Performance Report

State: Oklahoma

Project Title: Fisheries Management Survey

Southwest Region Fisheries Management

Lake Lawtonka

Abstract

Altus Lugert Reservoir was surveyed in 2024 via gill netting for all large bodied, sportfish to determine population structure and dynamics to evaluate the fishery for needs and possible improvements to the lake to enhance the system as a whole. Southwest region considers Altus Lugert to be the highest priority fisheries for Walleye and one of the top for Largemouth Bass resulting in routine sampling occurs to monitor current trends in the population. SWR 2024 gill net sample was conducted in December of 2024 as a follow up survey from our 2023 gill net survey comparatively for sportfish data due to high conductivity level constraints via electrofishing.

Altus Lugert has long been a high quality walleye and hybrid striped bass fishery along with a sustainable channel catfish and crappie fishery to many anglers and entities in southwest Oklahoma. Gill netting surveys have been conducted routinely in past years to continually assess the sportfish populations with the emphasis on sampling being almost a yearly basis. Altus has an above average population of walleye and a good population of channel catfish, since a golden algae fish kill in 2016 hybrid striped bass stockings have ended to promote the walleye and other sportfish populations.

Introduction

Altus-Lugert Lake is one of the larger impoundments (6600 acres) located in southwest Oklahoma and is owned by the Bureau of Reclamation (USBOR) for water storage and recreational use. This highly used recreational lake is managed for Walleye, Largemouth Bass, Smallmouth Bass and Catfish. This reservoir consists of agricultural runoff areas and supports a balance amount of nutrients which supports a balanced fishery in turn. This highly sought after destination is encompassed by Altus-Lugert wildlife management area and Quartz Mountain state park, which is a high use deer hunting area and utilized by anglers.

Management issues that seem to be present is the lack of usable habitat to an aging reservoir. Large fluctuations in water levels due to irrigation drawdowns for cotton farms and drought also present a challenge in managing shoreline habitat. Deep water habitat such as cedar trees used for thermal cover and predation avoidance is lacking within the lake, although there are cedar trees in shallow areas which are being utilized by Bass and baitfish species when the lake is at normal pool. Golden Algae is

present in the reservoir and multiple fish kills have happened over the past decade during low water conditions. These ongoing conditions have helped with management goals in promoting fish growth and angler awareness; SWR has used these periods to increase usable habitat and glean population structures.

Altus Lugert has historically been a lake with high catch rates and acceptable ranges of fish health with sportfish and data shows a more unstable trend with more cyclic events of adult and young of year fish, specifically in the crappie population in this arid climate. Our management objectives has been geared towards maintaining a quality fishery by evaluating the populations of Large/smallmouth Bass, Walleye, and Channel Catfish to allow anglers an opportunity to catch sizeable fish and enhance maximize growth potential.

The most recent stockings at Altus Lugert includes walleye and channel catfish, along with supplemental stockings of gizzard shad, smallmouth bass, and brood stock largemouth bass.

Results

Our gill netting samples were conducted in December of 2024 when water temperatures were around 50^0F which fall within our range for standard sampling protocols (SSP). Being a moderate sized lake with an ongoing drought and water reduction for crops, we were able to sample much of available areas consisting of 10 sample sites with each site being a 24 hour units of effort that included bare bank/cobble, sandy points and deep drops near the dam area. In the duration of the net/nights we collected a total of 273 walleye, 73 channel catfish, and gizzard shad. Otoliths were collected from walleye for age and growth and results pending shiney application software.

Samples are measured in catch per unit effort (CPUE, Table 1) and were relatively high based off of previous year samples for walleye, very similar for catfish but very lacking with gizzard shad. The total samples were reduced due to time constraints and previous year (2023) gill net survey. Comparative numbers, even though reduced net nights, saugeye showed to have a higher catch rate than the previous year, while channel catfish and white bass had fairly similar catch rates based on survey size. The gizzard shad rates have historically been consistent but lacking spawning structures during dry periods and cooler water temperatures than previous year samples could hinder catch rates.

