Davy Crockett Reservoir

2021 Fisheries Management Survey Report

PERFORMANCE REPORT

As Required by

FEDERAL AID IN SPORT FISH RESTORATION ACT

TEXAS

FEDERAL AID PROJECT F-221-M-4

INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

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Survey and Management Summary

Fish populations in Davy Crockett Reservoir were surveyed in 2021 using electrofishing and trap netting. Bass-only electrofishing was conducted in spring 2022. Historical data are presented with the 2021-2022 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: Davy Crockett Reservoir is a 355-acre impoundment located on Dixon and Sandy Creeks approximately 14 miles northeast of Bonham in the Caddo National Grasslands. Davy Crockett Reservoir has high biological productivity. Habitat features consisted of natural shoreline and native aquatic vegetation (floating-leaved, emergent, submersed; greater than 40% coverage). Non-native species, hydrilla and curly-leaf pondweed were identified near the boat ramp in 2021.

Management History: Important sport fish included Largemouth Bass, Channel Catfish, and crappie. The management plan from 2018 recommended discontinuing stocking of advanced fingerling Channel Catfish, additional spring monitoring of the bass population, infrastructure improvements, and vegetation control to increase angler bank access. The 14 to 18-inch slot limit for Largemouth Bass was changed to a 16-inch maximum length limit effective 1 September 2018. The USFS installed a new, floating access pier and placed gravel on the boat ramp to fill in fractures of the concrete ramp. Hydrilla and curly-leaf pondweed were treated near the boat ramp in 2021.

Fish Community

- **Prey species:** Threadfin Shad and Gizzard Shad provide ample forage for sport fish. Bluegill Sunfish were abundant, and other sunfish species, Redear, Green Sunfish, and Warmouth, also add to the forage base. Golden Shiner also provide forage for sport fishes.
- **Catfishes:** Channel Catfish were last stocked in 2016. Targeted sampling for catfish was not conducted in 2022 but catches of multiple large (>20-inch) Channel Catfish were reported and submitted as waterbody records.
- **Largemouth Bass:** Largemouth Bass abundance increased from the previous survey. Spring sampling suggested increased abundance of bass over 18-inches.
- **Crappies:** White and Black Crappie were present in the reservoir. Black Crappie have become more abundant than White Crappie. Both species offered legal-length fish to anglers.

Management Strategies: The 16-inch maximum length limit, adopted in September 2018, should be maintained. Conduct a supplemental electrofishing survey in spring of 2024 and 2026 to evaluate the relative abundance of bass over 18 inches. Monitor the spread of hydrilla and curly-leaf pondweed annually. Encourage the USFS to repair leaks on dam and damaged walls on spillway when funding is available. Cooperate with the USFS to educate the public about invasive species.

Introduction

This document is a summary of fisheries data collected from Davy Crockett Reservoir in 2021-2022. 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 2021-2022 data for comparison.

Reservoir Description

Davy Crockett Reservoir is a 355-acre impoundment constructed in 1938 on Dixon and Sandy Creeks. It is located in Fannin County approximately 14 miles northeast of Bonham and is operated and controlled by the United States Forest Service (USFS). Primary water uses included wildlife management and recreation. The reservoir is classified as eutrophic as per Carlson's Trophic State Index (Texas Commission on Environmental Quality 2011). Habitat at time of sampling consisted of natural shoreline and native and non-native aquatic vegetation. Since there is no gauge present, water elevation is not monitored in this reservoir. Other descriptive characteristics for Davy Crockett Reservoir are in Table 1.

Angler Access

Boat access consisted of one public boat ramp with parking. Additional boat ramp characteristics are in Table 2. The USFS installed a new, floating access pier and placed gravel on the boat ramp to fill in fractures of the concrete ramp. There is a campground on the west side of the reservoir with bank angler access. Further information about Davy Crockett Reservoir and its facilities can be obtained by visiting the Texas Parks and Wildlife Department (TPWD) web site at www.tpwd.state.tx.us and navigating within the fishing web page.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Cummings and Bennett 2018) included:

1. Post signage to inform anglers about the 16-inch maximum length limit for Largemouth Bass and conduct standard and additional spring electrofishing surveys.

   Action: After multiple signs were removed from the USFS Service kiosk by USFS staff, a sign was installed adjacent to the boater access pier per instructions from the USFS. A standard fall electrofishing survey and an additional spring electrofishing survey were conducted.

2. Discontinue Channel Catfish stockings due to low effort but monitor size structure and recruitment through gill net sampling in 2022.

   Action: Channel Catfish stockings were not conducted, and we determined sampling was also undesirable in 2022 to avoid sampling induced mortality on the remaining population of stocked fish in the small reservoir.

3. Encourage the USFS to repair leaks in the dam and replace collapsed retaining wall in the spillway.

   Action: The USFS were encouraged to maintain and repair infrastructure, and opportunities for funding assistance were discussed. Denison district staff were informed about budget limitations, and that infrastructure would be added to the USFS future requests for appropriations.

4. Advise the USFS about aquatic vegetation treatment needs for management of excessive American Lotus and emergent vegetation to improve bank angler access.

   Action: Inland Fisheries staff suggested treatment of excessive vegetation to the USFS and were informed about budget limitations.

5. Educate the public about invasive species.

   Action: Signage and educational materials has been provided to the USFS.

Harvest regulation history: Sport fishes in Davy Crockett Reservoir have been managed with statewide regulations with the exception of Largemouth Bass (Table 3). From 1986 to 1996, Largemouth Bass were managed with a 14-inch minimum length limit. A 14- to 18-inch slot length limit was implemented in 1996 to improve the population size structure. Following statewide efforts to simplify and reduce regulations, a 16-inch maximum length limit was adopted for Largemouth Bass on 1 September 2018. The use of juglines, throwlines, and trotlines has been prohibited on the reservoir. The statewide harvest regulation for catfish was changed in 2021, doing away with the minimum length limit and adopting a graduated bag in which only 10 of the 25 fish daily bag limit may be 20-inches or larger. Current regulations are found in Table 3.

