WISCONSIN DEPARTMENT OF NATURAL RESOURCES
CREEL SURVEY REPORT

LUCERNE LAKE

FOREST COUNTY

2018-19

Treaty Fisheries Publication

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Fish Graphics: Virgil Beck, Stevens Point, WI

INTRODUCTION

Fish populations can fluctuate due to natural forces like weather, predation or competition; management actions like stocking, regulations or habitat improvement; habitat loss and harvest impacts. Wisconsin Department of Natural Resources 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 harvest.

On many lakes in the Ceded Territory of northern Wisconsin, harvest of fish is divided between sport anglers and the six Chippewa tribes who harvest fish under rights granted by federal treaties. The tribes harvest fish mostly using a highly efficient method, spearing, during a relatively short time period in the spring. Every fish in the spear harvest is counted – a complete "census" of the harvest.

We also measure the sport angler harvest to assess its impact on the fishery. However, 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.

A creel survey 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 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 boat or snowmobile to count the number of anglers at predetermined times, and to interview anglers who have completed their fishing trip. Data is 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.

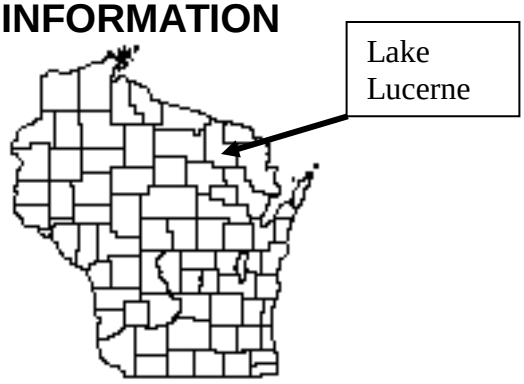
You may have encountered a DNR creel survey clerk on a recent fishing trip. We appreciate your cooperation during an interview. The survey only takes a few minutes of your time, and it gives the Department valuable information needed for management of the fishery.

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 Lake Lucerne; discussion of results of the survey; and detailed summaries by species of fishing effort, catch and harvest.

GENERAL LAKE INFORMATION



Location

Lake Lucerne is located in Forest County near the city of Crandon.

Physical Characteristics

Lake Lucerne is a 1,039-acre drainage lake with a maximum depth of 73 feet. Littoral substrate consists primarily of sand, with lesser amounts of rubble, gravel, boulders, and muck also present. Lake Lucerne contains soft, slightly acidic, clear water of high transparency.

Seasons Surveyed

The period referred to in this report as the 2018-19 fishing season ran from May 5, 2018 through March 3, 2019. The open-water creel survey which ran from May 5 through October 31, 2018, and the ice fishing creel survey ran from December 1, 2018 through March 3, 2019.

Weather

Ice-out on Lake Lucerne was around May 7, 2018. Fishable ice formed on Lake Lucerne in early December. Travel was difficult, but effort was extremely low the entire winter.

Fishing Regulations

The following seasons, daily bag limits, and length limits were in place on Lake Lucerne during the 2018-19 fishing season:

Species	Season	Bag Limit	Min. Size
Largemouth Bass	5/5-3/3	5	none
Smallmouth Bass	5/5-6/15	Catch&Release	
	6/16-3/3	5	none
Northern Pike	5/5-3/3	5	none
Walleye	5/5-3/3	3	18"
Panfish	year round	25	none
Rock Bass	year round	none	none

SPECIES CATCH AND HARVEST INFORMATION

Angling effort, catch, and harvest information is summarized for each species in Table 2 and Figures 1-8. Table 2 also includes a comparison of these statistics with the previous creel survey. Information presented about species whose fishing season extends beyond March 3 should be considered minimum estimates. Each species page has up to five graphs depicting the following:

1. **ESTIMATED FISHING EFFORT**
   Total calculated number of hours during each month that anglers spent fishing for a species.

2. **ESTIMATED CATCH AND HARVEST**
   Calculated number of fish of the indicated species caught or harvested by all anglers, regardless of targeted species.

3. **ESTIMATED SPECIFIC CATCH AND HARVEST RATES**
   Calculated 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.

4. **LENGTH DISTRIBUTION 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**
   Monthly largest and average length of harvested fish of a species. Only fish measured by the creel survey clerk are reported.

CREEL SURVEY RESULTS AND DISCUSSION

Survey Logistics

We encountered no unusual problems conducting the survey or calculating the projections contained in the report. This was the third time the Department conducted a creel survey on Lake Lucerne. The last creel survey took place in 2006-07.

General Angler Information

Anglers spent 10,578 hours, or 10.5 hours per acre, fishing Lucerne Lake during the 2018-19 season (Table 1). That was less than the Forest County average of 26.5 hours per acre, and less than the fishing effort documented during the 2006-07 creel survey (13.8 hours per acre). July was the most heavily fished month (2,581 hours), and fishing effort was lightest in December (178 hours). The creel clerks were able to conduct 307 interviews throughout the survey.

RESULTS BY SPECIES

Walleye (Table 2, Figure 1)

Fishing effort targeted at Walleye was 2,428 hours during the season. The greatest fishing effort for Walleye was in July (734 hours). October had the least amount of Walleye fishing effort (18 hours).

Total catch of Walleye was 190 fish, with a harvest of 99. Highest catch (64 fish) and highest harvest (36 fish) occurred in May. Anglers fished an average of 13.1 hours to catch, and 24.5 hours to harvest, a Walleye during the survey. The mean length of harvested Walleye was 20.4 inches, and the largest measured was a 25.8-inch fish.

