**SURVEY REPORT**

**OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION**

# FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

**FOR**

# CHANDLER LAKE

**2024**

## SURVEY REPORT

**State:** Oklahoma

**Project Title:** Chandler Lake Fish Management Survey Report

**Period Covered:** 2024

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**Date Prepared**: January, 2025

## Chandler Lake

### ABSTRACT

Chandler Lake was surveyed by fall gill netting (2024) techniques to monitor trends in fish populations. Crappie abundance increased and growth rates were good. White Bass abundance decreased and was considered to have a moderate abundance of quality size fish. Channel Catfish abundance increased slightly, while body conditions decreased and were considered poor, high recruitment and spawning success is present. A risk of over population is possible if high recruitment continues. Harvest of Channel Catfish is encouraged.

## INTRODUCTION

Chandler Lake impounds the Bell Calf Creek, 4.8 miles northwest of Chandler in Lincoln County, Oklahoma. Chandler Lake covers 129 surface acres and was constructed in 1954 by the City of Chandler. Chandler Lake has a mean depth of 15 ft and a maximum of 28 ft, and a secchi disc visibility of around 35 inches in the main pool in August, though in recent years turbidity has been significantly lower during surveys; turbidity is primarily from clay.

Fish habitat in the past consisted primarily of water milfoil and coontail, however, vegetation density has declined significantly in recent years. Fish management activities have included stocking Channel Catfish until 2007, Florida Largemouth Bass and intergrade largemouth bass (Table 1). However, Channel Catfish stockings ceased in 2007 after they became self-sustaining. The last stocking to occur was Largemouth Bass brooders in 2020 (Appendix 1). Four fish attractor habitat sites were installed in 1988 and are periodically refurbished with brush. The most recent refurbishment occurred in 2018 with brush and some spider blocks in 2022 (Appendix 2). In 1989, the fishing dock was renovated to provide handicap access and lighting; a boat dock was installed; and a gravel parking lot at the boat ramp was constructed. The parking lot was asphalted in 1999. In Recent years the fishing dock was removed, and new fishing dock was installed in 2022 (not using Boating and Fishing Access Funds). A 14-inch minimum length limit on Largemouth Bass replaced a 12-15 inch slot length limit on June 1, 1987. Currently, special city regulations of a 14-inch minimum length limit with only one over 22 inches for bass and a 14-inch minimum length limit for Channel Catfish is in effect.

Chandler Lake was surveyed by fall gill netting (2024) techniques to monitor trends in fish populations. Recent decline of Largemouth Bass may be attributed to the loss of vegetation and higher turbidity. Which could be the result of the significant increase in the Channel Catfish population.

## RESULTS

### Channel Catfish

Channel Catfish were surveyed in the fall of 2024 using suspended gill nets. Three gill net stations were randomly sampled for a period of 24 hours each. The 2024 survey showed a high abundance of Channel Catfish (CPUE = 17.8) and a slight increase compared to 2013 (CPUE = 16.7). Relative abundance decreased slightly for stock size fish (CPUE = 8.0) but increased significantly for quality size fish (CPUE = 4.4) (Table 1). Body conditions for all size classes present decreased compared to the 2013 gill net and the 2021 hoop net (Table 2) surveys and remained below acceptable values (Wr $\geq$90) (Table 3).

The 2024 Length frequency histogram (Figure 1) indicated nearly 48% of the fish sampled were of legal harvest size (14 inches) and greater, roughly 33% were of quality size (16 inches) and greater. Nearly 25% of the fish sampled were 12 inches in length. The proportional size distribution (PSD) values indicated a slight increase in the overall size structure in 2024 (PSD = 35) compared to 2021 (PSD = 34) but a decrease compared to 2006 (PSD=80) (Table 3).

Age data was collected on a subset of Channel Catfish in 2024. Growth rates were slow in the first couple years and appears to bottle neck around 12 inches in length between ages two, three, and four but slowly and steadily increased starting at age five, when they reached legal harvest length of 14 inches and a mean length of 14.s inches. A slight decrease in growth rates compared to the 2021 age data (Table 4). The largest fish sampled measured 22.2 (in) and weighed 2.9 (lbs). The oldest Channel Catfish was aged to be nine years old. The 2024 age frequency indicates successful spawning and recruitment for all age classes present, with the highest frequency from the 2021 (age 3) year class (Figure 2).

