

Lake Aldo Leopold

2024 Fishery Assessment Survey Report



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INTRODUCTION

A seining survey was conducted on Lake Aldo Leopold, located in Lake County, Illinois, on May 2nd, 2024 (**Figure 1**). The lake was previously surveyed in 2006 by Integrated Lakes Management, Inc. The objectives of this survey were to determine the status of the fishery via its species composition. Information from this survey is presented in this report for the purpose of evaluating the population of fishes of concern present in Lake Aldo Leopold.

METHODS

Study Area

Lake Aldo Leopold is a man-made lake that has an area of 20 acres and a maximum depth of 20 feet. The lake is surrounded by residences, prairies, and wetlands, it is also the headwaters of Bull's Brook.

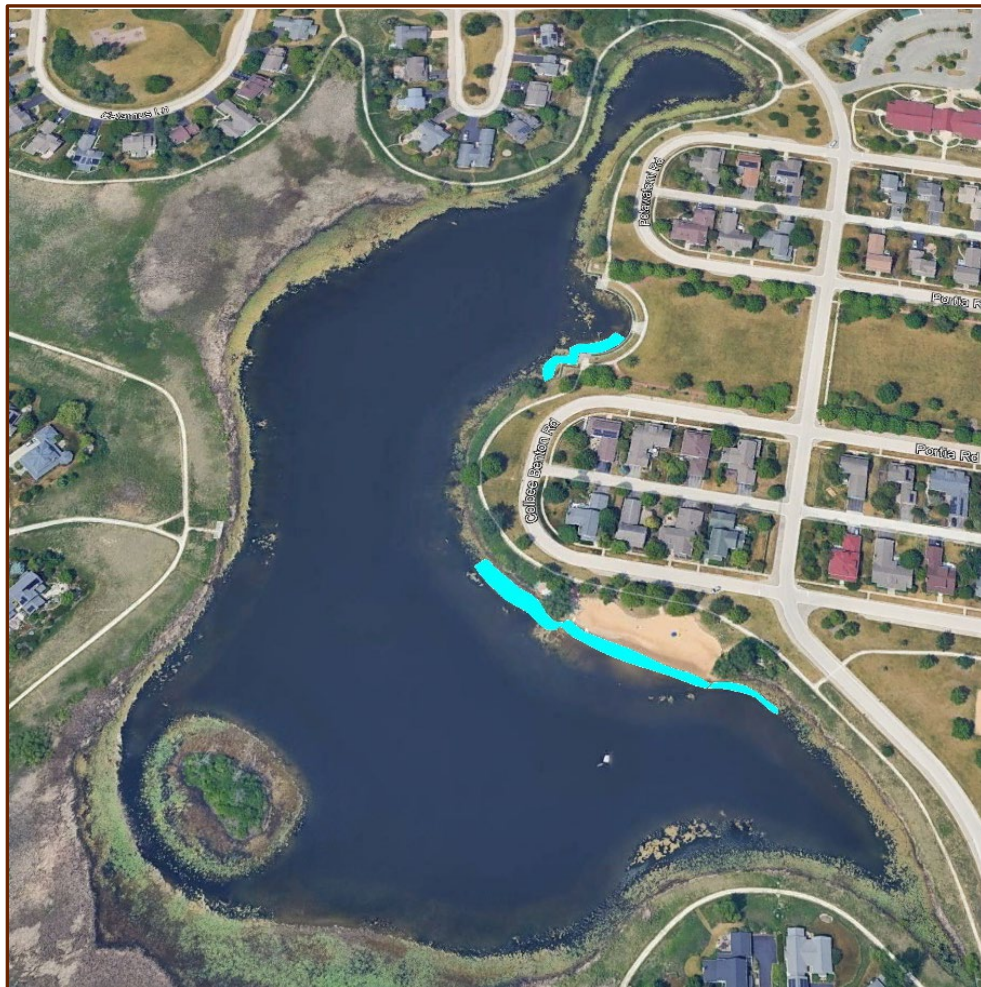


Figure 1. Aerial view of Lake Aldo Leopold, Lake County, Illinois. Areas highlighted in blue indicate seining locations.

Sampling

Fish were captured with four net pulls at four locations with a 20ft by 5ft seine net with 1/8" mesh (**Figure 1**). After each haul fishes were collected from the net as well as the shore and placed in buckets prior to data collection.



Data Analysis

Data from the survey was used to determine parameters of the fish community. Length frequency, average length, and total catch composition were calculated for each species.

