PERFORMANCE REPORT

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INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

2016 Fisheries Management Survey Report

Amon G. Carter Reservoir

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SURVEY AND MANAGEMENT SUMMARY

Fish populations in Amon G. Carter Reservoir were surveyed in 2016 using electrofishing and trap netting and in 2017 using gill netting. 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:** Amon G. Carter Reservoir is a 1,848-acre impoundment on Big Sandy Creek in Montague County. Water level was below conservation level, 920 feet above mean sea level (msl) from 2011 to 2015 but has been near conservation level since 2015. Habitat features consisted of rocky shoreline, standing timber, and native submersed aquatic vegetation.

- **Management History:** Important sport fish include White Bass, Largemouth Bass, White Crappie, and Channel Catfish. The reservoir has always been managed with statewide harvest regulations. A total of 492,258 Florida Largemouth Bass have been stocked since 1982 to enhance the trophy potential of the bass population.

- **Fish Community**

  - **Prey species:** Threadfin and Gizzard Shad catch rates were high and provide an excellent forage base for sport fish. Bluegill abundance is excellent.

  - **Channel Catfish:** Channel Catfish were present in moderate abundance.

  - **White Bass:** Gill net catch rate of White Bass was below the historical average but are still present in good numbers.

  - **Largemouth Bass:** The Largemouth Bass population remains consistent. A 13.8-pound Largemouth Bass was caught in 2013 and was entered into the Texas Parks and Wildlife Department (TPWD) ShareLunker program.

  - **White Crappie:** White Crappie catch rates continue to be very good and close to the historical average.

Management Strategies: Amon G. Carter Reservoir should continue to be managed with existing harvest regulations. General monitoring using trap nets, gill nets, and electrofishing will be conducted in 2020/2021. Amon G. Carter Reservoir has demonstrated trophy potential for Largemouth Bass with two entries into the ShareLunker program (1998 and 2013). Florida Largemouth Bass stockings should be conducted to enhance the trophy Largemouth Bass potential of the reservoir. Inform the public and controlling authority about the negative impacts of aquatic invasive species and maintain appropriate signage at access points. Utilize various outreach methods including social media to promote and advise the public about fishing opportunities at Amon G. Carter Reservoir.

INTRODUCTION

This document is a summary of fisheries data collected from Amon G. Carter Reservoir 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

Amon G. Carter Reservoir is a 1,848-acre impoundment on Big Sandy Creek in Montague County. It was constructed in 1956 by the City of Bowie for municipal and industrial uses. The reservoir drains approximately 111 square miles and has a shoreline of 22.5 miles. Water level was below conservation level (920 ft-msl) most of the time from June 2009 until May 2015 (Figure 1). With a TSI chl–*a* of 45.18, Amon G. Carter Reservoir was mesotrophic and borderline eutrophic (Texas Commission on Environmental Quality 2011). The average depth is 13 feet with a maximum depth of 50 feet. Habitat features consisted mainly of rip-rap, rocky shoreline, boulders, native submersed aquatic vegetation, dead standing timber, and boat docks. Other descriptive characteristics for Amon G. Carter Reservoir are in Table 1.

Angler Access

Boating access consisted of two public boat ramps with adequate parking and boarding piers (Table 2). Selma Park, owned by the City of Bowie, provides angler access to a mile of shoreline, as well as two fishing piers and there is public bank access adjacent to the FM 1125 boat ramp.

Management History

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

1. Conduct a supplemental bass-only electrofishing survey in the fall of 2014.
   Action: A supplemental bass-only electrofishing survey was conducted in the fall of 2014.
2. Communicate with the City of Bowie about invasive species and educate the public about invasive species through the use of media and the internet. .
   Action: Signage has been placed at access points around the lake and the controlling authority has been made aware of the threat of invasive species while we continue to educate the public through a variety of methods (social media, new releases, “etc.”)

Harvest regulation history: Sport fishes in Amon G. Carter Reservoir have always been managed with statewide regulations (Table 3).

Stocking history: Amon G. Carter Reservoir was last stocked with fingerling ShareLunker Largemouth Bass in 2013. The complete stocking history is in Table 4.

Vegetation/habitat management history: Habitat features at Amon G. Carter Reservoir consisted mainly of rocky shoreline, standing timber, native submersed aquatic vegetation and boat docks (Table 5). Hydrilla has been found in small isolated patches of the reservoir since 1995 but has not spread beyond trace amounts.

Water transfer: The City of Bowie uses Amon G. Carter Reservoir as a municipal water source. No inter-basin transfers exist at this time.

METHODS

Surveys were conducted to achieve survey and sampling objectives in accordance with the objective-based sampling (OBS) plan for Amon G. Carter Reservoir (TPWD unpublished). Primary components of the OBS plan are listed in Table 6. 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 (1.3 hours at 16, 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 6 randomly-selected fish (range 13.1 to 14.3 inches).

Trap netting – Crappie were collected using trap nets (5 net nights at 5 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 13 randomly-selected fish (range 9.0 to 10.8 inches).

Gill netting – Channel Catfish and White Bass were collected by gill netting (10 net nights at 10 stations). CPUE for gill netting was recorded as the number of fish caught per net night (fish/nn). Few White Bass <11 inches were collected, so ages for White Bass were determined using otoliths from 13 randomly-selected fish (range 10.1 to 12.2 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 statistics.

Habitat – A structural habitat survey and vegetation survey were conducted in 2016. 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: Littoral zone habitat consisted primarily of rocky shoreline, standing timber, native aquatic vegetation, and boat docks (Table 5). High reservoir levels have provided some cover in the form of buttonbush, water willow, and other emergent vegetation. Submersed vegetation growth is less than previously observed but is thought to be recovering from reduced growth during the extreme flooding in 2015.

Prey species: Electrofishing catch rates of Threadfin and Gizzard Shad were 876.8/h and 191.3/h, respectively (Appendix A). Index of vulnerability (IOV) for Gizzard Shad indicated that 53% of Gizzard Shad were available to predator fish, which improved from 15% in 2012 (Figure 2). Total CPUE of Bluegill was 804.0/h with 54% of the population being ≤4 inches (Figure 3). Other sunfish species also provide additional forage for sport fish (Appendix A). The prey base is more than adequate for satisfactory growth of sport fishes.

