

**WISCONSIN DEPARTMENT OF NATURAL RESOURCES  
CREEL SURVEY REPORT**

**TWO SISTERS LAKE**

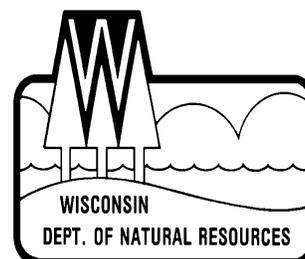
**ONEIDA COUNTY**

**2014-15**



**Treaty Fisheries Publication**

**Compiled by Jason Halverson &  
Jeff Blonski  
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
SPECIES INFORMATION .....	3
ACKNOWLEDGMENTS .....	4

## SUMMARY TABLES

Table 1. Sportfishing effort summary.....	5
Table 2. Creel survey synopsis.....	6
SPECIES CATCH AND HARVEST INFORMATION	
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. Pumpkinseed.....	14
Figure 9. Rock Bass .....	15
Figure 10. Black Crappie .....	16

**Cover Art:** Steve Hilt, Minocqua, WI

**Fish Graphics:** Virgil Beck, Stevens Point, WI

## INTRODUCTION

Fish populations can fluctuate due to natural forces (weather, predation, competition), management actions (stocking, regulations, habitat improvement), inappropriate development (habitat degradation), and harvest impacts. Wisconsin Department of Natural Resources fisheries crews regularly conduct fishery surveys on area 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 (species composition, population size, reproductive success, size/age distribution, and growth rates). The other key component of the fishery that we often need to measure is the 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 measure the sport 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 of harvest and other fishery parameters. Creel survey clerks work on randomly-selected days and shifts, forty hours per week 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 make projections of total catch and harvest of each species, catch and harvest rates, and total fishing effort by month, and for the year in total. Keep in mind that these are only projections based on the best information available, and not a complete accounting of effort, catch, and harvest. Accurate projections require that we sample a sufficient and representative portion of the angling activity on a lake. The accuracy of creel survey results, therefore, depends on good cooperation and truthful responses by anglers when a creel clerk interviews them.

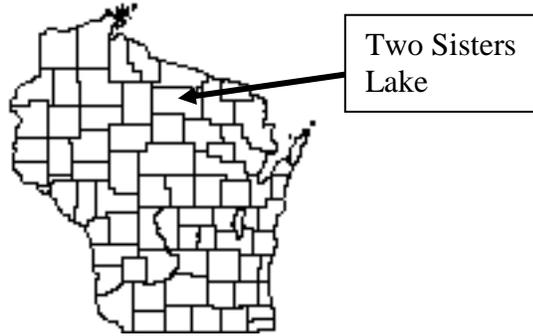
You may have encountered a DNR creel survey clerk on a recent fishing trip. We appreciate your cooperation during an interview. The survey only takes a moment of your time and it gives the Department valuable information needed for management of the fishery.

This report provides projections of:

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

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 in the Town of Lake Tomahawk.

### Physical Characteristics

Two Sisters Lake is a 719-acre drainage lake with a maximum depth of 63 feet. Littoral substrates consist primarily of sand, with lesser amounts of muck and gravel. Two Sisters Lake is a soft water lake with slightly acidic, clear water of moderate transparency.

### Seasons Surveyed

The period referred to in this report as the 2014-15 fishing season ran from May 3, 2014 through March 1, 2015. The open water creel survey ran from May 3 through October 31, 2014, and the ice fishing creel survey ran from December 1, 2014 through March 3, 2015.

### Weather

Ice-out on Two Sisters Lake was around May 12, 2014. Fishable ice formed on Two Sisters Lake in mid-December.

## Fishing Regulations

The following seasons, daily bag limits, and length limits were in place on Two Sisters Lake during the 2014-15 fishing season:

Largemouth Bass	5/3-3/1	5	14"
Smallmouth Bass	5/3-6/20	Catch & Release	
	6/21-3/1	5	14"
Musky	5/24-11/30	1	40"
Northern Pike	5/3-3/1	5	none
Walleye	5/3-3/1	2*	15"
Panfish	year round	25	none
Rock Bass	year round	none	none

\*The statewide bag limit was 5 walleye, but due to tribal declarations and harvest, walleye bag limits were set at 2 on Two Sisters Lake.

## SPECIES CATCH AND HARVEST INFORMATION

Angling effort, catch, and harvest information is summarized for each species in Table 2 and Figures 1-10. Table 2 also includes a comparison of these statistics with the previous creel survey. Information presented about species whose fishing season extends beyond March 1 should be considered minimum estimates. Each species page has up to five graphs depicting the following:

- 1. PROJECTED FISHING EFFORT**  
 Total calculated number of hours during each month that anglers spent fishing for a species.
- 2. PROJECTED 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.
- 3. PROJECTED CATCH AND HARVEST**  
 Calculated number of fish of the indicated species caught or harvested by all anglers, regardless of targeted species.