Northern Pike (Table 2, Figure 2)

Fishing effort directed at Northern Pike was 1,308 hours during the season. Northern Pike fishing effort was greatest in January (419 hours). Total catch of Northern Pike was 896 fish, with a harvest of 99. Anglers fished an average of 4.9 hours to catch a Northern Pike during the survey. The mean length of harvested Northern Pike was 22.1 inches, and the largest measured was a 25.9-inch fish.

Smallmouth Bass (Table 2, Figure 3)

Smallmouth Bass received the most fishing effort of any gamefish species during the season. Anglers spent 6,424 hours targeting Smallmouth Bass. Smallmouth Bass fishing effort was greatest in August (1,706 hours). Total catch of Smallmouth Bass was 5,756 fish, with 339 harvested. Highest catch (1,519 fish) and harvest (159 fish) occurred in August. Anglers fished an average of 1.4 hours to catch a Smallmouth Bass during the survey. The mean length of harvested Smallmouth Bass was 15.1 inches.

Largemouth Bass (Table 2, Figure 4)

Fishing effort directed at Largemouth Bass was 3,475 hours during the season. Largemouth Bass fishing effort was greatest in June (1,059 hours). Total catch of Largemouth Bass was 781 fish, with a harvest of 78. Highest catch (292 fish) occurred in June. Anglers fished an average of 5.6 hours to catch a Largemouth Bass during the survey. The mean length of harvested Largemouth Bass was 16.3 inches.

Panfish (Table 2, Figures 5-8)

Yellow Perch received 390 hours of directed fishing effort. Total catch of Yellow Perch was 592 fish, with no documented harvest.

Bluegill were the most sought after panfish species during the survey. Fishing effort directed at Bluegill was 2,064 hours. Total catch of Bluegill was 3,986 fish, with 1,248 harvested. The mean length of Bluegill harvested was 7.6 inches.

Black Crappie received 150 hours of directed fishing effort; however, no catch or harvest was documented.

Rock Bass received only 40 hours of directed fishing effort. However, anglers caught 877 Rock Bass and harvested 12. The mean length of Rock Bass harvested was 9.0 inches.

ACKNOWLEDGMENTS

The Department 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.

We also thank our cooperators, Brian Cundiff, who generously allowed the Department to keep a boat on his property during this survey.

Completion of this survey was possible because of the efforts of the following fisheries management and treaty fisheries staff: Lawrence Eslinger, Jeff Blonski, Joelle Underwood, Jason Halverson, John Kubisiak, Bob Consolo, Greg Matzke, and Katie Renschen. Creel clerks on Lucerne Lake during the survey period were Shannon Morrell, Steve Timler, and Shae Flood.

This creel report was reviewed by John Kubisiak, Lawrence Eslinger, and Greg Matzke of the Wisconsin Department of Natural Resources, Woodruff and Florence, Wisconsin.

Additional copies of this report, and those covering other local lakes, can be obtained from the Woodruff DNR or online at:
http://dnr.wi.gov/topic/Fishing/north/trtycrlsrvys.html

Table 1. Sportfishing effort summary, Lake Lucerne, 2018-19 season; compared to 2006-07 creel results, Forest County, and Ceded Territory averages.

Month	Number of Angler Party Interviews	Total Angler Hours	Total Angler Hours/Acre	2006-07 Total Angler Hours/Acre	Forest County Average Hours/Acre	Ceded Territory Average Hours/Acre
May	41	1332	1.3	1.5	3.8	5.0
June	62	2150	2.1	2.7	4.5	6.4
July	84	2581	2.6	4.0	5.3	6.8
August	57	2271	2.3	3.5	4.3	5.5
September	31	1209	1.2	0.9	2.4	3.3
October	14	227	0.2	0.2	0.8	1.5
December	5	178	0.2	0.2	1.2	1.1
January	7	419	0.4	0.3	2.2	1.6
February	6	212	0.2	0.3	1.8	1.6
March	0	0	0.0	0.0	0.2	0.2
*Summer Total	289	9770	9.7	12.9	21.1	28.5
*Winter Total	18	808	0.8	0.9	5.4	4.5
Grand Total	307	10578	10.5	13.8	26.5	33.0

*"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 Lake Lucerne 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 Lake Lucerne to other lakes.

2006-07 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 Lake Lucerne.

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 Lake Lucerne to other lakes in northern Wisconsin.

Table 2. Comparison of creel survey synopses, Lake Lucerne, 2018-19 and 2006-07 fishing seasons.

CREEL YEAR: 2018-19

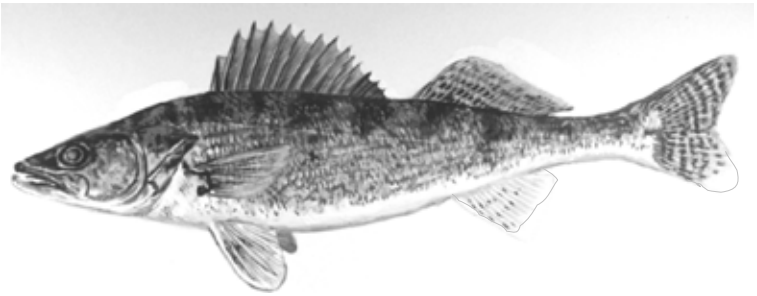
SPECIES	DIRECTED EFFORT (Hours)	PERCENT OF TOTAL	TOTAL CATCH	SPECIFIC CATCH RATE (Hrs/Fish) *	TOTAL HARVEST	SPECIFIC HARVEST RATE (Hrs/Fish) **	MEAN LENGTH OF HARVESTED FISH
Walleye	2428	14.9%	190	13.1	99	24.5	20.4
Northern Pike	1308	8.0%	896	4.9	99	16.0	22.1
Smallmouth Bass	6424	39.5%	5756	1.4	339	21.4	15.1
Largemouth Bass	3475	21.3%	781	5.6	78	44.4	16.3
Yellow Perch	390	2.4%	592	0.8	0		
Bluegill	2064	12.7%	3986	0.6	1248	1.7	7.6
Black Crappie	150	0.9%	0		0		
Rock Bass	40	0.2%	877	0.8	12	3.2	9.0