Channel Catfish: Gill net CPUE of Channel Catfish was 4.9/nn (Figure 4) and at the historic average (Appendix B). A high degree of precision (RSE = 19) was achieved between samples, though only forty-

five stocked-size fish were collected. Most Channel Catfish were of legal length. Relative weights ranged from 85 to 104, and increased for fish over 20 inches. The Channel Catfish population is of moderate abundance and some evidence of recruitment is evident.

White Bass: Gill net CPUE of White Bass was 8.9/nn with an RSE of 30 despite a doubling of sampling effort (Figure 5). White Bass <10 inches were not collected (PSD=100), and all fish aged (n=13, 10.1-12.2 inches) were from the 2014 and 2015 year class. There was no indication of recruitment from a 2016 year class despite water levels being above normal.

Largemouth Bass: Electrofishing CPUE for Largemouth Bass was 99.8/h in 2016, and similar to 127.0/h in 2014 and 113.0/h in 2012 (Figure 6). CPUE was close to the historical average (Appendix B). Relative weights were excellent ($W_r \geq 96$) for all length classes. All fish collected (N = 6) between 13.0 and 14.9 inches were one year old, suggesting above average growth rates. One-hour and twenty minutes of electrofishing (Table 6) was required to meet sampling objectives in 2016, and a total of 54 stock-size Largemouth Bass were collected exhibiting a PSD of 31. Largemouth Bass PSD was higher (61; Figure 6) in the previous two survey years; however, the 2016 sample included a large number of 8 to 12 inch fish from the 2015 year class. Recent tournament results provided by a local fishing club suggest the frequent catch of quality bass at Amon Carter Reservoir.

White Crappie: The trap net catch rate of White Crappie was 15.0/nn (Figure 7) which is close to the historical average. Catch rate of White Crappie is highly variable between sample sites and historically provides a low level of precision; although a RSE of 32 for CPUE-S was achieved for the 2016 sample and suggested adequate size structure (PSD = 44). Mean relative weight was over 92 for all length classes with all White Crappie growing to 10 inches (9.0 to 10.8 inches) at age 1 (N = 13). The number of fish >10 inches was less than the 2012 survey but legal length fish are still present for anglers.

Fisheries management plan for Amon G. Carter Reservoir, Texas

Prepared – July 2017.

ISSUE 1: Amon G. Carter Reservoir has not received a Florida Largemouth Bass stocking since 2001 but has shown potential to produce trophy Largemouth Bass. Genetic analysis in 2012 shows that the population continues to exhibit a high proportion of FLMB alleles (48%) despite infrequent stockings (Hysmith and Moczygemba 2013). The reservoir has produced two ShareLunkers, most recently a 13.8 lb. ShareLunker Largemouth Bass in 2013.

MANAGEMENT STRATEGIES

1. Stock Florida Largemouth fingerlings at the rate of 1,600 per shoreline mile (36,000 total fish) in 2018 and 2019 and follow up with DNA analysis in 2020. This stocking will increase and/or enhance the trophy potential of the Largemouth Bass population of Amon G. Carter Reservoir.

ISSUE 2: 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. Educate the public about invasive species through the use of media and the internet.
3. Make a speaking point about invasive species when presenting to constituent and user groups.
4. 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

Important sport fish in Amon Carter Reservoir include Channel Catfish, White Bass, Largemouth Bass, and Crappie. Important forage species include Bluegill, Gizzard Shad, and Threadfin Shad.

Survey objectives, fisheries metrics, and sampling objectives

Channel Catfish: Channel Catfish are the third most sought after species in Amon Carter Reservoir behind crappie and bass. Gill net catch rates for Channel Catfish are consistent, yet sampling precision is low. General monitoring trend data to evaluate abundance, body condition, and size structure is desired to evaluate any large scale changes in the population that would require further investigation. To collect 50 stock-size Channel Catfish, 10 stratified-random gill nets will be set; 5 nets on the old side of the reservoir, and 5 on the new side of the reservoir to improve sampling precision.

White Bass: White Bass were first collected at Amon Carter Reservoir in 1995, and have gradually increased in abundance. General monitoring trend data is desired to estimate White Bass abundance, size structure, and body condition.

We estimate that the effort required to meet sampling objectives to collect at least 50 stock-size White Bass with an RSE $\leq$ 25 to be between 5 and 10 net nights with 80% confidence. White Bass will be collected in 10 stratified-random gill nets along with Channel Catfish.

Largemouth Bass: Largemouth Bass trend data has been collected biennially since 1998, and the bass population at Amon G. Carter Reservoir was the subject of an intensive exploitation study in recent years (Hysmith et al. 2014). Considering improvements in CPUE and size structure observed since 2008, monitoring for trend data will be collected with night electrofishing in the fall once every four years. A spring electrofishing survey will be conducted in 2018 to monitor the relative abundance of trophy Largemouth Bass. These surveys will allow for determination of any large-scale changes in the Largemouth Bass population that may spur further investigation.

A minimum of 12 randomly selected 5-min electrofishing sites will be sampled in spring 2018 and fall 2020 (Table 7), but sampling will continue at random sites until 50 stock-size fish are collected or the RSE of CPUE-S is $\leq$ 25. For fall sampling the anticipated effort to meet an RSE of CPUE-S $\leq$ 25 is between 13 and 18 stations with 80% confidence; although, additional stations may be required to collect at least 50 stock-size fish to evaluate size structure. Exclusive of the original 12 random stations, 6 additional random stations will be pre-determined in the event some additional sampling is necessary. Thirteen Largemouth Bass between 13.0 and 14.9 inches will be collected to estimate age at the minimum length limit (14 inches). Relative weight of Largemouth Bass $\geq$ 8" TL will be determined from their length/weight data (maximum of 10 fish weighed and measured per inch class). Genetic samples will be collected from thirty randomly selected Largemouth Bass during a fall 2020 electrofishing survey.

Crappie: Both White Crappie and Black Crappie are present in Amon G. Carter Reservoir; however, White Crappie are in greater abundance. Crappie are the second most sought after sport fish at Amon G. Carter Reservoir. We will collect trend data to evaluate size structure, age and growth, and body condition of White Crappie with trap nets in fall 2020 (Table 7). Obtaining a high level of precision necessary to estimate relative abundance is unlikely. We estimate that the effort required to meet sampling objectives to collect at least 50 stock-size White Crappie to be between 4 and 8 net nights with 80% confidence. This level of sampling should provide a sufficient number of White Crappie between 9.0 and 10.9 inches to estimate mean age at legal length. Data on Black Crappie will be collected along with White Crappie; however, no additional effort will be expended beyond that which is necessary to achieve sampling objectives for White Crappie.