RESULTS – FISH COMMUNITY

A total of seven species were captured during the 2024 seine netting survey. These included Blackchin Shiner (*Notropis heterodon*), Bluegill (*Lepomis macrochirus*), Banded Killifish (*Fundulus diaphanus*), Blacknose Shiner (*Notropis heterolepis*), Iowa Darter (*Etheostoma exile*), Black Crappie (*Pomoxis nigromaculatus*), and Largemouth Bass (*Micropterus salmoides*). The total number of each species caught can be found in **Table 1** below.

Table 1. Species composition of Lake Aldo Leopold during the 2024 seine netting survey.

Species	Total Catch
Blackchin Shiner	238
Bluegill	145
Banded Killifish	131
Blacknose Shiner	60
Iowa Darter	30
Black Crappie	4
Largemouth Bass	4

As shown in **Figure 2**, below, Blackchin Shiners had the highest abundance during the 2024 seine netting survey, comprising 39% of the total fish captured.

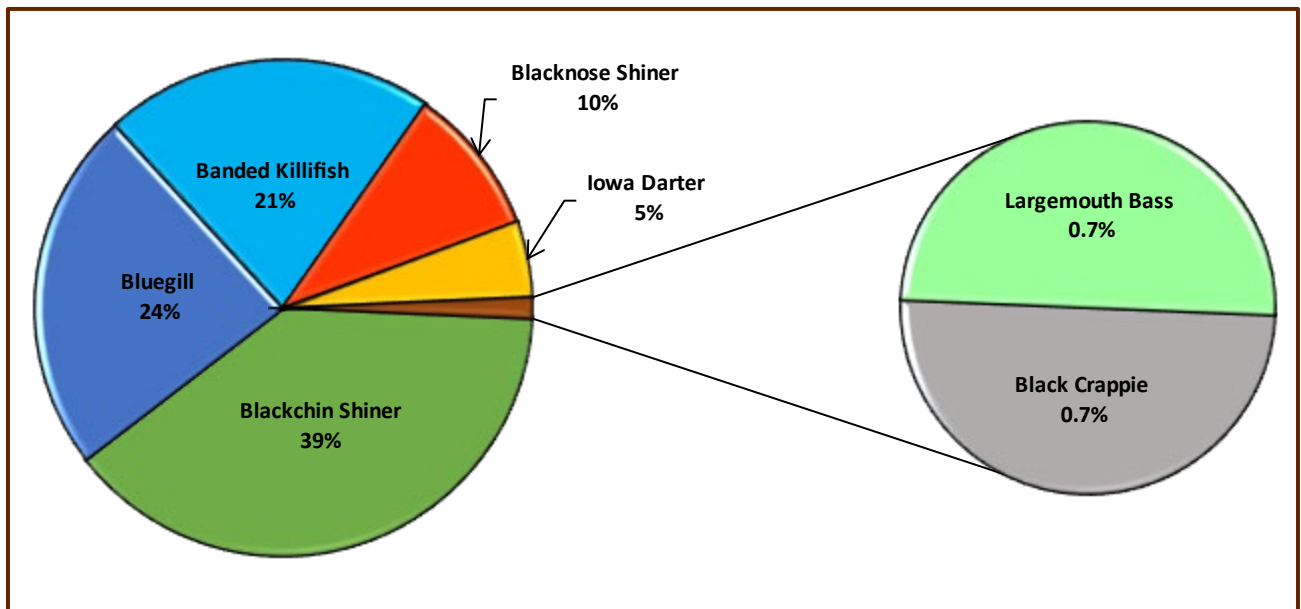


Figure 2. Total catch from the 2024 seine netting survey on Lake Aldo Leopold, Lake County, Illinois.

BLACKCHIN SHINER

The Blackchin Shiner is a small fish species that grows to be less than three inches in length. It is yellowish-brown on the back and has a silver underside, with a black line running from its snout to the tail. This species is often confused with the Blacknose Shiner as they look extremely similar, however the Blackchin Shiner has a patch of dark pigment present on its lower lip, while the Blacknose Shiner does not. Photo below, comparing the two species side by side, (Blacknose, left. Blackchin, right).



The Blackchin Shiner is a threatened species of fish in Illinois, only present in Lake County. These small shiners live in lakes with many aquatic plants as well as the streams that enter and exit these lakes.

A total of 238 Blackchin Shiners, representing 39% of the total catch were captured during the 2024 survey. Length ranged from 1.3 to 2.4 inches (**Figure 3**), with a mean length of 1.9 inches for all Blackchin Shiners measured.

Figure 3 below illustrates the length frequency distribution of a subsample of Blackchin Shiners measured during the survey.

