

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

BIG GREEN LAKE

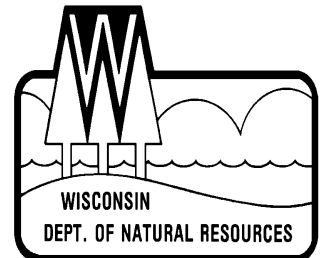
2022 – 2023 CREEL SURVEY REPORT
GREEN LAKE COUNTY



Fisheries Publication



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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. 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.

The other key component of the fishery that we often need to measure is angler harvest to assess its impact on the fishery.

Big Green is a special lake to anglers as it provides suitable conditions for a variety of fish species. A majority of our Wisconsin lakes hold Bluegill and Largemouth Bass; Big Green holds species like Cisco, White Bass, and Lake Trout. This is due to the overall size, depth, and habitat variety found on the lake. As a result we have seen numerous fishing guides tread these waters as well as thousands of anglers fishing from the shores, out on the open water, or sitting on the ice.

It would be highly impractical and very costly to conduct a complete census of every angler who fishes on a lake. Therefore, we conduct creel surveys.

This stratified random access creel is an assessment tool used to sample the fishing activities of anglers on a body of water and make projections, or 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 the open season for

gamefish from the first Saturday in May through the first Sunday in March. Creel surveys are generally not conducted in November when fishing effort is low and ice conditions are often unsafe. The survey is run during daylight hours, and shift times change from month to month as day length changes.

Creel survey clerks travel their lakes using a car, 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 information at the end of a fishing trip 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. 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.

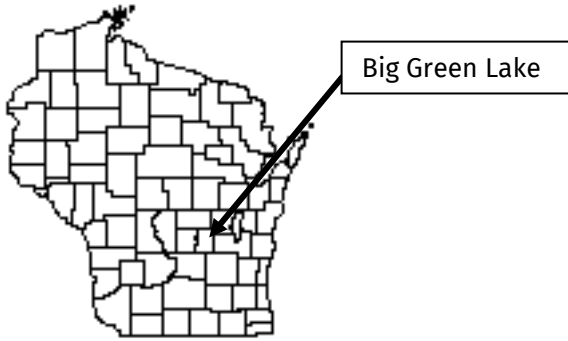
You may have encountered a DNR creel survey clerk on a recent fishing trip. We appreciate your cooperation during an interview. The survey only takes a few minutes of your time, and it gives the DNR valuable information needed for management of the fishery.

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 the lake, discussion of results of the survey, and detailed summaries of fishing effort, catch and harvest.

GENERAL LAKE INFORMATION



LOCATION

Big Green Lake is located in Green Lake County near the town of Green Lake.

PHYSICAL CHARACTERISTICS

Big Green Lake is a 7,920-acre Drainage lake with a maximum depth of 236 feet. Littoral substrate consists primarily of sand, rock, gravel, with lesser amounts of bedrock, silt and muck. Big Green Lake contains hard, high alkalinity, clear water of moderate transparency.

SEASONS METHODS

The open-water creel survey ran from May 7, 2022 through March 31, 2023, and the ice fishing creel survey ran from Dec. 5, 2022 through March 30, 2023.

WEATHER

Ice-out on Green Lake was around March 29, 2022. Fishable ice formed in bays and east end of lake in mid-December. Much of the west half of the lake was unsafe all winter.

FISHING REGULATIONS

The following seasons, daily bag limits, and length limits were in place during survey:

SPECIES	SEASON	BAG LIMIT	MIN. SIZE
Largemouth Bass	5/ 7-3/ 5	5	14"
Smallmouth Bass	5/ 7-3/ 5	5	14"
Musky	5/ 7-12/ 31	1	40"
Northern Pike	5/ 7-3/ 5	2	26"
Walleye	5/ 7-3/ 5	5	15"
Panfish	year round	25	none
Rock Bass	year round	none	none
Lake Trout	1/ 7-9/ 30	2	17"
White Bass	year round	none	none

SPECIES CATCH AND HARVEST INFORMATION

Summaries of angling effort, catch and harvest information for each species are in Table 2 and Figures 1-12. Information about species with fishing seasons extending beyond the season surveyed should be considered minimum estimates. Each species page has up to five graphs depicting the following:

- ESTIMATED FISHING EFFORT**
 The estimated number of hours during each month that anglers spent fishing for a species.
- ESTIMATED CATCH AND HARVEST**
 The estimated number of fish of the indicated species caught or harvested by all anglers, regardless of targeted species.
- ESTIMATED SPECIFIC CATCH AND HARVEST RATES**
 The 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 DISTRIBUTION OF HARVESTED FISH**
 All fish of a species that were measured by the clerk during the entire creel survey season.
- LARGEST AND AVERAGE LENGTH OF HARVESTED FISH**
 The largest and average length of a species of fish harvested that month. Only fish measured by the creel survey clerk are reported.

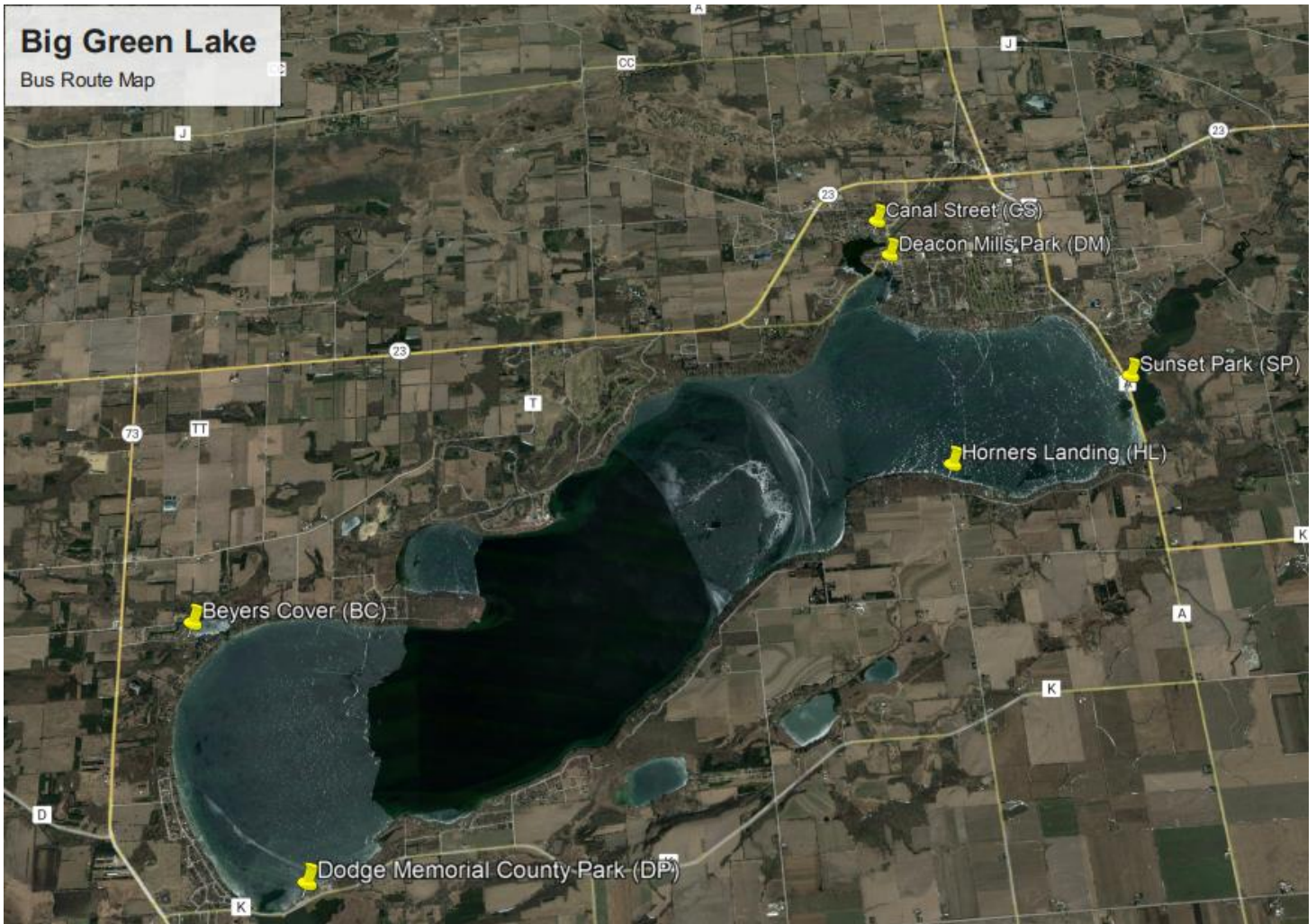


Photo of Big Green Lake indicating boat launches surveyed during 2022-23 creel bus route.