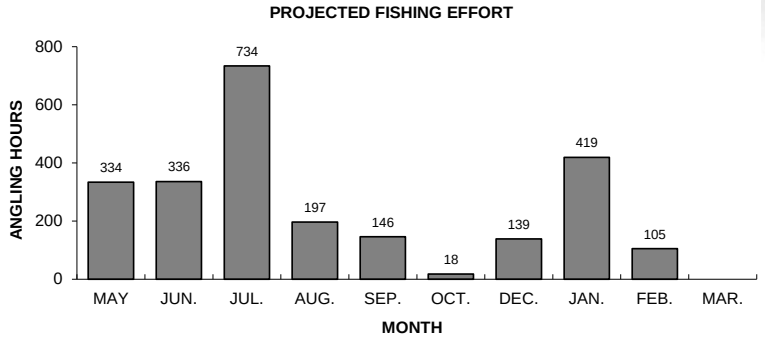
* A blank cell in this column indicates that no fish of a given species were caught by anglers who specifically targeted that species.
** A blank cell in this column indicates that no fish of a given species were harvested by anglers who specifically targeted that species.

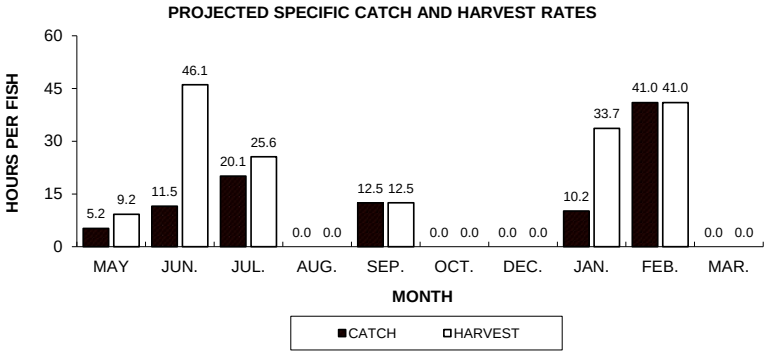
CREEL YEAR: 2006-07

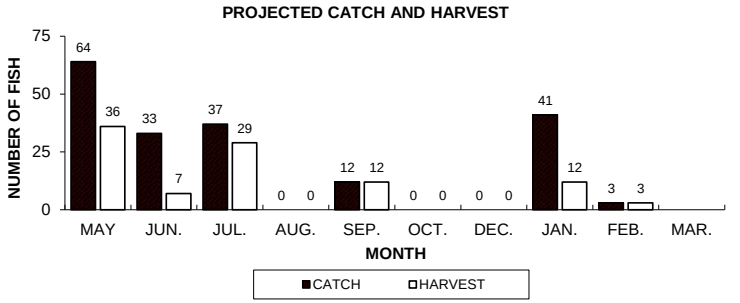
SPECIES	DIRECTED EFFORT (Hours)	PERCENT OF TOTAL	TOTAL CATCH	SPECIFIC CATCH RATE (Hrs/Fish)	TOTAL HARVEST	SPECIFIC HARVEST RATE (Hrs/Fish)	MEAN LENGTH OF HARVESTED FISH
Walleye	6596	26.9%	772	9.0	103	69.0	19.8
Northern Pike	1236	5.0%	282	8.1	42	39.7	24.9
Smallmouth Bass	8120	33.1%	8616	1.1	364	23.1	15.0
Largemouth Bass	4407	17.9%	850	6.7	79	62.1	15.1
Yellow Perch	463	1.9%	243	7.8	17	32.7	8.0
Bluegill	2833	11.5%	6714	0.4	2149	1.3	7.4
Pumpkinseed	20	0.1%	102	1.0	50	3.0	7.5
Rock Bass	587	2.4%	2035	0.7	385	1.7	7.8
Black Crappie	291	1.2%	23	19.2	0		

