

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Two Sisters Lake 2023-2024 Creel Survey Report

Oneida County



Treaty Fisheries Publication



Created by
Eric Brown, Jason Halverson & Mark Love
DNR Treaty Fisheries Technicians



Contents

Introduction	1
General Lake Information	2
Location	2
Physical Characteristics	2
Seasons Surveyed.....	2
Weather	2
Fishing Regulations.....	2
Species Catch And Harvest Information	2
Creel Survey Results And Discussion.....	3
Survey Logistics.....	3
General Angler Information	3
Results By Species.....	3
Acknowledgments.....	4
Summary Tables	
Table 1. Sportfishing Effort Summary	5
Table 2. Creel Survey Synopses.....	6
Species Catch And Harvest Figures	
Gamefish	
Figure 1. Walleye	7
Figure 2. Northern pike	8
Figure 3. Muskellunge	9
Figure 4. Smallmouth bass.....	10
Figure 5. Largemouth bass	11
Panfish	
Figure 6. Yellow perch	12
Figure 7. Bluegill.....	13
Figure 8. Black crappie	14
Figure 9. Pumpkinseed	15
Figure 10. Rock bass.....	16

Copyright 2024

Wisconsin Department of Natural Resources
101 S. Webster Street, Madison, Wisconsin 53707
<https://www.dnr.wisconsin.gov>

Cover Art: Steve Hilt, Portland, OR
Fish Graphics: Virgil Beck, Stevens Point, WI

Introduction

Fish populations can fluctuate due to a variety of factors including natural forces like climate, reproductive success, predation and competition. Human activities such as fish harvest, stocking, habitat change and invasive species introduction can also have significant impacts. The Wisconsin Department of Natural Resources (DNR) fisheries crews regularly conduct fishery surveys on lakes and reservoirs to gather the information needed to monitor changes, identify concerns, evaluate past management actions and to prescribe fishery management strategies. Netting and electrofishing surveys are used to gather data on the status of fish populations and communities, measuring such parameters as species composition, population size, reproductive success, size and age distribution and growth rates. Harvest is another key component of fisheries that we need to measure.

On many lakes in the Ceded Territory of northern Wisconsin, harvest of fish is divided between sport anglers and the six Ojibwe bands who harvest fish under rights reserved by federal treaties. The tribes harvest fish primarily using spearing, a highly efficient method, during a relatively short time in the spring. Every fish in the spear harvest is counted and reported, creating a complete census of the harvest.

We also measure the sport angler harvest to assess its impact on the fishery. It would be highly impractical and very costly to conduct a complete census of every angler who fishes on a lake, so we conduct creel surveys instead.

A creel survey is an assessment tool used to sample the fishing activities of anglers on a body of water to make estimates of harvest and other fishery parameters. Creel survey clerks work on randomly-selected days and shifts, forty hours per week. The survey is conducted during daylight hours throughout the open season for gamefish from the first Saturday in May through the first Sunday in

March. Creel surveys are not conducted in November when fishing effort is low and ice conditions are often unsafe.

Creel survey clerks travel their lakes using a boat or snowmobile to count the number of anglers at predetermined times and to interview anglers who have completed their fishing trip. Data are collected on what species they fished for, catch, harvest, lengths of fish harvested, marks (fin clips or tags) and hours of fishing effort. Collecting completed-trip data provides the most accurate assessment of angling activities, and it avoids the need to disturb anglers while they are fishing.

A computer program is used to estimate catch and harvest of each species, catch and harvest rates and fishing effort by month, as well as for the year in total. Keep in mind that these are estimates based on the best information available and not a complete accounting of effort, catch and harvest. Accurate estimates require that we sample a sufficient and representative portion of the angling activity on a lake. The accuracy of creel survey results depends on good cooperation and truthful responses by anglers when a creel clerk interviews them.

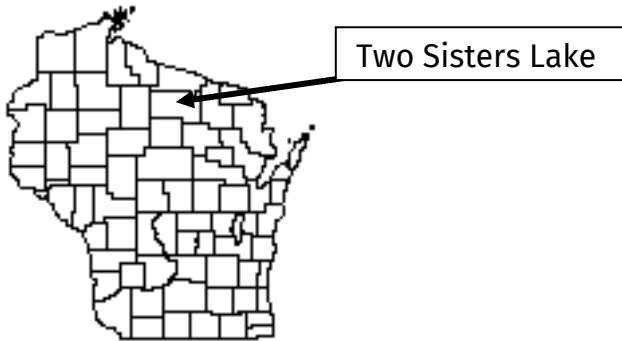
You may have encountered a DNR creel survey clerk on a recent fishing trip. We appreciate your cooperation during an interview. The survey only takes a few minutes of your time and it gives the DNR valuable information needed for management of the fishery.

This report provides estimates of:

1. Overall fishing effort (pressure)
2. Fishing effort directed at each species
3. Numbers of fish caught and harvested
4. Catch and harvest rates

Also included are a physical description of Two Sisters Lake, discussion of results of the survey and detailed summaries by species of fishing effort, catch and harvest.

General Lake Information



LOCATION

Two Sisters Lake is located in Oneida County near the town of Newbold.

PHYSICAL CHARACTERISTICS

Two Sisters Lake is a 719-acre spring lake with a maximum depth of 64 feet. Littoral substrate consists primarily of sand, with gravel and some muck. Two Sisters Lake contains soft, alkaline, clear water of very high transparency.

SEASONS SURVEYED

The period referred to in this report as the 2023-24 fishing season ran from May 6, 2023 through March 3, 2024. The summer creel survey ran from May 6 through Oct. 31, 2023, and the winter creel survey ran from Dec. 1, 2023 through March 3, 2024.

WEATHER

Ice-out on Two Sisters Lake was around the first week of May 2023. Fishable ice formed on Two Sisters Lake in mid-December 2023.

FISHING REGULATIONS

The following seasons, daily bag limits and length limits were in place on Two Sisters Lake during the 2023-24 fishing season:

SPECIES	SEASON	BAG LIMIT	MIN. SIZE
Largemouth bass	5/ 06 - 3/ 03	5*	14"
Smallmouth bass	5/ 06 - 6/ 16	Catch&Release	
	6/ 17 - 3/ 03	5*	14"
*Bass species have a combined bag limit of 5.			
Muskellunge	5/ 27 - 12/ 31	1	40"
On open water			
Northern pike	5/ 06 - 3/ 03	5	None
Walleye	5/ 06 - 3/ 03	3	18"
Panfish	Open all year	25	None
Rock bass	Open all year	None	None

Species Catch And Harvest Information

Summaries of angling effort, catch and harvest information for each species are in Table 2 and Figures 1-10, along with a comparison of these statistics with the previous creel survey in Table 2. Information about species with fishing seasons extending beyond March 03, 2024 should be considered minimum estimates. Each species page has up to five graphs depicting the following:

- DIRECTED FISHING EFFORT**
Estimated number of hours during each month that anglers spent fishing for a species.
- TOTAL CATCH AND HARVEST**
Estimated number of fish of the indicated species caught or harvested by all anglers, regardless of targeted species.
- SPECIFIC CATCH AND HARVEST RATES**
Estimated number of hours it takes an angler to catch or harvest a fish of the indicated species. Only information from anglers who were specifically targeting that species is reported.
- LENGTH OF HARVESTED FISH**
All fish of a species that were measured by the clerk during the entire creel survey season.

5. **LARGEST AND AVERAGE LENGTH OF HARVESTED FISH**

Largest and average (mean) length of a species of fish harvested. Only fish measured by the creel survey clerk are reported.

Creel Survey Results And Discussion

SURVEY LOGISTICS

Due to staffing issues, the winter creel days on Two Sisters Lake were split with another creel lake. This may have impacted estimates during the winter months. This was the tenth time the DNR conducted a creel survey on Two Sisters Lake. The last creel survey took place during 2020-21.

GENERAL ANGLER INFORMATION

Anglers spent 7,635 hours, or 10.6 hours per acre, fishing Two Sisters Lake during the 2023-24 season (Table 1). That was less than the Oneida County average of 32.4 hours per acre, and less than the fishing effort documented during the 2020-21 creel survey (19.7 hours per acre). July was the most heavily fished month (2,559 hours). Creel clerks were able to conduct 160 interviews throughout the survey.

RESULTS BY SPECIES

WALLEYE (Table 2, Figure 1)

Fishing effort targeted at walleye was 2,696 hours during the season. Fishing effort for walleye was highest in June (666 hours). Total catch of walleye was 114 fish, and total harvest was 4 fish. Highest catch (90 fish) occurred in August, and highest harvest (three fish) occurred in May. Anglers fished an estimated 23.6 hours to catch, and 760.5 hours to harvest a walleye during the survey. Mean length of harvested walleye was 22.6 inches and the largest measured was a 28.2-inch fish.

NORTHERN PIKE (Table 2, Figure 2)

Fishing effort directed at northern pike was 914 hours during the season. Northern pike fishing effort was greatest in July (397 hours). Total catch of northern pike was 417 fish, and

total harvest was 13 fish. Anglers fished an estimated 9.0 hours to catch a northern pike during the survey. Mean length of harvested northern pike was 19.4 inches and the largest measured was a 20.8-inch fish.