**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 those fish measured by the creel survey clerk are reported.

## **CREEL SURVEY RESULTS AND DISCUSSION**

### **Survey Logistics**

The creel survey went well. We encountered no unusual problems conducting the survey or calculating the projections contained in the report. This was the seventh time the department conducted a creel survey on Two Sisters Lake. The last creel survey took place during the 2011-12 season.

### **General Angler Information**

Anglers spent 8,318 hours or 11.6 hours per acre fishing Two Sisters Lake during the 2014-15 season (Table 1). That was less than the Oneida County average of 33.7 hours per acre. August was the most heavily fished month (3.0 hours per acre). Fishing effort was lightest in February (0.2 hours per acre) for those months when the entire month was creeled. Anglers also spent more time (18.9 hours per acre) fishing during the 2011-12 creel survey. The creel clerks were able to conduct 244 interviews throughout the survey.

## **RESULTS BY SPECIES**

### **Walleye** (Table 2, Figure 1)

Walleyes received the most fishing effort during the 2014-15 season. Anglers spent 3,340 hours targeting walleyes. The greatest

fishing effort for walleyes was in July (669 hours). February had the least amount of walleye fishing effort (80 hours).

Total catch of walleyes was 256 fish with a harvest of 204 fish. Highest catch (72 fish) and harvest (62 fish) occurred in August. Anglers fished 13.9 hours to catch and 16.4 hours to harvest a walleye during 2014-15 season. The mean length of harvested walleyes was 18.8 inches and the largest walleye measured was a 24.5-inch fish.

### **Northern Pike** (Table 2, Figure 2)

Fishing effort directed at northern pike was 858 hours during the 2014-15 season. Northern pike fishing effort was greatest in August (298 hours). Total catch of northern pike was 304 fish with a harvest of 140 fish. The mean length of harvested northern pike was 24.9 inches, and the largest northern pike measured was a 33.8-inch fish.

### **Muskellunge** (Table 2, Figure 3)

Anglers spent 1,683 hours targeting muskellunge during the 2014-15 season. Muskellunge fishing effort was greatest in July (536 hours).

Total catch of muskellunge was 67 fish. Highest catch (29 fish) occurred in July. Anglers fished 43.5 hours to catch a muskellunge and there was no documented harvest during the 2014-15 season.

### **Smallmouth Bass** (Table 2, Figure 4)

Fishing effort targeted at smallmouth bass was 2,663 hours during the 2014-15 season. Smallmouth bass fishing effort was greatest in August (1,033 hours). Total catch of smallmouth bass was 2,436 fish with 220 harvested. Highest catch (814 fish) occurred in August. Anglers fished 1.4 hours to catch a smallmouth bass during the 2014-15 season.

### **Largemouth Bass** (Table 2, Figure 5)

Fishing effort directed at largemouth bass was 1,938 hours during the 2014-15 season. Largemouth bass fishing effort was greatest in August (754 hours). Total catch of largemouth bass was 1,712 fish with a harvest of 138 fish. Highest catch (593 fish) occurred in August. Anglers fished 1.6 hours to catch a largemouth bass during the 2014-15 season.

### **Panfish** (Table 2, Figures 6-10)

**Bluegills** were the most sought after panfish species during the survey. Fishing effort directed at bluegills was 2,255 hours. Total catch of bluegills was 4,644 fish with 1,193 harvested. The mean length of bluegills harvested was 7.1 inches.

**Black crappies** were the second most sought after panfish species during the survey. Fishing effort directed at black crappies was 1,035 hours. Anglers caught 269 black crappies and harvested 201 fish. The mean length of black crappies harvested was 11.5 inches.

**Yellow perch** were the third most sought after panfish species during the survey. Fishing effort directed at yellow perch was 566 hours. Total catch of yellow perch was 261 fish with 125 harvested. The mean length of yellow perch harvested was 9.2 inches.

**Rock bass** were also caught (4,031 fish) and harvested (262 fish) during the 2014-15 season.

**Pumpkinseeds** were also caught (21 fish) during the 2014-15 season, however, no documented harvest occurred.

## **ACKNOWLEDGMENTS**

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, Steve Timler, Jonathan Pyatskowitz, and Dennis Scholl. Dave Stahmer and Doug Day were the creel clerks on Two Sisters Lake during the survey period.

We also 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.

The department thanks our cooperators, the Don Nierode family, all of whom generously allowed the department to keep a boat and/or snowmobile on their property during this survey.