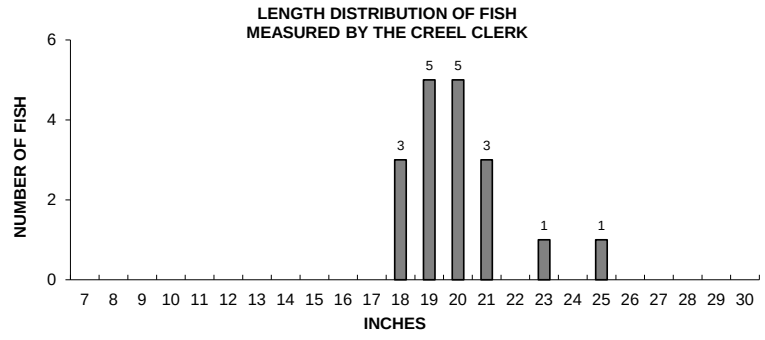
WALLEYE











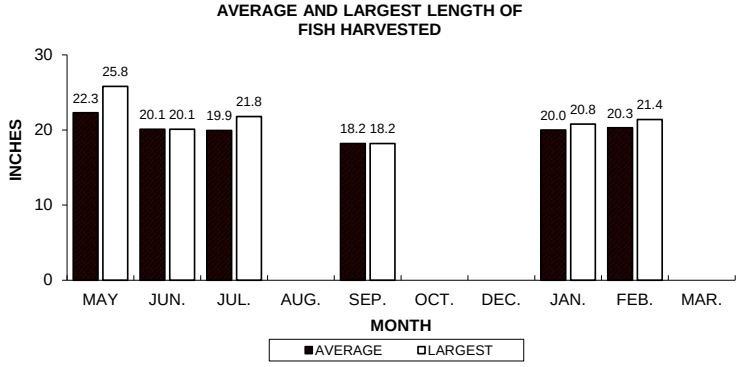
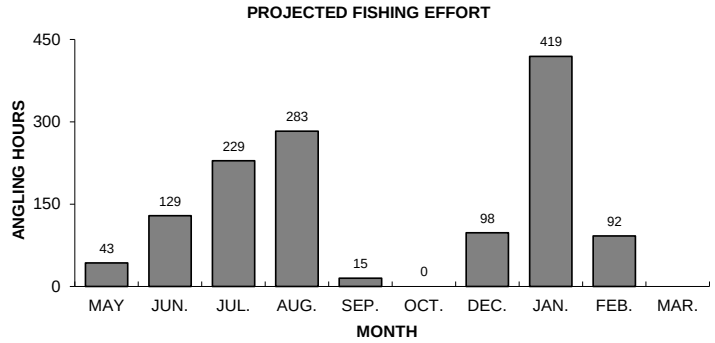
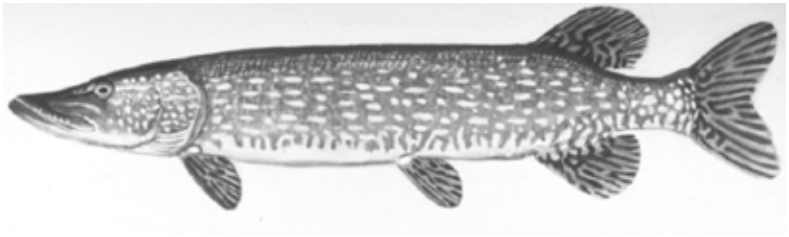
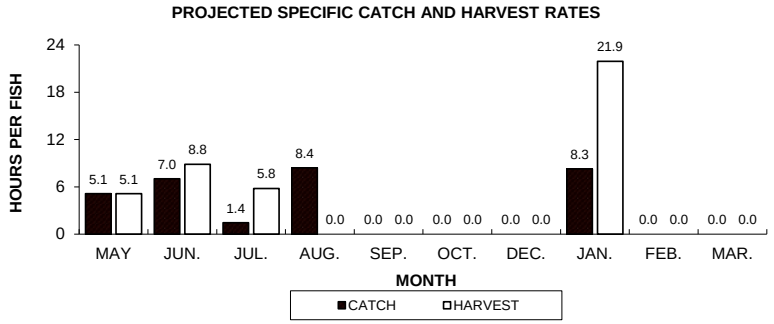


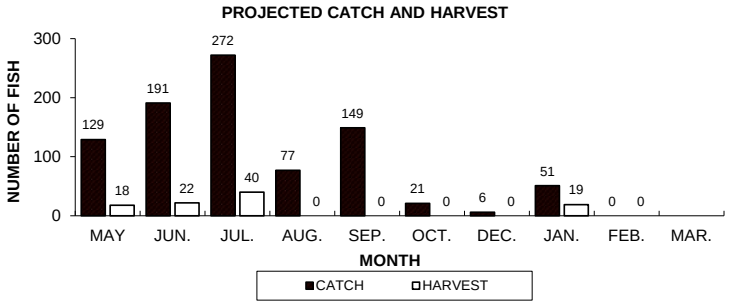
Figure 1. Walleye sportfishing effort, catch, harvest, and length distribution, Lake Lucerne during 2018-19.