This creel is identified as a stratified random bus route creel; This means the creel clerk was not only given a random date and AM/PM shift, but would also start at a random boat launch. Once they are at the first location they will monitor the area for a certain amount of time before traveling to the next boat launch in a counter clockwise pattern around Big Green Lake. This is done till all designated boat launches around Big Green have been monitored. The survey went from 7:00 AM till 1:30 PM for the morning shift, while the afternoon shift went from 1:30 PM till 8:00 PM. This was done during the 2022 fishing season with the creel clerk monitoring weekdays and weekends depending on the schedule given. Overall the creel survey is looking at fishing effort for each month, specific species that are being targeted, and the amount of fish being caught or harvested.

CREEL SURVEY RESULTS AND DISCUSSION

SURVEY LOGISTICS

We encountered no unusual problems conducting the survey or calculating the projections contained in the report.

GENERAL ANGLER INFORMATION

Anglers spent 172,053 hours, or 21.7 hours per acre, fishing Big Green Lake from May 7 2022-March 31 2023 season (Table 1). July was the most heavily fished month (44,355 hours), and fishing effort was lightest in November (381 hours). Estimated total catch for the period is reported as total catch. The creel clerks were able to conduct in-person interviews throughout the survey.

RESULTS BY SPECIES

WALLEYE (Table 2, Figure 1)

Walleye received 8.2 percent of the fishing effort during the season. Anglers spent 18,407 hours targeting Walleye. The greatest fishing effort for Walleye was in July (5,725 hours). November had the least amount of Walleye fishing effort (59 hours).

Total catch of Walleye was 2302 fish, with a harvest of 58. Highest catch (818 fish) occurred in July, and highest harvest (350 fish) occurred in July. Anglers fished an average of 9.5 hours to catch and 22.7 hours to harvest a Walleye during the survey. The mean length of harvested Walleye was 19.8 inches, and the largest measured was a 29.3 inch fish. It is important to note that there is significant angling for walleye in the late evening hours after sunset, and our clerk would not have captured that effort.

NORTHERN PIKE (Table 2, Figure 2)

Fishing effort directed at Northern Pike was 7,495 hours during the season. Northern Pike fishing effort was greatest in May (1,547 hours). Total catch of northern pike was 2,878 fish, with a harvest of 253. Anglers fished an average of 5.0 hours to catch a Northern Pike

during the survey. The mean length of harvested Northern Pike was 29.1 inches, and the largest measured was a 34 inch fish.

MUSKELLUNGE (Table 2, Figure 3)

Anglers spent 3,884 hours targeting Muskellunge during the season. Muskellunge fishing effort was greatest in August (1,005 hours). Total catch of muskellunge was 6 fish, and the highest catch (33 fish) occurred in November and December. Anglers fished 60.3 hours to catch a Muskellunge, and there was no documented harvest during the survey.

SMALLMOUTH BASS (Table 2, Figure 4)

As far as gamefish effort, smaalmouth bass was the highest with fishing effort at 40,647 hours during the season. Smallmouth Bass fishing effort was greatest in July (10,471 hours). Total catch of Smallmouth Bass was 24,010 fish, with 441 harvested. Highest catch (6,511 fish) occurred in June. Anglers fished an average of 1.9 hours to catch a Smallmouth Bass during the survey.

LARGEMOUTH BASS (Table 2, Figure 5)

Fishing effort directed at Largemouth Bass was 28,261 hours during the season. Largemouth Bass fishing effort was greatest in June(6,916 hours). Total catch of Largemouth Bass was 16,738 fish, with a harvest of 189. Highest catch (5,391 fish) occurred in June. Anglers fished an average of 2.2 hours to catch a Largemouth Bass during the survey.

PANFISH (Table 2, Figures 6-10)

YELLOW PERCH received 23,222 hours of directed fishing effort. Total catch of Yellow Perch was 84,837 fish, with 17,074 harvested. The mean length of harvested fish was 8.1 inches.

BLUEGILL was targeted the most of any panfish and received 53,488 hours of directed

fishing effort and dominated the total effort. Total catch of Bluegill was 197,795 fish, with 70,731 harvested. The mean length of harvested fish was 7.9 inches.

BLACK CRAPPIE received 12,914 hours of directed fishing effort. Anglers caught 4,931 Black Crappie and harvested 2,206. The mean length of harvested fish was 10.1 inches.

PUMPKINSEED received 4,015 hours of directed fishing effort. Anglers caught 1,463 Pumpkinseed and harvested 731. The mean length of harvested fish was 6.8 inches.

ROCK BASS received 1,844 hours of directed fishing effort. Anglers caught 22,863 Rock Bass and harvested 751. The mean length of harvested fish was 8.6 inches.

Lake Trout (Table 2, Figure 11)

Fishing effort directed at Lake Trout was 19,453 hours during the season. Lake Trout fishing effort was greatest in February (11,424 hours). Total catch of Lake Trout was 2,815 fish, with a harvest of 1,103. Anglers fished an average of 7.6 hours to catch a Lake Trout during the survey. The mean length of harvested Lake Trout was 20.6 inches, and the largest measured was a 29.2 inch fish.

White Bass (Table 2, Figure 12)

Fishing effort directed at White Bass was 2,900 hours during the season. White Bass fishing effort was greatest in February (1,323 hours). Total catch of White Bass was 1,620 fish, with a harvest of 917. Anglers fished an average of 3.4 hours to catch a White Bass during the survey. The mean length of harvested White Bass was 15.8 inches, and the largest measured was a 17.8 inch fish.

ACKNOWLEDGMENTS

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

Completion of this survey was possible

because of the efforts of the following fisheries management and treaty fisheries staff: insert staff. Creel clerks during the survey period were Zach Nemitz, Adam Nickel, and Trevor Hoheisel.

This creel report was reviewed by Tom Meronek, Scott Bunde, Adam Nickel and Dave Boyarski.

Table 1. Sportfishing effort summary, Big Green Lake, 2022-23 season.

Month	Number of Angler Party Interviews	Total Angler Hours	Total Angler Hours/ Acre
May	17	12,552	1.58
June	22	19,389	2.45
July	20	44,355	5.60
August	20	23,212	2.93
September	22	19,909	2.51
October	18	9,199	1.16
November	5	381	0.05
December	14	7,423	0.94
January	18	14,725	1.86
February	15	15,101	1.91
March	22	5,807	0.73
Summer Total	124	128,997	16.29
Winter Total	69	43,056	5.44
Grand Total	193	172,053	21.72

Note: Summer Total is May-November; Winter Total 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 Green 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 Green Lake to other lakes.

Table 2. Big Green Lake creel survey total expanded catch and harvest summary.