Sunfish and Shad: Bluegill, Gizzard Shad, and Threadfin Shad are the primary forage at Amon G. Carter Reservoir. We intend to collect trend data on abundance and prey availability for forage species once every four years. Effort expended to achieve desired relative abundance estimates for Bluegill should be significantly less than that of Largemouth Bass (RSE $\leq$ 25 of CPUE-Total; anticipated effort is 8- stations). For Gizzard Shad, RSE $\leq$ 25 of CPUE-T and $\geq$ 50 fish to evaluate prey availability should be obtained between 10 and 15 stations. No additional effort beyond that necessary to achieve our desired number of Largemouth Bass will be expended to achieve an RSE $\leq$ 25 for CPUE of Bluegill and Gizzard Shad. Instead, predator body condition can provide information on forage abundance, vulnerability, or both relative to predator density.

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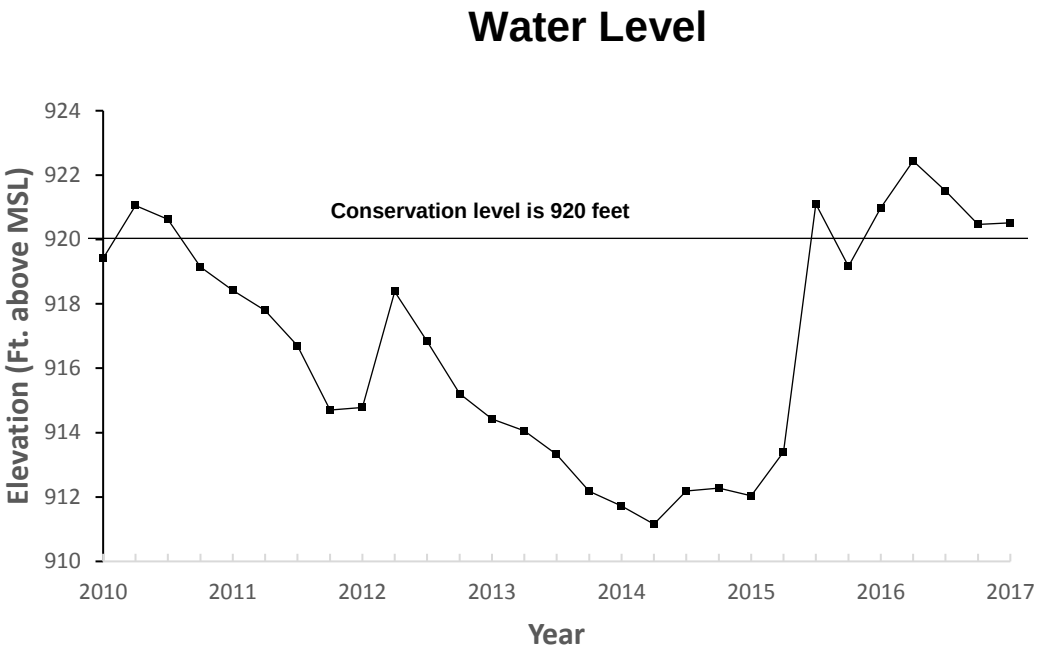


Figure 1. Quarterly water level elevations in feet above mean sea level (MSL) recorded for Amon G. Carter Reservoir, Texas, 2010-2017.

Table 1. Characteristics of Amon G. Carter Reservoir, Texas.

Characteristic	Description
Year constructed	1956
Controlling authority	City of Bowie
County	Montague
Reservoir type	Offstream
Shoreline Development Index (SDI)	4.9
Conductivity	267-277 µS/cm

Table 2. Boat ramp characteristics for Amon G. Carter Reservoir, Texas, August, 2016. Reservoir elevation at time of survey was 920.5 feet above mean sea level.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
Selma Park	33.4819 -97.8881	Y	20	910	Excellent. Extension feasible
FM 1125	33.4670 -97.8756	Y	40	910	Excellent. Extension not feasible

Table 3. Harvest regulations for Amon G. Carter Reservoir, Texas.

Species	Bag limit	Length limit
Channel and Blue Catfish	25 (in any combination)	12-inch minimum
Catfish, Flathead	5	18-inch minimum
Bass, White	25	10-inch minimum
Bass, Largemouth	5	14-inch minimum
White and Black Crappie	25 (in any combination)	10-inch minimum

Table 4. Stocking history of Amon G. Carter Reservoir, Texas. FRY = fry; FGL = fingerling; AFGL = advanced fingerling; ADL = adults; UNK = unknown.

Year	Number	Size
	Threadfin Shad	
1978	800	AFGL
1980	1,800	AFGL
1984	1,500	AFGL
1985	4,100	AFGL
2003	925	ADL
Species Total	9,125	
	Channel Catfish	
1966	8,000	AFGL
1969	40,000	AFGL
1970	25,000	AFGL
1971	23,000	AFGL
1972	5,000	AFGL
Species Total	101,000	
	Largemouth Bass	
1971	75,000	UNK
1985	60	ADL
Species Total	75,060	
	Florida Largemouth Bass	
1982	77,533	FGL
1983	36,980	FGL
1984	101,932	FGL
1985	56,000	FRY
2000	106,500	FGL
2001	106,816	FGL
Species Total	485,761	
	ShareLunker Largemouth Bass	
2013	6,497	FGL
Species Total	6,497	

Table 5. Survey of aquatic vegetation, Amon G. Carter Reservoir, Texas, 2012 and 2016. Surface area (acres) is listed with percent of total reservoir surface area in parentheses.

Vegetation	2012	2016
Native submersed[a]	18.5 (1.0)	trace
Native floating-leaved[b]	0.3 (<0.1)	0.1 (<0.1)
Native emergent[c]	1.3 (<0.1)	5 (1)
Non-native[d]		
Eurasian water-milfoil	<0.1 (<0.1)	0
Hydrilla	<0.1 (<0.1)	trace
Spiny leaf pondweed	3.5 (0.2)	0

[a]Pondweed, bushy pondweed, and coontail.
[b]American lotus.
[c]Water willow and buttonbush.
[d]Non-native vegetation is a tier III level of concern where surveys are conducted once every four years.