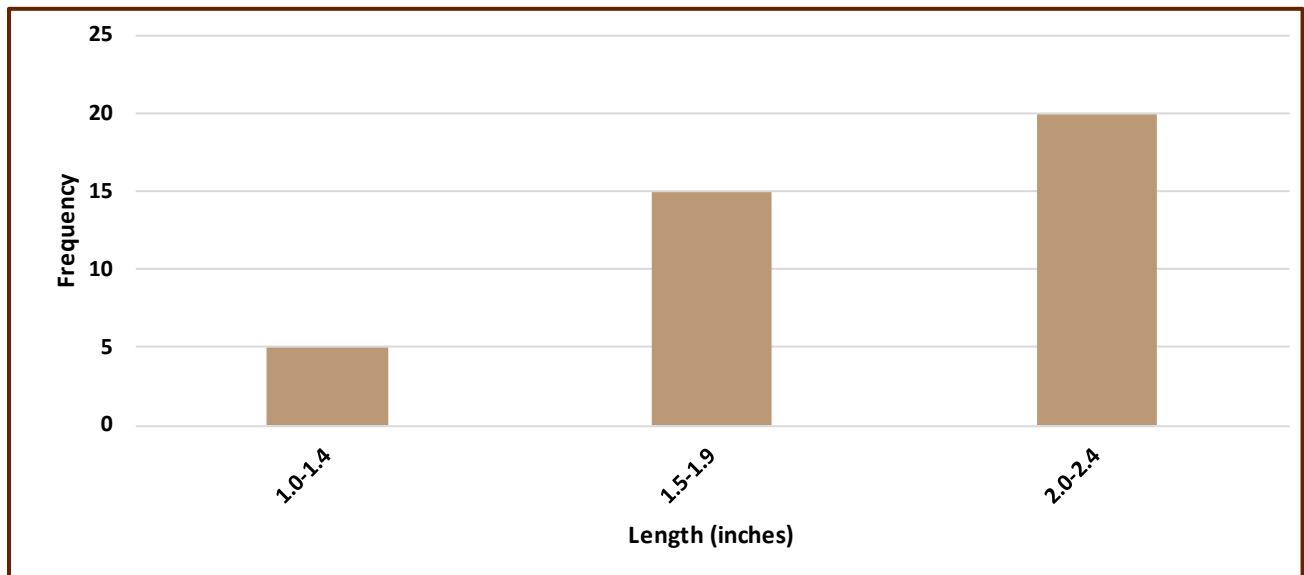


Figure 3. Length frequency of Blackchin Shiners sampled in Lake Aldo Leopold during the 2024 seine netting survey.

BLUEGILL

Bluegills are arguably the most popular recreation fish in North America. They grow well, are readily caught, and are excellent eating. One drawback of Bluegills is that they can quickly become overpopulated where there is a lack of predators, such as Largemouth Bass. It is important to maintain a balanced predator-prey ratio in Bluegill lakes and ponds.

A total of 145 Bluegill, representing 24% of the total catch were captured during the 2024 survey. Lengths ranged from 1 to 7 inches, with a mean length of 3.2 inches.

Figure 4 displays the length frequency of Bluegill caught during the 2024 seine netting survey.