This creel report was reviewed by John Kubisiak and Lawrence Eslinger of the Wisconsin Department of Natural Resources, Woodruff, 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/trtycrs/rvys.html>

**Table 1. Sportfishing effort summary, Two Sisters Lake, 2014-15 season.**

<b>Month</b>	<b>Number of Angler Party Interviews</b>	<b>Total Angler Hours</b>	<b>Total Angler Hours/Acre</b>	<b>2011-12 Total Angler Hours/Acre</b>	<b>Oneida County Average Hours/Acre</b>	<b>Ceded Territory Average Hours/Acre</b>
May	34	884	1.2	2.8	4.8	5.0
June	41	1228	1.7	2.3	6.4	6.4
July	51	2047	2.8	6.0	7.3	6.8
August	51	2151	3.0	3.1	5.7	5.5
September	23	517	0.7	1.4	3.4	3.3
October	24	424	0.6	1.5	1.6	1.5
December	10	551	0.8	0.3	1.2	1.1
January	6	344	0.5	0.7	1.5	1.6
February	3	150	0.2	0.6	1.5	1.6
March	1	23	0.0	0.0	0.3	0.2
*Summer Total	224	7251	10.1	17.2	29.2	28.5
*Winter Total	20	1067	1.5	1.7	4.5	4.5
Grand Total	244	8318	11.6	18.9	33.7	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 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.

**2011-12 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, 2014-15 and 2011-12 fishing seasons.**

CREEL YEAR: 2014-15

<b>SPECIES</b>	<b>DIRECTED EFFORT (Hours)</b>	<b>PERCENT OF TOTAL</b>	<b>TOTAL CATCH</b>	<b>SPECIFIC CATCH RATE (Hrs/Fish) *</b>	<b>TOTAL HARVEST</b>	<b>SPECIFIC HARVEST RATE (Hrs/Fish) **</b>	<b>MEAN LENGTH OF HARVESTED FISH</b>
Walleye	3340	22.8%	256	13.9	204	16.4	18.8
Northern Pike	858	5.9%	304	5.8	140	8.3	24.9
Muskellunge	1683	11.5%	67	43.5	0		
Smallmouth Bass	2663	18.2%	2436	1.4	220	12.3	16.5
Largemouth Bass	1938	13.2%	1712	1.6	138	14.1	16.4
Yellow Perch	566	3.9%	261	3.8	125	4.9	9.2
Bluegill	2255	15.4%	4644	0.6	1193	2.0	7.1
Pumpkinseed	0	0.0%	21		0		
Rock Bass	309	2.1%	4031	0.7	262	1.8	10.7
Black Crappie	1035	7.1%	269	3.9	201	5.1	11.5

