Performance Report

State: Oklahoma

Project Title: Fisheries Management Survey

Southwest Region Fisheries Management

Lake Burtschi

Abstract

Lake Burtschi was surveyed in 2025 via hoop netting for Channel Catfish to determine population structure and dynamics to evaluate the fishery for needs and possible improvements to the lake to enhance the channel catfish fishery. Lake Burtschi is one of Southwest Regions (SWR) 5 department owned lakes and considers it a high priority for both a viable fishery and desirable place for sportsman to visit. This year was the first sample for channel catfish via hoop nets in 15 years but sequentially sampled via gillnets (2023, 2020, 2018) and spring electrofishing (2019), a standard sample for channel catfish needs to be completed and a routine sampling schedule is needed to monitor current trends in the population.

Lake Burtschi has long been a fishing destination for anglers for largemouth bass and channel catfish in southwest Oklahoma, and specifically anglers around the Chickasha and Cement communities. Channel Catfish and hoop net surveys were last conducted pre-2015 to collect baseline information on the population but recently gillnetting has been used as the primary sampling strategy. SWR staff needed baseline hoop netting data to have comparative data to gillnet surveys to make best management practices with stocking and fish needs.

Introduction

Lake Burtschi is a small impoundment (146 acres) that is owned and operated Oklahoma Department of Wildlife Conservation (ODWC) for water storage and a recreational area. This highly used fishery is managed by ODWC who conducts surveys and compiles data for Bass, Channel Catfish, and Sunfish. Burtschi is a clear lake with average depths of 9 feet with moderate vegetation, highly accessible shorelines, along with hunting and fishing recreation available. SWR staff has made vast improvements to this area with 2 new boat ramps and docks, along with a trail camera survey from 2015-2017 monitoring sportsman activity; out of 5 ODWC owned lakes in SW Oklahoma Burtschi had the highest amount of fishing pressure and currently in 2025-2026 SWR staff is conducting a creel survey to better understand angler impacts.

Management issues that seem to be present is the lack of largemouth bass harvest, higher harvest rates of channel catfish, and some lack of both deep water and shoreline habitat. In the spring

2023 SWR staff started a habitat project at the lake and sank 90 large (20-35') cedar trees and 14 large hardwoods, during the winter of 2023 staff sank an additional 32 cedars, 4 hardwoods, and placed 2 Shelbyville cubes and other artificial structures around docks and known fishing areas, each location was marked with a habitat buoy. After setting hoop nets of the first day (8/4/2025), staff cut and placed an additional 19 large hardwoods along shoreline zones for bass management. On August 6 2025 staff sprayed excessive amounts of invasive phragmites/ornamental cane that was establishing around shoreline fishing areas; the need to eliminate this invasive is crucial for angler access and direct competition of native aquatic plants.

Lake Burtschi is a high use area for sportsman, sampling has shown to be moderate catch rates and acceptable ranges of fish health. Our management objectives has been geared towards maintaining a fishery by evaluating all species present along with angler surveys to allow sportsman an opportunity to catch sizeable fish and enjoy a recreational opportunity for both hunting and fishing.

The most recent surveys (2023, 2020, 2019, 2018) have shown the sportfish population to be consistent but geared towards smaller bass abundance, sizable catfish with a lower abundance, and a white bass population that is thriving. Stocking regimes have been reduced from years past with 9" channel catfish stocked in 2020 & 2024, and Saugeye stocked in 2015 & 2017.

Results

Our hoop netting samples were conducted in August of 2025 when water temperatures averaged 83^0F which are suitable with fish division's standard sampling protocols (SSP). Being a smaller lake, we were able to sample all available shoreline habitats which consisted of 45 sample sites with site being a 72 hour set unit of effort that included bare bank, proximity to rip rap or mixed vegetation, and deep drops near the dam. Nets were placed randomly in areas where 1) fish adequately for depth 2) areas with less aquatic vegetation and 3) avoid high traffic/fishing use areas. In the duration of the 4 day period sample we collected a total of 84 channel catfish with all fishing being in the small stock-quality size category.

Channel Catfish samples are measured in catch per unit effort (CPUE) and were moderately low with 5.60 (Figure 1) fish per net. When conducting this survey we did not collect any weight measurements due to all fish being in the 8-10" range. The length frequency of fish (Figure 2) was not normally distributed with a high abundance of small fish (less than 11"), This data set is slightly different than gill netting data collected in 2023 (figure 3) showing no larger fish in the population, this could be due to gear bias or overfishing; leading to angler surveys and following up with gill net samples in the winter of 2025 comparatively. Age and growth data was not collected from this sample set, rather a PSD metric was used to determine stock length categories. All previous surveys have not taken otoliths for aging of fish, only PSD metrics but it should be noted that a following sample should consider 1) use of smaller mesh nets to account for reproduction and 2) use of otolith collection for larger fish in the population. The PSD metric did show a weighted abundance of small fish being in that stocker size range to few being in the quality range, with channel catfish being stocked last year leads to 2 suggestions 1) fish are not growing adequately or 2) natural recruitment from larger individuals is prevalent.

