

SURVEY REPORT

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION



FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

FOR

PAULS VALLEY LAKE

2023

SURVEY REPORT

State: Oklahoma

Project Title: Pauls Valley Lake Fish Management Survey Report

Period Covered: 2023

Prepared by: OFRL Research Biologists

Date Prepared: January 2024

Pauls Valley Lake

ABSTRACT

Pauls Valley Lake has been previously surveyed by spring electrofishing (1983, 1993, 1997, 1999, 2002, 2003, 2006, 2012), summer hoop netting (2023), fall nighttime electrofishing (2008), fall gill netting (1983, 1993), and fall trap netting (1998, 2000, 2002, 2005, 2008) to monitor trends in fish populations. The fishery supports self-sustaining populations of Largemouth Bass, Channel, and Flathead Catfish, White Crappie, and a variety of Sunfish species. Channel Catfish and Saugeye are stocked occasionally to provide additional angling opportunity. Primary forage species consist of Gizzard Shad and Sunfish.

INTRODUCTION

Pauls Valley Lake is located in Garvin County, 2 miles east of US 77 on East County Road 1550 NE of the city of Pauls Valley. The lake is 750 acres, has a maximum depth of 29.9 feet and has 8.2 miles of shoreline. The lake is owned by the city and impoundment was completed in 1954 for the purposes of providing municipal water supply and numerous recreational activities including fishing, boating, swimming, hiking, and camping. It is classified as mesotrophic with an average secchi disc visibility of around 45 cm. There are a variety of fish habitats including naturally occurring submerged timber, rock structure, and aquatic vegetation (water willow, bullrush, cattails, lotus), as well as fish attractor sites consisting of natural brush piles (cedar trees). Primary forage species include Gizzard Shad and Sunfish.

State mandated fishing regulations are same as statewide for all species ([Fishing Regulations | Oklahoma Department of Wildlife Conservation \(wildlifedepartment.com\)](#)). The city of Pauls Valley requires a fishing permit and city mandated restrictions include “One twenty-five (25) hook line per person, tagged with name and address; must be checked every twenty-four (24) hours or removed. Lines may be left without hooks. Owner must have a regular annual fishing permit. Trot lines must be placed at least 100 feet from the bank” and “Jug lines will be limited to 2 hooks per jug, with no more than 10 lines per person. Limb lines are not permitted” ([Permits — Pauls Valley](#)).

Fish attractor sites have been constructed from brush piles to improve angler success and are periodically refurbished. Sites were most recently refurbished in 2017. To see locations of fish attractor sites please visit: [Fish Attractors Map \(arcgis.com\)](#).

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Aquatic Nuisance Species

There are no known ANS in Pauls Valley Lake.

RESULTS

Tandem Hoop Net (gear 33)

Overview

The lake was sampled for Channel Catfish using tandem hoop net sets (gear 33) from September 26-29, 2023. Ten randomly selected sites were sampled for a total of 725 units of effort. Mean water temperature was 25.7° C and pool elevation was approximately normal at 274.3 m. A total of 369 fish were caught.

Channel Catfish

Channel Catfish had a mean TL of 342 mm (range 204-537). The length-frequency plot was bimodal with peaks at 220 and 340 mm TL (Figure 1). The first peak is likely explained by the 2022 stocking event. Channel Catfish had a mean CPUE of 12.17 (4.25-20.09 95% CI) with a standard error (SE) of 4.04 (Table 1). The relative standard error (RSE) was 33.19. No preferred, memorable, or trophy sized fish were caught (Table 1). Substock, stock, and quality sized fish had mean CPUEs ranging 2.38-7.35 and SE ranged 0.83-2.73 (Table 1). All sizes of fish had a RSE > 25 (Table 1). The overall Wr was good at 91.92. Substock, stock, and quality sized fish Wr ranged 88.95-95.99. The maximum weight for an individual in this sample was 1735 g and PSD was balanced at 25.

In total, 219 fish were aged with 36 age-1 fish (222 mm), 23 age-2 fish (258 mm), 89 age-3 fish (303 mm), 5 age-4 fish (311 mm), 37 age-5 fish (328 mm), 24 age-6 fish (356 mm), 38 age-7 fish (383), 78 age-8 fish (395 mm), 37 age-9 fish (450 mm), 1 age-10 fish (410 mm), and 1 age-11 fish (483). The mean TL for each age is listed in parentheses. von Bertalanffy predicted growth parameters included a theoretical maximum length (L_{∞}) of 960 mm TL, a growth coefficient (K) of 0.04, and a t_0 of -6.31 (Figure 2). A catch-curve regression calculated an annual mortality (A) of 20.7 % and an instantaneous mortality (Z) of 0.23 (Figure 3). Estimated annualized natural and fishing mortality was 7.6 % and 13.1 % respectively.