Species	Directed Effort (Hours)	Percent of Total	Total Catch	Specific Catch Rate (Hours/Fish)	Total Harvest	Specific Harvest Rate (Hours/Fish)	Mean Harvest Length
Walleye	18,407	8.2%	2,302	9.53	891	22.75	19.8
Northern Pike	7,495	3.4%	2,878	5.02	253	31.48	29.1
Muskellunge	3,884	1.7%	90	60.32	0	None	None
Smallmouth Bass	40,647	18.2%	24,010	1.96	441	127.82	15.6
Largemouth Bass	28,261	12.6%	16,738	2.25	189	286.92	17.2
Yellow Perch	23,222	10.4%	84,837	0.35	17,074	1.47	8.1
Bluegill	53,488	23.9%	197,795	0.27	70,731	0.76	7.9
Black Crappie	12,914	5.8%	4,931	3.20	2,206	6.71	10.1
Pumpkinseed	4,015	1.8%	1,463	3.13	731	6.09	6.8
Rock Bass	1,844	0.8%	22,863	1.21	751	2.51	8.6
Lake Trout	19,453	8.7%	2,815	7.68	1,103	17.91	20.6
White Bass	2,900	1.3%	1,620	3.41	916	4.19	15.8

Walleye

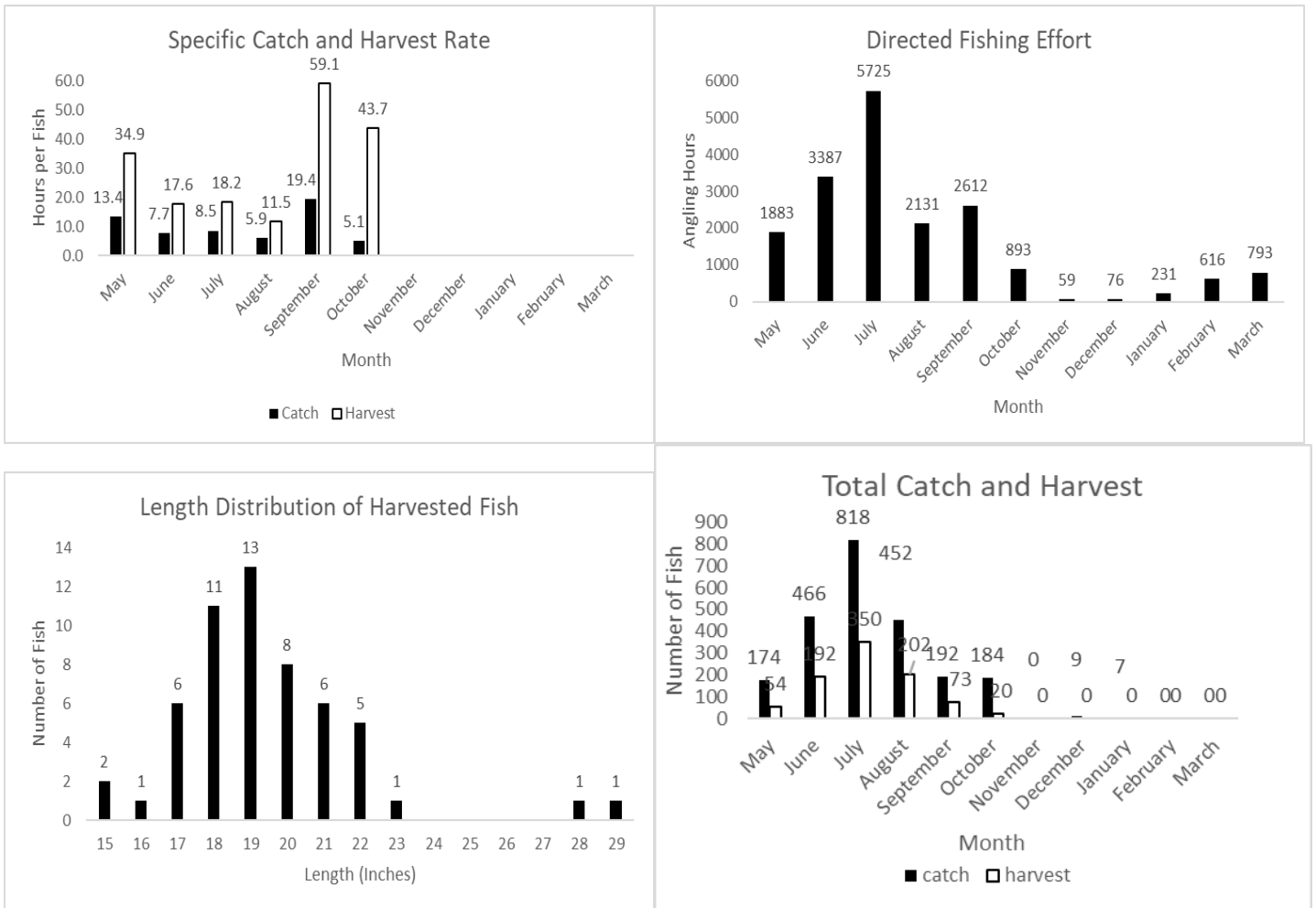


Figure 1. Walleye fishing effort, catch, harvest, and length distribution during 2022-23 Big Green Lake creel.

Northern Pike

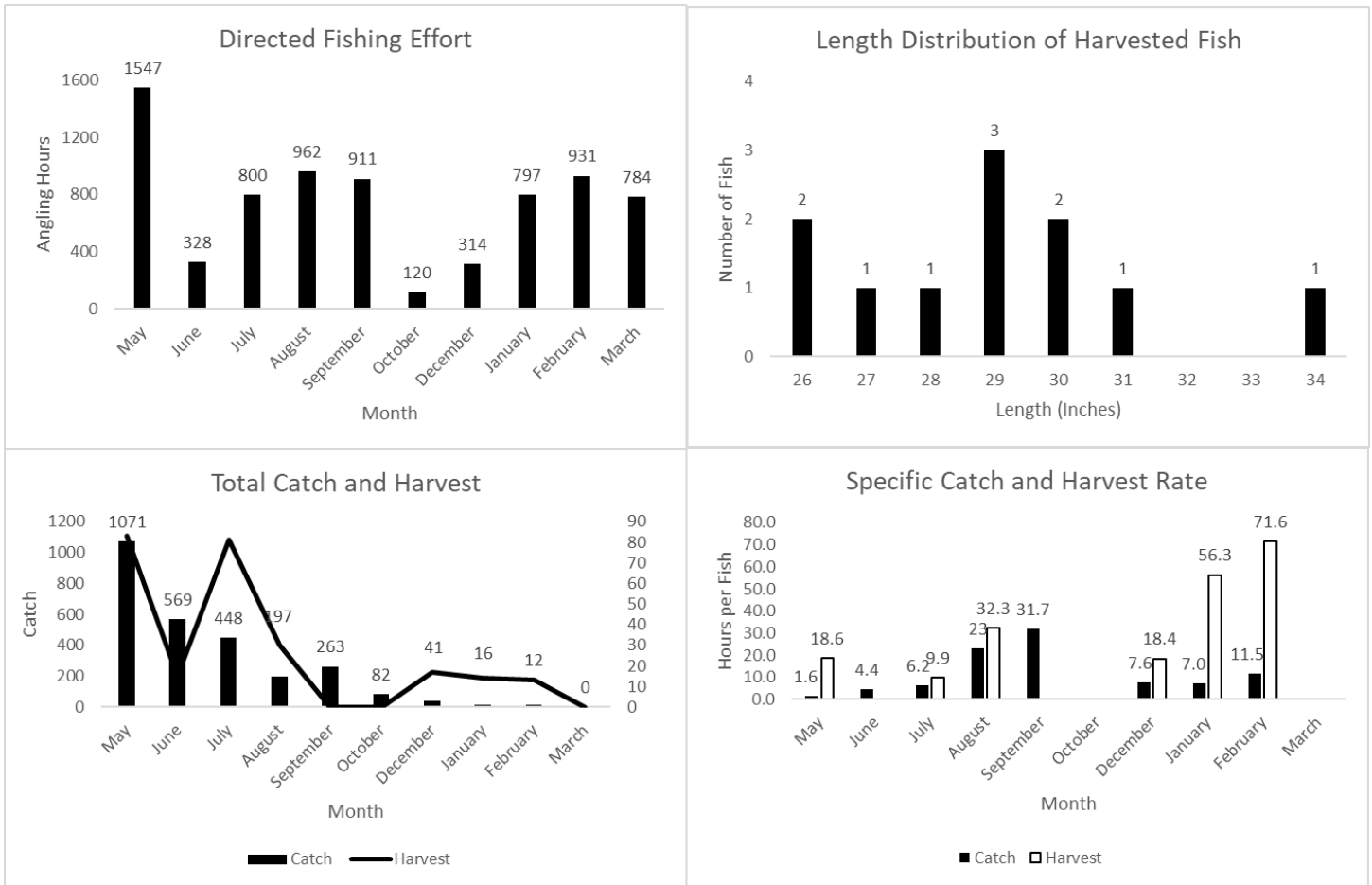


Figure 2. Northern Pike fishing effort, catch, harvest, and length distribution during 2022-23 Big Green Lake creel.