Overall, relative abundance was considered high with poor body conditions for all size classes present. Growth rates were slow the first few years and bottle necked at 12 inches in length then showed increased growth rates after age five. No fish were collected in the preferred (24 in), memorable (28 in), or trophy (35.8 in) size classes. The last Channel Catfish stocking in 2007 appears to have successfully established a self-sustaining population. However, with such high spawning and recruitment success, small impoundments run the risk of overpopulation. With high relative abundance, slow growth and poor body conditions, increased harvest is encouraged. No additional stockings are needed at this time. No changes to the Channel Catfish regulations are recommended at this time. Hoop netting is planned for the summer of 2025 to monitor trends in the Channel Catfish population and evaluate the current 14 inch minimum regulation currently in effect.

**Table 1.** Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Channel catfish collected by fall gill net from Chandler Lake. Acceptable Wr values are ≥90.

| | | Total CPUE | Stock 11 in | | Quality 16.1 in | | Preferred 24 in | | Memorable 28 in | | Trophy 35.8 in | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | No. | CPUE | CPUE | Wr | CPUE | Wr | CPUE | Wr | CPUE | Wr | CPUE | Wr |
| 2006 | 6 | 1.9 | 0.3 | 99 | 0.6 | 102 | 0.3 | 104 | 0.3 | 104 | . | . |
| 2013 | 77 | 16.7 | 8.7 | 85 | 1.5 | 85 | . | . | . | . | . | . |
| 2024 | 52 | 17.8 | 8.0 | 80 | 4.4 | 79 | . | . | . | . | . | . |

**Table 2.** Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Channel catfish collected by summer hoop nets from Chandler Lake. Acceptable Wr values are ≥90.

| | | Total CPUE | Stock 11 in | | Quality 16.1 in | | Preferred 24 in | | Memorable 28 in | | Trophy 35.8 in | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | No. | CPUE | CPUE | Wr | CPUE | Wr | CPUE | Wr | CPUE | Wr | CPUE | Wr |
| 2021 | 624 | 40.4 | 22.6 | 93 | 11.7 | 93 | . | . | . | . | . | . |