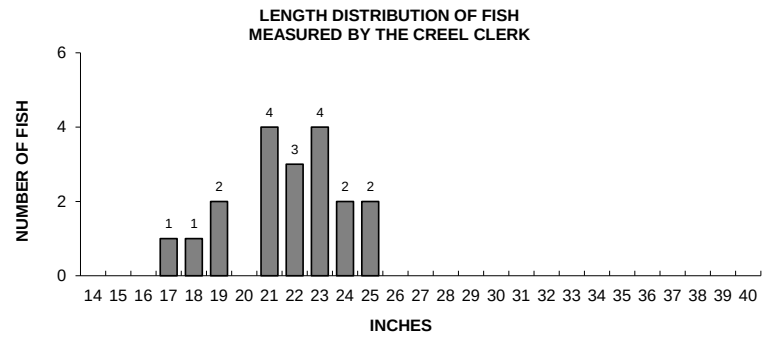


NORTHERN PIKE









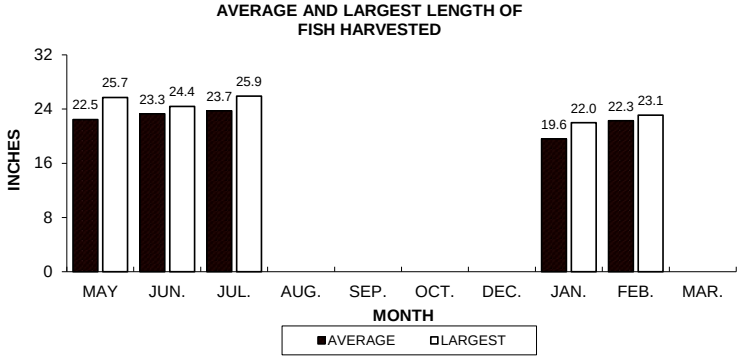
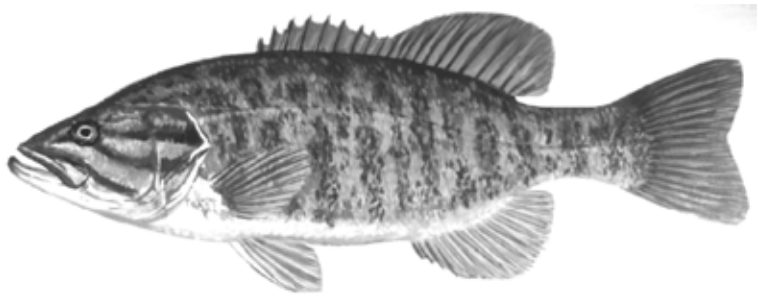
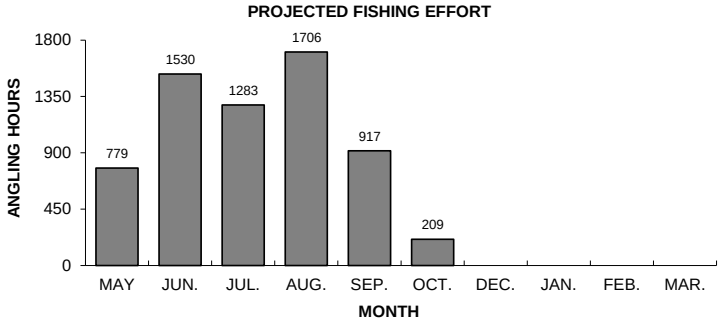
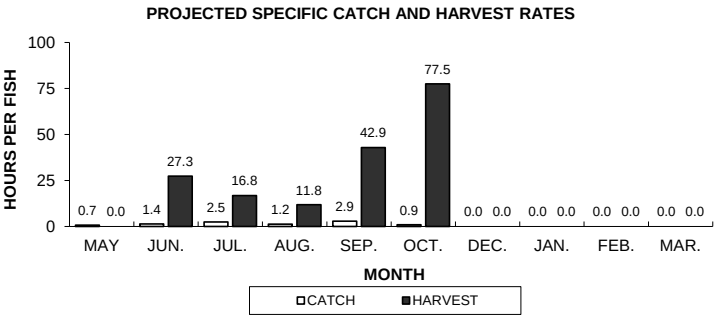


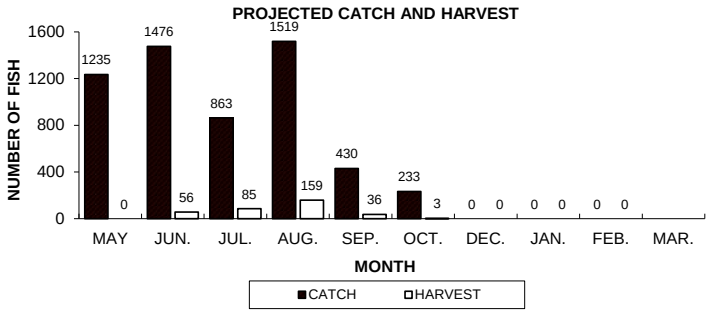
Figure 2. Northern Pike sportfishing effort, catch, harvest, and length distribution, Lake Lucerne during 2018-19.

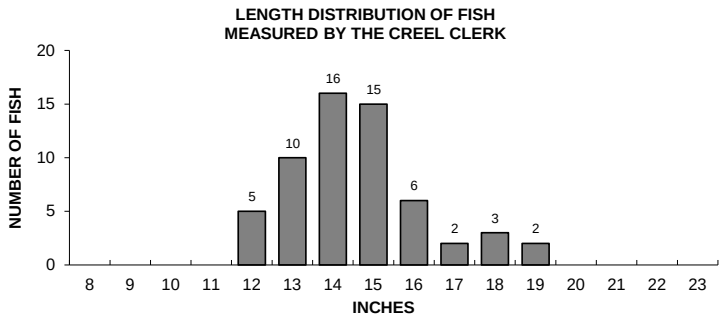
SMALLMOUTH BASS











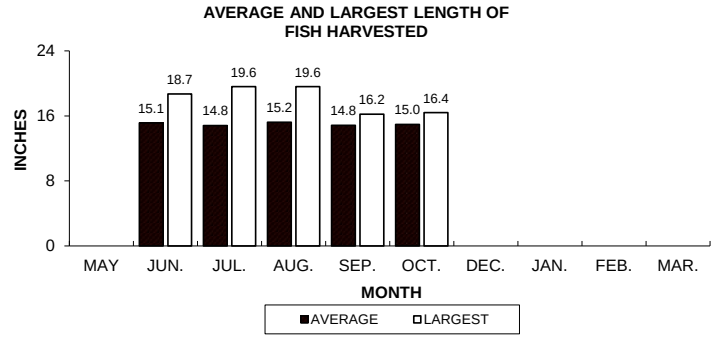
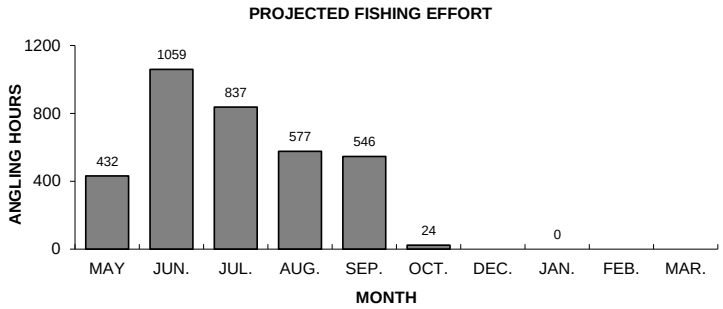
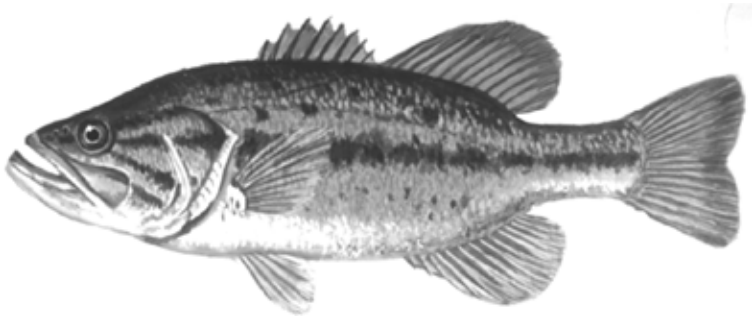
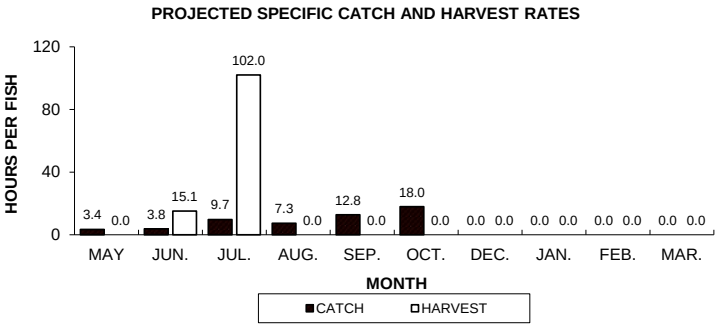