Stocking history: Threadfin Shad and advanced fingerling Channel Catfish were stocked into Davy Crockett Reservoir in 2016. Florida Largemouth Bass were stocked annually from 1997 to 1999, and in 2018. Adult Florida Bass were stocked in Spring 2022 after being retired from service at a state fish hatchery. The complete stocking history is in Table 4.

Vegetation/habitat management history: Davy Crockett Reservoir supports a diverse native aquatic vegetation community of emergent (cattail and bulrush), submersed (southern naiad and coontail), and floating-leaved plants (American lotus). Over the years aquatic vegetation has increased to cause some access problems for anglers and fish sampling. In spring of 2013, a drawdown was initiated to control emergent aquatic vegetation (American Lotus), which resulted in an increase in Lotus extent in subsequent years. A two-acre treatment targeting non-native hydrilla and curly-leaf pondweed was conducted in late summer 2021 near the boat ramp after both species were identified in the vegetation survey.

Water transfer: Davy Crockett Reservoir is used exclusively for wildlife management and recreation and water is not transferred to or from any other location.

Methods

Surveys were conducted to achieve survey and sampling objectives in accordance with the objective-based sampling (OBS) plan for Davy Crockett Reservoir (Cummings and Bennett 2018). Primary components of the OBS plan are listed in Table 5. Fall electrofishing and trap net sites were randomly selected, and surveys were conducted according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2017). A spring bass-only electrofishing survey was conducted during the daytime at biologist selected stations.

Electrofishing – Largemouth Bass, sunfishes, Gizzard Shad, and Threadfin Shad were collected by nighttime boat electrofishing (1.0 hour at 12, 5-min stations). A supplemental bass-only, daytime electrofishing survey was conducted in spring of 2022 to document Largemouth Bass ≥ 18 inches (1 hour at 12, 5-min stations). Catch per unit effort (CPUE) for electrofishing was recorded as the number of fish caught per hour (fish/h) of actual electrofishing. Ages for Largemouth Bass were determined using otoliths from 13 randomly selected fish (range 13.0 to 14.9 inches) collected during the standard electrofishing survey.

Trap netting – Crappie were collected using trap nets (4 net nights at 4 stations). Five nets were originally set, but one was retrieved by an angler who notified a game warden after taking it to his residence and seeing the TPWD text on the float. Catch per unit effort for trap netting was recorded as the number of fish caught per net night (fish/nn). Ages for Black Crappie were determined using otoliths from 13 randomly-selected fish (range 9.0 to 10.9 inches). Age data was not collected for White Crappie due to insufficient sample size.

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). Relative standard error (RSE = 100 X SE of the estimate/estimate) was calculated for all CPUE statistics and SE was calculated for structural indices and IOV. Otoliths were used for aging Largemouth Bass and Black Crappie according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2017).

Habitat – A vegetation survey was conducted in 2021. Habitat was assessed with the digital shapefile method (TPWD, Inland Fisheries Division, unpublished manual revised 2009).

Results and Discussion

Habitat: Lake Davy Crockett is ringed by natural shoreline and emergent aquatic vegetation. Some concrete bulkheading is present along the dam. The reservoir supported emergent, submersed, and floating-leaved aquatic vegetation (Table 6). Emergent (common cattail and bulrush) and floating (American lotus) aquatic vegetation was common and impeded access for shoreline anglers in some areas. Submersed aquatic vegetation (coontail) was also widespread. Other species such as American pondweed, smartweed, duckweed, and water-willow were present in small quantities. Aquatic vegetation increased slightly from the previous survey to cover about 46% of the reservoir. Non-native species, hydrilla and curly-leaf pondweed, *Potamogeton crispus*, were identified near the boat ramp in late summer 2021 and a treatment of two acres was conducted by the Aquatic Habitat Enhancement Office to try and prevent establishment and spread to nearby waterbodies.

Prey species: Electrofishing catch rate of Gizzard Shad (219.0/h) was higher than the two previous surveys in 2013 (71/h) and 2017 (121.8/h), and the Index of Vulnerability (IOV) for Gizzard Shad improved, indicating that 74% of Gizzard Shad were available to predators (Figure 1). Threadfin Shad were also abundant (403/h) despite prolonged freezes in recent years. Total CPUE of Bluegill remained high (268/h) in 2021 and was similar to the 2017 survey (259.4/h). Bluegill size structure continued to be dominated by small individuals (Figure 2). Redear Sunfish, Warmouth, Green Sunfish, and Golden Shiner also added to the forage base.

Channel Catfish: The previous fisheries management plan for Davy Crockett called for sampling of Channel Catfish with gillnets; however, sampling was discontinued considering limited precision of prior survey efforts, limited angler effort, discontinued stocking plans, historically poor natural recruitment, and to minimize sampling mortality on the remaining population. District staff reported multiple catches of large (>20-inch) Channel Catfish while targeting crappie on personal time, and a new angler record and junior angler record were submitted in 2021 and 2022, respectively. A robust, naturally reproducing population of Channel Catfish is available to anglers at nearby (~4 miles) Coffee Mill Lake which is also underutilized.

Largemouth Bass: The fall electrofishing catch rate of Largemouth Bass (103/h) was the highest since 2001 (165/h; Appendix B), and up from 68.3/h in 2017 (Figure 4). All sampling objectives were met (Table 5). The PSD was 62, with several individuals collected exceeding 20-inches. Mean relative weights were above 90 for most size classes and generally increased with size. Largemouth Bass reached legal length (14 inches) in 2.5 years (N = 13, range = 2-3 years), similar to the previous survey (Cummings and Bennett 2018).