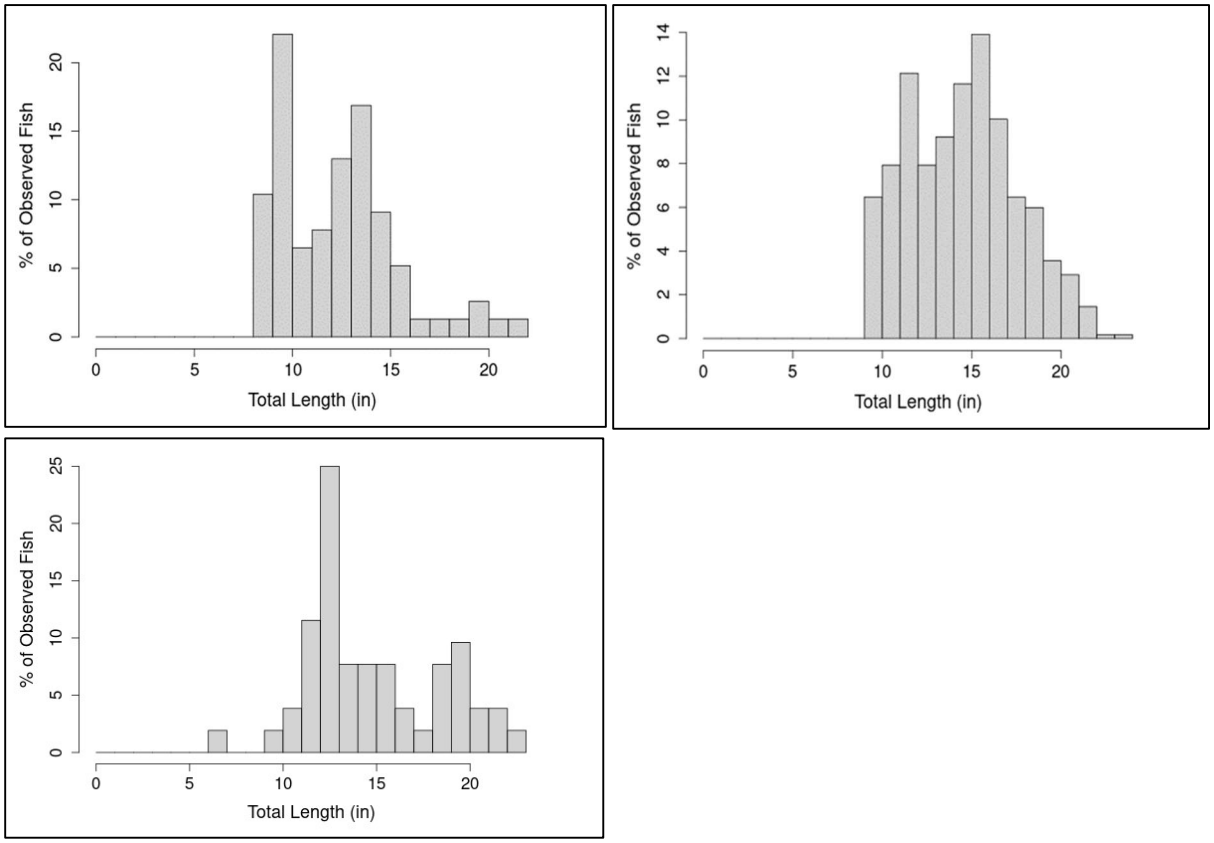


**Figure 1.** Channel Catfish Gill Net Length Frequency Histogram for Chandler Lake 2013 (Top Left), 2021 (Top Right), and 2024 (Lower Left).

**Table 3.** Proportional Size Distribution (PSD) of Channel Catfish. Quality (PSD-Q), preferred (PSD-P) and memorable (PSD-M) lengths. PSD values indicate the proportion of fish in or above the quality, preferred or memorable size classes.

| Year Surveyed | PSD-Q (16.1 in) | PSD-P (24 in) | PSD-M (28 in) |
|---|---|---|---|
| **2006** | 80 | 40 | 20 |
| **2013** | 15 | . | . |
| **2021** | 34 | . | . |
| **2024** | 35 | . | . |

**Table 4.** Mean Total Length at age (inches) for Channel Catfish from Chandler Lake.

| Year | Age 1 | Age 2 | Age 3 | Age 4 | Age 5 | Age 6 | Age 7 | Age 8 | Age 9 | Age 10 | Age 11 | Age 12 | Age 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2021** | 10.3 | 11.3 | 12.9 | 14.5 | 16.1 | 16.3 | 19.6 | 16.5 | 17.6 | 18.6 | 16.6 | 18.74 | 22.6 |
| **2024** | . | 12.4 | 12.3 | 11.0 | 14.3 | 16.0 | 19.2 | 19.9 | 22.2 | . | . | . | . |