MUSKELLUNGE (Table 2, Figure 3)

Anglers spent 1,597 hours targeting muskellunge during the season. Muskellunge fishing effort was greatest in August (610 hours). There was no documented catch or harvest of muskellunge during the survey.

SMALLMOUTH BASS (Table 2, Figure 4)

Smallmouth bass received the greatest fishing effort (3,661 hours) of any gamefish species during the season. Smallmouth bass fishing effort was greatest in July (1,593 hours). Total catch of smallmouth bass was 3,237 fish, with 166 fish harvested. Highest catch (1,644 fish) occurred in July. Anglers fished an estimated 1.3 hours to catch a smallmouth bass during the survey. Mean length of harvested smallmouth bass was 15.7 inches and the largest measured was a 19.6-inch fish.

LARGEMOUTH BASS (Table 2, Figure 5)

Fishing effort directed at largemouth bass was 3,272 hours during the season. Largemouth bass fishing effort was greatest in July (1,645 hours). Total catch of largemouth bass was 3,033 fish, and total harvest was 12 fish. The highest catch (1,518 fish) occurred in July. Anglers fished an estimated 1.3 hours to catch a largemouth bass during the survey. Mean length of harvested largemouth bass was 16.0 inches and the largest measured was a 18.0-inch fish.

YELLOW PERCH (Table 2, Figure 6)

Yellow perch received 1,271 hours of directed fishing effort. Total catch of yellow perch was 352 fish, and total harvest was 17 fish. Mean length of yellow perch harvested was 7.5 inches and the largest measured was a 8.4-inch fish.

BLUEGILL (Table 2, Figure 7)

Bluegill received 1,482 hours of directed fishing effort. Total catch of bluegill was 1,939

fish, and total harvest was 125 fish. Mean length of bluegill harvested was 7.2 inches and the largest measured was a 8.0-inch fish.

BLACK CRAPPIE (Table 2, Figure 8)

Black crappie were the most sought after panfish species during the survey. Fishing effort directed at bluegill was 1,608 hours. Anglers caught 951 black crappie and harvested 501 fish. Mean length of black crappie harvested was 11.2 inches and the largest measured was a 15.8-inch fish.

PUMPKINSEED (Table 2, Figure 9)

Pumpkinseed received 448 hours of directed fishing effort. Anglers caught 164 pumpkinseed and harvested 98 fish. Mean length of pumpkinseed harvested was 6.9 inches and the largest measured was a 7.5-inch fish.

ROCK BASS (Table 2, Figure 10)

Rock bass received 198 hours of directed fishing effort. Anglers caught 5,624 rock bass and harvested 329 fish. Mean length of rock bass harvested was 8.1 inches and the largest measured was a 9.0-inch fish.

BURBOT

While there was no documented fishing effort for burbot, one burbot was caught and harvested measuring 17.2 inches.

Acknowledgements

The DNR would like to thank all the anglers who took the time to offer information about their fishing trip to the creel clerk. The survey would not have been possible without their cooperation.

We also thank our cooperators, Bill and Ruth Jaeger and the town of Newbold, who generously allowed the DNR to keep a boat and/or snowmobile on their property during this survey.

Completion of this survey was possible because of the efforts of the following DNR fisheries management staff: John Kubisiak, Lawrence Eslinger, Jason Halverson, Mark Love, Eric Brown and Bob Consolo. Creel

clerks on Two Sisters Lake during the survey period were John Davis, Abbi Ewert, Kirsten Larsen, Catt Moeller, Joel Mommaerts, Jerry Storke, Steve Timler and Ryan Flaherty.

Additional copies of this report, and those covering other local lakes, can be obtained from the DNR Woodruff Service Center or online at:

<http://dnr.wisconsin.gov/topic/Fishing/north/trtycrlsruvs.html>

Table 1. Sportfishing effort summary, Two Sisters Lake, 2023-2024 season; compared to 2020-21 creel results, Oneida County averages, and Ceded Territory averages.

MONTH	NUMBER OF ANGLER PARTY INTERVIEWS	TOTAL ANGLER HOURS	TOTAL ANGLER HOURS/ACRE	2020-21 TOTAL ANGLER HOURS/ACRE	ONEIDA COUNTY AVERAGE HOURS/ACRE	CEDED TERRITORY AVERAGE HOURS/ACRE
May	36	1,023	1.4	3.6	4.6	4.7
June	31	1,216	1.7	2.9	6.1	6.0
July	34	2,559	3.6	4.3	7.0	6.4
August	22	1,446	2.0	3.9	5.4	5.1
September	18	849	1.2	1.6	3.3	3.1
October	8	262	0.4	0.6	1.6	1.4
December	1	0	0.0	0.6	1.2	1.0
January	7	176	0.2	1.6	1.6	1.7
February	3	104	0.1	0.5	1.6	1.6
March	0	0	0.0	0.0	0.3	0.2
Summer Total	149	7,355	10.2	17.0	28.0	26.7
Winter Total	11	280	0.4	2.8	4.6	4.5
Grand Total	160	7,635	10.6	19.7	32.4	30.9

Note: Summer is May-October; Winter is December-March

Number of Angler Party Interviews is the number of groups of anglers interviewed by the creel clerk. A party is considered the members of a group who fish together in the same boat, ice shanty or from shore. The clerk fills out one interview form for each group of anglers. The number of individual anglers actually contacted by the clerk is usually much greater than the number of groups listed in this table since most groups consist of more than one angler.

Total Angler Hours is the estimated total number of hours that anglers spent fishing on Two Sisters Lake during each month surveyed.

Total Angler Hours/Acre is the total angler hours divided by the area of the lake in acres. This is useful in order to compare effort on Two Sisters Lake to other lakes.

2020-21 Total Angler Hours/Acre is the total angler hours divided by the area of the lake in acres. This is from the previous creel survey that took place on Two Sisters Lake.

County Average Hours/Acre is the average angler effort in hours per acre for county lakes that have been surveyed since 1990. This value is useful for fishing pressure comparisons with other waters.

Ceded Territory Average Hours/Acre is the average angler effort in hours per acre for inland lakes in the Ceded Territory that have been surveyed since 1990. This value can be used to compare Two Sisters Lake to other lakes in northern Wisconsin.

Table 2. Comparison of creel survey synopses, Two Sisters Lake, 2023-24 and 2020-21 fishing seasons.

CREEL YEAR: 2023-2024

SPECIES	DIRECTED EFFORT (HOURS)	PERCENT OF TOTAL	TOTAL CATCH	SPECIFIC CATCH RATE (HRS/FISH)	TOTAL HARVEST	SPECIFIC HARVEST RATE (HRS/FISH)	MEAN LENGTH OF HARVESTED FISH
Walleye	2,696	15.7%	114	23.6	4	760.5	22.6
Northern pike	914	5.3%	417	9.0	13	179.4	19.4
Muskellunge	1,597	9.3%	0	*	0	*	**
Smallmouth bass	3,661	21.4%	3,237	1.3	166	22.0	15.7
Largemouth bass	3,272	19.1%	3,033	1.3	12	795.8	16.0
Yellow perch	1,271	7.4%	352	5.5	17	432.0	7.5
Bluegill	1,482	8.6%	1,939	0.9	125	11.8	7.2
Black crappie	1,608	9.4%	951	1.8	501	3.2	11.2
Pumpkinseed	448	2.6%	164	4.8	98	6.2	6.9
Rock bass	198	1.2%	5,624	1.2	329	6.0	8.1
Burbot	0	0.0%	1	*	1	*	17.2

CREEL YEAR: 2020-21

SPECIES	DIRECTED EFFORT (HOURS)	PERCENT OF TOTAL	TOTAL CATCH	SPECIFIC CATCH RATE (HRS/FISH)	TOTAL HARVEST	SPECIFIC HARVEST RATE (HRS/FISH)	MEAN LENGTH OF HARVESTED FISH
Walleye	3,443	20.6%	73	47.2	35	98.8	21.8
Northern pike	528	3.2%	400	21.9	8	65.4	23.9
Muskellunge	2,288	13.7%	9	242.9	0	*	**
Smallmouth bass	3,822	22.8%	3,133	1.5	2	*	14.4
Largemouth bass	3,561	21.3%	3,277	1.4	10	345.8	15.8
Yellow perch	978	5.8%	586	3.5	36	27.1	8.2
Bluegill	1,113	6.7%	3,163	0.5	382	3.0	7.0
Black crappie	780	4.7%	86	12.7	61	12.7	11.0
Pumpkinseed	9	0.1%	36	*	12	*	**
Rock bass	208	1.2%	5,484	0.1	883	0.3	8.2

Note: If a species is not shown in a table, no data was collected by the creel clerks for that species.

* Indicates that no fish of this species were caught or harvested (depending on the column) by anglers who specifically targeted this species.