Table 6. Objective-based sampling plan components for Amon G. Carter Reservoir, Texas, 2016 – 2017.

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
Gizzard Shad [a]	Abundance	CPUE – total	RSE ≤ 25
	Size structure	PSD, length frequency	N ≥ 50
	Prey availability	IOV	N ≥ 50
Trap netting			
White Crappie	Size structure	PSD, length frequency	N $\underline{\geq}$ 50
	Age-and-growth	Age at 10 inches	N = 13, 9.0 – 10.9 inches
Gill netting			
White Bass	Abundance	CPUE – total	RSE ≤ 25
	Size structure	PSD, length frequency	N ≥ 50 stock
Channel Catfish	Abundance	CPUE– stock	RSE-Stock ≤ 25
	Size structure		N ≥ 50 stock

[a] No additional effort will be expended to achieve an RSE ≤ 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.

Gizzard Shad

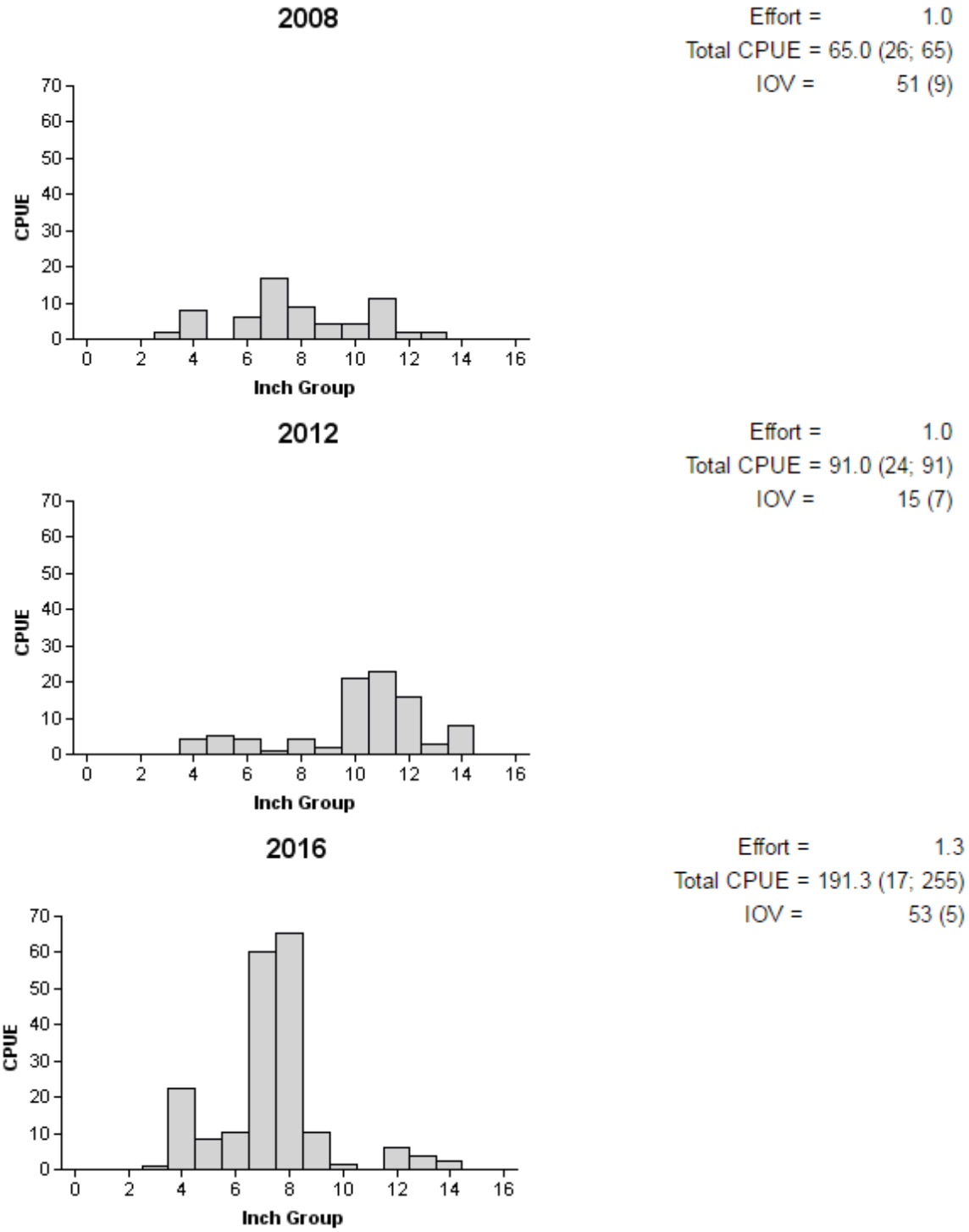


Figure 2. Number of Gizzard Shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Amon G. Carter Reservoir, Texas, 2008, 2012, and 2016.