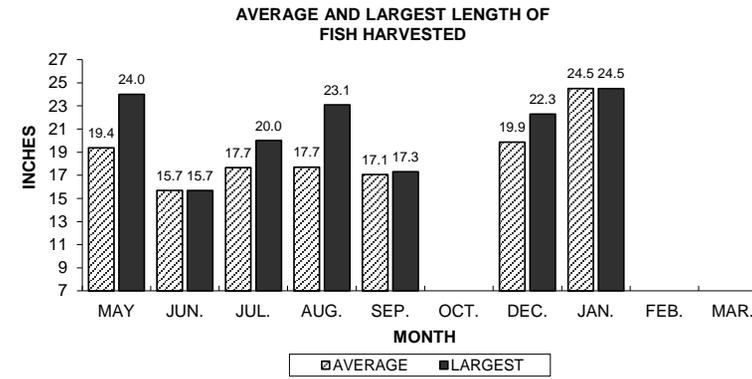
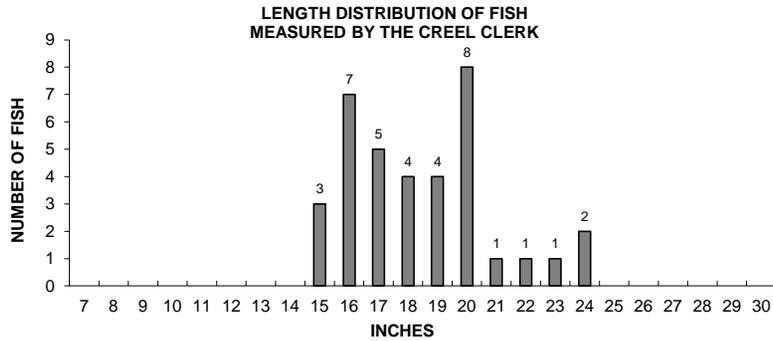
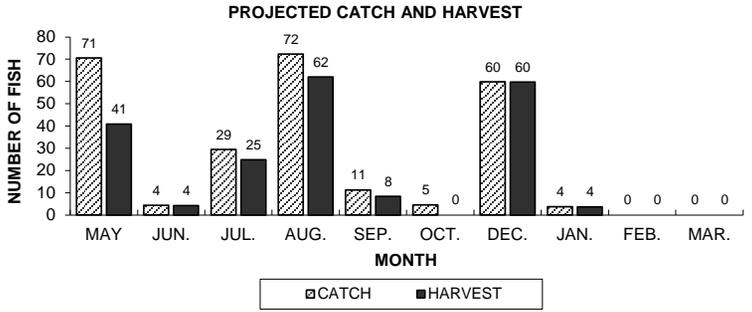
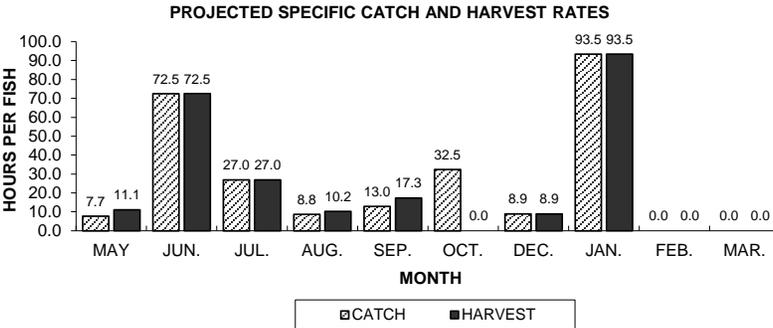
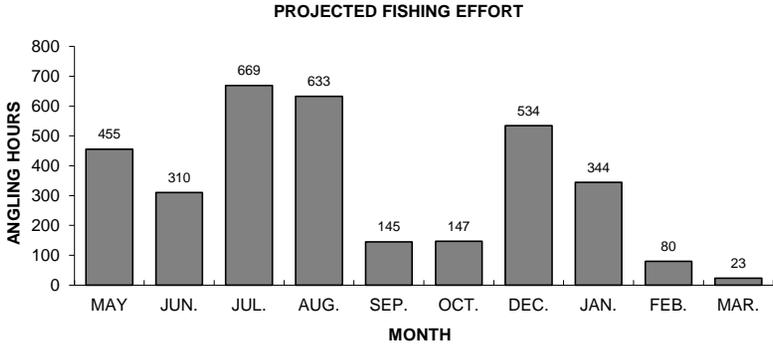
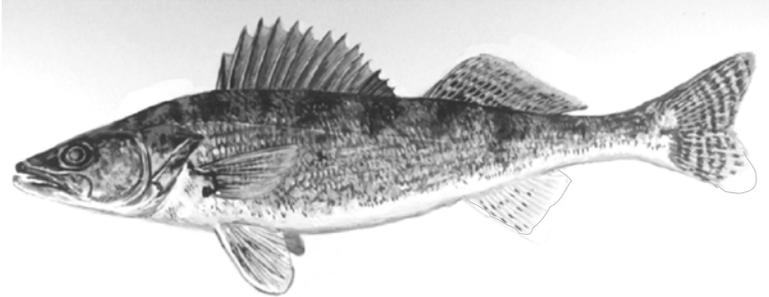
9 \* A blank cell in this column indicates that no fish of a given species were caught by anglers who specifically targeted that species.

\*\* 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: 2011-12

<b>SPECIES</b>	<b>DIRECTED EFFORT (Hours)</b>	<b>PERCENT OF TOTAL</b>	<b>TOTAL CATCH</b>	<b>SPECIFIC CATCH RATE (Hrs/Fish) *</b>	<b>TOTAL HARVEST</b>	<b>SPECIFIC HARVEST RATE (Hrs/Fish) **</b>	<b>MEAN LENGTH OF HARVESTED FISH</b>
Walleye	5674	25.2%	274	20.7	233	24.5	20.0
Northern Pike	986	4.4%	457	8.0	129	12.7	29.6
Muskellunge	3565	15.8%	79	78.1	0		0.0
Smallmouth Bass	2771	12.3%	3419	1.7	354	9.2	16.4
Largemouth Bass	1776	7.9%	1776	1.9	141	12.6	16.2
Yellow Perch	2570	11.4%	1081	2.8	726	3.6	9.1
Bluegill	2929	13.0%	5172	0.7	1439	2.1	7.8
Pumpkinseed	59	0.3%	100	2.3	25	2.3	7.3
Rock Bass	311	1.4%	4304	0.9	230	1.4	8.4
Black Crappie	1883	8.4%	1016	1.9	750	2.6	10.7

# WALLEYE



7

Figure 1. Walleye sportfishing effort, catch, harvest, and length distribution, Two Sisters Lake, during 2014-15.