** Indicates that no fish were measured by the creel clerks for this species.

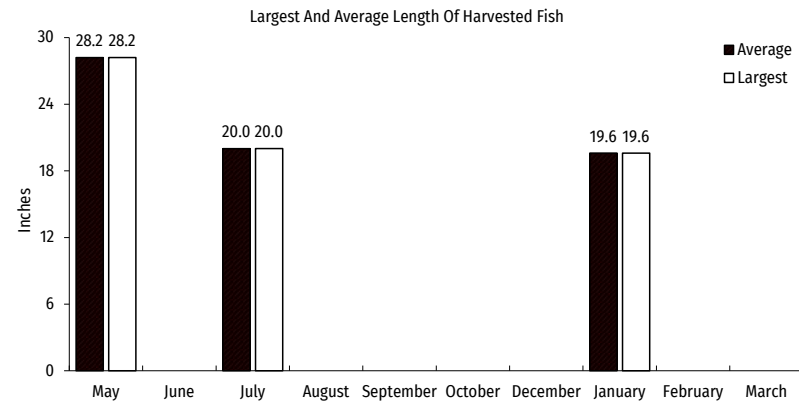
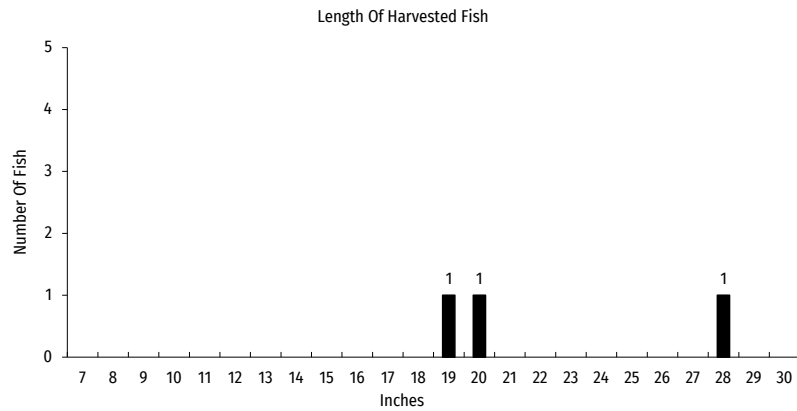
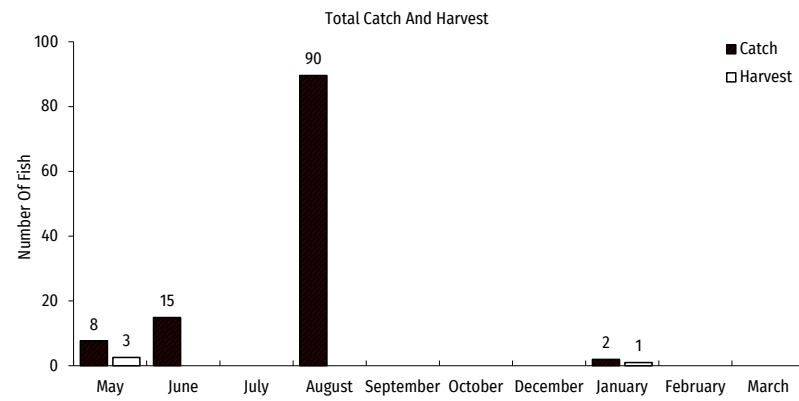
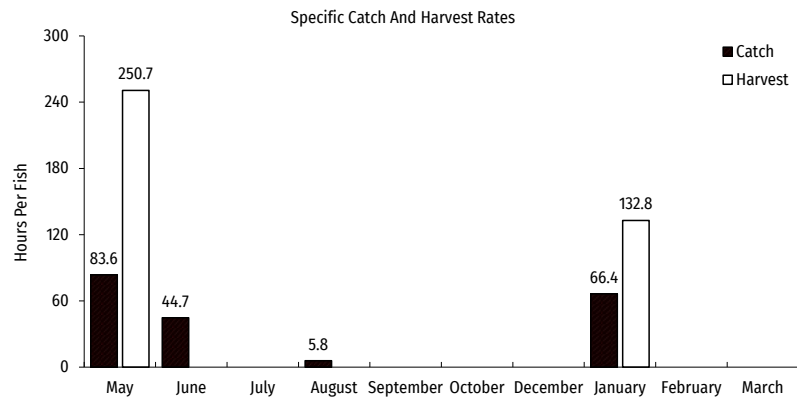
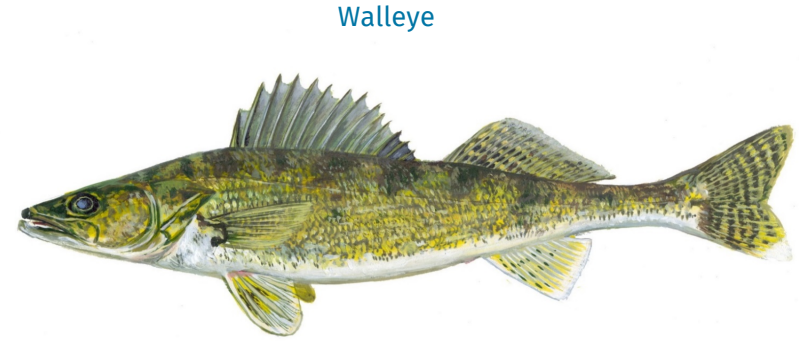
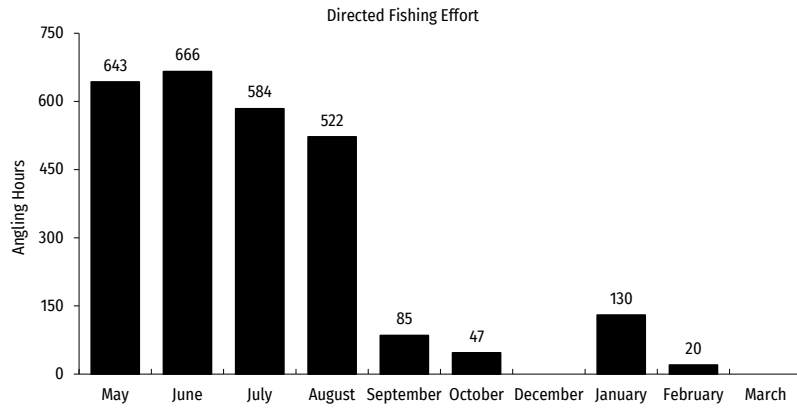


Figure 1. Walleye fishing effort, catch, harvest and length distribution, Two Sisters Lake, during 2023-24.