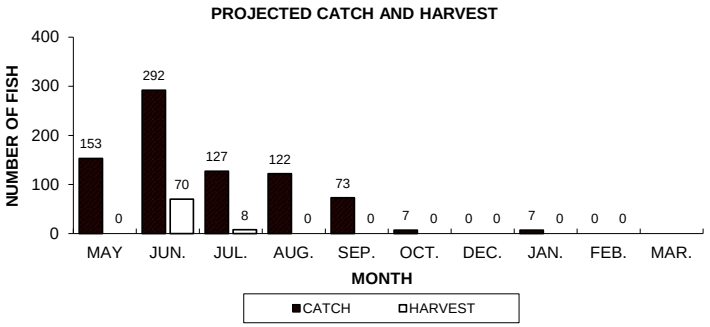
Figure 3. Smallmouth Bass sportfishing effort, catch, harvest, and length distribution, Lake Lucerne during 2018-19.

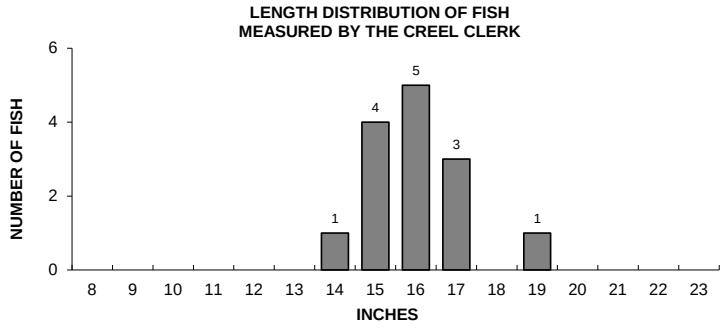
LARGEMOUTH BASS











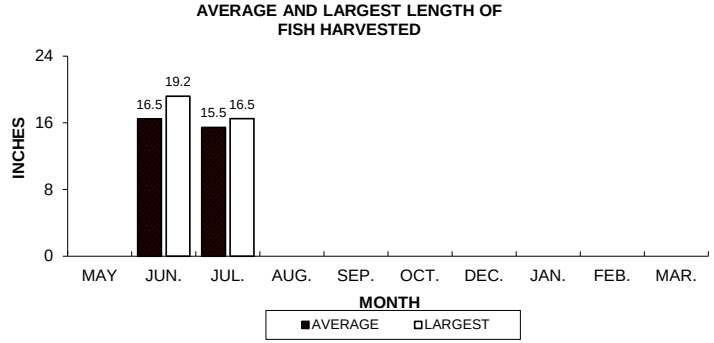
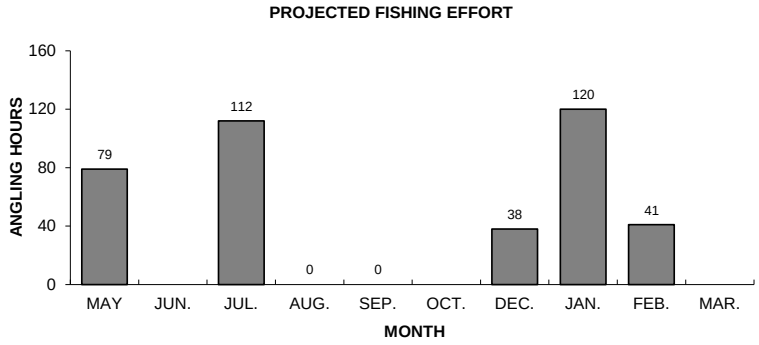
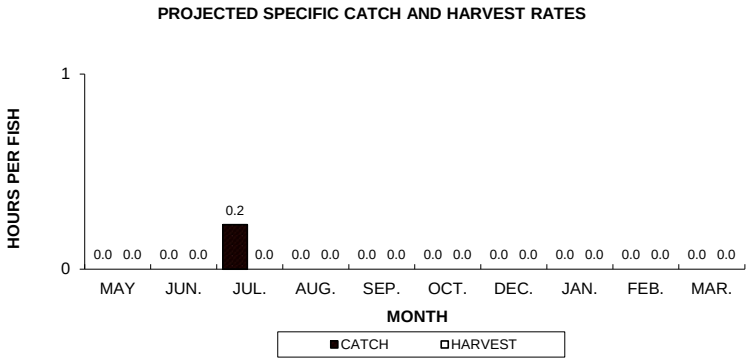


Figure 4. Largemouth Bass sportfishing effort, catch, harvest, and length distribution, Lake Lucerne during 2018-19.