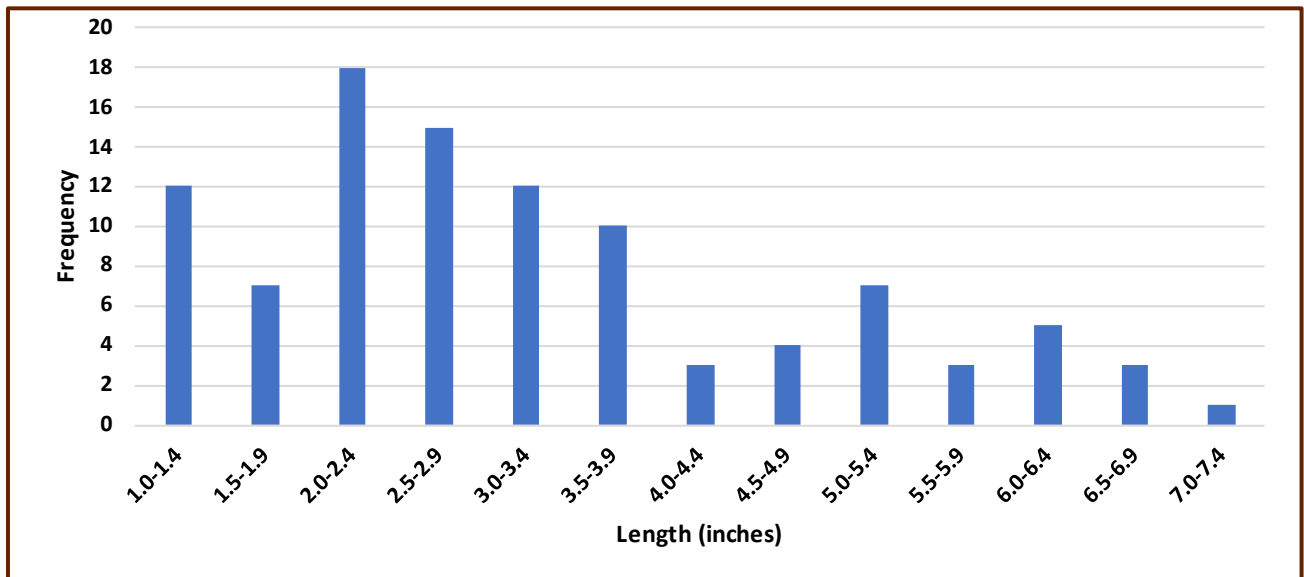


Figure 4. Length frequency of Bluegills sampled in Lake Aldo Leopold during the 2024 seine netting survey.

Proportional stock density (PSD) is the percent of the stock sized population compared to other specified lengths. The Bluegill stock, quality, preferred, memorable and trophy sizes are ≥ 3 inches, ≥ 6 inches, ≥ 8 inches, ≥ 10 inches, and ≥ 12 inches, respectively. A subsample of 100 Bluegill were measured for this survey. Fifty-two percent of Bluegills measured were below stock length of three inches (**Table 2**).

Table 2. PSDs of Bluegill in Lake Aldo Leopold during the 2024 seine netting survey.

	Proportion of Stock (≥ 3 inches)	Proportion of Quality (≥ 6 inches)	Proportion of Preferred (≥ 8 inches)	Proportion of Memorable (≥ 10 inches)	Proportion of Trophy (≥ 12 inches)
%	48.00	9.00	0.00	0.00	0.00
#	48	9	0	0	0

BANDED KILLIFISH

Banded Killifish have a maximum length of about three inches, with an olive-green coloration and vertical dark bars along the sides. This species is found in clear glacial lakes with dense vegetation and plentiful aquatic insects. The Western Banded Killifish is listed as a threatened species in Illinois, only found in Lake County.

A total of 131 Banded Killifish, representing 21% of the total catch were captured during the 2024 survey. Length ranged from 1.5 to 2.6 inches (**Figure 5**), with a mean length of 1.9 inches for all Banded Killifish measured.

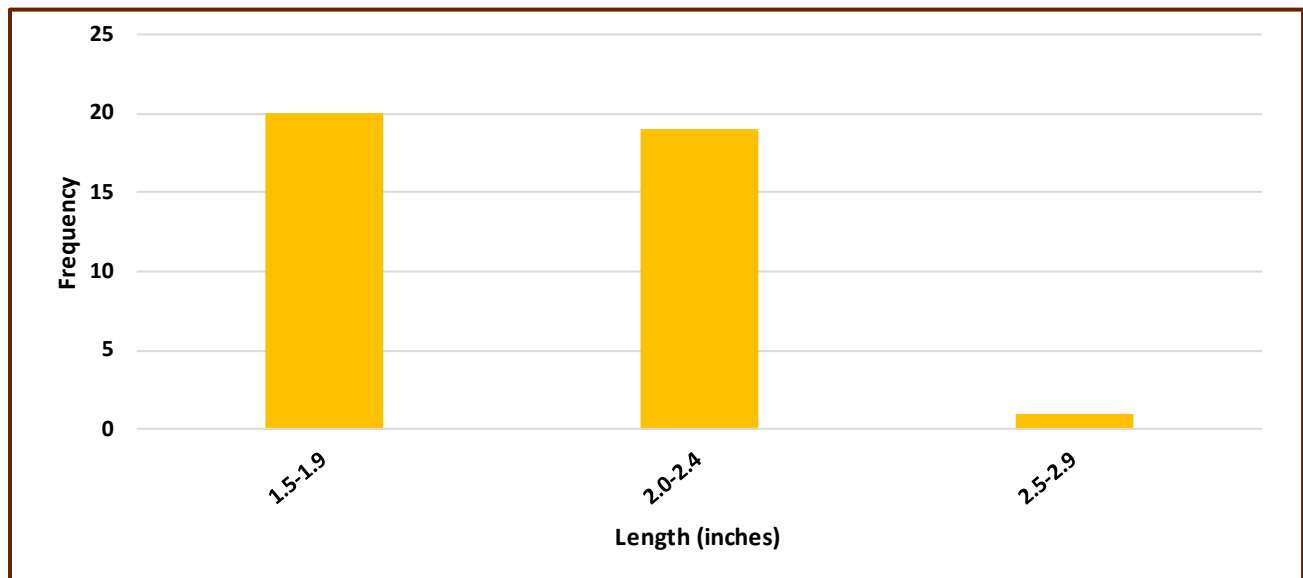


Figure 5. Length frequency of Banded Killifish sampled in Lake Aldo Leopold during the 2024 seine netting survey.