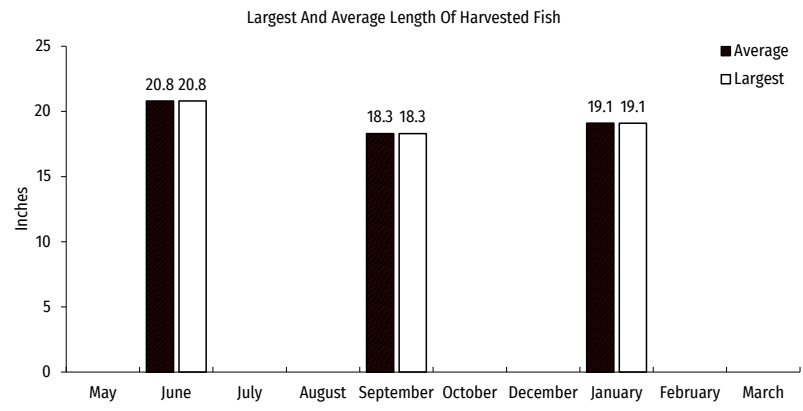
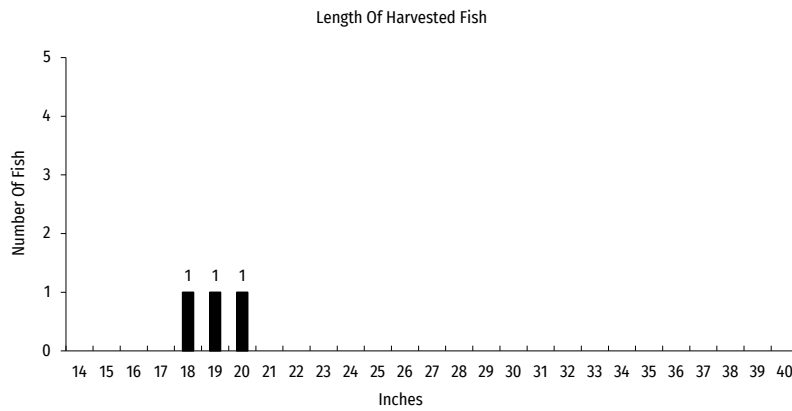
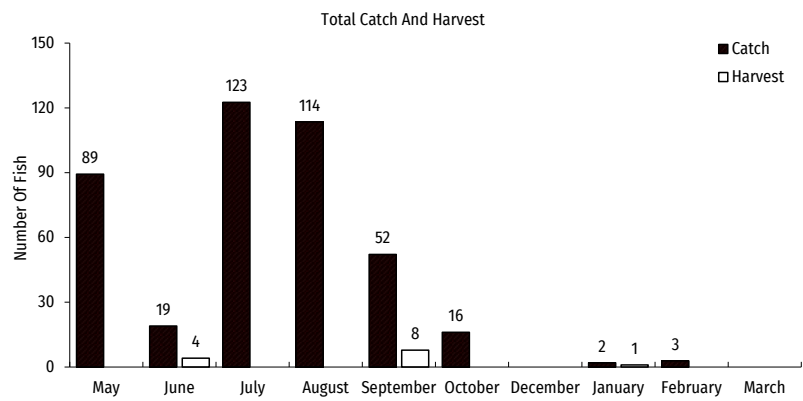
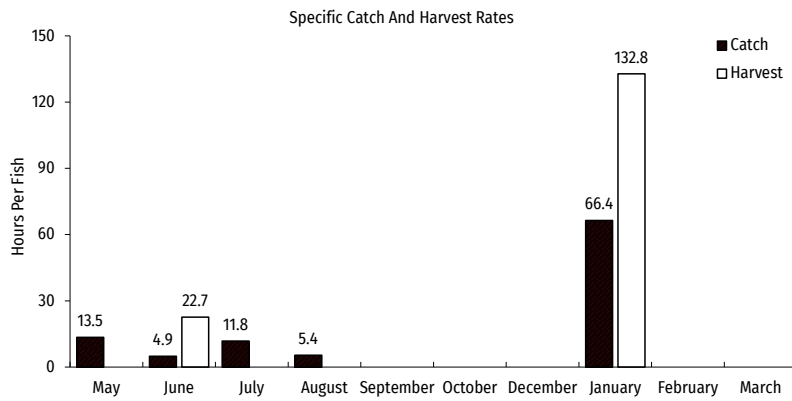
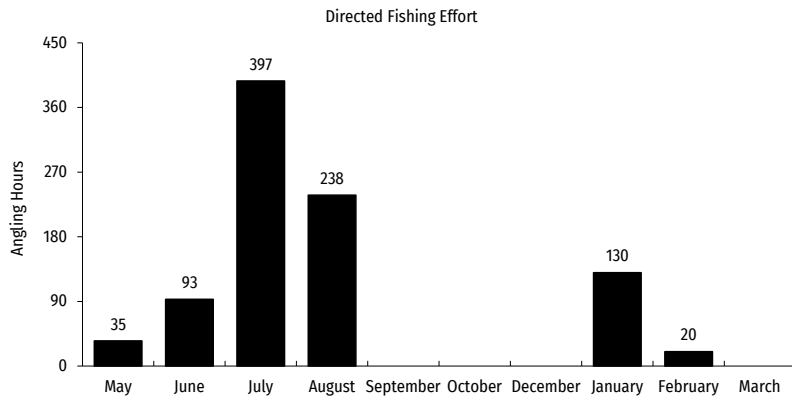
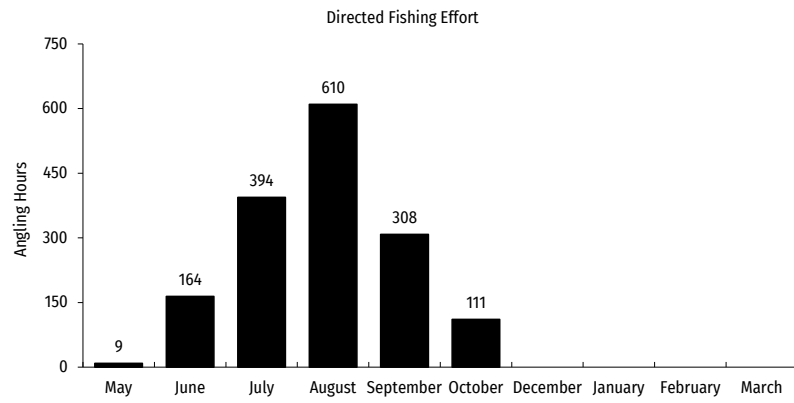


Figure 2. Northern pike fishing effort, catch, harvest and length distribution, Two Sisters Lake, during 2023-24.



Muskellunge



Figure 3. Muskellunge fishing effort, Two Sisters Lake, during 2023-24.

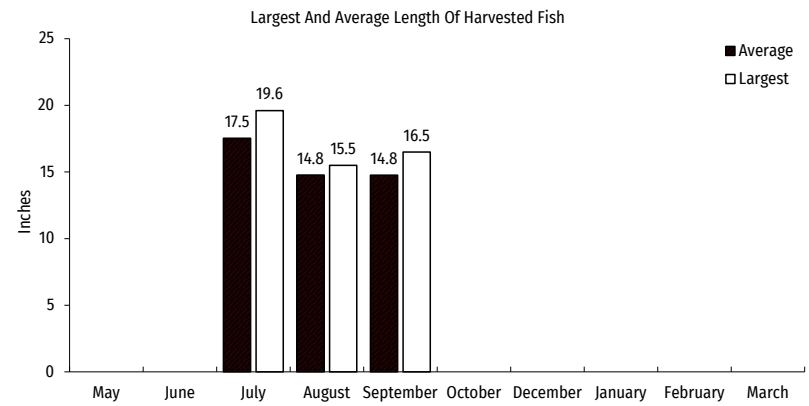
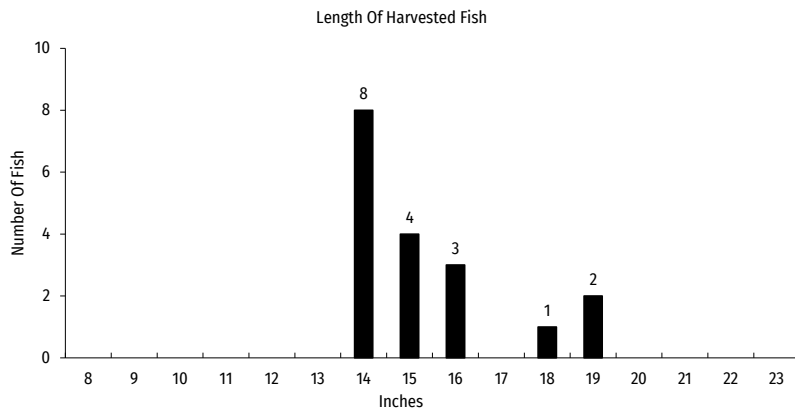
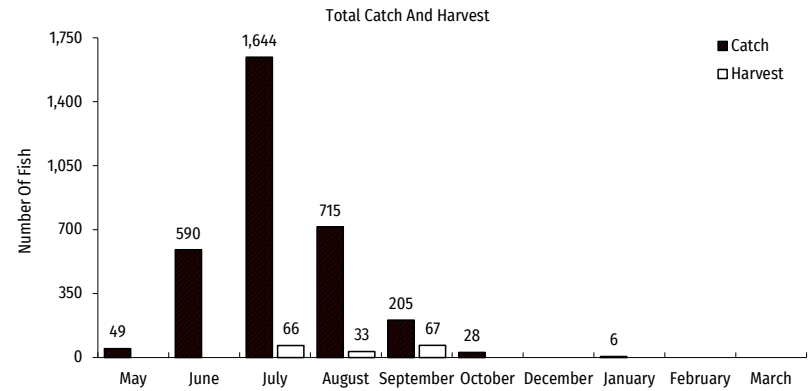
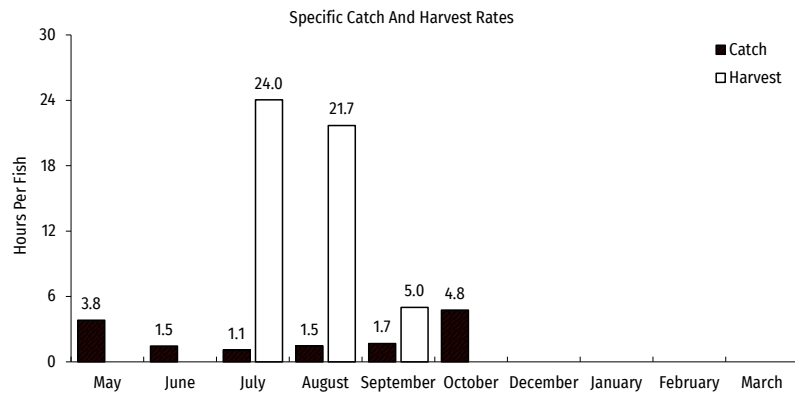
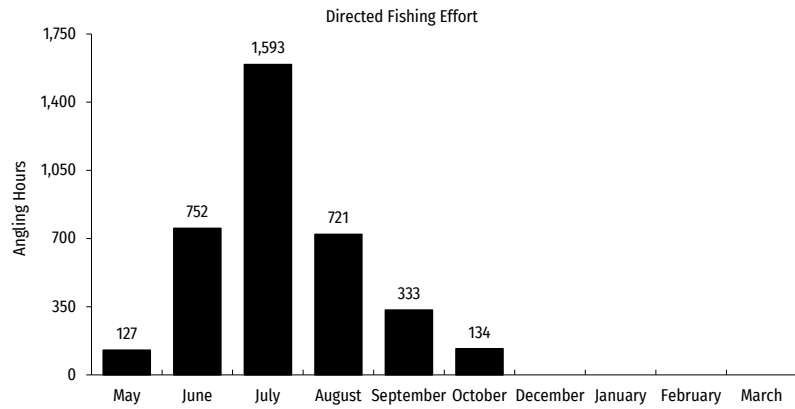


Figure 4. Smallmouth bass fishing effort, catch, harvest and length distribution, Two Sisters Lake, during 2023-24.