Muskellunge

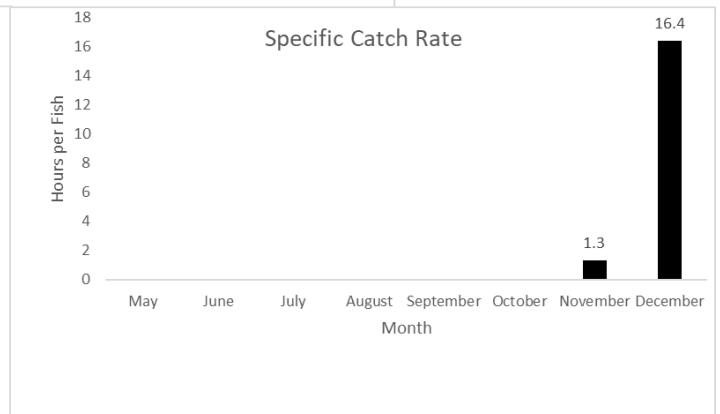
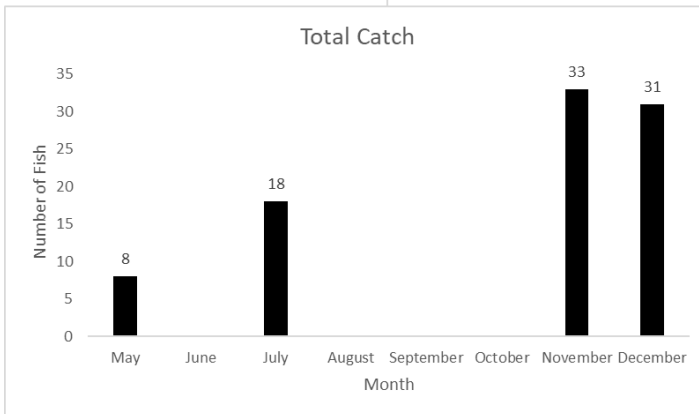


Figure 3. Muskellunge fishing effort and catch during 2022-23 Big Green Lake creel.

Smallmouth Bass

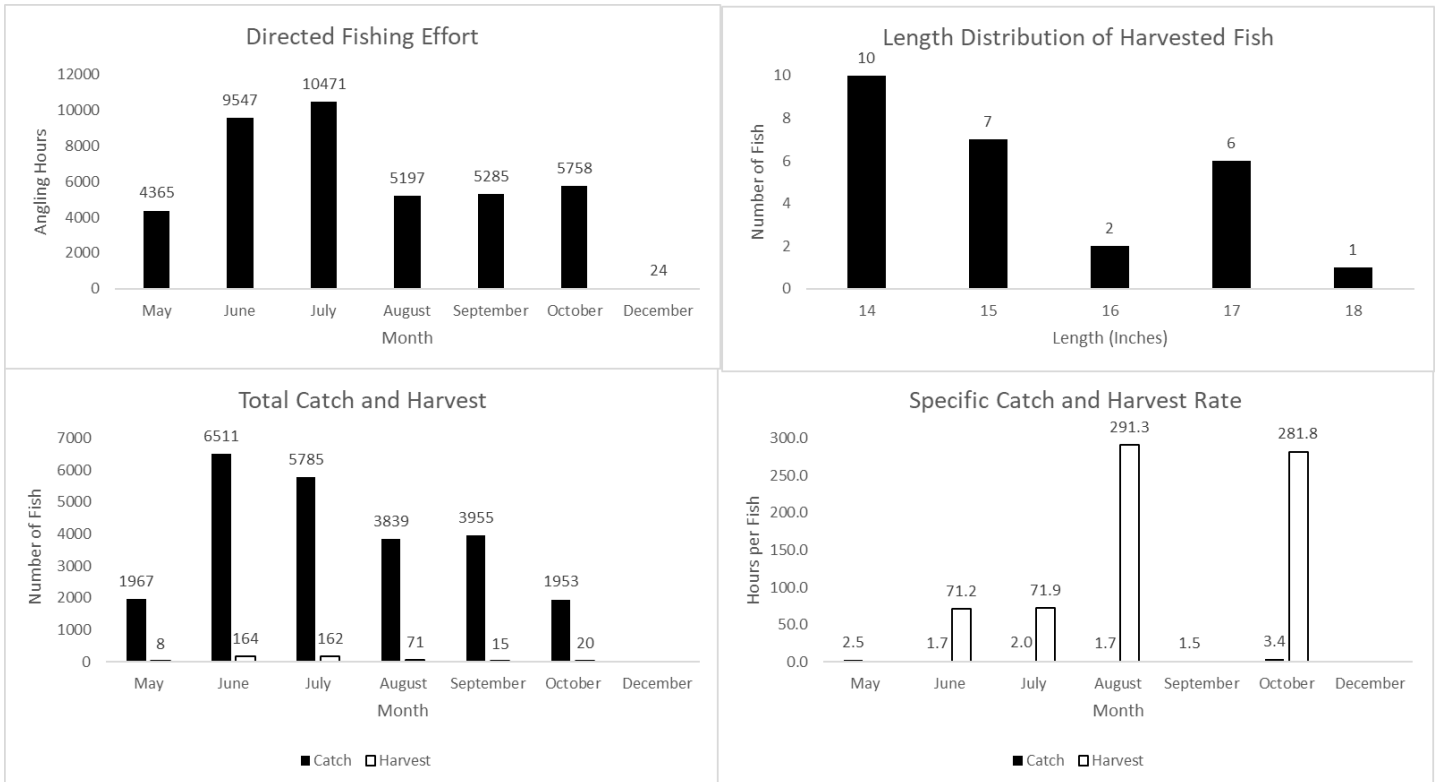


Figure 4. Smallmouth Bass fishing effort, catch, harvest, and length distribution during 2022-23 Big Green Lake creel.