The population structures found since 2023-2025 (gill and hoop nets) show the catfish within Burtschi are proficient in growing but more samples are needed to get a better understanding of the fish in the population. The presence of smaller fish in hoop nets (<11”) and larger fish found in gill nets can show some aspects of natural recruitment but bias in samples. Although, it should be noted that samples did show more fish between the less than 11 inches than all previous samples have shown leading to possible recruitment of new individuals to the population.

The catfish dynamic at Burtschi is a relatively small data set but does show a healthy population of all sizes of fish and that supplemental stockings could help overall. Stocking efforts within the last 10 years have increase and those efforts have increased population structures. Biologically we have noticed a rapid explosion of cattails and non-native woody vegetation. The increase in cover and spawning habitats made to the lake should help improve the fishery for recruitment and growth of individuals This lake has the potential to become a better balanced channel catfish fishery if stocking continues along with reduction of vegetation and adding more usable habitat. The best management plan should utilize the forage present, provide more habitats, and sample routinely for stocking recommendations in order to create a quality fishery.

Sampling Event Summary

Burtschi

2025

Aug

Hoop Net

Abiotic Metrics

	Mean	Min	Max
Pool Elev (ft)	NA	NA	NA
Surface Temp (C)	83	83	83
Secchi (in)	NA	NA	NA
Conductivity	NA	NA	NA

Sample Size and Effort

Sample Sizes

Species	# of fish
Channel Catfish	84

Total Effort

Gear Code	Gear Name	Total effort (net-hr)	# Stations
33	Hoop Net	360.0	5

Catch per Unit Effort

Total CPUE

Species	Mean (fish/24hr set)	# of Samples	RSE	SE	L 95% CI	U 95% CI	N RSE = 12.5 (25% range)	N RSE = 20 (40% range)
Channel Catfish	5.60	5	25.07	1.40	2.85	8.35	20	8

CPUE by Size Category

Change table to CPUE by inch or mm class

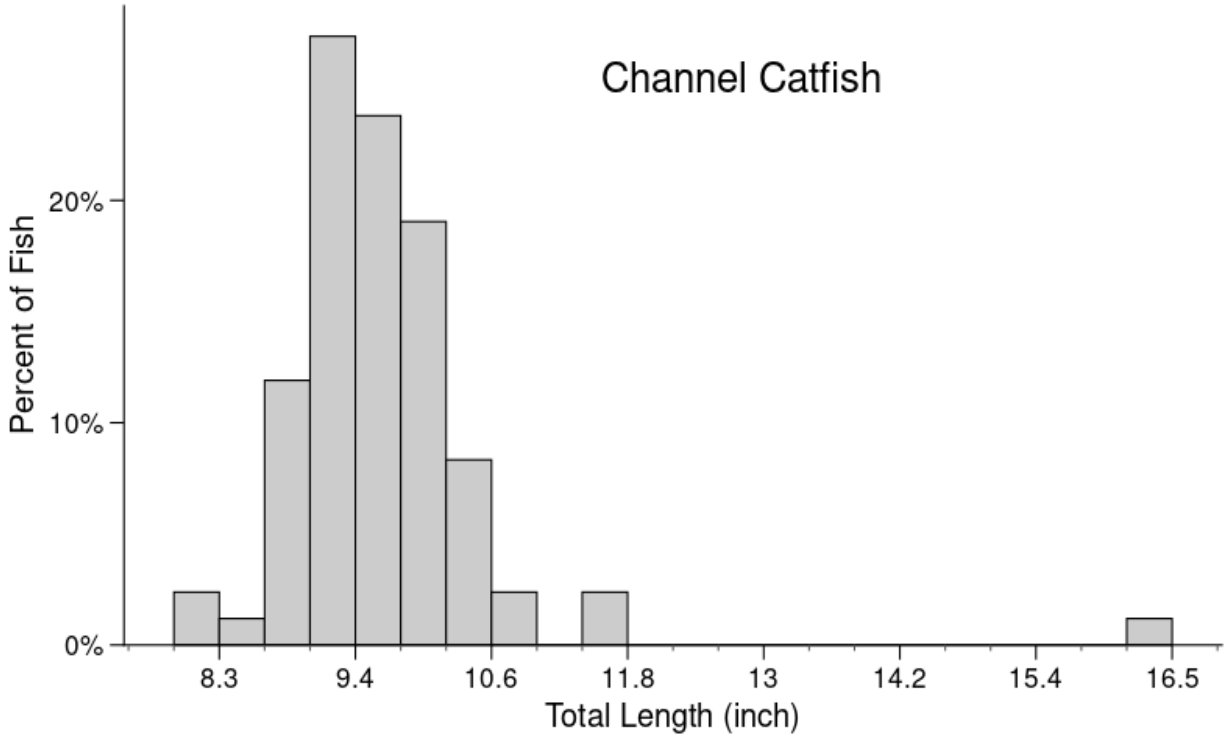
Values in the table below are catch rates within PSD ranges. If you would like to know the CPUE for fish a given size and larger, simply sum the CPUE values for the ranges of interest. For example, to get the average CPUE of Preferred and larger fish, sum the CPUE from P-M, M-T, and Trophy+.

