Angler Access				S
Habitat				S
Electrofishing – Fall, Daytime				S
Low Frequency Electrofishing – Fall, Daytime				A
Gill Netting – Spring				S
Report				S
Creel - Spring	A			

## 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 Lake Bryan, Texas, 2017–2018. Sampling effort was 5 net nights for gill netting and 1 hour for electrofishing.

Species	Electrofishing		Gill Netting	
	N	CPUE	N	CPUE
Gizzard Shad	2	2.0 (100)		
Threadfin Shad	9	9.0 (37)		
Common Carp	5	5.0 (36)	4	0.8 (73)
Bullhead Minnow	4	4.0 (77)		
Inland Silverside	41	41.0 (44)		
Blue Catfish			22	4.4 (94)
Channel Catfish	2	2.0 (67)	8	1.6 (85)
Green Sunfish	133	133.0 (18)		
Bluegill	369	369.0 (20)		
Longear Sunfish	63	63.0 (9)		
Largemouth Bass	36	36.0 (24)	2	0.4 (61)
White Crappie			5	1.0 (100)
Blue Tilapia	14	14.0 (39)	1	0.2 (100)

## APPENDIX B – Map of sampling locations



Location of sampling sites, Lake Bryan, Texas, 2017–2018. Gill net and electrofishing stations are indicated by G and E, respectively. Water level was near full pool at time of sampling.





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