BLACKNOSE SHINER

Blacknose Shiners grow to a length ranging from two to four inches. The Blacknose Shiners coloration is very similar to the Blackchin Shiner, although the Blacknose tends to have more of gray green back with silvery underside. This species also has a black lateral band that runs from the tip of the nose to the base of the tail. As seen in the image under the Blackchin Shiner description, the best way to tell these two species apart is the presence or absence of the black pigment on the front edge of the bottom lip.



Blacknose Shiners are also found residing in clear glacial lakes and sandy streams with dense aquatic vegetation. This species is endangered in the state of Illinois and is only present in Lake County.

A total of 60 Blacknose Shiners, representing 10% of the total catch, were captured during the 2024 survey. Length ranged from 1.8 to 2.8 inches (**Figure 6**), with a mean length of 2.3 inches for all Blacknose Shiners measured.

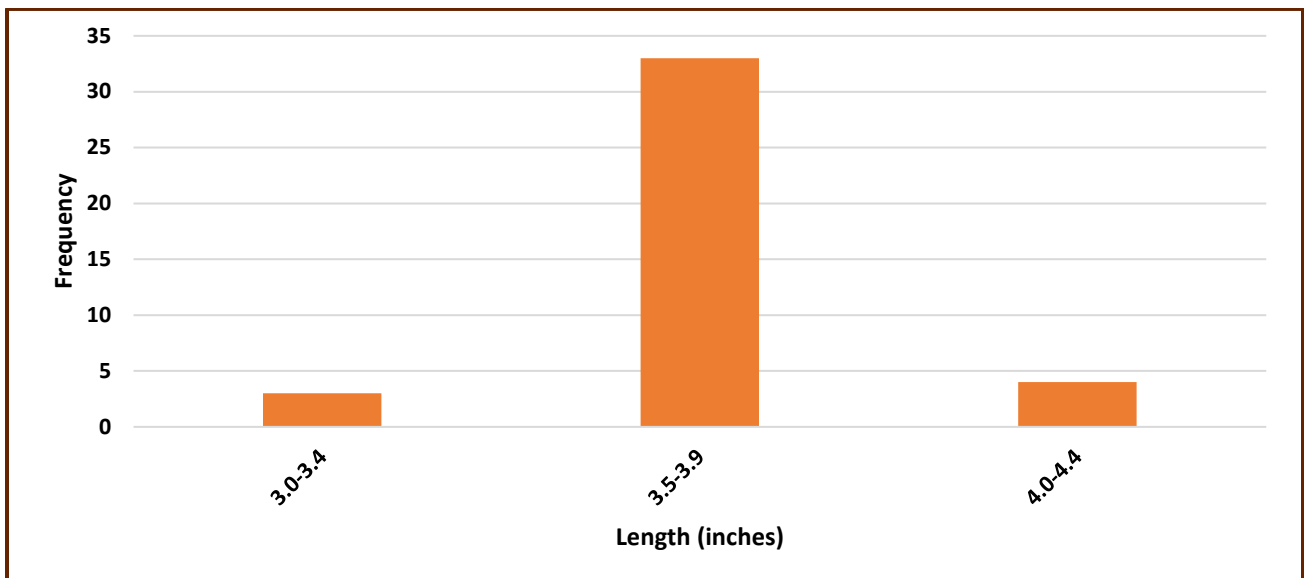


Figure 6. Length frequency of Blacknose Shiners sampled in Lake Aldo Leopold during the 2024 seine netting survey.

IOWA DARTER

Iowa Darter are a small species in the perch family. This fish averages about two and three-fourths in length. The coloration is brownish green with dark blotches along the sides, separated by red spaces. Males during breeding with have colors of red, blue, orange, and green.



The Iowa Darter can be found in glacial lakes and is common in most counties in Northern Illinois. Habitat preferences are lakes and slow streams with vegetation and soft substrate.

A total of 30 Iowa Darters, representing 5% of the total catch were captured during the 2024 survey. Lengths ranged from 1.7 to 2.1 inches (**Figure 7**), with a mean length of 1.9 inches for all Iowa Darters measured.