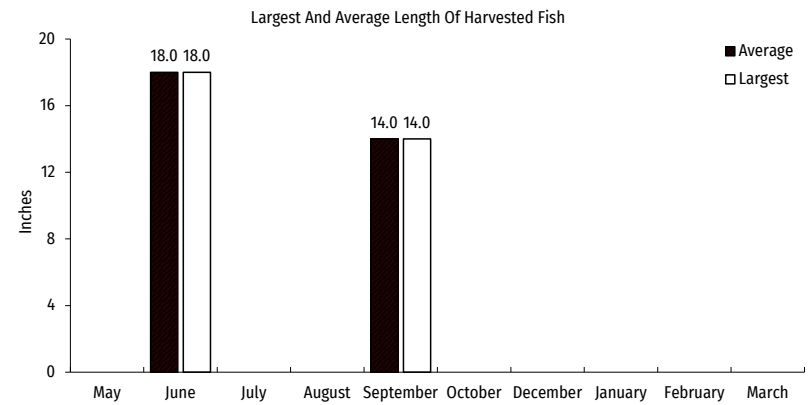
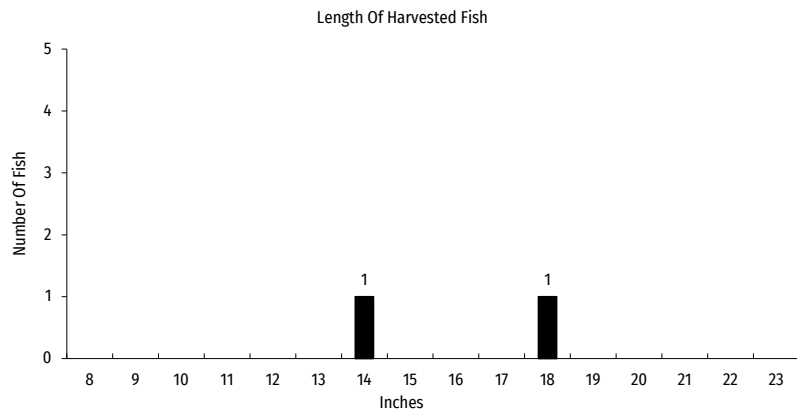
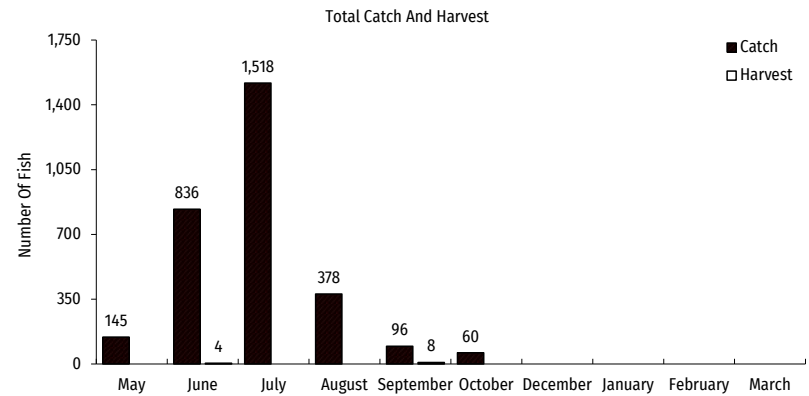
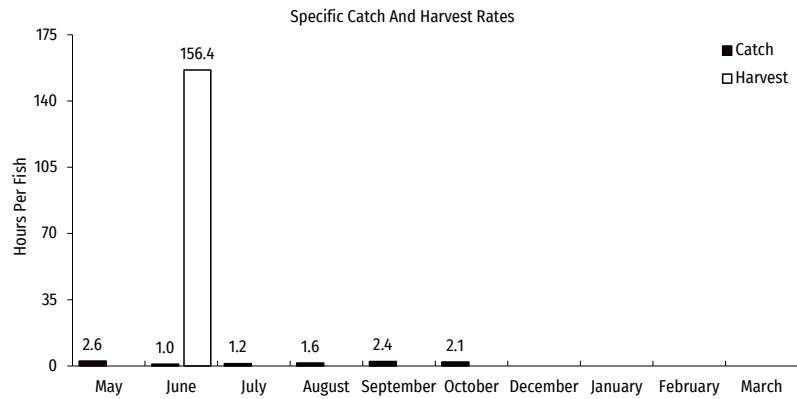
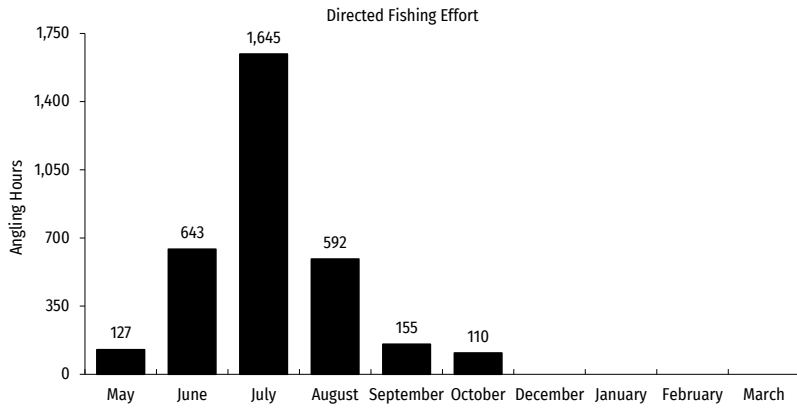


Figure 5. Largemouth bass fishing effort, catch, harvest and length distribution, Two Sisters Lake, during 2023-24.

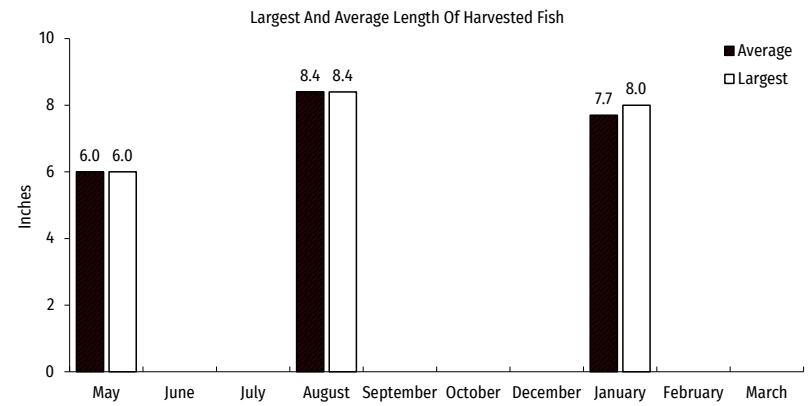
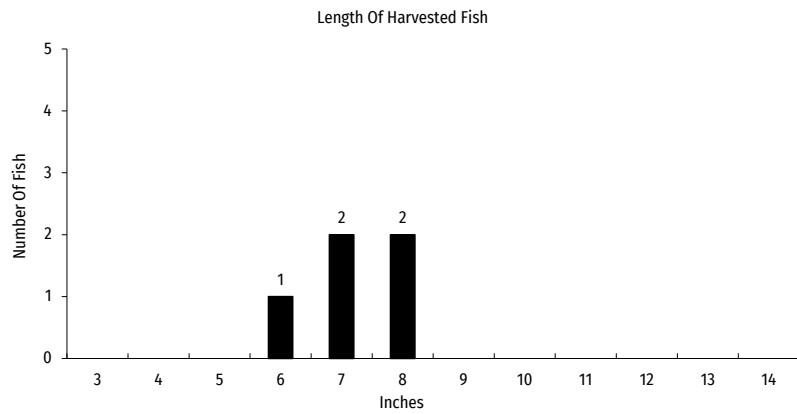
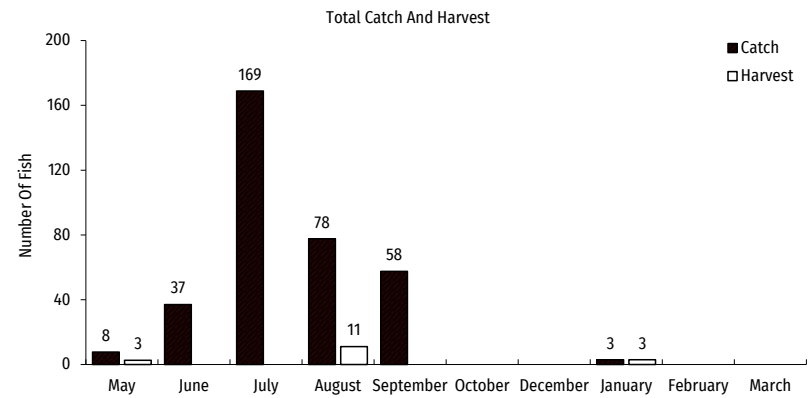
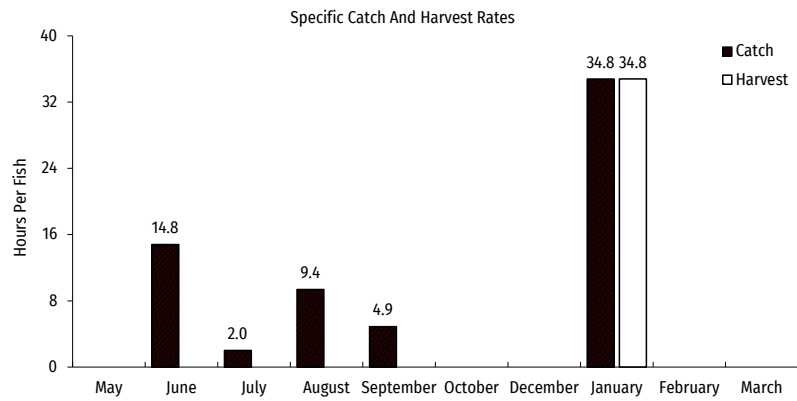
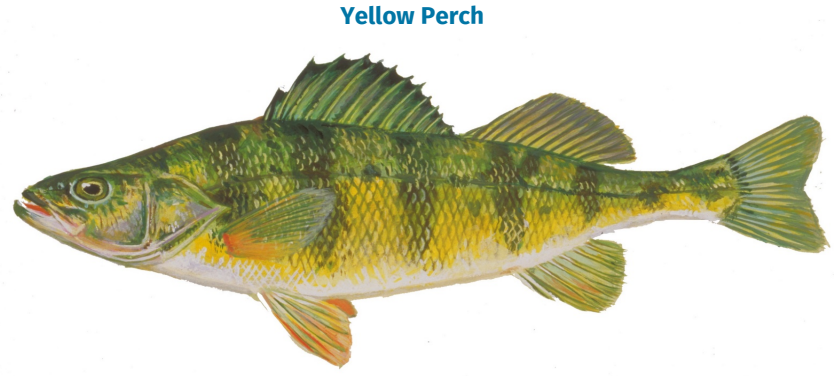
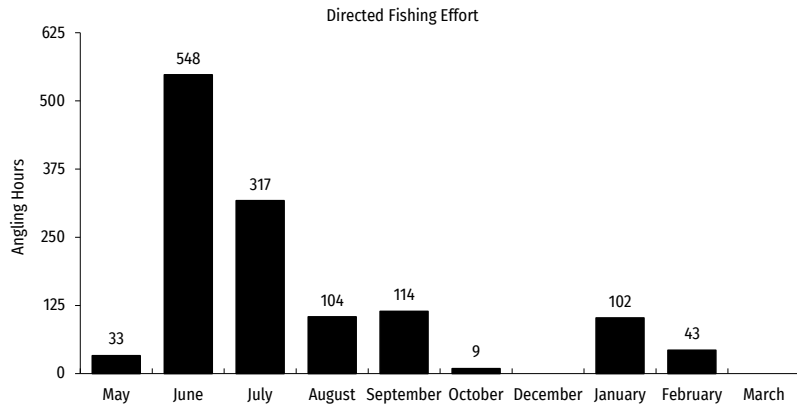