Bluegill

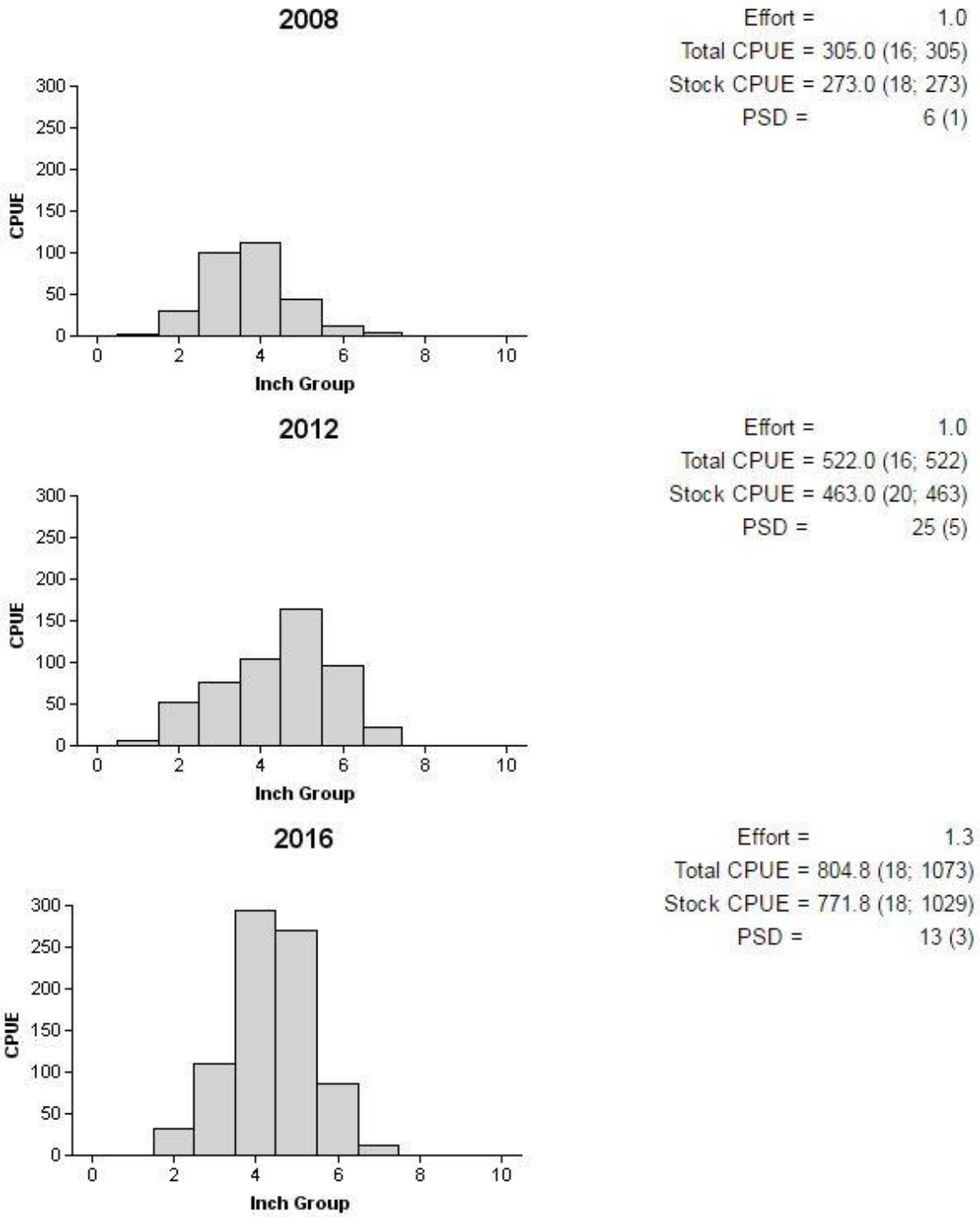


Figure 3. Number of Bluegill caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Amon G. Carter Reservoir, Texas, 2008, 2012, and 2016.

Channel Catfish

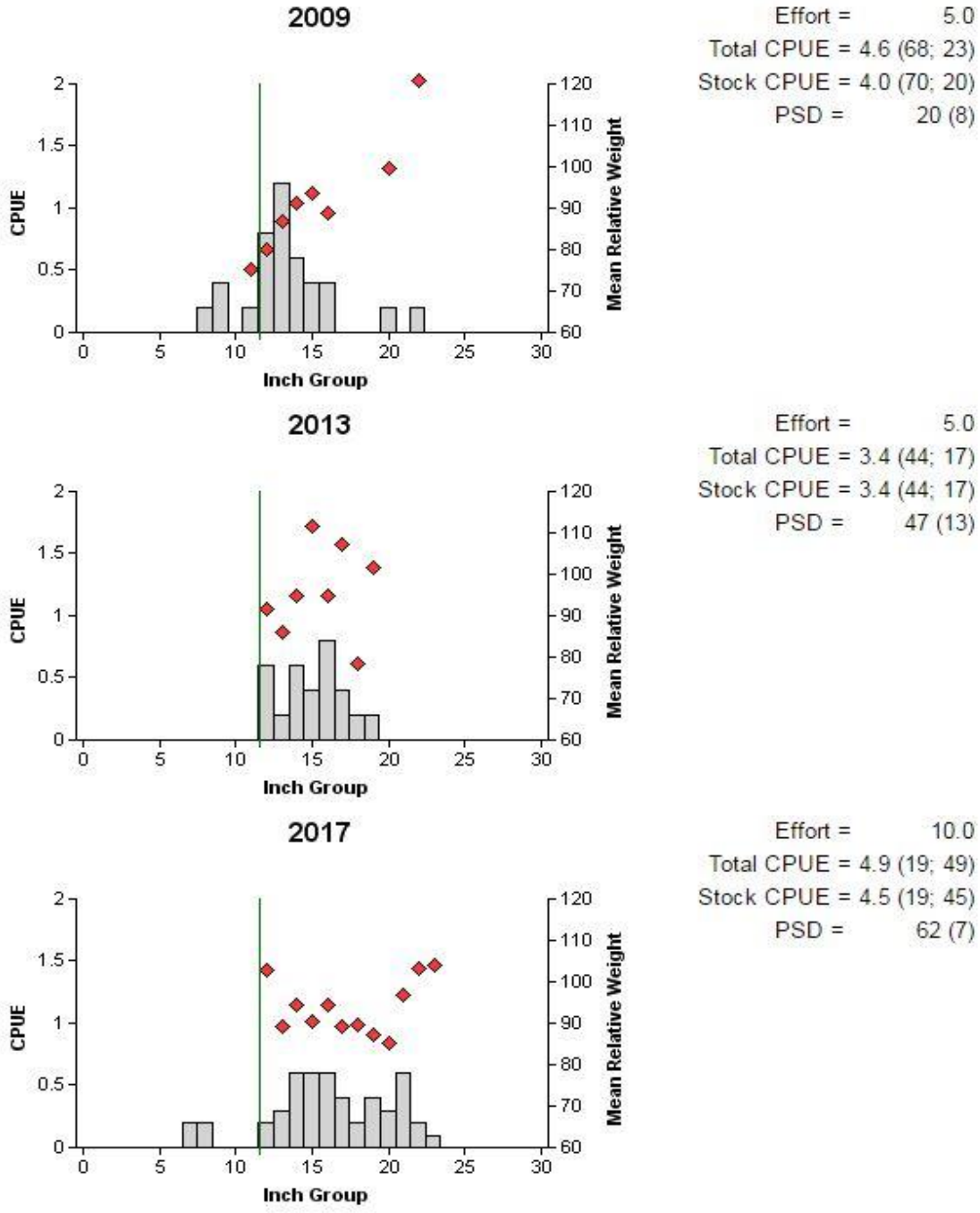


Figure 4. Number of Channel Catfish caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Amon G. Carter Reservoir, Texas, 2009, 2013, and 2017. Vertical line indicates minimum length limit.