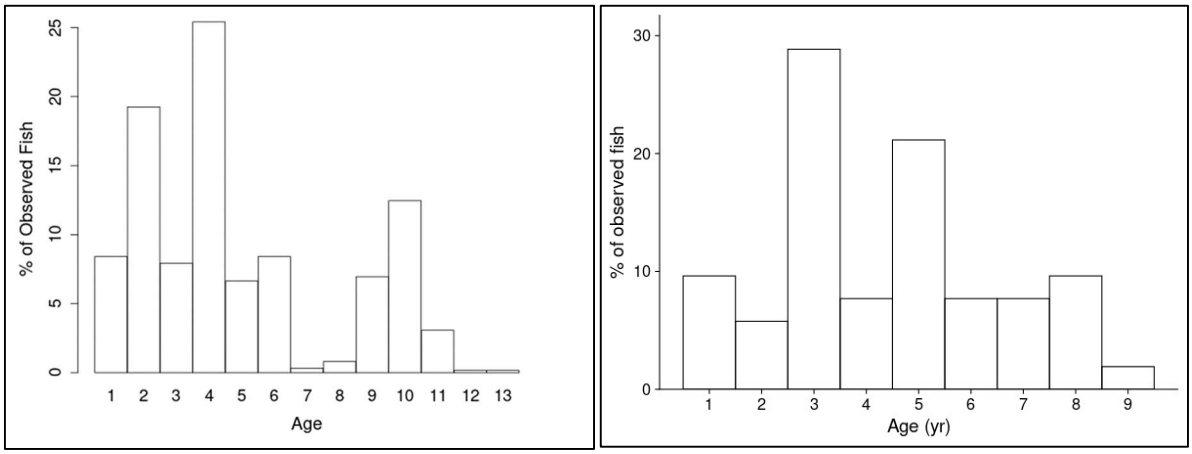


**Figure 2.** 2021 (Left) and 2024 (Right) Age Frequency for Channel Catfish.

**Crappie**

Crappie were surveyed in 2024 using suspended gill nets. Three gill net stations were randomly sampled for a period of 24 hours each. Crappie abundance was considered moderate during the 2024 (CPUE=8.5) gill net survey. A slight increase was observed in 2024 compared to the 2013 (CPUE=4.7) survey (Table 5). While overall abundance increased, stock (5.1 in) (CPUE=0.0), memorable (11.8 in) (CPUE =0.5), and trophy (15 in) (CPUE = 0.0) size classes showed a decrease. Relative weights decreased significantly (Wr=78) and were in poor condition for the quality size class, however both preferred (Wr=102) and memorable (Wr=110) size classes were in excellent body condition, well above the minimum accepted value (≥90) (Table 5). Length frequency histograms (Figure 3) indicated nearly 96% of the fish sampled were eight inches or larger.

Age data was collected during the 2024 survey and indicated excellent growth rates for all age classes. Crappie at Chandler Lake grew to a mean length of 9.9 inches during their first year of life. They grew to a mean length of 11.6 inches by age two and 14.5 inches by age five (Table 6). The largest fished sampled measured 14.5 (in) in total length and weighed 1.92 (lbs.). The oldest fish was aged to be five.

Overall, Crappie abundance at Chandler Lake was considered moderate, body conditions were poor for quality size class but excellent for preferred and memorable size classes. Growth rates were good reaching a mean length of 11.6 inches by age two. No regulation changes are recommended at this time.

**Table 5.** Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Crappie collected by fall gill net from Chandler Lake. Acceptable Wr values are ≥90.

| | | Total CPUE | Stock 5.1 in | | Quality 7.9 in | | Preferred 9.8 in | | Memorable 11.8 in | | Trophy 15.0 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | No. | CPUE | CPUE | Wr | CPUE | Wr | CPUE | Wr | CPUE | Wr | CPUE | Wr |
| 2006 | 295 | 92.1 | 1.9 | 80 | 4.7 | 84 | 0.3 | 86 | . | . | . | . |
| 2013 | 22 | 4.7 | 2.6 | 95 | 0.2 | 110 | 0.7 | 116 | 1.1 | 109 | 0.2 | 83 |
| 2024 | 25 | 8.5 | . | . | 1.3 | 78 | 4.6 | 102 | 0.5 | 110 | . | . |

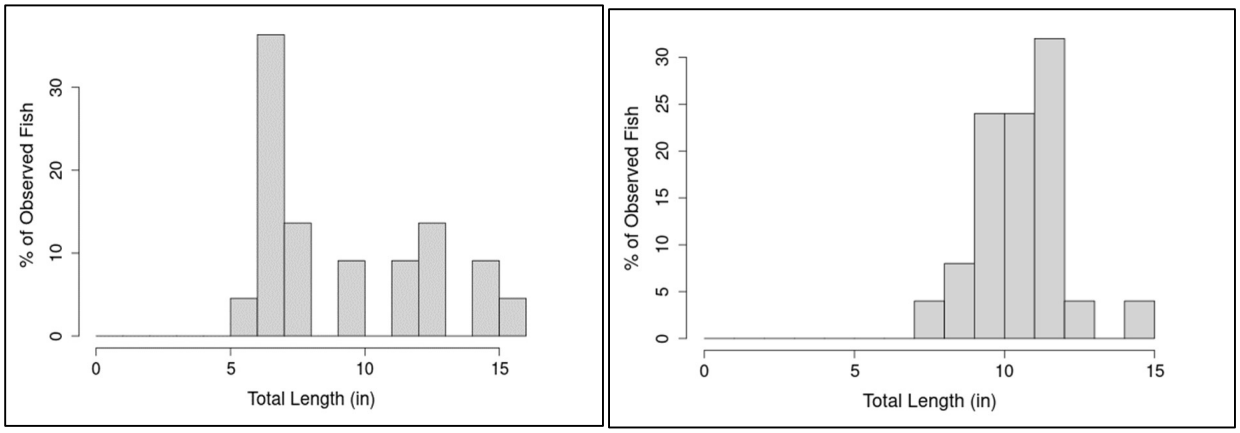


**Figure 3.** Crappie, Gill Net Length Frequency Histogram for Chandler Lake 2013 (Left) and 2024 (Right).

**Table 6.** Mean Total Length at age (inches) for Crappie collected using gill nets from Prague Lake.

| Year | Age 1 | Age 2 | Age 3 | Age 4 | Age 5 | Age 6 | Age 7 | Age 8 |
|---|---|---|---|---|---|---|---|---|
| 2024 | 9.9 | 11.6 | 11.8 | 11.5 | 14.5 | . | . | . |