RECOMENDATIONS

1. With Channel Catfish stockings only contributing to two age classes (out of 11) represented in this sample, we recommend the discontinuation of future stockings along with continued monitoring to see if catch rates decrease meaningfully.
2. Continue to monitor population dynamics for self-sustaining sportfish species (Largemouth, Crappie Spp., Catfish Spp.).
3. Monitor Saugeye population dynamics and growth rates to evaluate stocking success.
4. No regulation changes are recommended at this time.

Table 1. Channel catfish catch per unit effort for the total sample and broken down by size category for Pauls Valley Lake.

	Mean	Count	RSE	SE	L 95% CI	U 95% CI	N RSE = 12.5 (25% range)	N RSE = 20 (40% range)
Pauls Valley								
Total	12.17	10	33.19	4.04	4.25	20.09	70	28
Substock	2.38	-	37.30	0.89	0.64	4.12	89	35
Stock	7.35	-	37.15	2.73	2.00	12.70	88	35
Quality	2.44	-	33.89	0.83	0.82	4.06	74	29

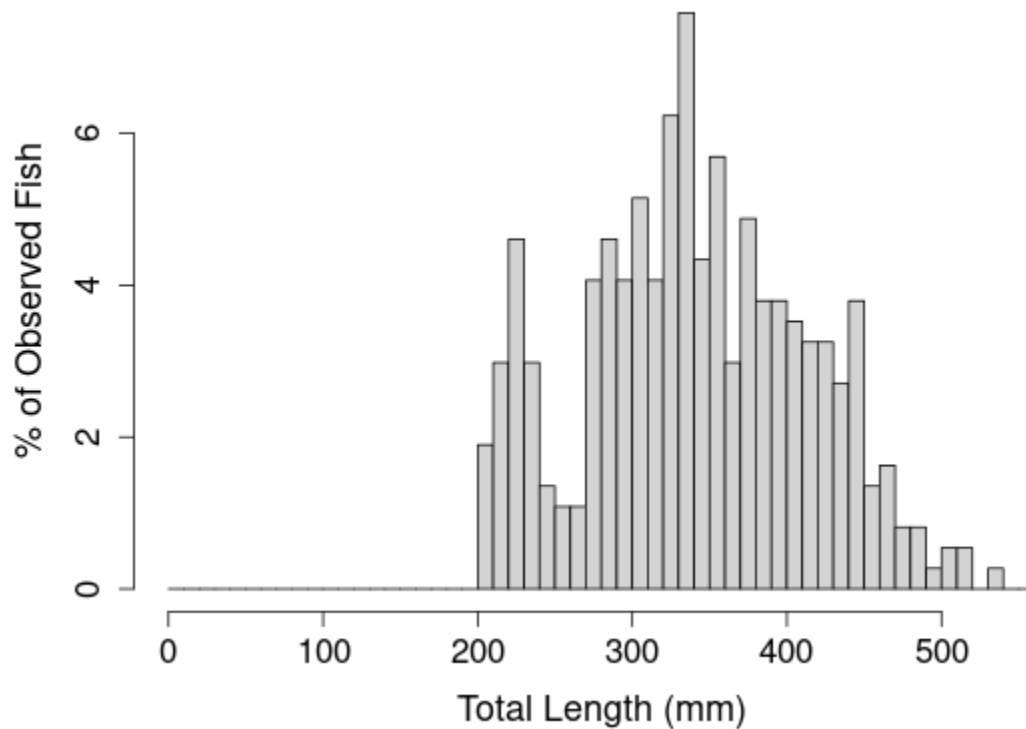


Figure 1. Length-frequency distribution for Channel Catfish from Pauls Valley Lake.