White Bass

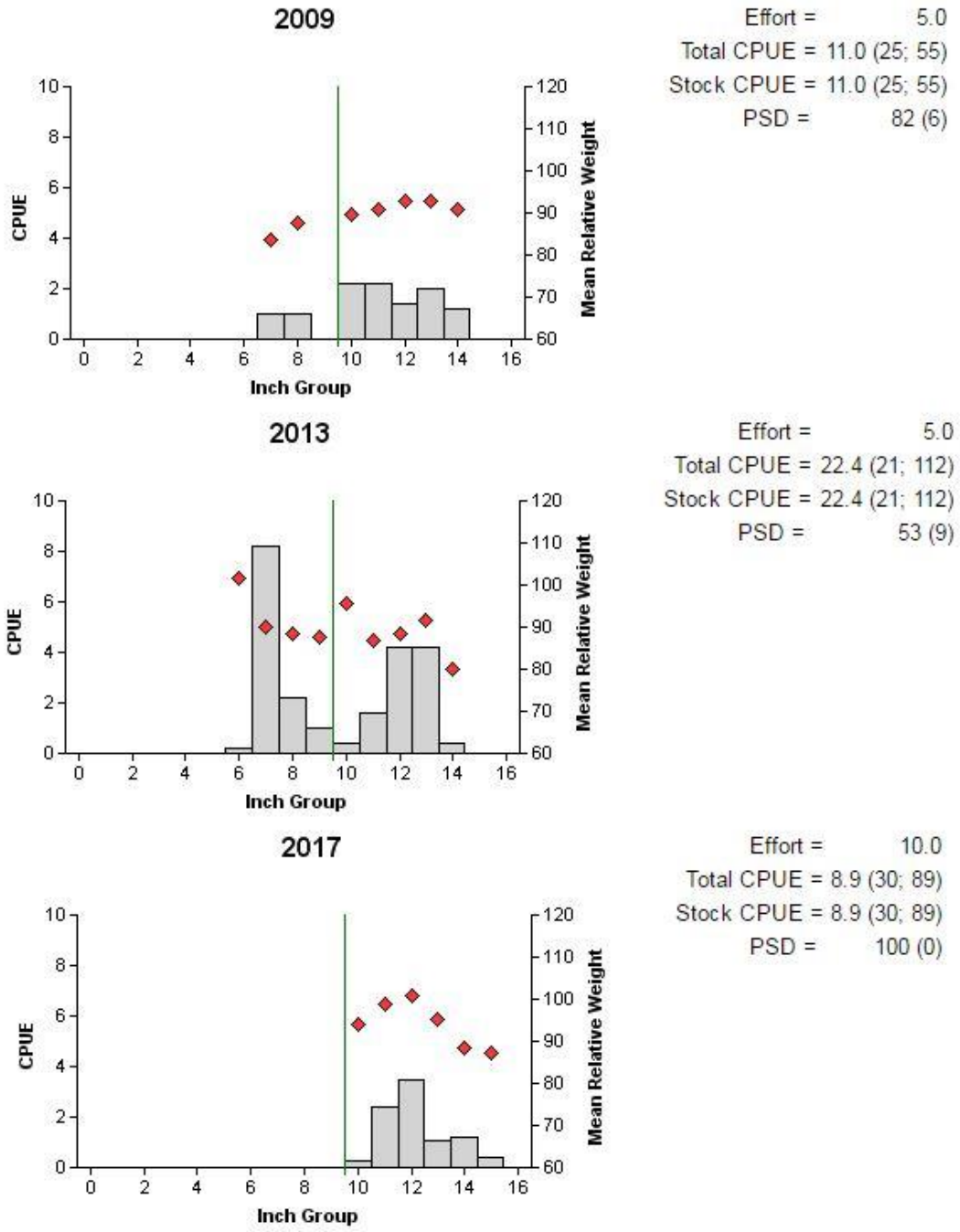


Figure 5. Number of White Bass caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Amon G. Carter Reservoir, Texas, 2009, 2013, and 2017. Vertical line indicates minimum length limit.