To investigate trends in the relative abundance of larger bass (≥18-inches) after adopting the 16-inch maximum length limit, a spring electrofishing survey was conducted and compared to prior daytime spring surveys in 2011 and 2018. The daytime bass-only electrofishing survey conducted in spring 2022 exhibited a CPUE-16 of 75/h and a CPUE-18 of 42/h (Figure 5). Bass up to 22-inches were collected. The results suggest a near three-fold increase in the relative abundance of bass in either size category over the four-year period post regulation change. It is unknown if observed changes in size structure was due to the regulation change, was related to large-scale habitat changes following the 2013 drawdown for vegetation control, or if it resulted from a combination of both conditions. A 2011 (nine-day) spring creel survey documented 5% traditional harvest of bass (Moczygemba and Hysmith 2014); however, harvested fish observed were sub-slot bass (≤14-inches). The creel survey did not document any tournament effort, although weekly amateur tournaments were known to occur seasonally (Game Warden Randolph McGee, pers. comm.) prior to the 2018 regulation change. A possible reduction in temporary retention of bass over the maximum size limit (16-inches) by tournament or other anglers may have reduced overall fishing mortality in the small reservoir, and subsequently increased the abundance of larger size classes over time.

Crappies: Sampling objectives were met for crappie (Table 5). The trap net catch rate of White Crappie was 1.3/nn in 2021, the lowest catch rate on record, and well below the long-term average of 9.1/nn (Appendix B). Size structure (PSD-94) remained high for crappie (Figure 6). Relative weights were above 90 for White Crappie.

A shift towards the dominance of Black Crappie continued at Davy Crockett Reservoir. The relative abundance of Black Crappie (11.5/nn) was higher than White Crappie for the first time in 2013 (Appendix B) and was similar to the previous survey in 2017 (11.0/nn). Mean relative weight was near 90 for most size classes but fell below 85 for the largest individuals (Figure 6). Black Crappie reached legal length (10 inches) in 2.8 years (N = 13, range = 2-4 years). Overall, 59% of all crappie sampled were legal length and available to anglers.

Fisheries Management Plan for Davy Crockett Reservoir, Texas

Prepared – July 2022

ISSUE 1: The Largemouth Bass population is managed with a restrictive harvest regulation and close monitoring is desired.

MANAGEMENT STRATEGIES

1. Maintain signage reminding anglers of the new regulation on the reservoir.
2. Conduct spring daytime bass-only electrofishing in 2024 and 2026 to document bass over 18 inches.

ISSUE 2: Davy Crockett Reservoir was impounded in 1938 and suffers from aging infrastructure. Two significant leaks have formed in the dam and a retaining wall has fallen in the spillway.

MANAGEMENT STRATEGY

1. Encourage the USFS to seek funding for dam repairs and replace retaining wall in spillway.
2. Explore internal funding opportunities to assist with infrastructure repairs.

ISSUE 3: Hydrilla and Curly-leaf pondweed were identified in the reservoir in 2021 for the first time.

MANAGEMENT STRATEGIES

1. Monitor aquatic vegetation annually and explore treatment options if needed.

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 USFS 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.

Objective-Based Sampling Plan and Schedule (2022–2026)

Sport fish, forage fish, and other important fishes

Important sport fish in Davy Crockett Reservoir include Largemouth Bass, White Crappie, and Black Crappie. Important forage species include Bluegill and Gizzard and Threadfin Shad.

Low density fisheries

Channel Catfish stockings were last conducted in 2016, and a low-density population has persisted. Sampling was not conducted in 2022, and future sampling will not be planned. Channel Catfish have historically exhibited poor recruitment in Davy Crockett. In contrast, Coffee Mill Reservoir, located approximately three miles away supports a robust, naturally reproducing Channel Catfish fishery that is likely underutilized, and served as further justification to discontinue stockings at Davy Crockett.

Survey objectives, fisheries metrics, and sampling objectives

Largemouth Bass: Largemouth Bass are the most targeted species at Davy Crockett with 42.6% directed effort (Moczygemba and Hysmith 2014). In September 2018, the 14- to 18-inch slot length limit was changed to a 16-inch maximum length limit. Florida Largemouth Bass were stocked in 2018, and surplus adult Florida Bass brooders were stocked in 2022.

Daytime, bass-only electrofishing will occur in the spring of 2024 and 2026. Spring sampling will increase the catch of Largemouth Bass over 18 inches to aid in evaluating the regulation change. Objectives will include ≥ 50 stock-size fish with an RSE of CPUE-S ≤ 25 to evaluate size structure and CPUE. A minimum of five bass per inch group will be weighed to estimate relative weight. No additional effort will be expended if objectives are not met. Spring sampling will be sufficient to collect long-term monitoring trend data and monitor the response to the regulation change (Table 7).

Crappie: Both White and Black Crappie are present in Davy Crockett Reservoir. Davy Crockett supports a popular crappie fishery and they are second to Largemouth Bass in directed effort (37%).

Crappie populations at Davy Crockett Reservoir appear stable under current harvest regulations. Due to the small size of the reservoir, crappie sampling efforts will be focused on new reservoirs being constructed in the county, Bois d'Arc Lake and Ralph Hall Reservoir. Crappie will be collected, enumerated, and measured during the spring electrofishing surveys as encountered.

Sunfish and Shad: Bluegill, Gizzard Shad, and Threadfin Shad are the primary forage species at Davy Crockett Reservoir. Relative weights of Largemouth Bass will be used to evaluate forage abundance and identify a need for further investigation.

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.

Cummings, G. A., and D. L. Bennett. 2018. Statewide freshwater fisheries monitoring and management program survey report for Davy Crockett Reservoir, 2017. Texas Parks and Wildlife Department, Federal Aid Report F-221-M-3, Austin.