Largemouth Bass

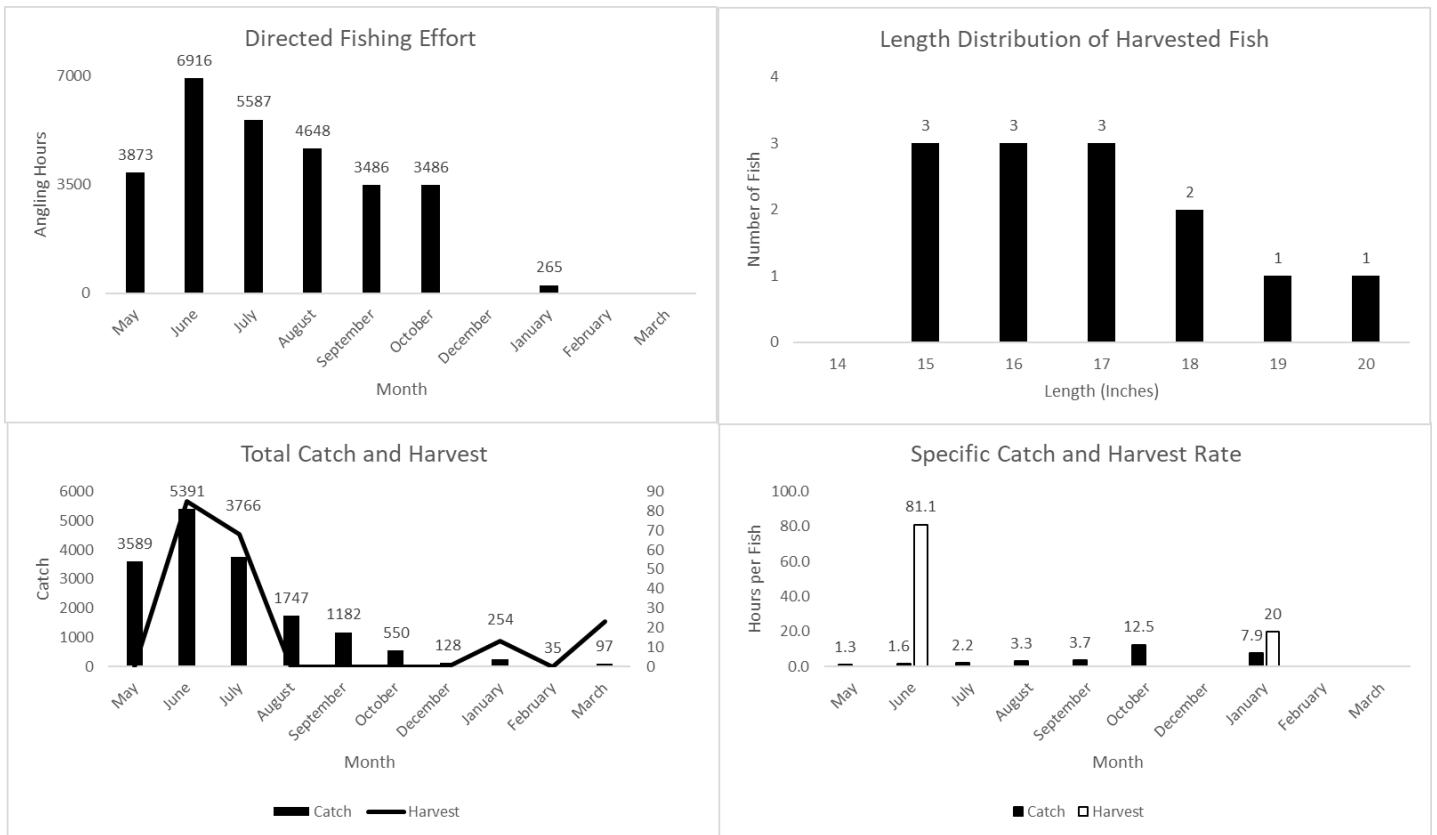


Figure 5. Largemouth Bass fishing effort, catch, harvest, and length distribution during 2022-23 Big Green Lake creel.

Yellow Perch

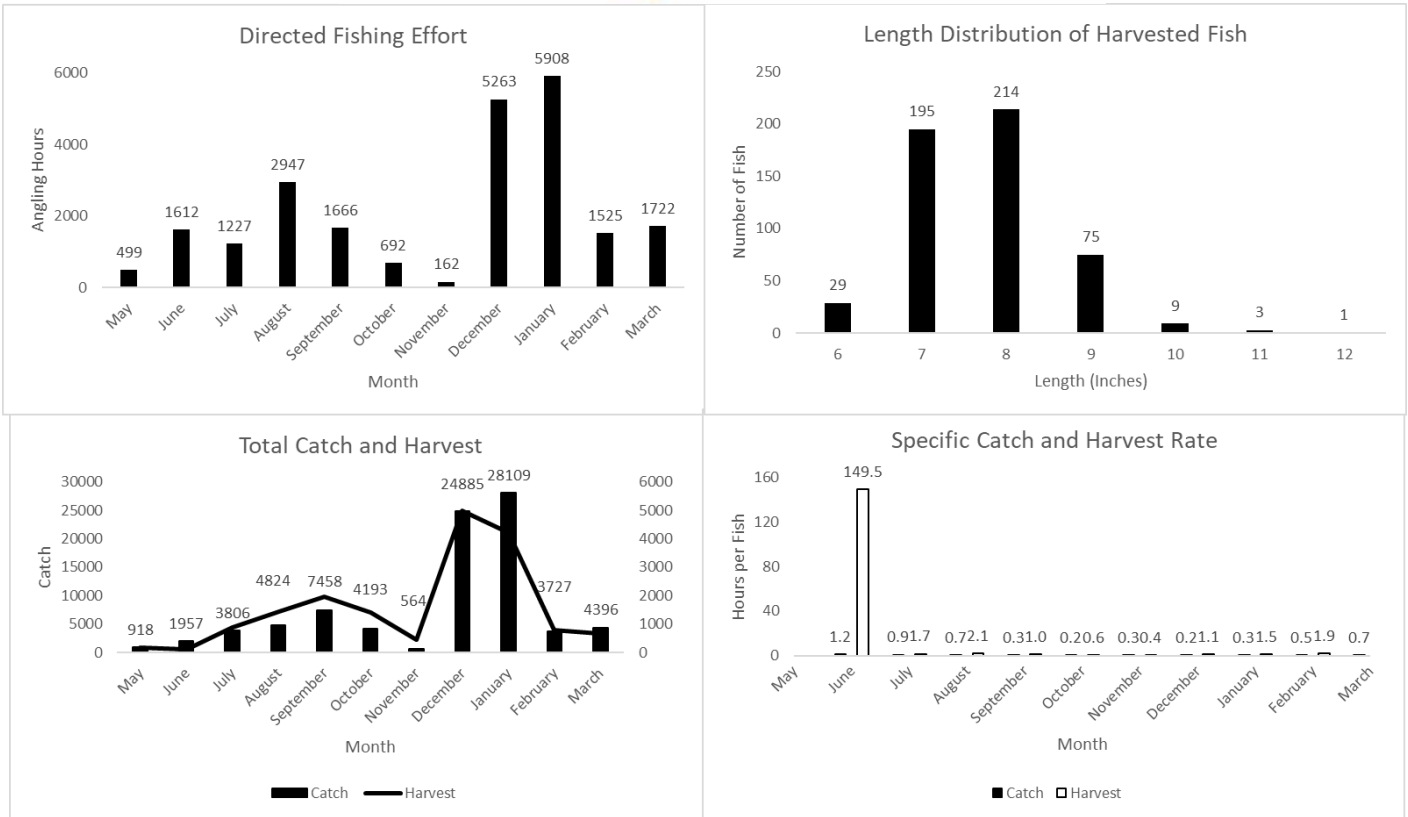


Figure 6. Yellow Perch fishing effort, catch, harvest, and length distribution during 2022-23 Big Green Lake creel.