# NORTHERN PIKE

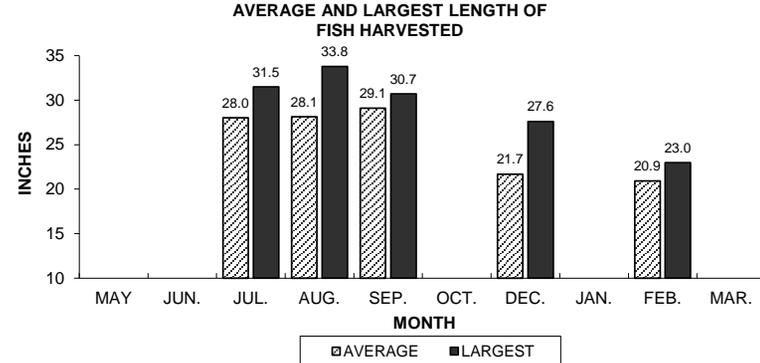
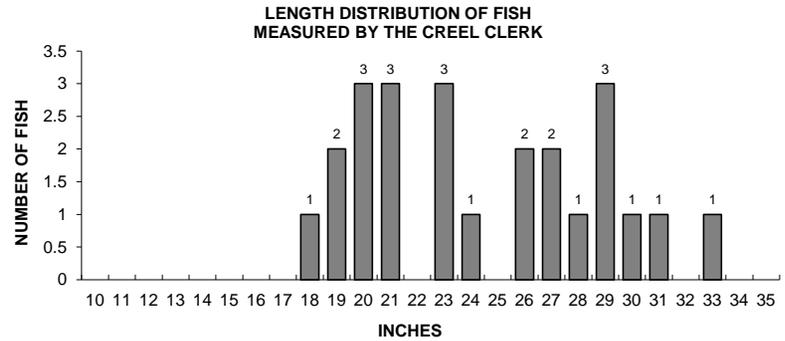
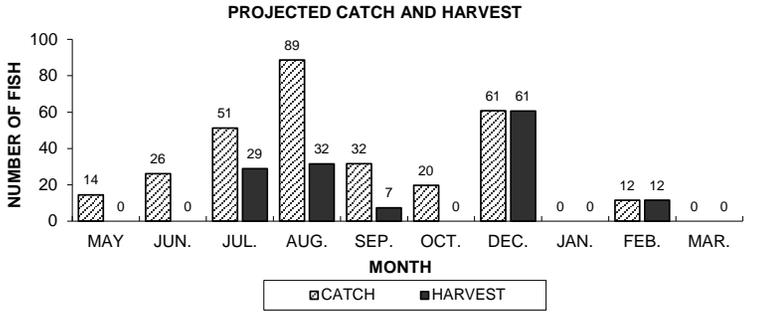
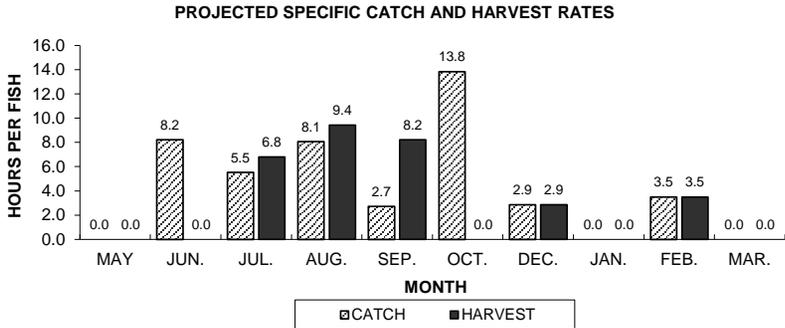
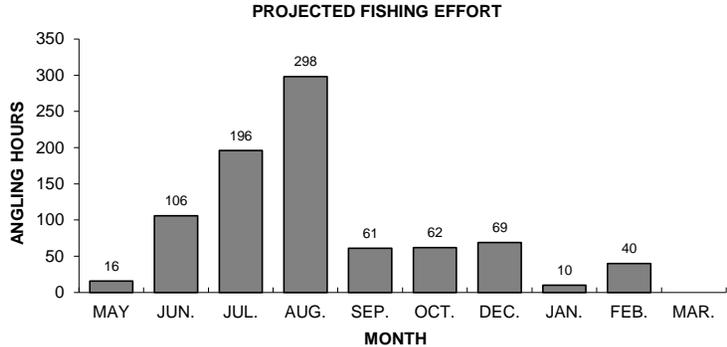
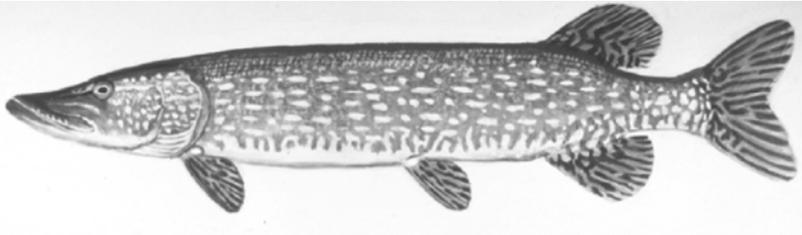
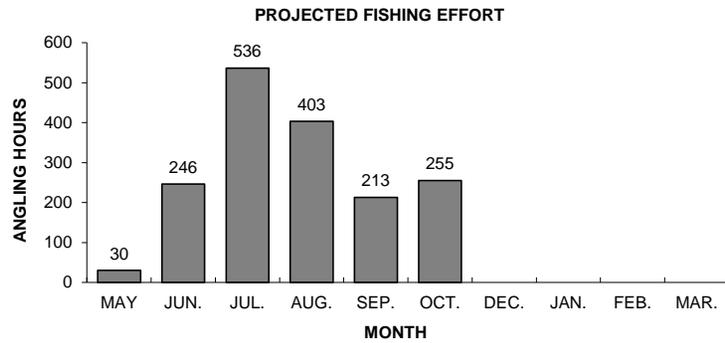
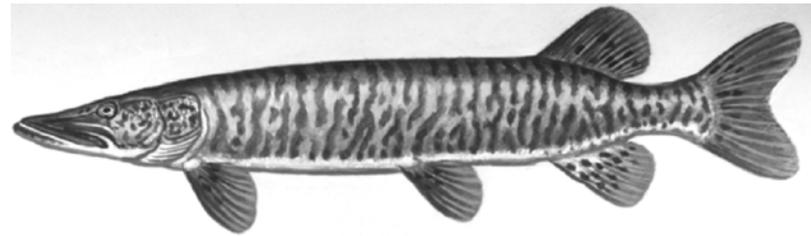