**White Bass**

White bass were surveyed in 2024 using suspended gill nets. Three gill net stations were randomly sampled for a period of 24 hours each. A moderate relative abundance of White Bass was observed in 2024 (CPUE=6.2) which was a slight decrease from the 2013 (CPUE=8.5) survey (Table 7) Relative

abundance decreased in all size classes except for Stock (5.9 in) size fish. However, a moderate abundance of quality size and larger fish were present. Body conditions for all size classes were below acceptable levels (≥90) except for quality size fish (Wr=93). The length frequency histograms (Figure 4) indicated nearly 72% of the fish were of quality length (9.8 in) and above. The largest fish sampled measured 16.9 (in) in total length and weighed 2.3 (lbs.). Age data was collected during the 2024 survey. Growth rates were acceptable reaching a mean length of 14.7 inches by at two (Table 8).

Overall, Total White Bass abundance was considered moderate with a moderate abundance of quality and larger size fish. Growth rates were acceptable. No regulation changes are recommended at this time.

**Table 7.** Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of White Bass collected by fall gill net from Chandler Lake. Acceptable Wr values are ≥90.

| | | Total CPUE | Stock 5.9 in | | Quality 9.1 in | | Preferred 11.8 in | | Memorable 15 in | | Trophy 18.1 in | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year** | **No.** | **CPUE** | **CPUE** | **Wr** | **CPUE** | **Wr** | **CPUE** | **Wr** | **CPUE** | **Wr** | **CPUE** | **Wr** |
| **2006** | 2 | 0.64 | . | . | 0.64 | 120 | . | . | . | . | . | . |
| **2013** | 39 | 8.5 | 1.1 | 109 | 1.1 | 99 | 2.0 | 106 | 4.4 | 102 | . | . |
| **2024** | 18 | 6.2 | 1.3 | 88 | 0.5 | 93 | 1.5 | 79 | 1.3 | 87 | . | . |

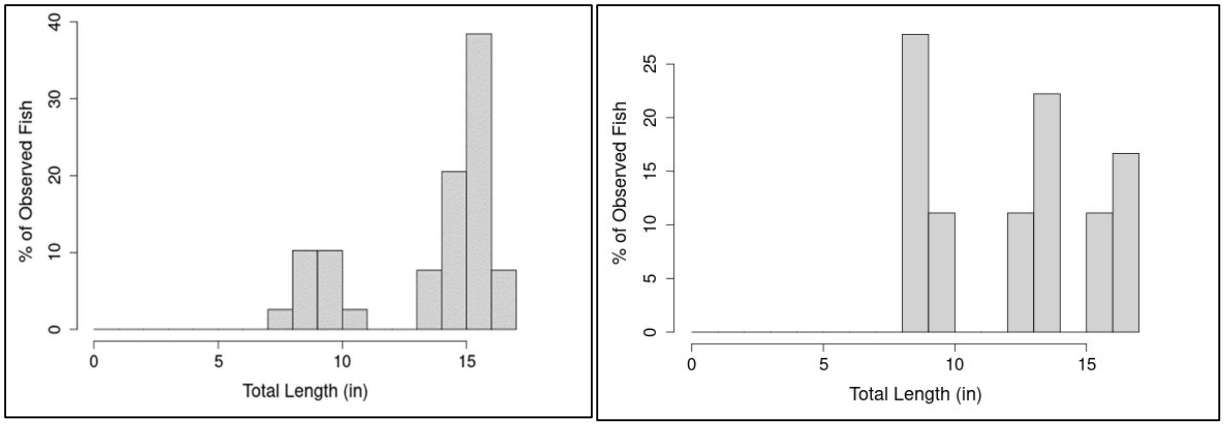


**Figure 4.** White Bass Gill Net Length Frequency Histogram 2013 (Left) and 2024 (Right).

**Table 8.** Mean Total Length at age (inches) for White bass collected using gill nets from Chandler Lake.

| Year | Age 1 | Age 2 | Age 3 | Age 4 | Age 5 | Age 6 | Age 7 | Age 8 |
|---|---|---|---|---|---|---|---|---|
| **2024** | 13.2 | 14.7 | . | . | 16.2 | . | . | . |