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

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

Moczygemba, J.H. and B.T. Hysmith. 2014. Statewide freshwater fisheries monitoring and management program survey report for Davy Crockett Reservoir, 2013. Texas Parks and Wildlife Department, Federal Aid Report F-221-M-4, Austin.

Texas Commission on Environmental Quality. 2011. Trophic classification of Texas reservoirs. 2010 Texas Water Quality Inventory and 303 (d) List, Austin. 18 pp.

Tables and Figures

Table 1. Characteristics of Davy Crockett Reservoir, Texas.

Characteristic	Description
Year constructed	1938
Controlling authority	United States Forest Service
County	Fannin
Reservoir type	Tributary
Shoreline Development Index	2.1
Conductivity	166 µS/cm

Table 2. Boat ramp characteristics for Davy Crockett Reservoir, Texas, August 2021.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
Crockett East	33.73755 -95.92195	Y	5	477	Fair, needs improvement

Table 3. Harvest regulations for Davy Crockett Reservoir, Texas.

Species	Bag limit	Length limit
Channel Catfish	25 (in any combination, only 10 can be ≥ 20-inches)	No limit
Largemouth Bass	5	16-inch maximum
Crappie: White and Black crappie, their hybrids and subspecies	25 (in any combination)	10-inch minimum

Table 4. Stocking history of Davy Crockett Reservoir, Texas. FGL = fingerling; AFGL = advanced fingerling; ADL = adults, UNK = unknown.

Species	Year	Number	Life Stage
Channel Catfish	1968	48,680	AFGL
	1978	10,859	AFGL
	1991	7,500	AFGL
	1992	6,106	AFGL
	1994	1,100	ADL
	1995	1,200	AFGL
	1999	8,776	AFGL
	2006	3,559	AFGL
	2008	4,449	AFGL
	2008	38,640	FGL
	2010	4,008	AFGL
	2011	37,722	AFGL
	2016	8,772	AFGL
	Total	181,371	
Florida largemouth bass	1997	35,000	FGL
	1998	35,004	FGL
	1999	35,281	FGL
	2018	36,200	FGL
	2022	80	ADL
	Total	141,565	
Green sunfish x redear sunfish	1976	260	UNK
	1978	17,785	UNK
	Total	18,045	
Largemouth bass	1976	260	UNK
Threadfin shad	2008	245	ADL
	2009	800	ADL
	2011	400	AFGL
	2016	400	AFGL
	Total	1,845	

Table 5. Objective-based sampling plan components for Davy Crockett Reservoir, Texas 2021 - 2022.

Gear/target species	Survey objective	Metrics	Sampling objective
Electrofishng			
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	length frequency	N ≥ 50
	Prey availability	IOV	N ≥ 50
Spring electrofishing			
Largemouth Bass	Abundance	CPUE – 16, 18	RSE-Stock ≤ 25
	Size structure	PSD, length frequency	N ≥ 50 stock
Trap netting			
Crappie	Abundance	CPUE - Total	General monitoring trend data
	Size structure	PSD, length frequency	N ≥ 50 stock
	Age-and-growth	Age at 10 inches	N = 13, 9.0 - 10.9 inches
	Condition	W_r	10 fish/inch group (max)

[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.

Table 6. Survey of aquatic vegetation, Davy Crockett Reservoir, Texas, 2013–2021. Surface area (acres) is listed with percent of total reservoir surface area in parentheses.

Vegetation	2013	2017	2021
Submersed	44.5 (12.5)	12.4 (3.5)	18.2 (5.1)[a]
Native floating-leaved	100.6 (28.3)	119.0 (33.5)	105.5 (30)
Native emergent	55.6 (15.7)	14.5 (4.1)	39.6 (11)

[a] Non-native hydrilla and curly-leaf pondweed were found near the boat ramp in 2021 and a herbicide treatment was conducted.