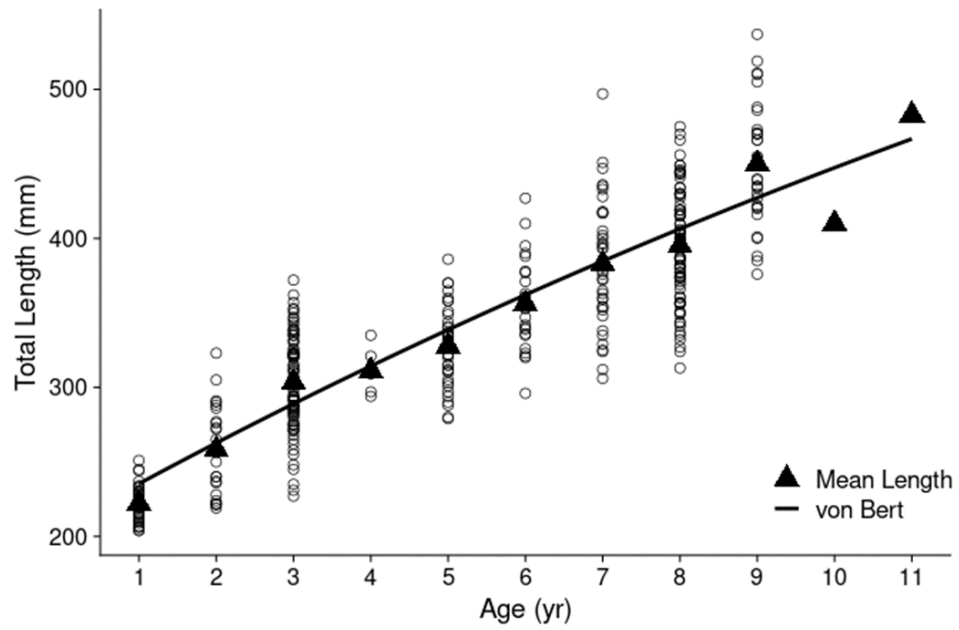


Figure 2. von Bertalanffy growth curve for Channel Catfish from Pauls Valley Lake.

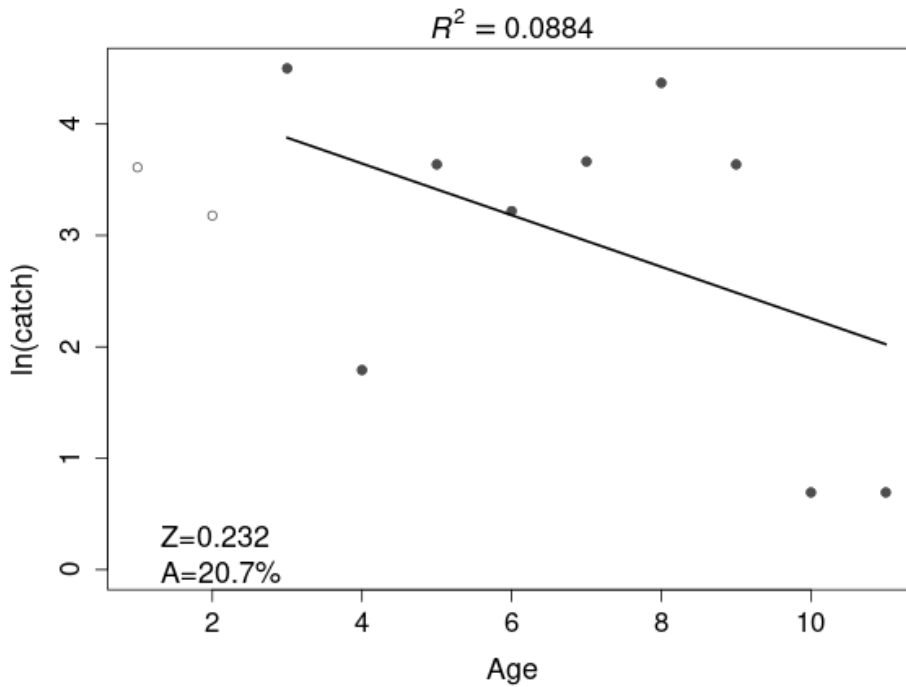


Figure 3. Catch-curve for Channel Catfish from Pauls Valley Lake.

Appendix 1. Species, number, and size of fish stocked in Pauls Valley Lake since 2012.

Date	Species	Number	Size (inches)
2015	Channel Catfish	30,000	7
2015	Channel Catfish	30,608	4
2016	Saugeye	7,500	1.5
2016	Saugeye	11,700	1.5
2021	Saugeye	93,000	Fry
2022	Channel Catfish	11,250	2.8
2023	Saugeye	15,008	3