Figure 2. Northern pike sportfishing effort, catch, harvest, and length distribution, Two Sisters Lake, during 2014-15.

# MUSKELLUNGE



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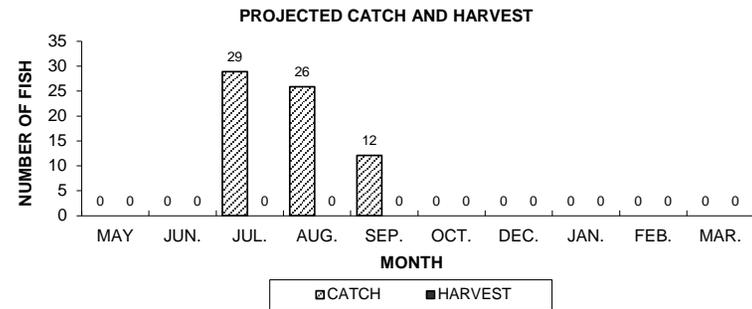
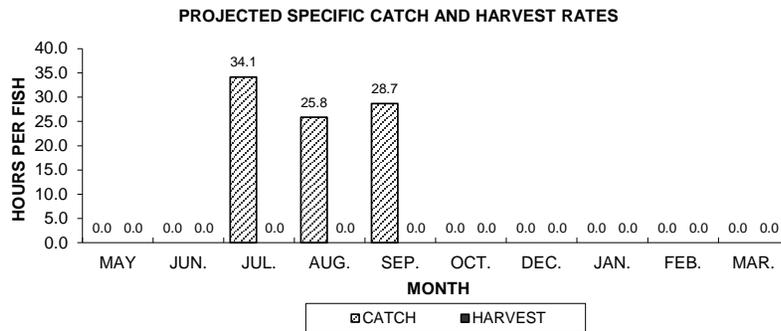


Figure 3. Muskellunge sportfishing effort, catch, harvest, and length distribution, Two Sisters Lake, during 2014-15.