Bluegill

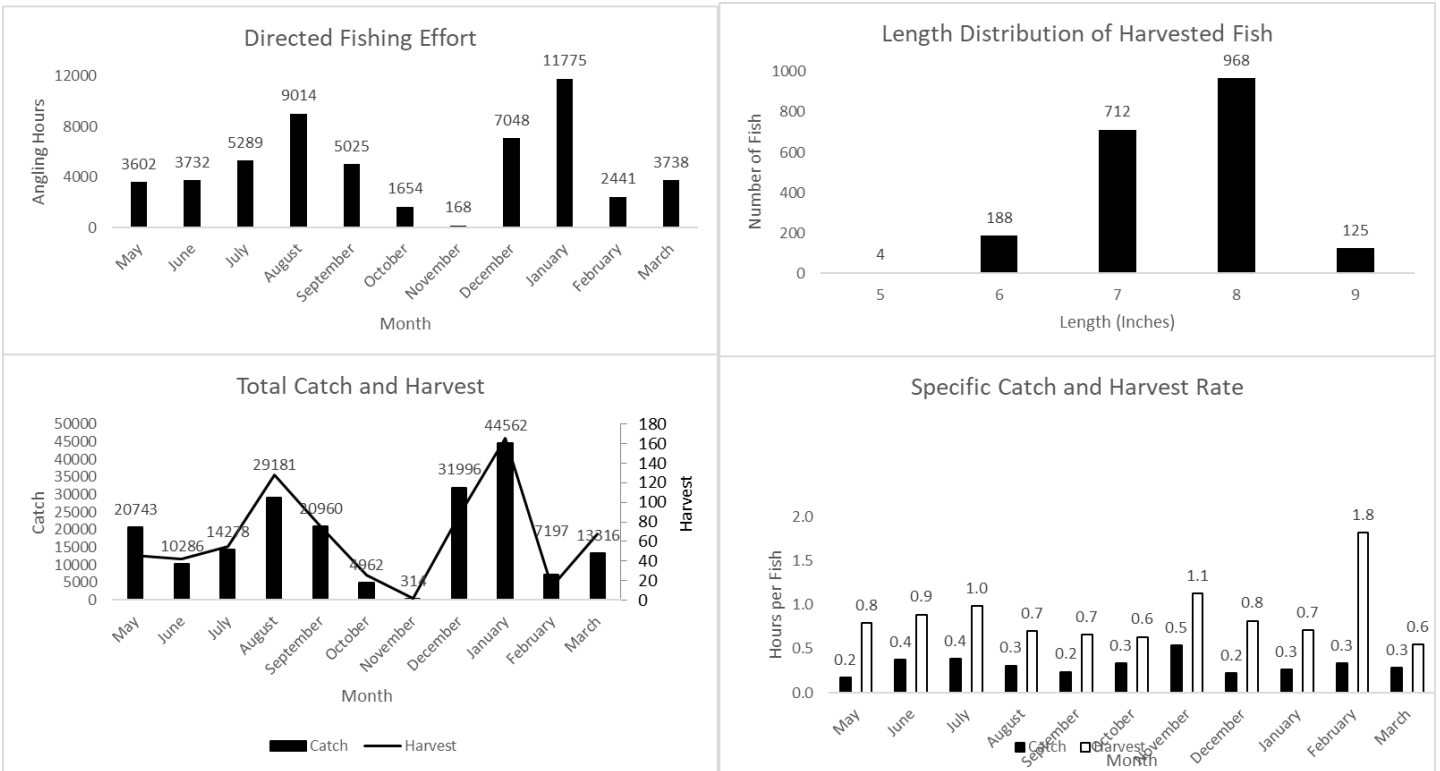


Figure 7. Bluegill fishing effort, catch, harvest, and length distribution during 2022-23 Big Green Lake creel.

Black Crappie

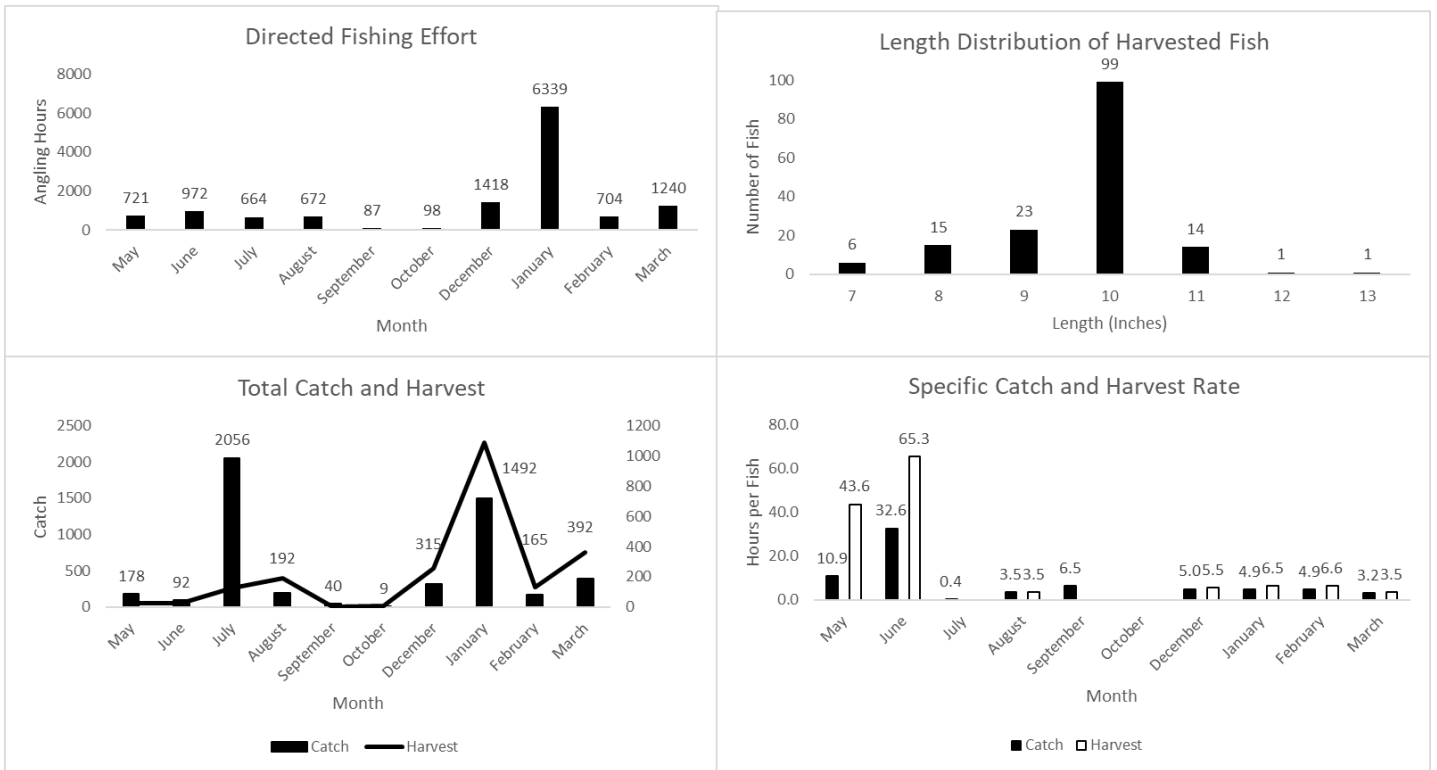
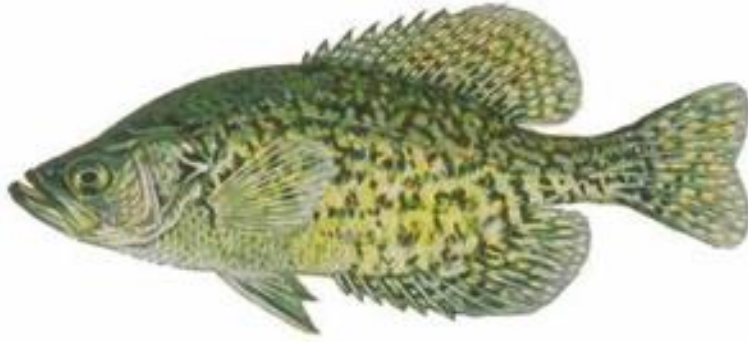


Figure 8. Black Crappie fishing effort, catch, harvest, and length distribution during 2022-23 Big Green Lake creel.