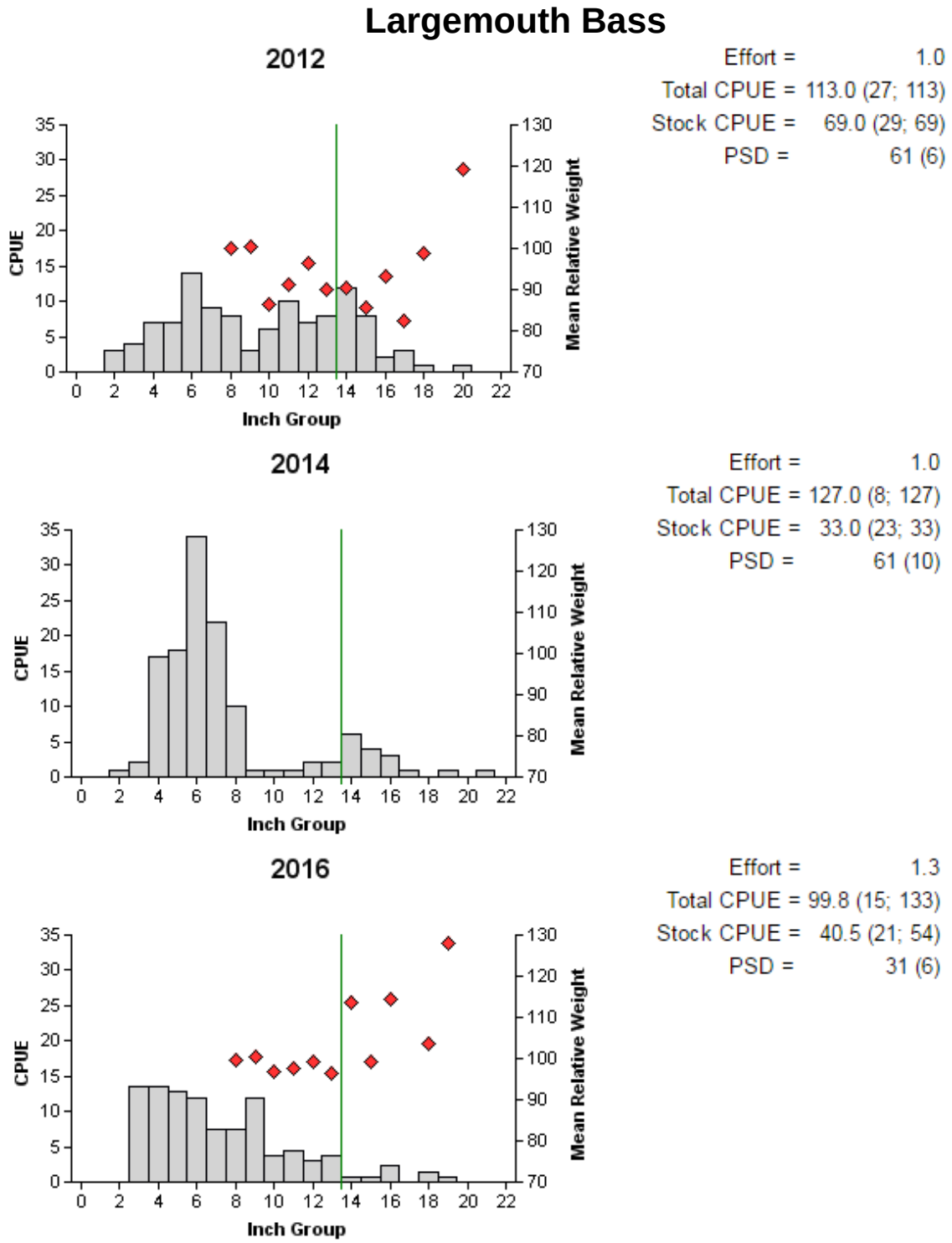


Figure 6. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Amon G. Carter Reservoir, Texas, 2012, 2014, and 2016. Vertical line indicates minimum length limit.

White Crappie

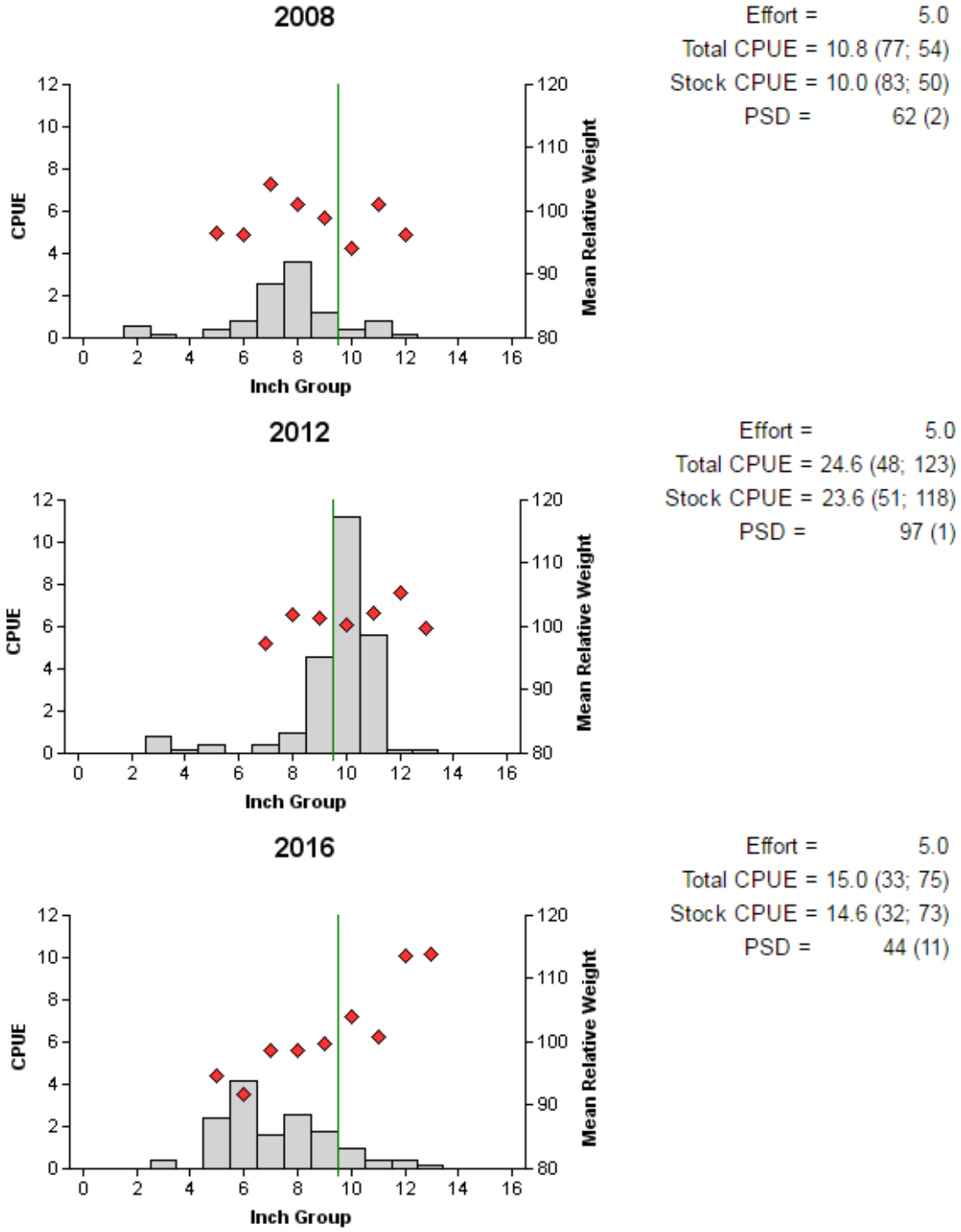


Figure 7. Number of White Crappie caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall trap netting surveys, Amon G. Carter Reservoir, Texas, 2008, 2012, and 2016. Vertical line indicates minimum length limit.

Table 7. Proposed sampling schedule for Amon G. Carter Reservoir, Texas. Survey period is June through May. Gill netting surveys are conducted in the spring, while electrofishing and trap netting surveys are conducted in the fall. Standard survey denoted by S.

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

APPENDIX A

Number (N) and catch rate (CPUE) of all target species collected from all gear types from Amon Carter Reservoir, Texas, 2016-2017. Sampling effort was 5 net nights for gill netting, 5 net nights for trap netting, and 1.33 hours for electrofishing.