When measuring fish body condition (body mass/length) relative weight (Wr) is the metric that is used to describe how fit the population is, relative weight for walleye was 98, slightly lower than last sample but note that walleye were not stocked in 2023 but were stocked in 2024 which represents the higher catch rate (Figure 1 and Table 2.) which would be considered the acceptable level to population present. Walleye are the sportfish of main focus, other than Large/Smallmouth Bass, for gill netting purposes. The length frequency for walleye (Figure 2) for 10-15” was significantly higher than previous years but overall size structure was good larger fish found in the population. Age and growth data was only collected for walleye, age metrics are to be determined through shiney application.

The stocking efforts can be seen to have an positive impact and are sufficient among all size classes and works well within the Altus Lugert system. The overall population has remained considerable consistent and with samples we tend to see larger fish that continue to grow out of the stockpiling ranges. Walleye do a great job at growing but the need to see if any fish are naturally recruiting is a high priority for SWR. The channel catfish populations have vacillated over the past years but reintroduction of channel catfish stocking have improved the catfishery, like the walleye there is a need to assess spawning and recruitment among adult fish. Although catch rates (CPUE) show some variation among sampling years, factors such as stocking events, timing and weather conditions could play a role in capture rates.

Since we have sampled consecutively from 2023-2024, having comparative data it can be easier to determine the overall extent of the sportfish population. Biologically we have sporadic golden algae blooms which knock back abundance but overall small blooms seem to help with growth. There is a lack of deep water habitat that Bass, Sunfish, and Crappie need on a yearly basis and a project has been established to sink more cedar trees and other woody habitat in critical areas for thermal cover. If we continue to add habitat, monitor the population and make adjustments where we see fit Altus Lugert will remain a great all around fishery. 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.

Relative Weight (Wr)

Details of standard weight equation

Species	Model Type	Reference Percentile	Min.TL	Intercept	Slope	Source
Walleye	linear	75	150	-5.453	3.180	Murphy et al. (1990)

Size Category	Mean	Count	CV	SE	L 95% CI	U 95% CI
stock	104.73	19	7.33	1.76	101.28	108.18
quality	114.69	5	4.14	2.12	110.53	118.85
Overall	106.80	24	7.67	1.67	103.53	110.08

Relative Weight (Wr)

Details of standard weight equation

Species	Model Type	Reference Percentile	Min.TL	Intercept	Slope	Source
Walleye	linear	75	150	-5.453	3.180	Murphy et al. (1990)

Size Category	Mean	Count	CV	SE	L 95% CI	U 95% CI
substock	106.00	1	NA	NA	NA	NA
stock	97.75	251	7.01	0.43	96.91	98.60
quality	110.12	9	4.58	1.68	106.83	113.41
preferred	113.32	11	7.66	2.62	108.19	118.45
memorable	130.70	1	NA	NA	NA	NA
Overall	98.94	273	8.11	0.49	97.99	99.89

Figure 1: relative weights for Walleye at Altus Lugert 2023(top) and 2024 (bottom) fall gill samples