Gizzard Shad

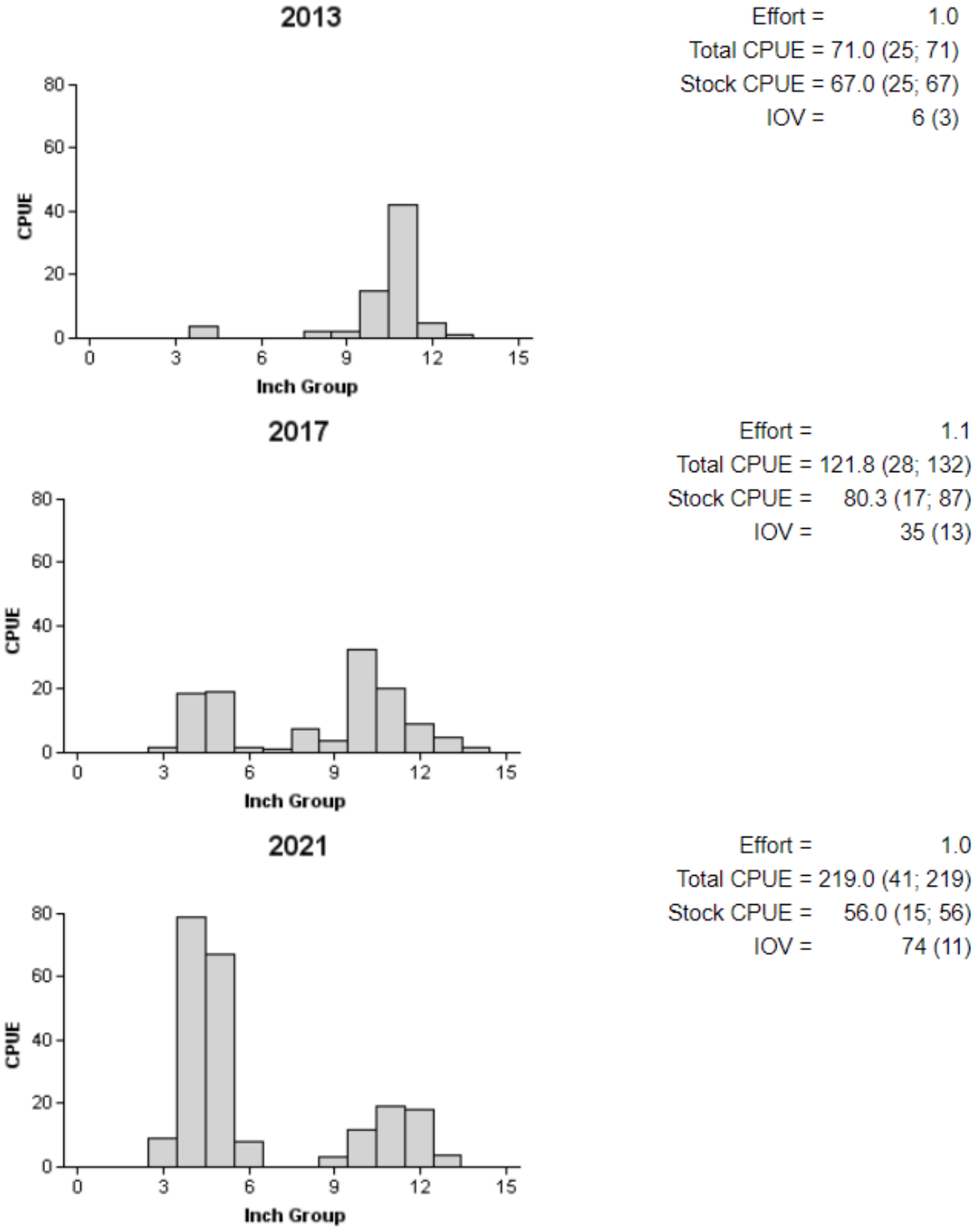


Figure 1. Number of Gizzard Shad caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Davy Crockett Reservoir, Texas, 2013, 2017, and 2021.

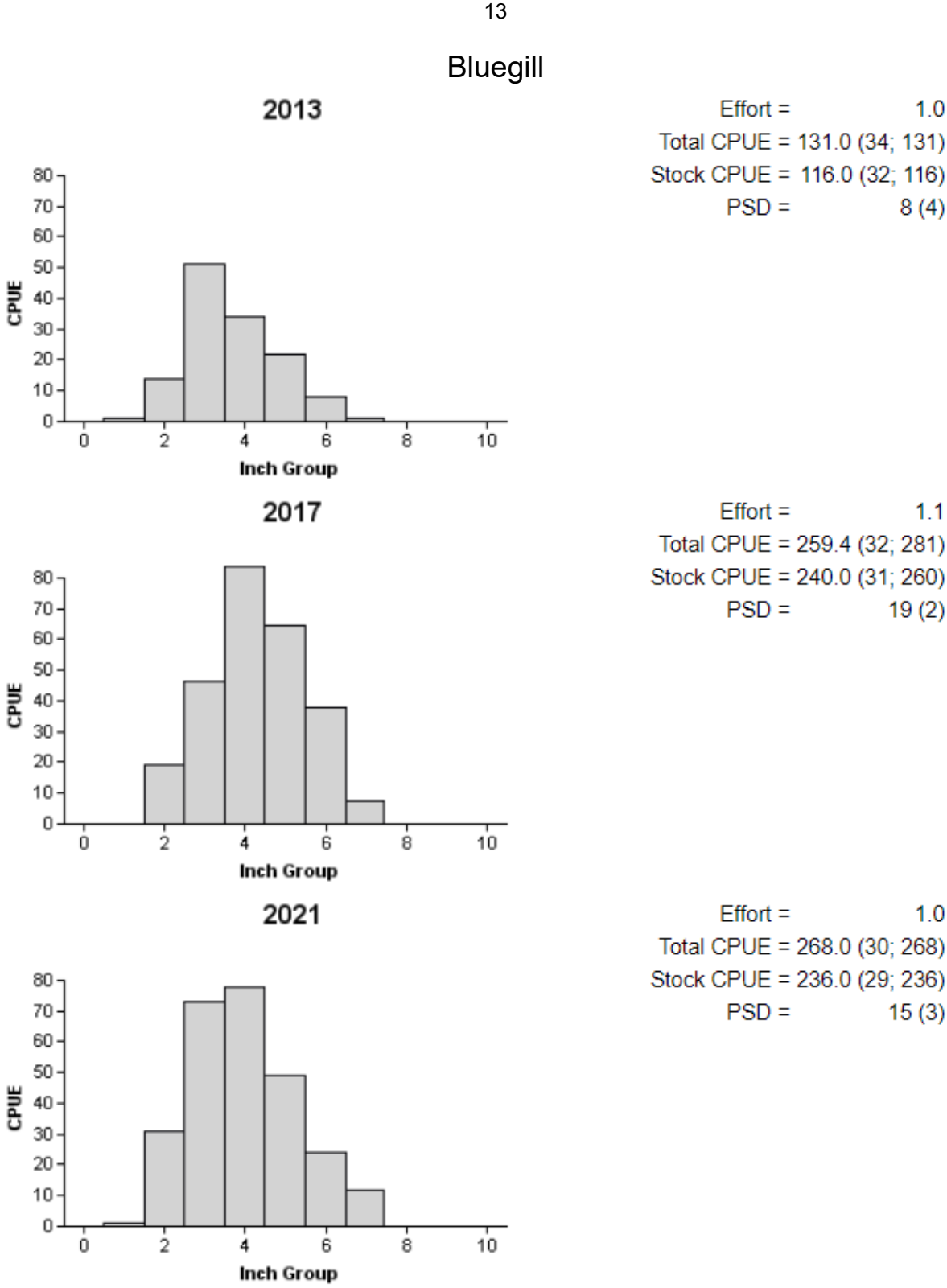


Figure 2. Number of Bluegill caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Davy Crockett Reservoir, Texas, 2013, 2017, and 2021.