YELLOW PERCH





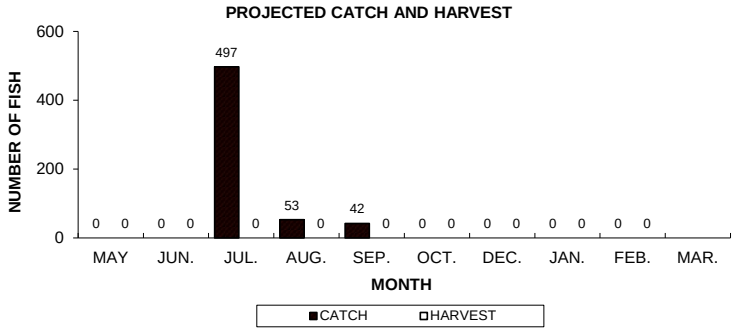
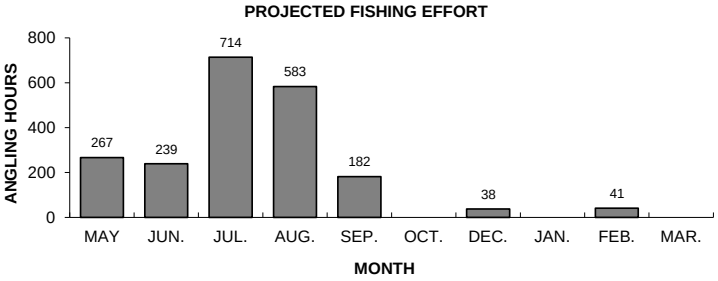
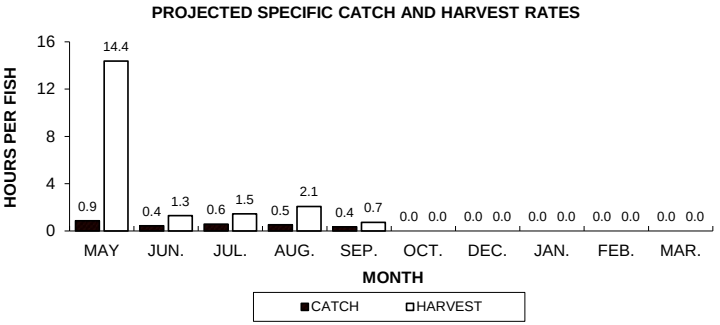
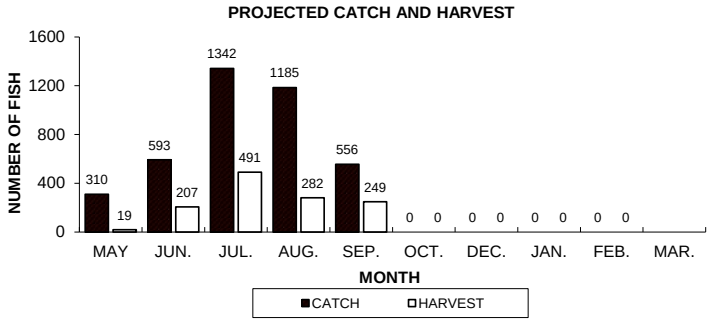


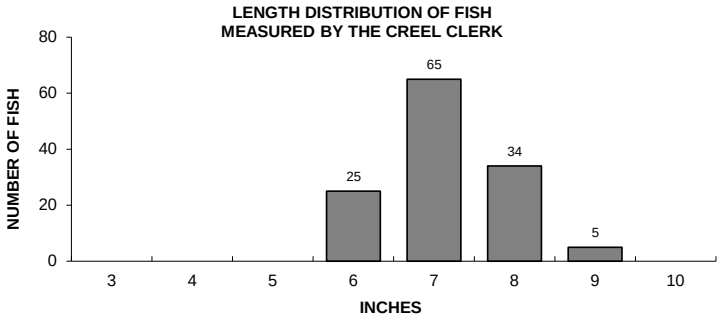
Figure 5. Yellow Perch sportfishing effort, catch, harvest, and length distribution, Lake Lucerne during 2018-19.

BLUEGILL









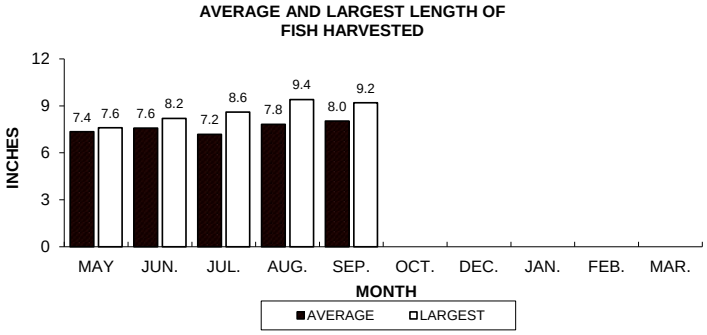
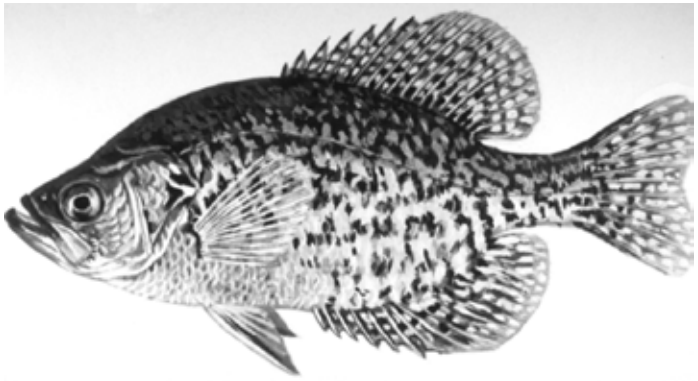


Figure 6. Bluegill sportfishing effort, catch, harvest, and length distribution, Lake Lucerne during 2018-19.