# SMALLMOUTH BASS

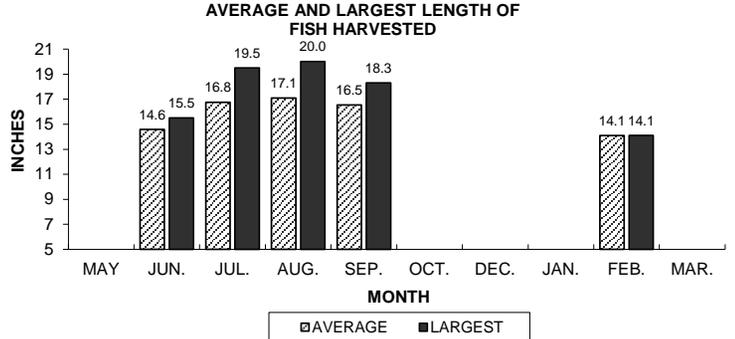
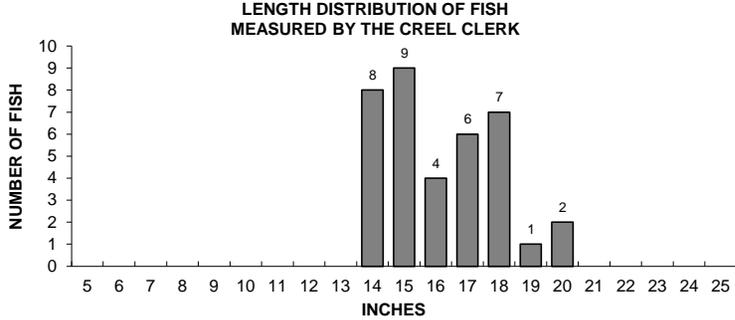
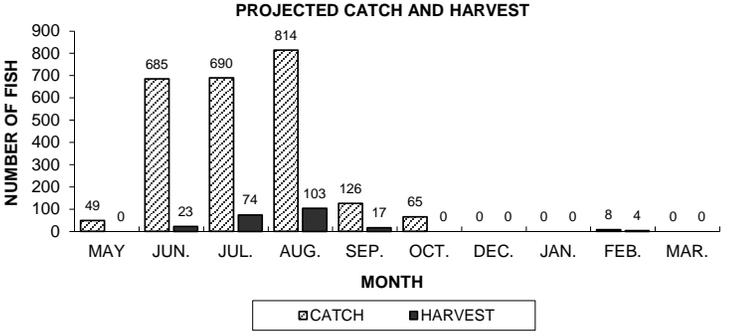
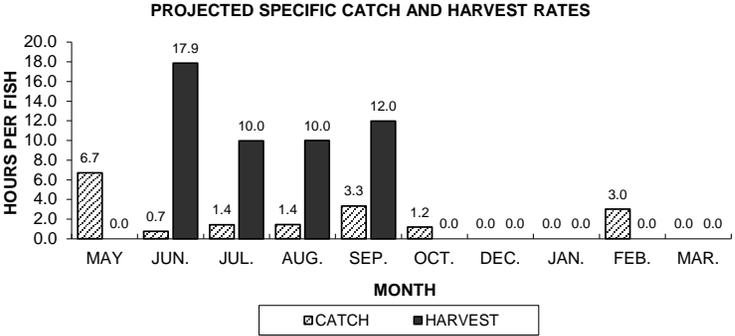
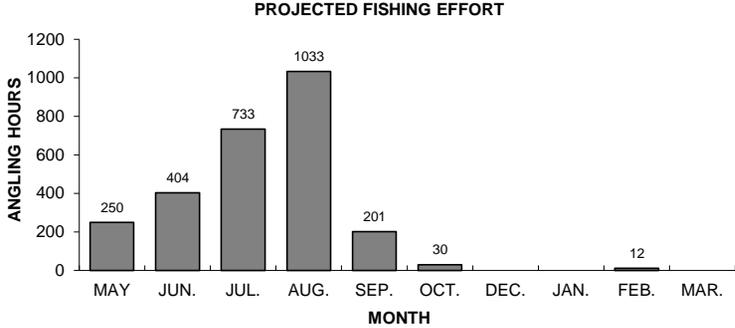
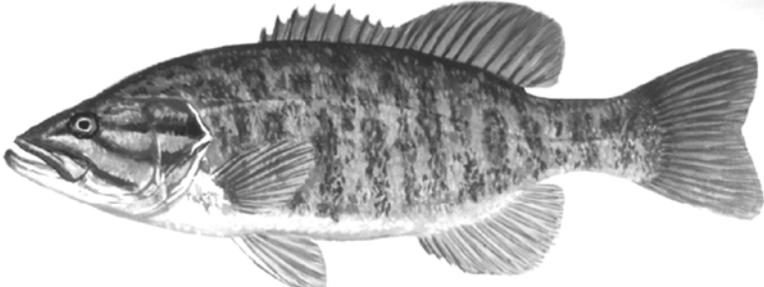
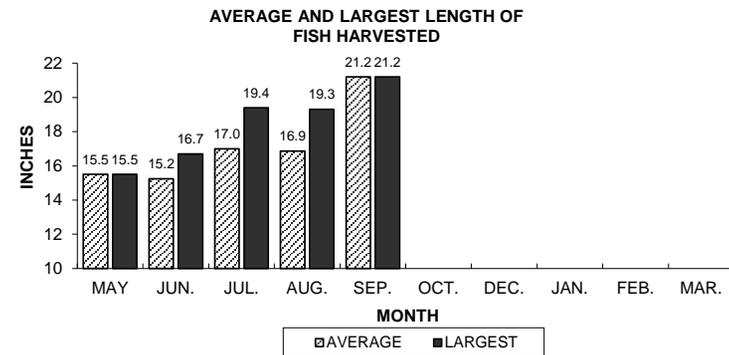
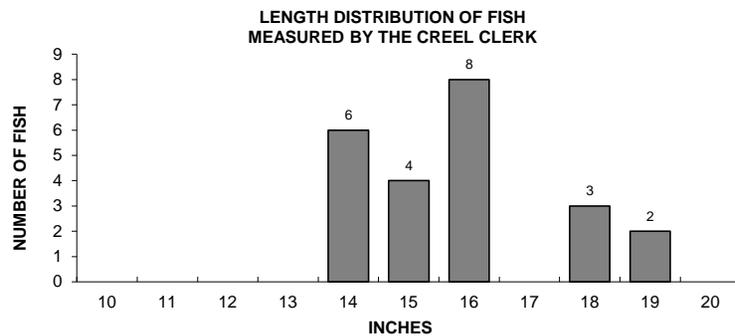
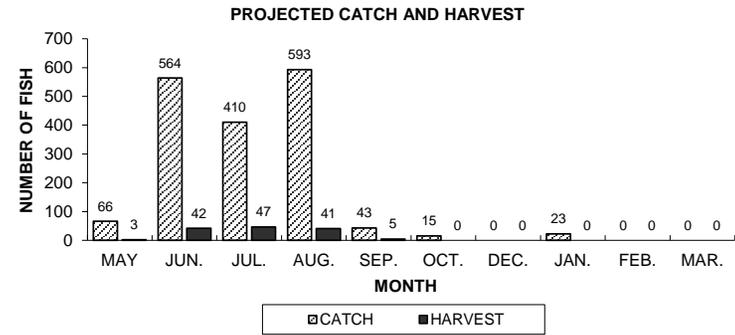
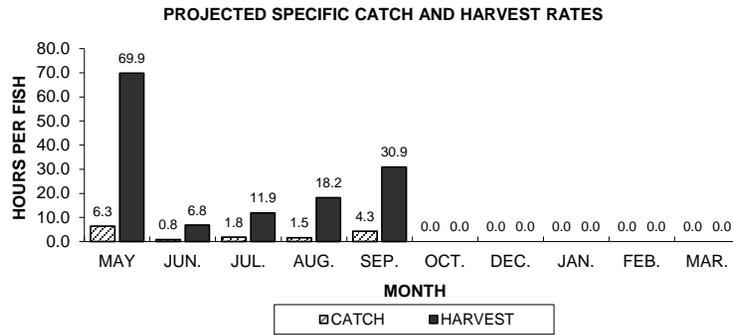
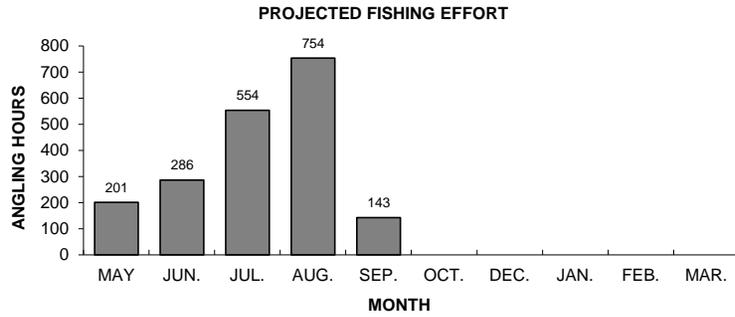
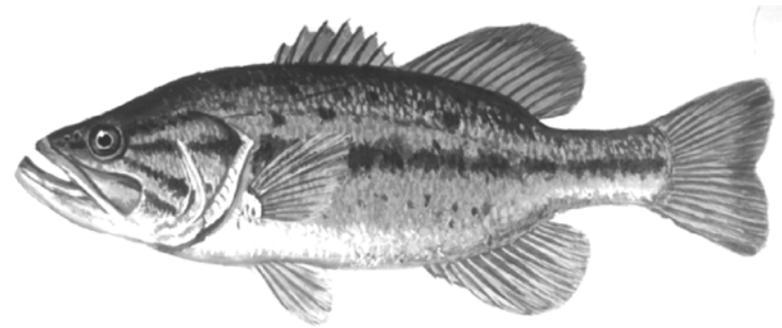