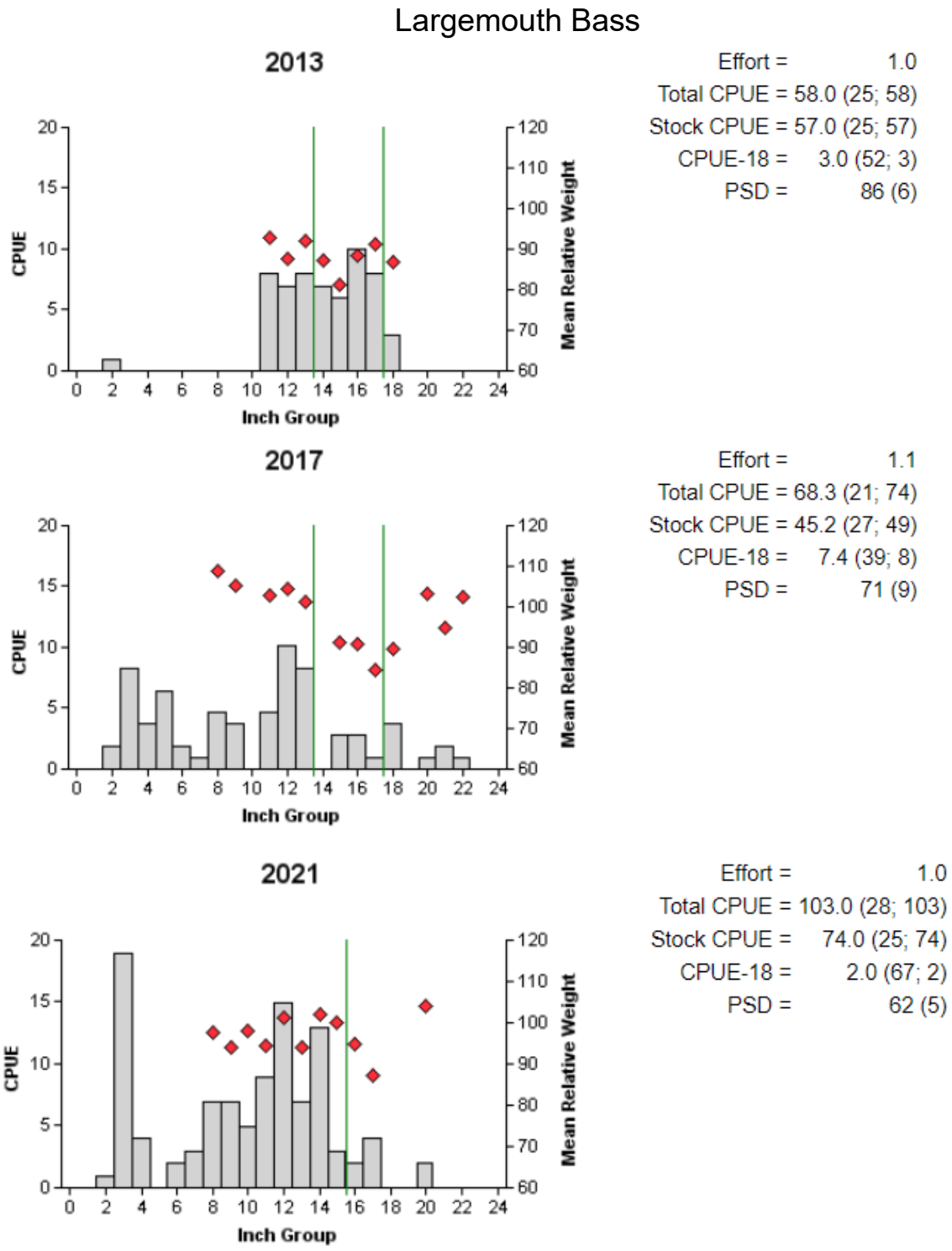


Figure 4. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Davy Crockett Reservoir, Texas, 2013, 2017, and 2021. Vertical lines represent slot length limit at time of collection prior to adopting a 16-inch maximum length limit in September 2018.