Figure 6. Yellow perch fishing effort, catch, harvest and length distribution, Two Sisters Lake, during 2023-24.

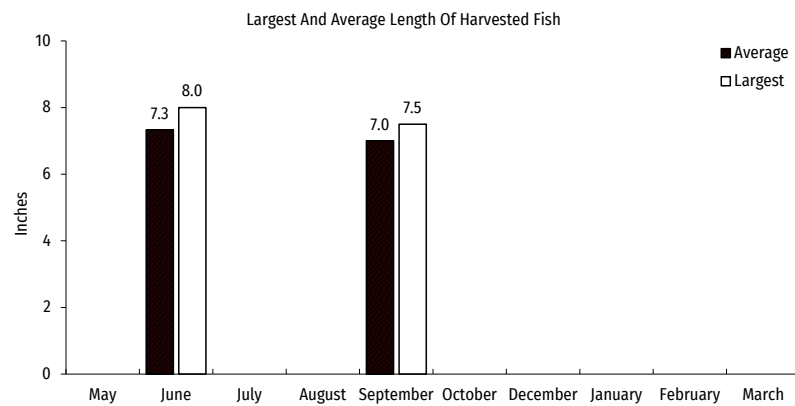
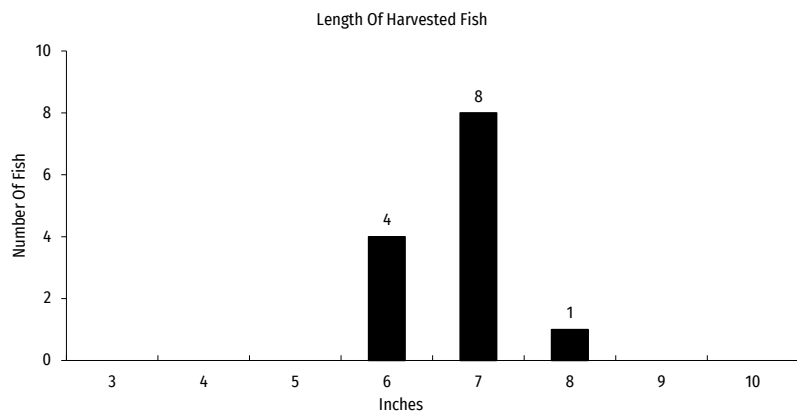
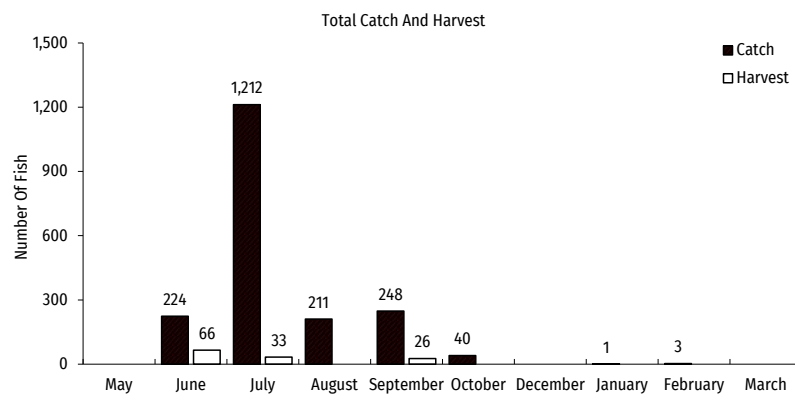
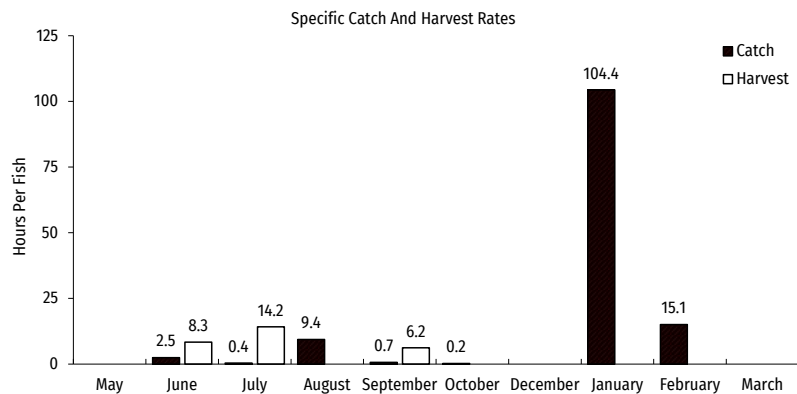
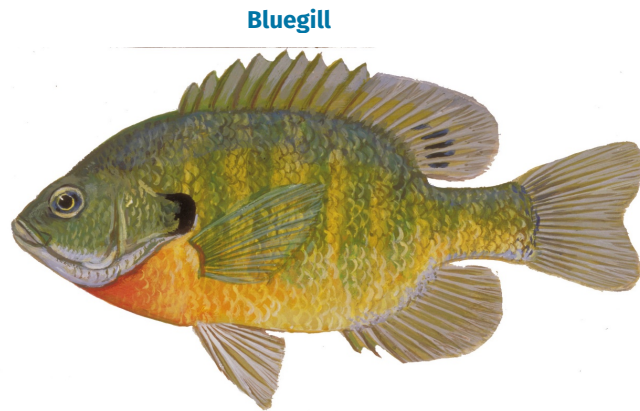
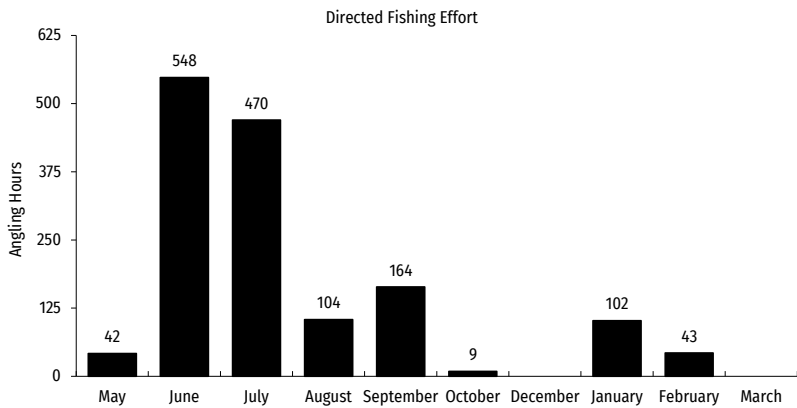


Figure 7. Bluegill fishing effort, catch, harvest and length distribution, Two Sisters Lake, during 2023-24.