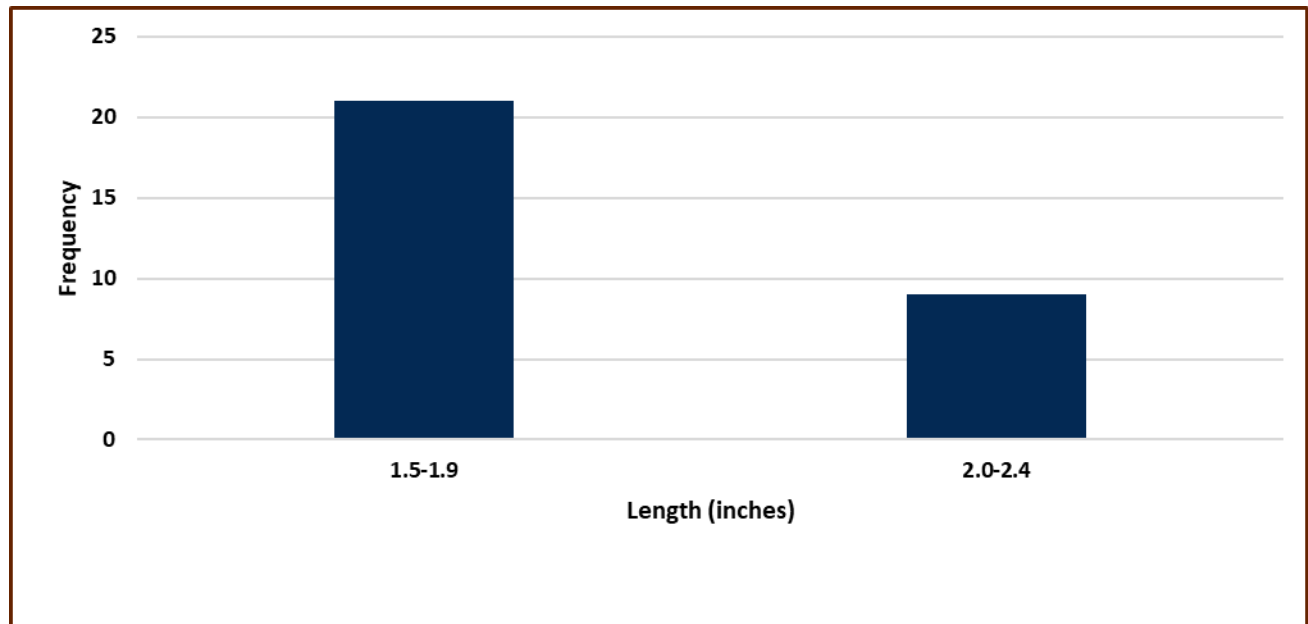


Figure 7. Length frequency of Iowa Darters sampled in Lake Aldo Leopold during the 2024 seine netting survey.

BLACK CRAPPIE

Black Crappie are a popular fish for recreational anglers, as they can grow to large sizes and are favored for table fare. Black Crappie are piscivorous which means they feed mostly on other fish. Having a healthy Black Crappie population requires a strong forage fish population.



A total of 4 Black Crappie, representing 0.7% of the total catch were captured during the 2024 survey. Lengths ranged from 7.6 to 8.2 inches, with a mean length of 8 inches. The length frequency histogram of the Black Crappie caught during the 2024 seine netting survey is provided in **Figure 8** below.