Pumpkinseed

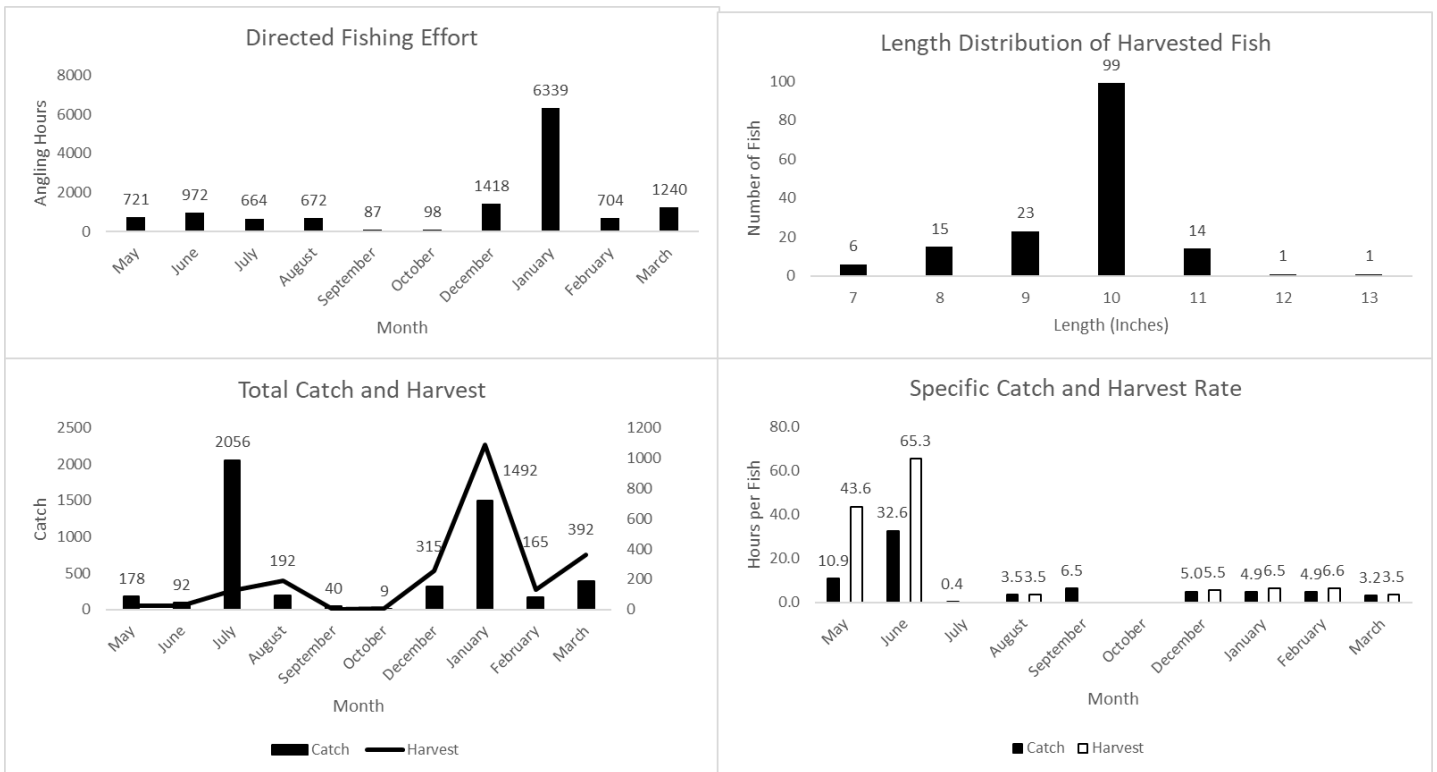


Figure 9. Pumpkinseed fishing effort, catch, harvest, and length distribution during 2022-23 Big Green Lake creel.

Rock Bass

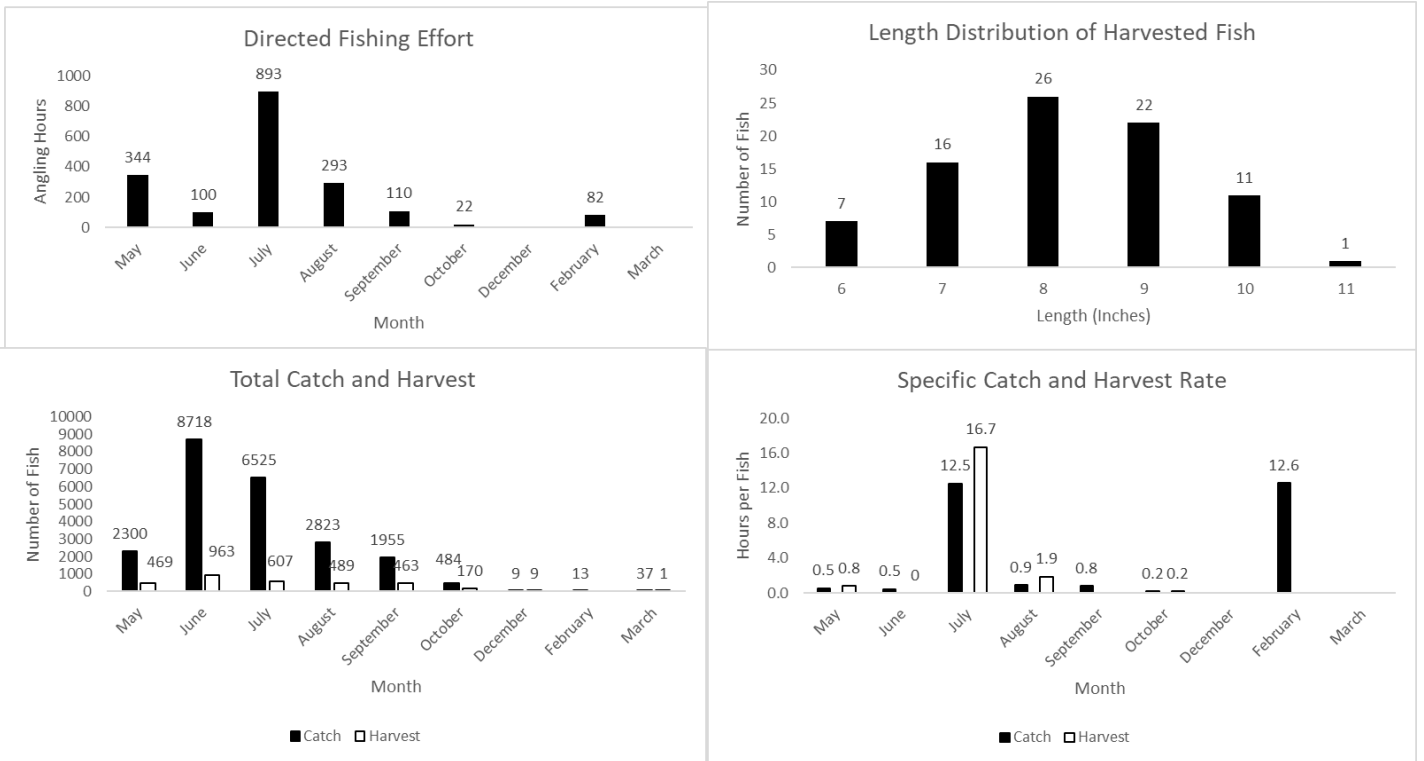
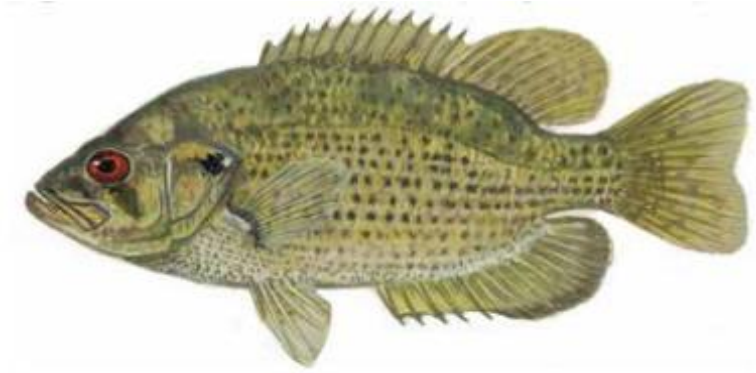


Figure 10. Rock Bass fishing effort, catch, harvest, and length distribution during 2022-23 Big Green Lake creel.