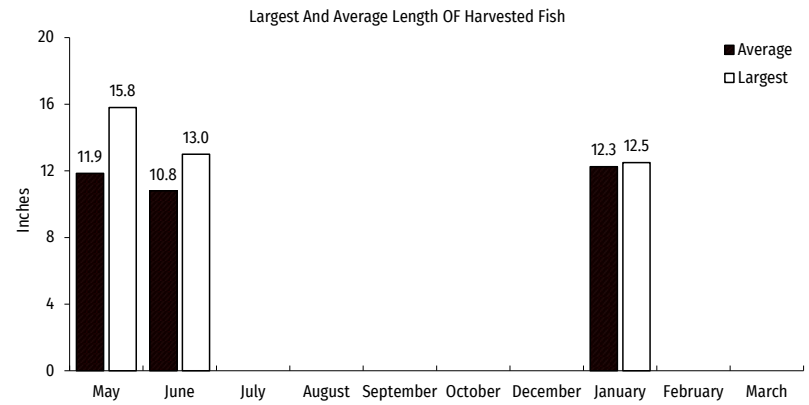
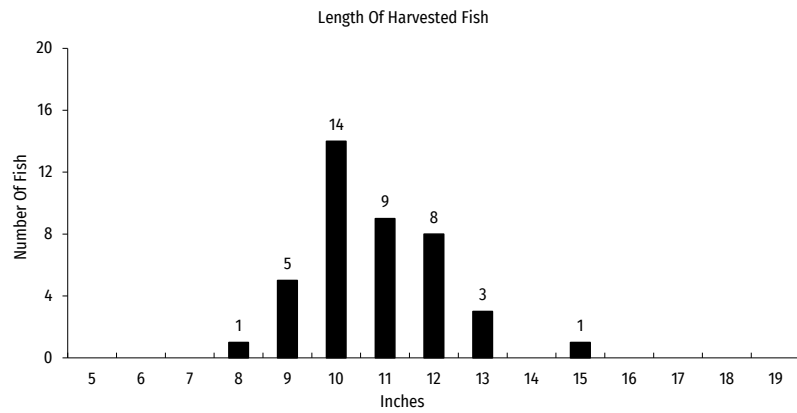
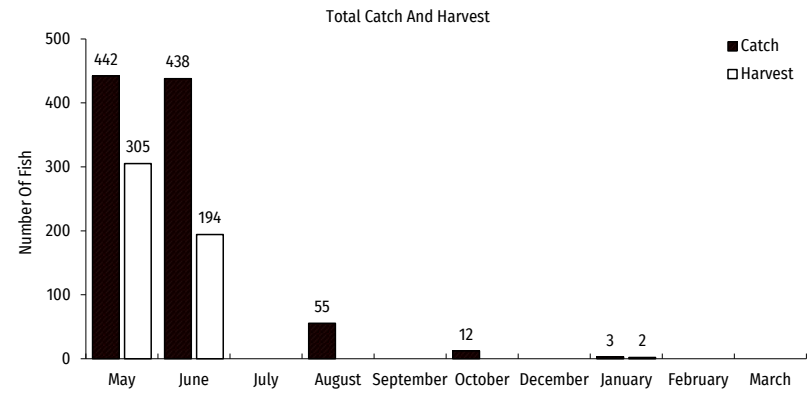
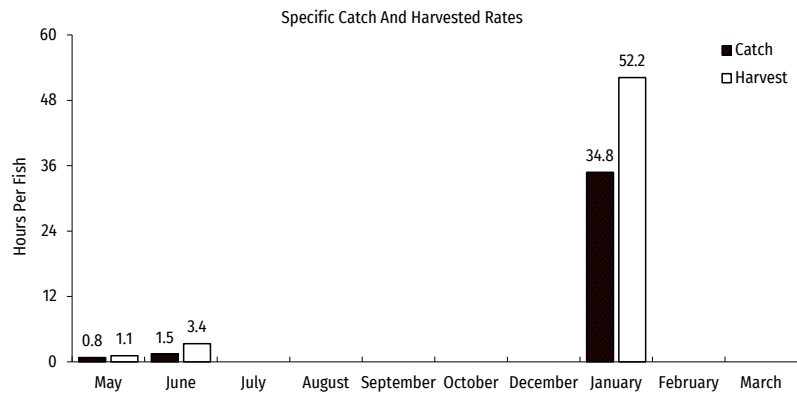
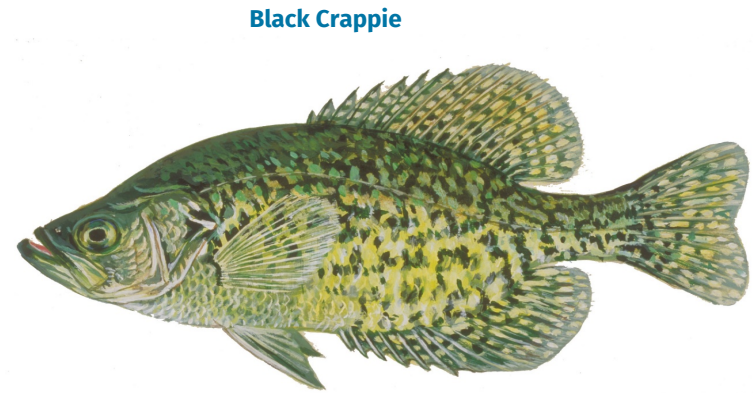
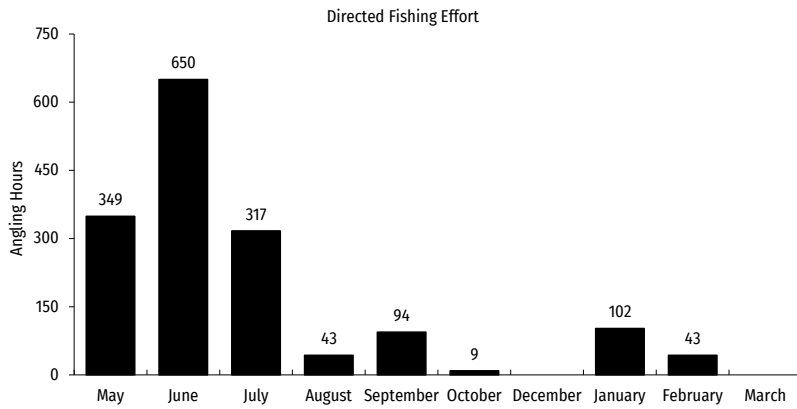


Figure 8. Black crappie fishing effort, catch, harvest and length distribution, Two Sisters Lake, during 2023-24.