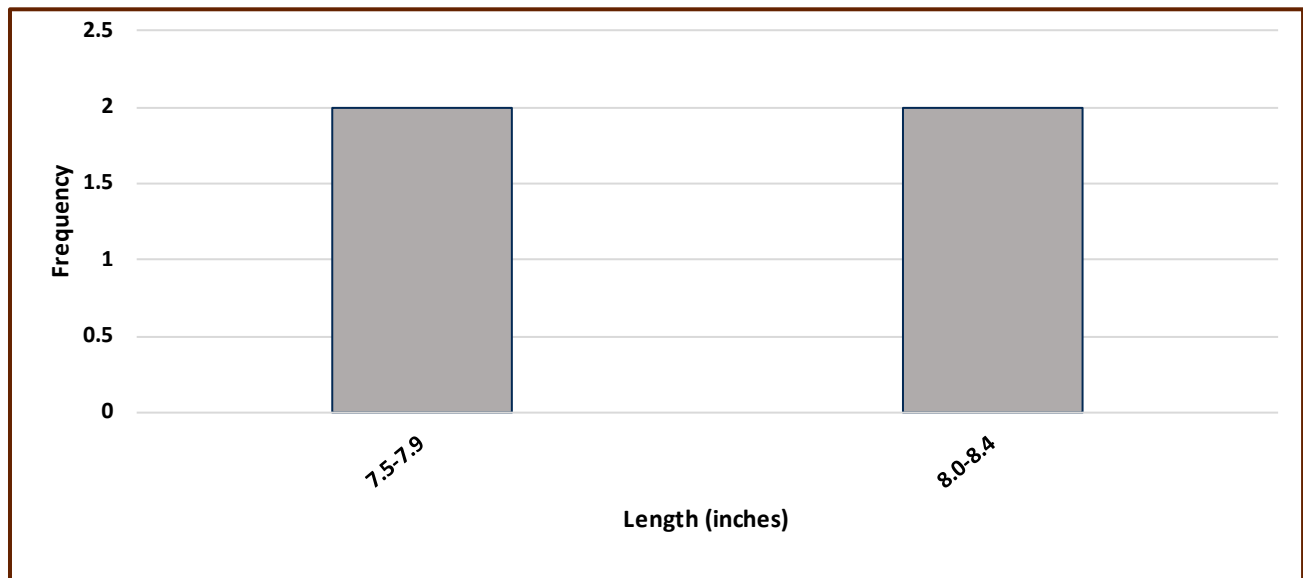


Figure 8. Length frequency of Black Crappie sampled in Lake Aldo Leopold during the 2024 seine netting survey.

The Black Crappie stock, quality, preferred, memorable and trophy sizes are ≥ 5 inches, ≥ 8 inches, ≥ 10 inches, ≥ 12 inches, and ≥ 15 inches, respectively. The table below provides the proportion of stock density of the Black Crappie caught in the seine netting survey (**Table 3**). All four Black Crappie were above the stock length of five inches.

Table 3. Proportional stock densities of Black Crappie in Lake Aldo Leopold during the 2024 seine netting survey.

	Proportion of Stock (≥ 5 inches)	Proportion of Quality (≥ 8 inches)	Proportion of Preferred (≥ 10 inches)	Proportion of Memorable (≥ 12 inches)	Proportion of Trophy (≥ 15 inches)
%	100.00	50.00	0.00	0.00	0.00
#	4	2		0	0

LARGEMOUTH BASS

Largemouth Bass are widely distributed throughout the lakes, streams, and rivers of the Midwest. Their large mouths allow them to feed on a wide range of prey sizes. Bass are well-suited for preying upon deep-bodied panfish, such as Bluegill, Black Crappie and Pumpkinseed, and are thus important for controlling populations of these species. They will also feed opportunistically upon crustaceans, insects, and frogs.



A total of 4 Largemouth Bass, representing 0.7% of the total catch were captured during the 2024 seine netting survey. Lengths ranged from 5.5 to 11 inches, with a mean length of 7.8 inches. **Figure 10** displays the length frequency of Largemouth Bass surveyed in 2024.