**Shad**

Gizzard shad were surveyed in 2024 using suspended gill nets. Three gill net stations were randomly sampled for a period of 24 hours each. The 2024 survey indicated a slight decrease a low relative abundance (CPUE = 3.1) of Gizzard Shad compared to 2013 (Table 9). The 2024 Length Frequency Histogram (Figure 5) indicates all of the Gizzard shad collected were larger than six inches in length. Optimal forage size for most species is six inches or less. Only 9 Gizzard shad were collected from the 2024 survey. Sample size is considered too small to make reliable conclusions.

**Table 9.** Total number (No.) and catch per unit of effort (CPUE) by size groups of Gizzard Shad collected by fall gill nets from Chandler Lake.

| Gizzard Shad | | | | |
|---|---|---|---|---|
| **Year** | **No.** | **Total CPUE** | **<6 inches** | **≥6 inches** |
| **2006** | 146 | 46.2 | 9.5 | 36.7 |
| **2013** | 10 | 2.2 | 0.9 | 1.3 |
| **2024** | 9 | 3.1 | 0.0 | 3.1 |

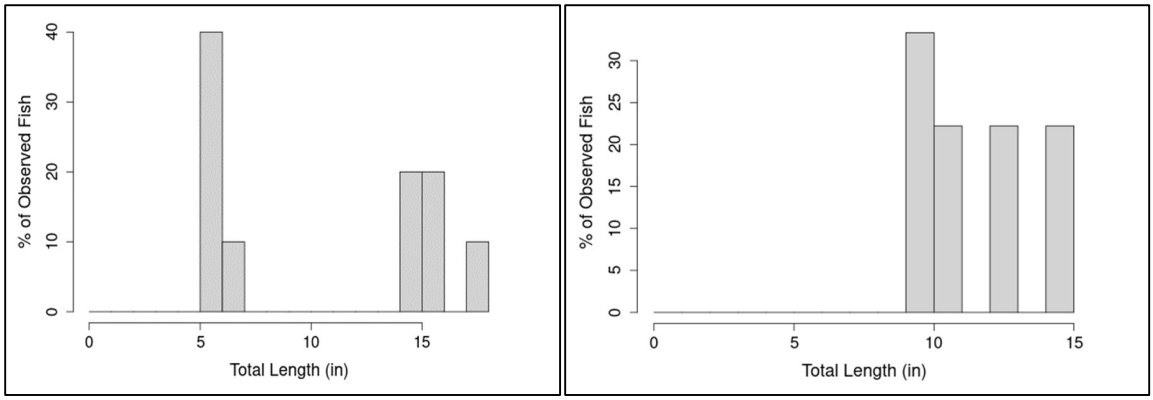


**Figure 5.** Gizzard Length Frequency Histogram from suspended gill nets 2013 (Left) and 2024 (Right).

**RECCOMENDATIONS**

1. Conduct periodic electrofishing surveys to monitor black bass population dynamics.
2. Conduct periodic hoop net surveys to monitor Channel Catfish population dynamics.
3. No regulation changes are recommended at this time.

**Appendix 1.** Species, number and size of fish stocked in Chandler Lake since 2000.

| Date | Species | Number | Size (inches) |
|---|---|---|---|
| **2007** | **Channel Catfish** | **5,008** | **7** |
| **2020** | **Largemouth Bass** | **58** | **Brooders** |


**Appendix 2.** Chandler Lake Fish Attractor Locations

Fish Attractor Site Information for Bell Cow Lake.

| Area Name | Site # | Lattitude | Longitude | Habitat Type | Marked | Bank Access | Date |
|---|---|---|---|---|---|---|---|
| North of Lake office | 1 | 35.73494 | -96.91000 | Brush Pile | N | N | 3/22/2018 |
| Fishing Dock | 2 | 35.73416 | -96.91006 | Spider Blocks | N | Y | 8/22/2022 |
| SE Bank of E Bank | 3 | 35.73500 | -96.90311 | Brush Pile | Y | N | 3/22/2018 |
| E of Golf Course | 4 | 35.74608 | -96.90628 | Brush Pile | Y | N | 3/22/2018 |