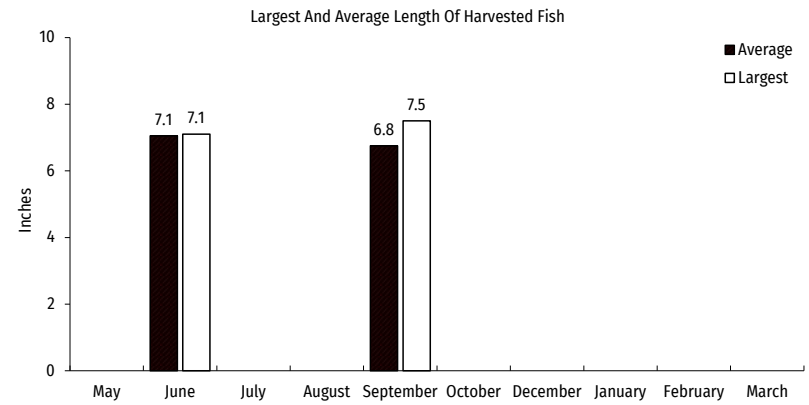
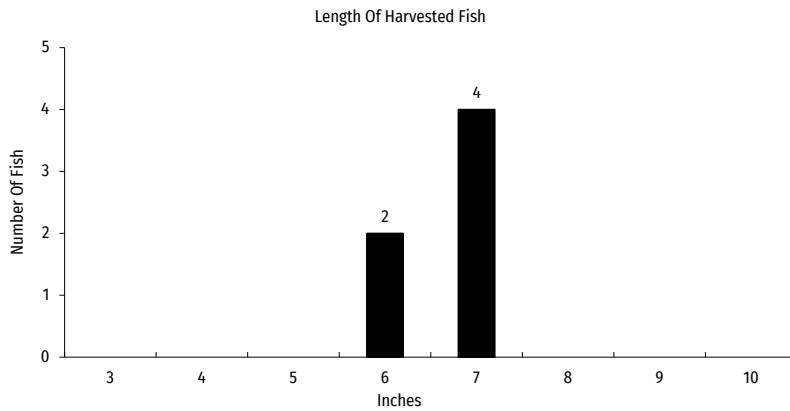
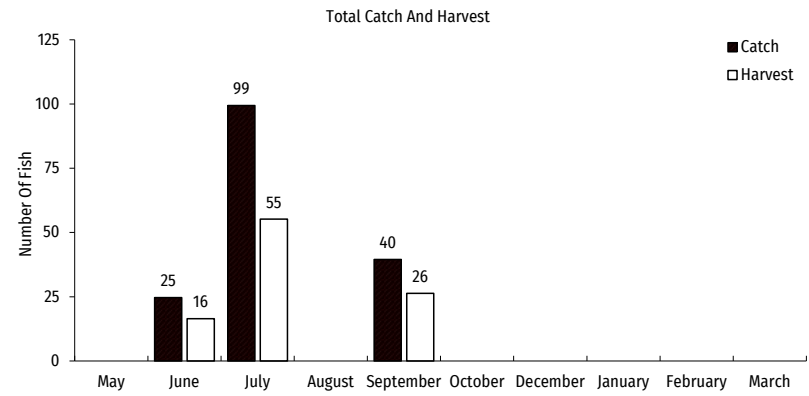
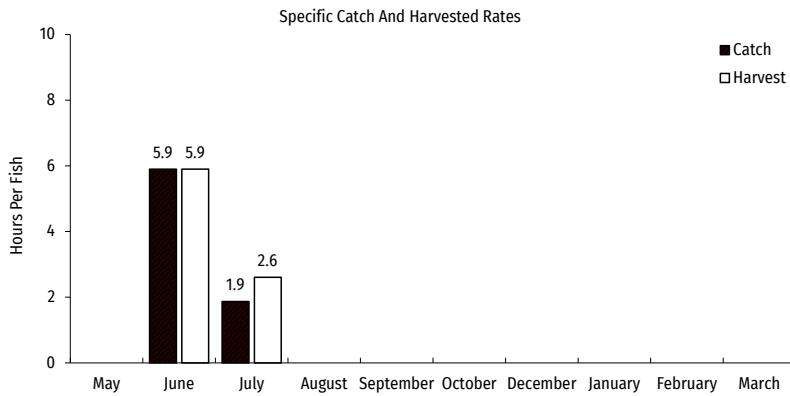
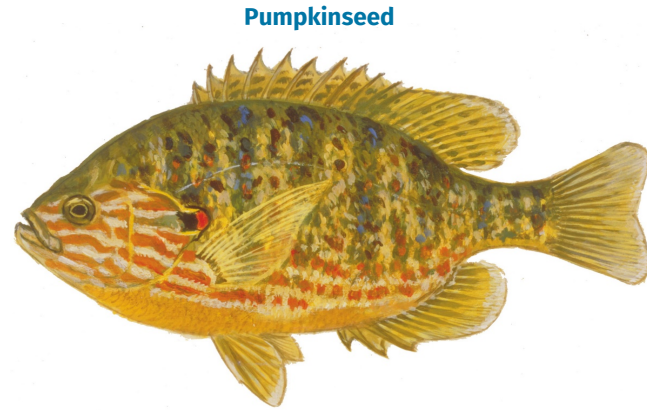
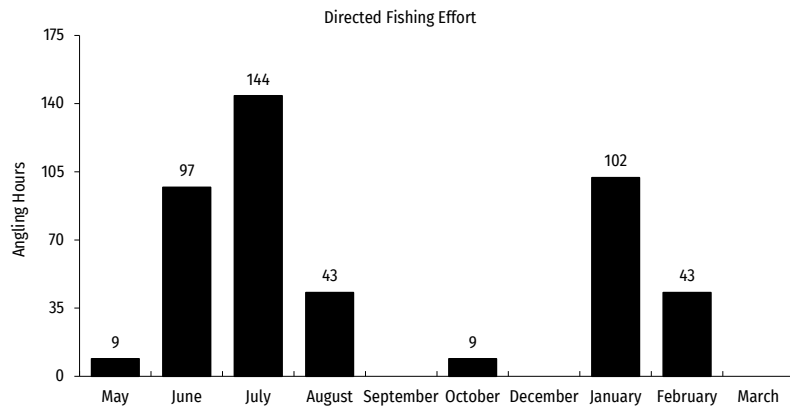


Figure 9. Pumpkinseed fishing effort, catch, harvest and length distribution, Two Sisters Lake, during 2023-24.

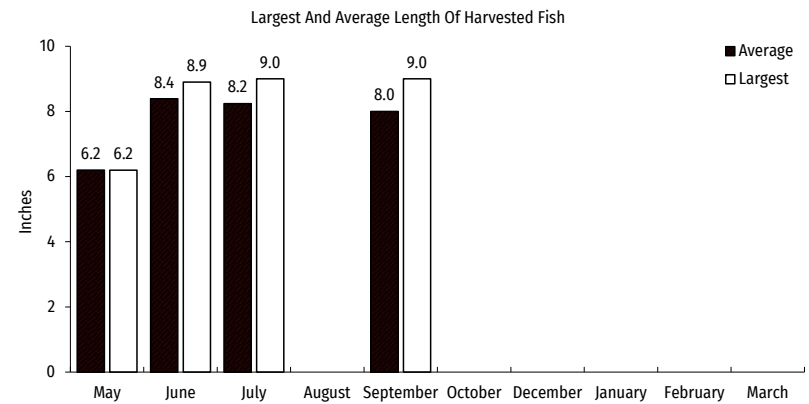
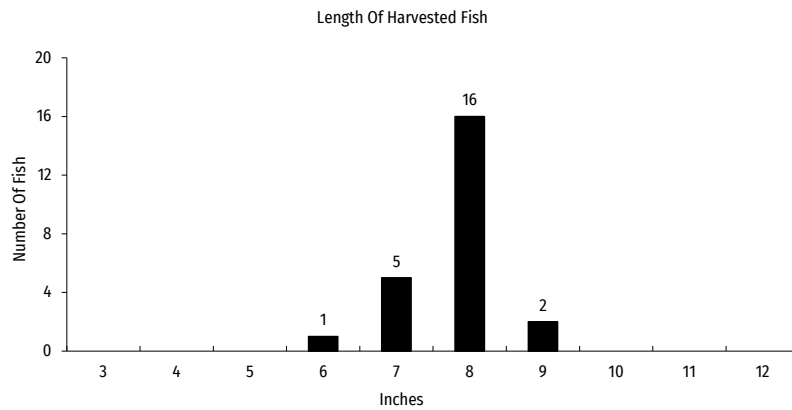
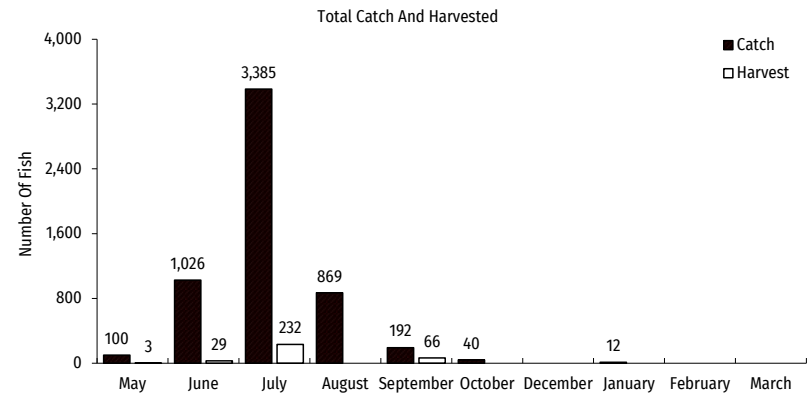
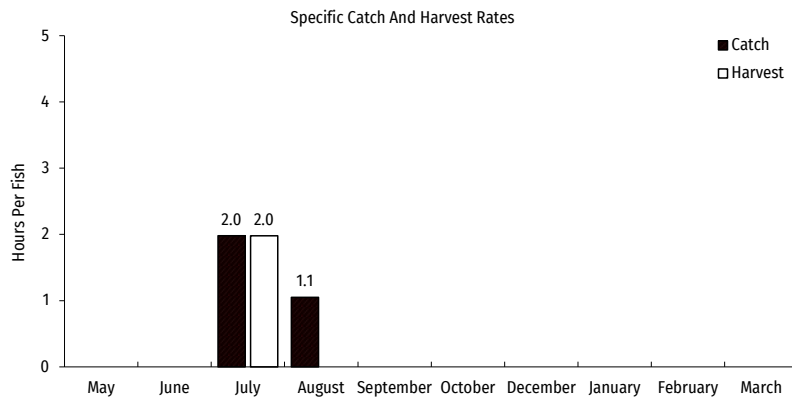
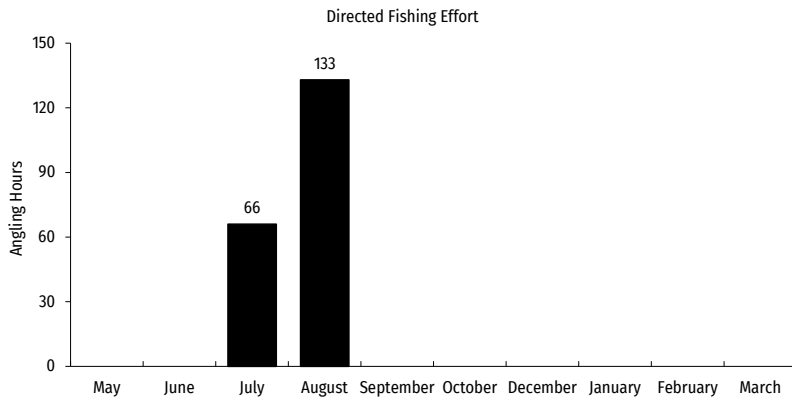


Figure 10. Rock bass fishing effort, catch, harvest and length distribution, Two Sisters Lake, during 2023-24.