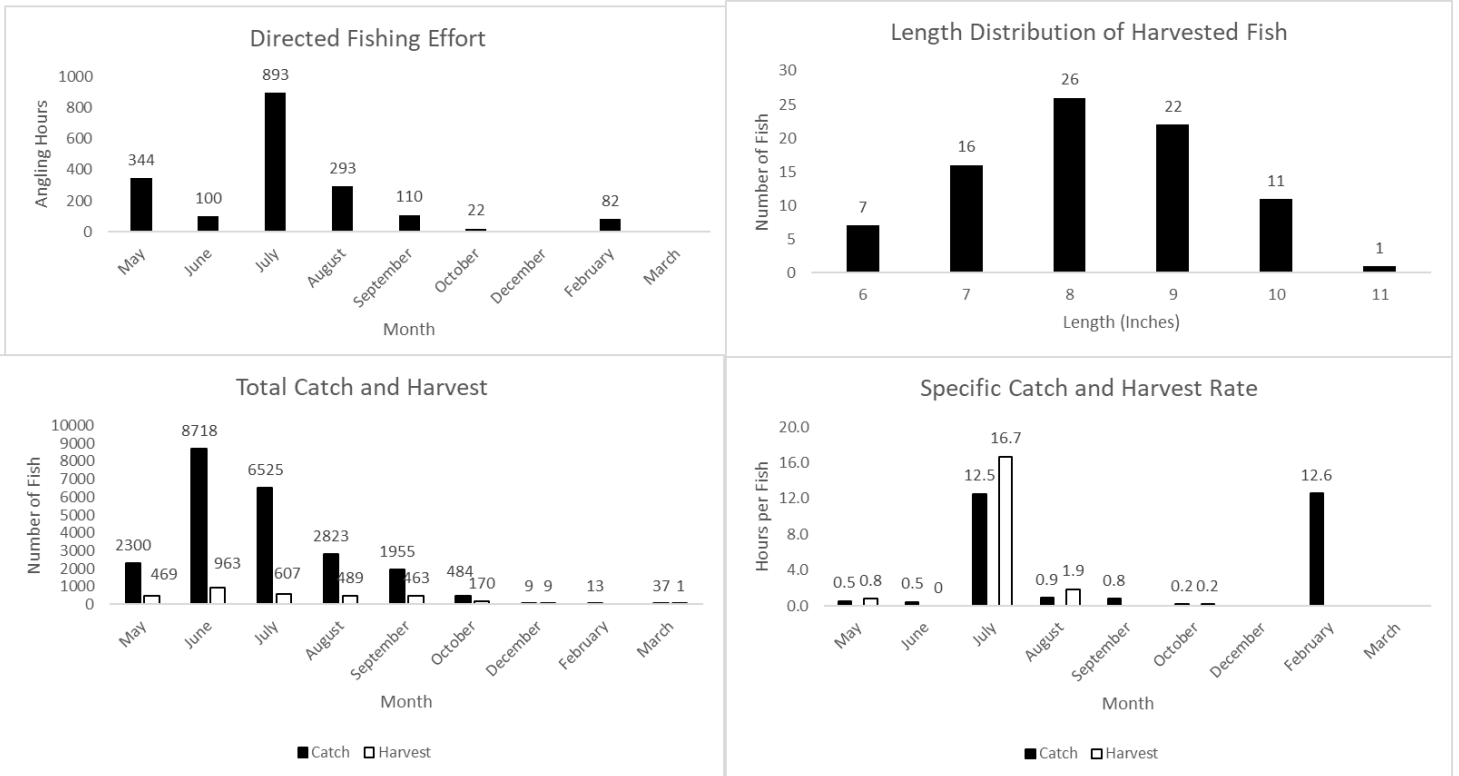


Figure 11. Lake Trout fishing effort, catch, harvest, and length distribution during 2022-23 Big Green Lake creel.

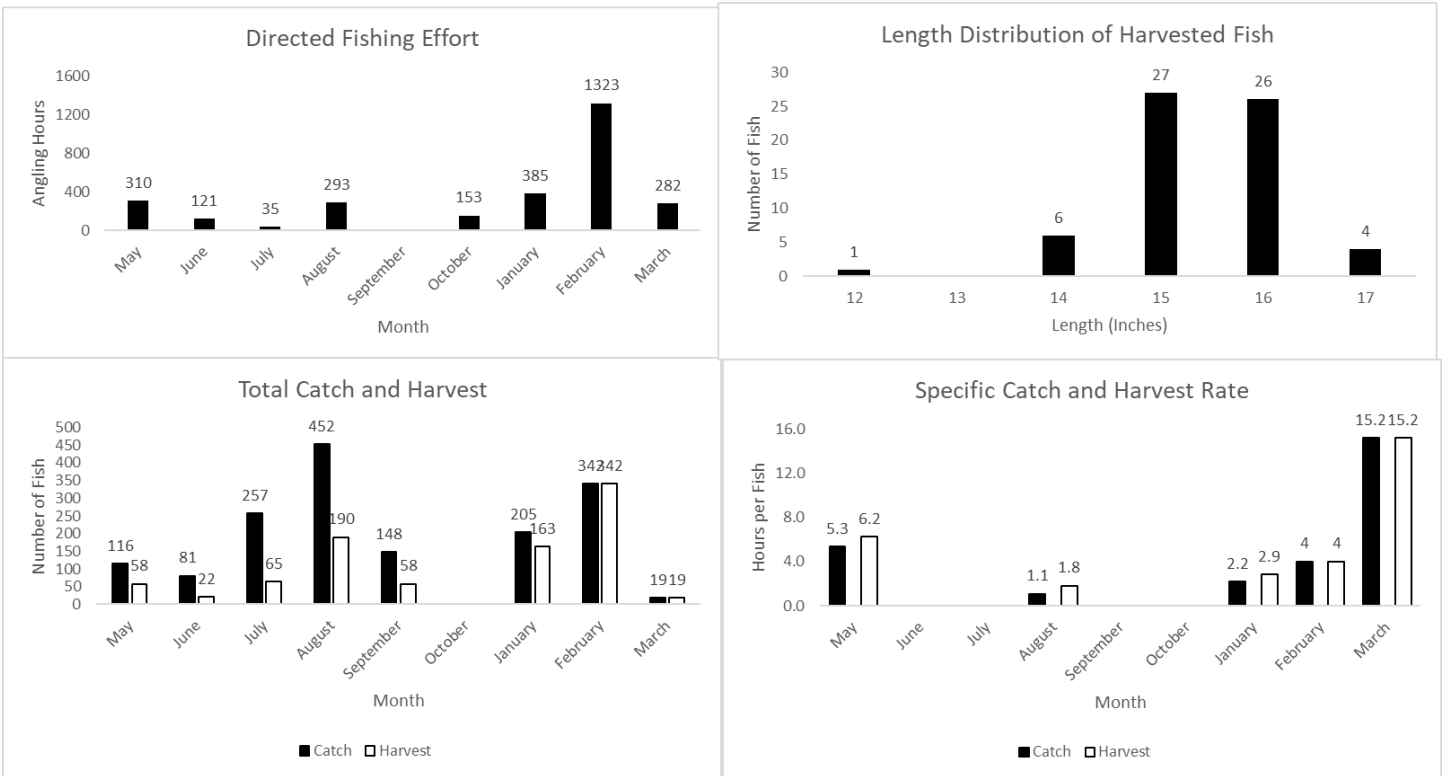
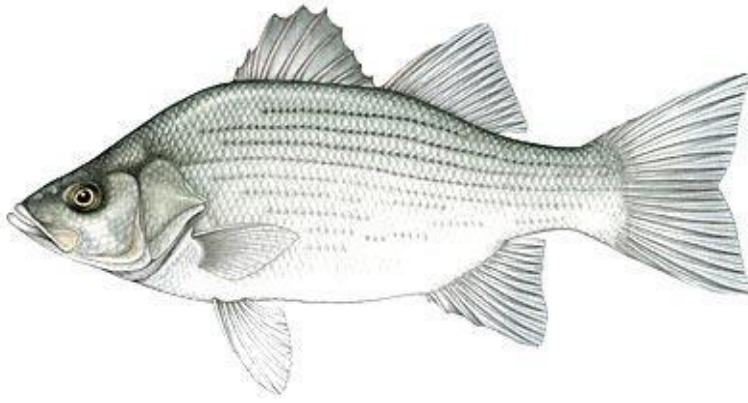


Figure 12. White Bass fishing effort, catch, harvest, and length distribution during 2022-23 Big Green Lake creel.