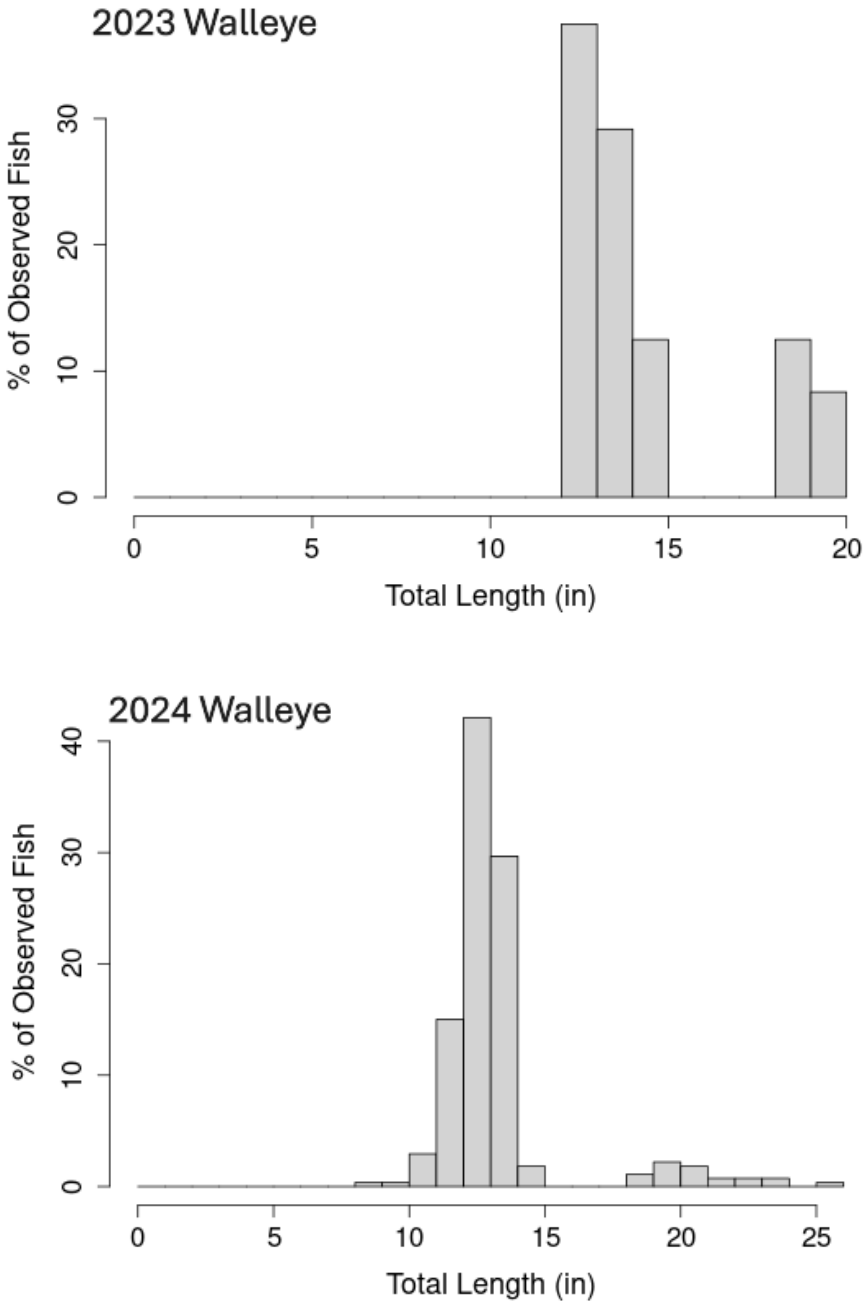

Figure 2. Length frequency and size structure for Walleye Altus Lugert 2023 and 2024 fall gill netting

Catch per Unit Effort

Total CPUE

Species	Mean	Count	RSE	SE	L 95% CI	U 95% CI	N RSE = 12.5 (25% range)	N RSE = 20 (40% range)
Channel Catfish	9.10	10	15.58	1.42	6.32	11.88	16	6
Gizzard Shad	47.50	10	18.76	8.91	30.03	64.97	23	9
Largemouth Bass	0.10	10	100.00	0.10	-0.10	0.30	640	250
Walleye	2.40	10	24.22	0.58	1.26	3.54	38	15

Catch per Unit Effort

Total CPUE

Species	Mean	Count	RSE	SE	L 95% CI	U 95% CI	N RSE = 12.5 (25% range)	N RSE = 20 (40% range)
Channel Catfish	7.30	10	40.02	2.92	1.57	13.03	102	40
Gizzard Shad	0.40	10	55.28	0.22	-0.03	0.83	196	76
Walleye	27.30	10	16.13	4.40	18.67	35.93	17	7

Table 1. CPUE metrics from Altus Lugert from 2023 (Top) and 2024 (bottom) fall gill netting.

Year	Relative Weight (Wr)	Catch per Unit Effort (CPUE)
Walleye		
2023	106	2.4
2024	98	27.3

Table 2. Relative weight and catch rate tables for Walleye at Altus Lugert 2023 and 2024 fall gill netting.