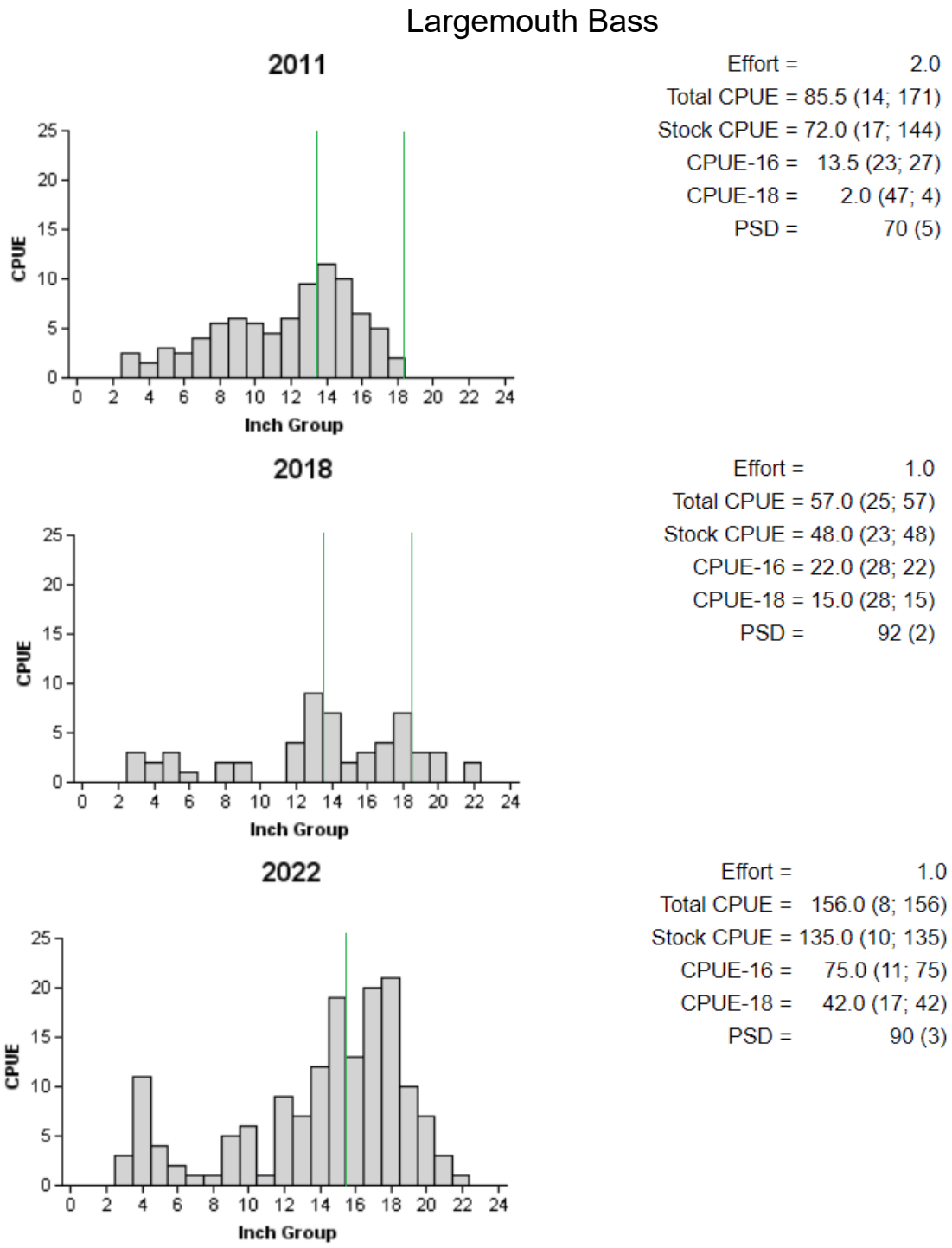
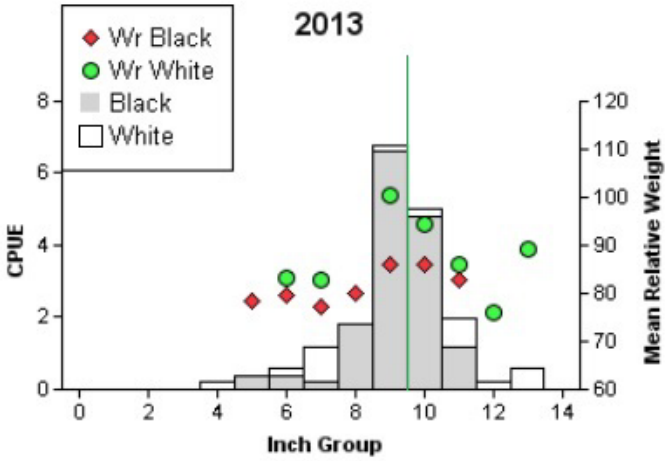
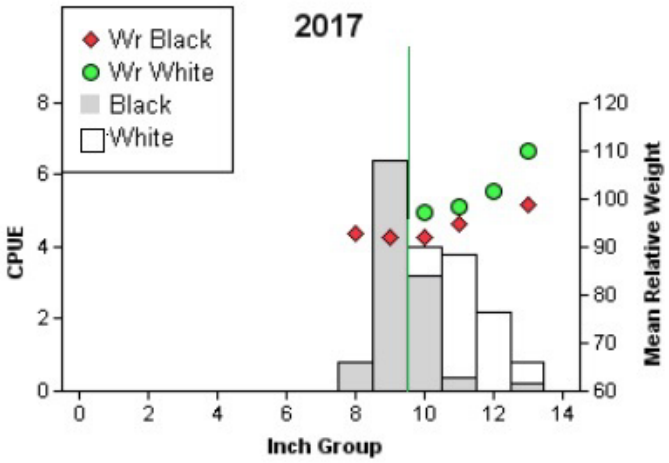


Figure 5. Number of Largemouth Bass caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for daytime bass-only spring electrofishing surveys, Davy Crockett Reservoir, Texas, 2011, 2018, and 2022. Vertical lines represent slot length limit at time of collection prior to adopting a 16-inch maximum length limit in September 2018.

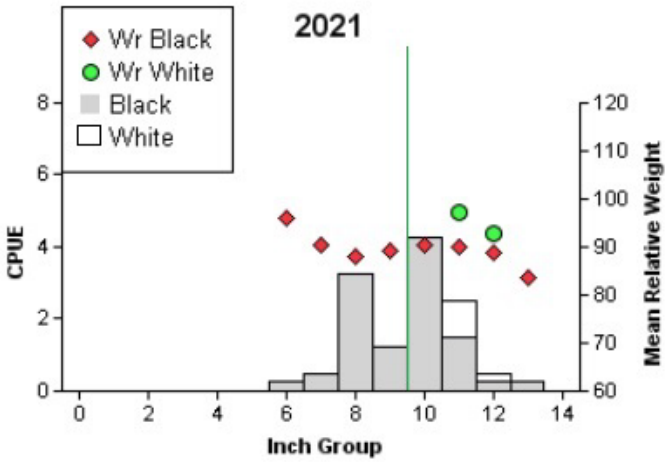
Crappie



Effort =	5.0
Total CPUE =	18.8 (47; 94)
Stock CPUE =	18.6 (46; 93)
CPUE-10 =	7.8 (34; 39)
PSD =	88 (5)



Effort =	5.0
Total CPUE =	18.0 (24; 90)
Stock CPUE =	18.0 (24; 90)
CPUE-10 =	10.8 (27; 54)
PSD =	100 (0)



Effort =	4.0
Total CPUE =	12.8 (52; 51)
Stock CPUE =	12.8 (52; 51)
CPUE-10 =	7.5 (30; 30)
PSD =	94 (3)

Figure 6. Number of Black Crappie and 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, Davy Crockett Reservoir, Texas, 2013, 2017, and 2021. Vertical line indicates minimum length limit.