Species	Gill Netting		Trap Netting		Electrofishing	
	N	CPUE	N	CPUE	N	CPUE
Gizzard Shad					255	191.3
Threadfin Shad					1169	876.8
Channel Catfish	49	4.9				
Flathead Catfish	3	0.3				
White Bass	89	8.9				
Green Sunfish					56	42.0
Warmouth					11	8.3
Orangespotted Sunfish					1	0.75
Bluegill					1073	804.8
Longear Sunfish					257	192.8
Redear Sunfish					16	12.0
Largemouth Bass					133	99.8
White Crappie			75	15.0		
Black Crappie			20	4.0		

APPENDIX B

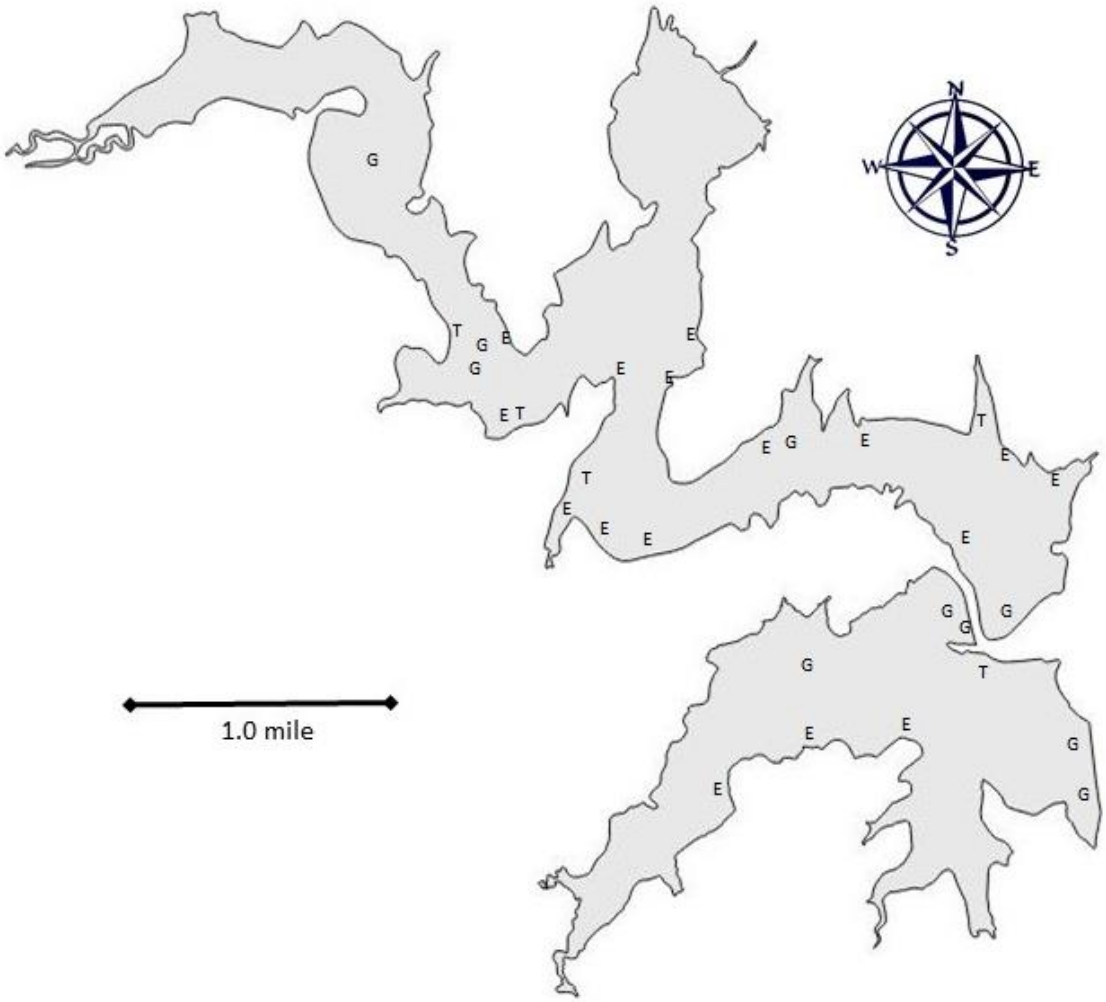
Catch rates (CPUE) of targeted species by gear type and year for Amon G. Carter Reservoir, Texas, 2004-2017.

		Year										
Gear	Species	2004[a]	2005[ab]	2008	2009	2010[b]	2012	2013	2014[b]	2016	2017	**Avg**
Gill Netting	Channel Catfish		6.8		4.6			3.4			4.9	**4.9**
(fish/net night)	Flathead Catfish		0.4		0.2			0.2			0.3	**0.3**
	White Bass		5.6		11.0			22.4			8.9	**12.0**
Electrofishing	Gizzard Shad	709.0		65.0			91.0			191.3		**264.1**
(fish/hour)	Threadfin Shad	219.0		575.0			2,060.0			876.8		**932.7**
	Green Sunfish	102.0		34.0			55.0			42.0		**58.3**
	Warmouth	11.0		7.0			14.0			8.3		**10.1**
	Orangespotted Sunfish	0.0		1.0			0.0			0.8		**0.5**
	Bluegill	537.0		305.0			522.0			804.8		**542.2**
	Longear Sunfish	242.0		105.0			155.0			192.8		**173.7**
	Redear Sunfish	6.0		8.0			20.0			12.0		**11.5**
	Largemouth Bass	149.0	136.0	105.0		73.0	113.0		127.0	99.8		**114.7**
Trap Netting	White Crappie	14.4		10.8			24.6			15.0		**16.2**
(fish/net night)	Black Crappie	1.2		2.0			3.0			4.0		**2.6**

[a]Electrofishing survey was conducted using a 5.0 Smith-Root GPP (Gas Powered Pulsator). Electrofishing surveys since 2005 were conducted using a Smith-Root 7.5 GPP.
[b]Bass only electrofishing survey.

APPENDIX C

Location of sampling sites, Amon G. Carter Reservoir, Texas, 2016-2017. Trap net, gill net, and electrofishing stations are indicated by T, G, and E, respectively. Water level was near conservation at time of sampling.



APPENDIX D

Largemouth Bass Tournament Results for Amon G. Carter Reservoir, 2017. Numbers listed are in pounds and are an average for all tournaments (N=3) in that year.

Year	N	First Place	Second Place	Third Place	Big Bass
2017	3	20.0	18.1	17.3	6.7