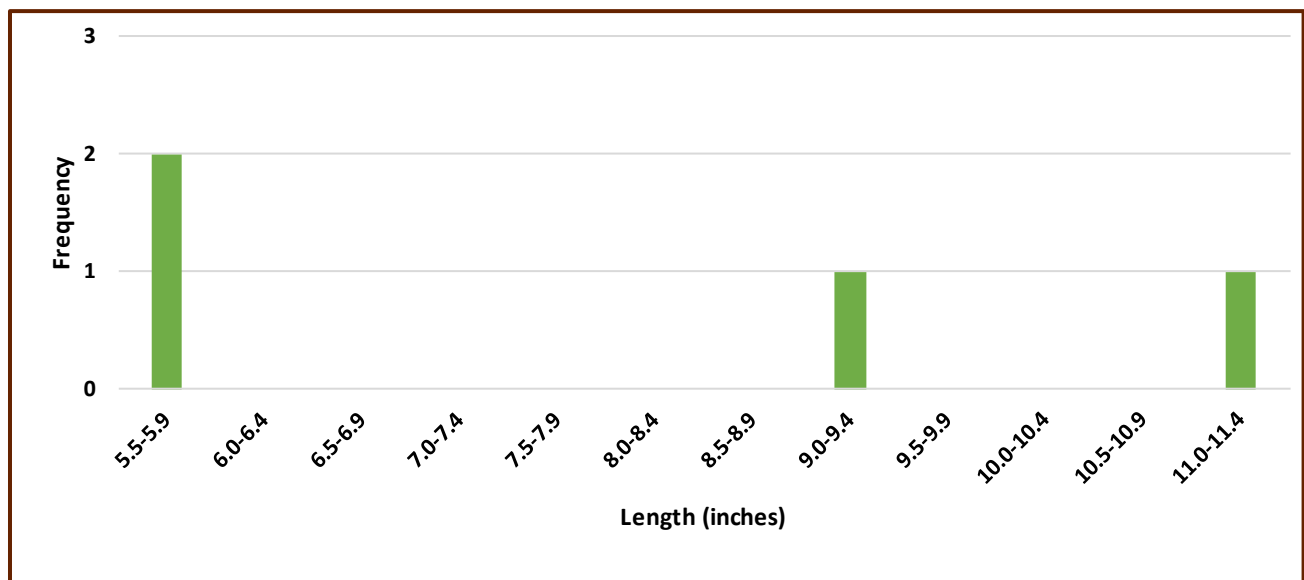


Figure 9. Length frequency of Largemouth Bass sampled in Lake Aldo Leopold during the 2024 seine netting survey.

The Largemouth Bass stock, quality, preferred, memorable and trophy sizes are ≥ 8 inches, ≥ 12 inches, ≥ 15 inches, ≥ 20 inches, and ≥ 25 inches, respectively. Half of the Largemouth Bass surveyed were longer than eight inches in 2024 (**Table 4**).

Table 4. Proportional stock densities of Largemouth Bass in Lake Aldo Leopold during the 2024 seine netting survey.

	Proportion of Stock (≥ 8 inches)	Proportion of Quality (≥ 12 inches)	Proportion of Preferred (≥ 15 inches)	Proportion of Memorable (≥ 20 inches)	Proportion of Trophy (≥ 25 inches)
%	50.00	0.00	0.00	0.00	0.00
#	2	0	0	0.00	0.00

DISCUSSION AND RECOMMENDATIONS

Table 5. Percentages of total catch for each species sampled in 2024 compared to surveys in 2004, 2005, and 2006.

		2004	2005	2006	2024
BLACKCHIN SHINER	% of Catch	11%	4%	9%	39%
BLUEGILL	% of Catch	83%	89%	49%	24%
BANDED KILLIFISH	% of Catch	37%	6%	5%	21%
BLACKNOSE SHINER	% of Catch	1%	0%	<1%	10%
IOWA DARTER	% of Catch	0%	<1%	0%	5%
BLACK CRAPPIE	% of Catch	0%	<1%	2%	0.7%
LARGEMOUTH BASS	% of Catch	0%	<1%	0%	0.7%

SUMMARY

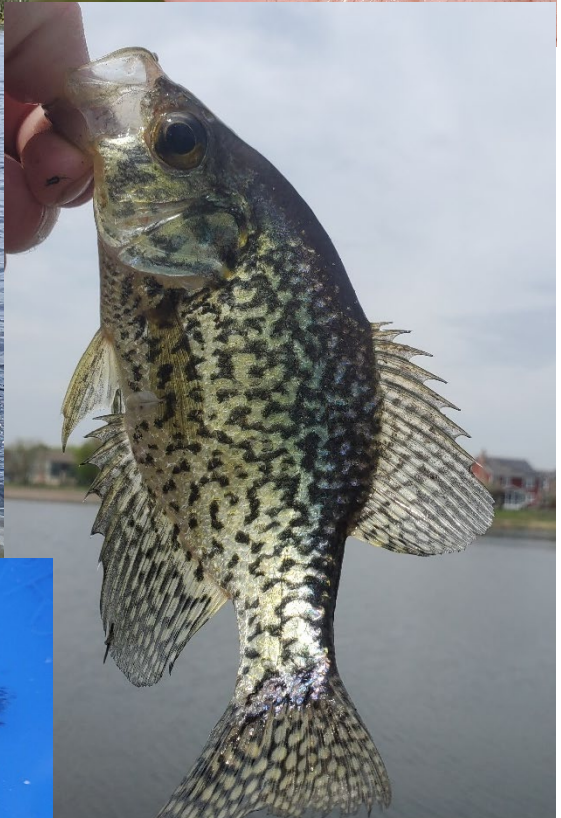
In 2024 Lake Aldo Leopold bolstered a strong population of threatened and endangered species of fish. Many of these species have increased drastically since the survey conducted in 2006, most notably the Blackchin Shiner. Going from a sample of 15 in 2006 to a sample of 238 in 2024 is a 1,486.7% increase in number. Banded Killifish, Blacknose Shiners, and Iowa Darters also had a population increase compared to the last survey. The reasoning for this is likely correlated to the decrease in Bluegill and Black Crappie populations, which was recommended by ILM in 2006.

To ensure the continued health of the E/T species in Lake Aldo Leopold, it is recommended to put in place a regular survey schedule. Surveying on a regular basis will provide adequate data to track changes and allow for quicker management decisions to be implemented.

Additional Images



Juvenile Bluegill



Iowa Darter



Bullfrog