Proposed Sampling Schedule

Table 7. Proposed sampling schedule for Davy Crockett Reservoir, Texas. Survey period is June through May. Bass-only electrofishing surveys are conducted in the spring.

	Survey year			
	2022-2023	2023-2024	2024-2025	2025-2026
Angler access				X
Vegetation	X	X	X	X
Electrofishing (Bass-only) – Spring		X		X
Report				X

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

Number (N), relative standard error, and catch rate (CPUE) of all target species collected from all gear types from Davy Crockett Reservoir, Texas, 2021-2022. Sampling effort was 4 net nights for trap netting, 1.0 hour for standard fall electrofishing, and 1.0 hour for spring bass-only electrofishing.

Species	Electrofishing (Spring)		Electrofishing (Fall)		Trap Netting	
	N/RSE	CPUE	N/RSE	CPUE	N/RSE	CPUE
Gizzard Shad			219 (4)	219.0		
Threadfin Shad			403 (40)	403.0		
Golden Shiner			15 (40)	15.0		
Warmouth			10 (46)	10.0		
Bluegill			268 (30)	268.0		
Green Sunfish			3 (100)	3.0		
Redear Sunfish			39 (26)	39.0		
Largemouth Bass	156 (8)	156	103 (28)	103.0		
White Crappie					5 (76)	1.25
Black Crappie					46 (60)	11.5

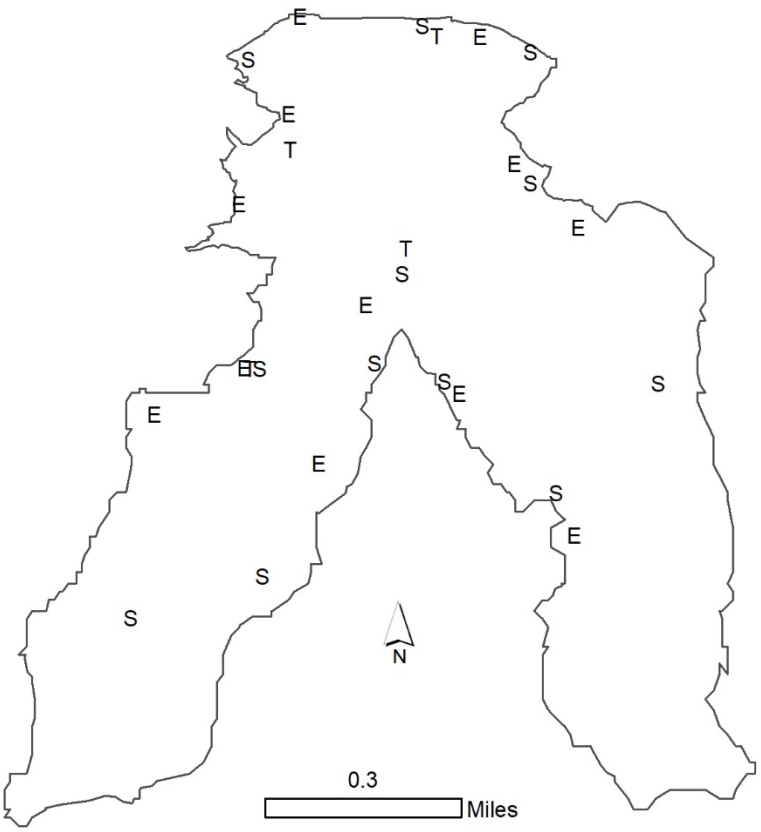
APPENDIX B – Historical catch rates of target species by gear type

Long-term catch rates of targeted species by gear type for Davy Crockett Reservoir, Texas, 2001-2022.

		Year								
Gear	Species	2001-02	2003	2005-06	2009-10	2011	2013-14	2017-18	2021-22	**Avg.**
Gill Netting (fish/net night)	Channel Catfish	7.2		3.8	2.2		5.0	6.8		**5.0**
Electrofishing (fish/hour)	Gizzard Shad	106.0		156.0	10.0		71.0	121.9	219.0	**95.7**
	Threadfin Shad				4,535.0		377.0	156.0	403.0	**1,317.4**
	Green Sunfish	5.0		9.0	3.0		0.0	9.2	3.0	**4.6**
	Warmouth	70.0		5.0	2.0		3.0	6.4	10.0	**15.2**
	Bluegill	1,783.0		651.0	221.0		131.0	259.4	268.0	**529.9**
	Redear Sunfish	109.0		31.0	18.0		27.0	18.5	39.0	**37.2**
	Largemouth Bass	165.0	108.0	82.0/118.0[a]	99.0	119.0	58.0	68.3/57.0[a]	103.0/156.0[a]	**109.8**
Trap Netting (fish/net night)	White Crappie	13.0		25.8	4.2		3.4	7.0	1.3	**9.1**
	Black Crappie	1.2		2.8	0.4		15.4	11.0	11.5	**7.1**

[a]Fall/Spring

APPENDIX C – Map of sampling locations



Location of sampling sites, Davy Crockett Reservoir, Texas, 2021-2022. Trap net, fall electrofishing, and spring electrofishing stations are indicated by T, E, and S, respectively. Water level was near full pool at time of sampling.

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