CPUE by PSD Size Category

Species	Size Category	Mean (Fish / 24hr set)	RSE	SE	L 95% CI	U 95% CI	N RSE = 12.5 (25% range)	N RSE = 20 (40% range)
Channel Catfish	< Stock	5.40	25.70	1.39	2.68	8.12	21	8
Channel Catfish	S-Q	0.13	61.24	0.08	-0.03	0.29	120	47
Channel Catfish	Q-P	0.07	100.00	0.07	-0.06	0.20	320	125
Channel Catfish	P-M	0.00						
Channel Catfish	M-T	0.00						
Channel Catfish	Trophy+	0.00						

Show PSD Size Category References for all species in above table

Figure 1: Catch per unit effort of Channel Catfish at Lake Burtschi 2025 hoop net samples



Proportional Size Distribution (PSD)

Channel Catfish

	PSD Value	L 95% CI	U 95% CI
PSD	33	0	87
PSD-P	0	NA	NA
PSD-M	0	NA	NA
PSD-T	0	NA	NA
PSD S-Q	67	13	100
PSD Q-P	33	0	87
PSD P-M	0	NA	NA
PSD M-T	0	NA	NA
PSD T+	0	NA	NA

PSD Table

Figure 2. Length Frequency and PSD size structure of Channel Catfish Lake Burtschi 2025 samples

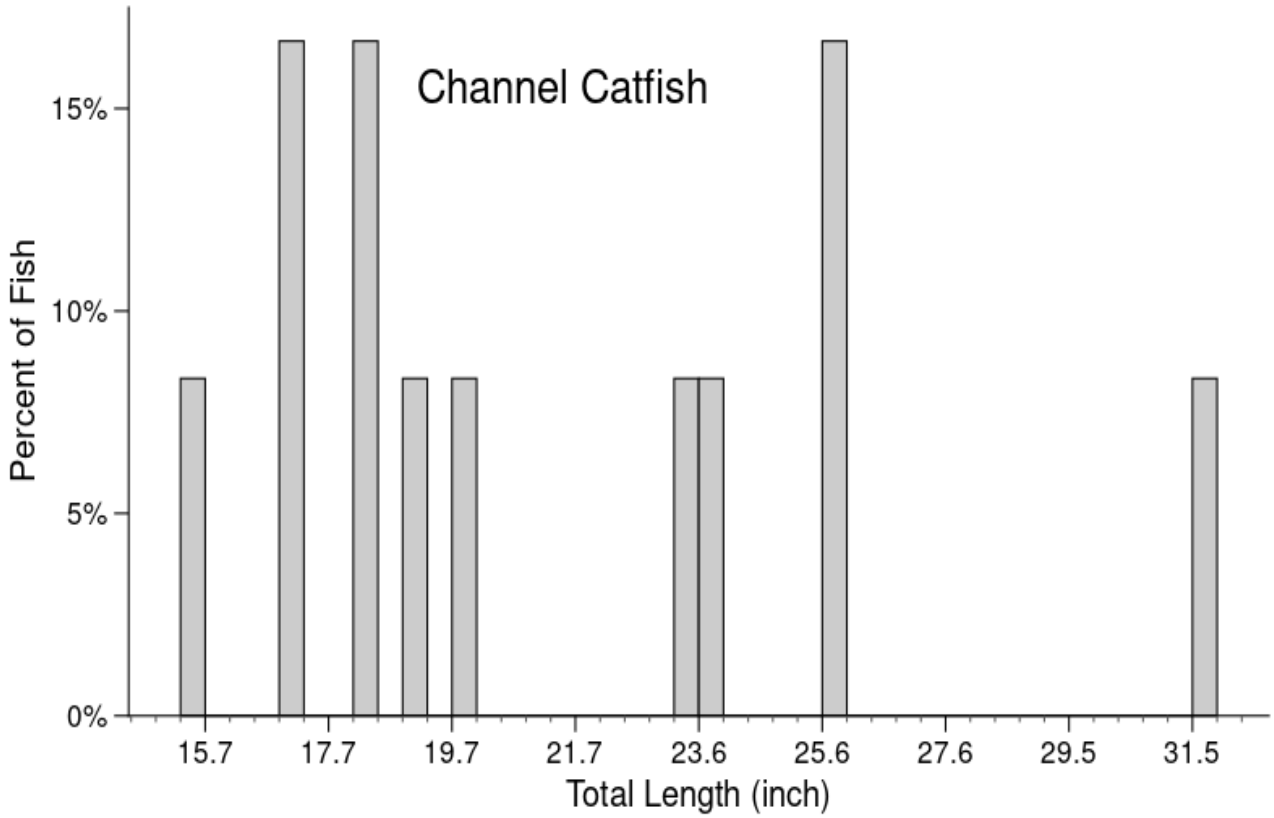


Figure 3. Length Frequency of Channel Catfish for 2023 gill net at Lake Burtschi.