BLACK CRAPPIE



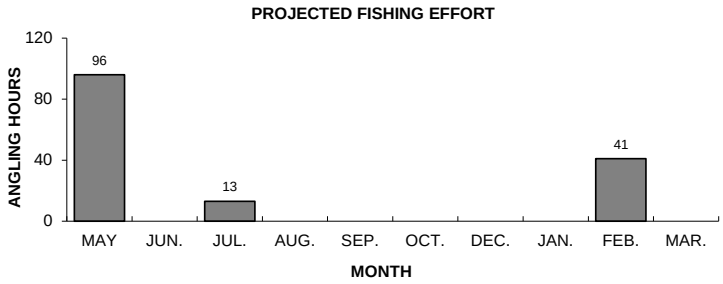


Figure 7. Black Crappie sportfishing effort, catch, harvest, and length distribution, Lake Lucerne during 2018-19.

ROCK BASS

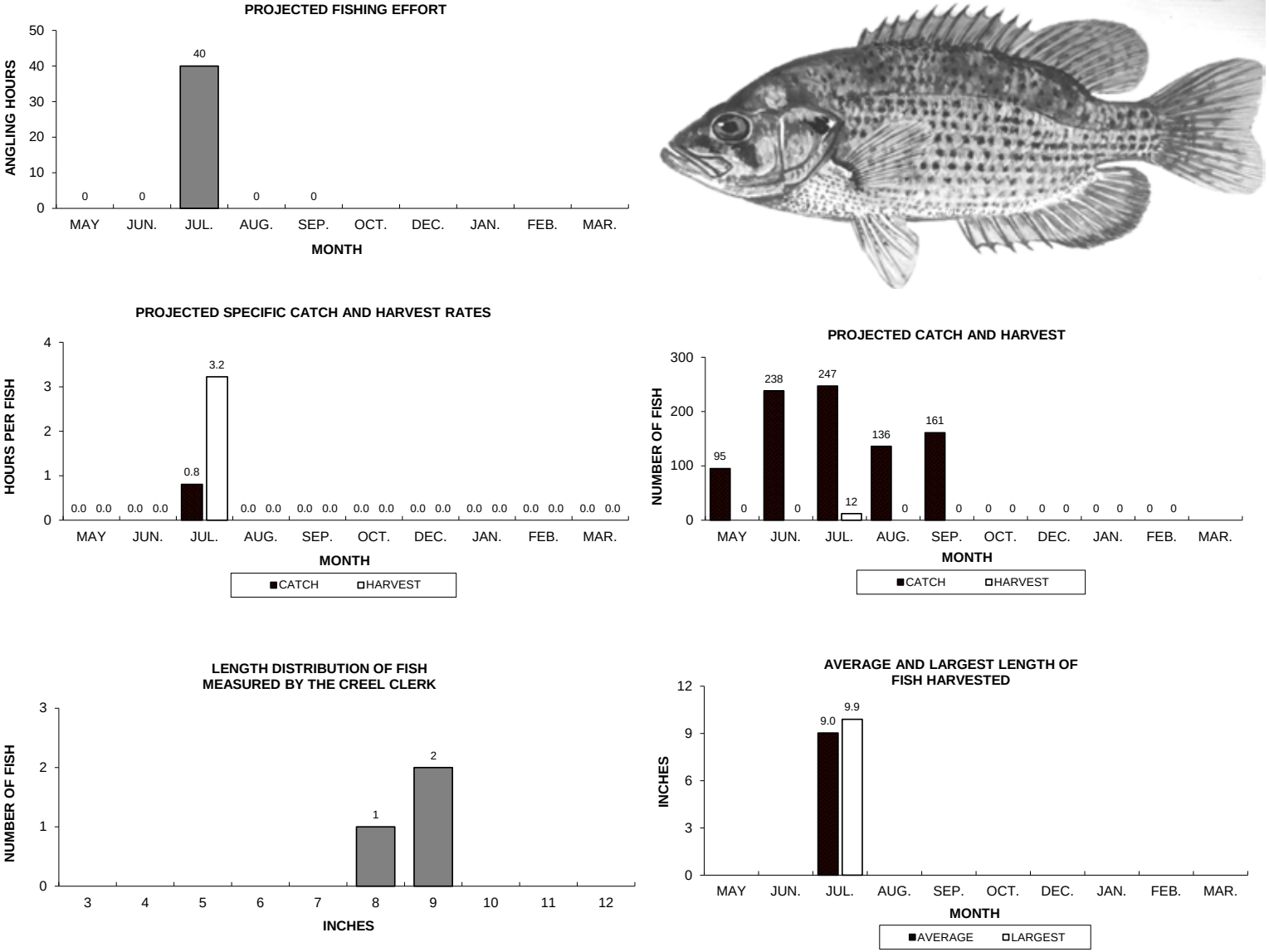


Figure 8. Rock Bass sportfishing effort, catch, harvest, and length distribution, Lake Lucerne during 2018-19.