Figure 4. Smallmouth bass sportfishing effort, catch, harvest, and length distribution, Two Sisters Lake, during 2014-15.

# LARGEMOUTH BASS



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Figure 5. Largemouth bass sportfishing effort, catch, harvest, and length distribution, Two Sisters Lake, during 2014-15.

# YELLOW PERCH

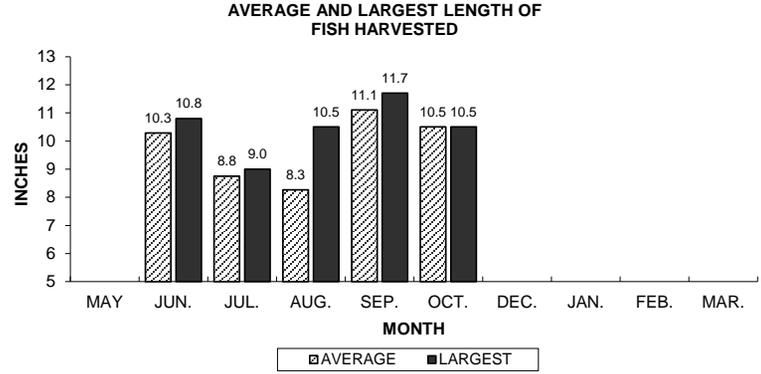
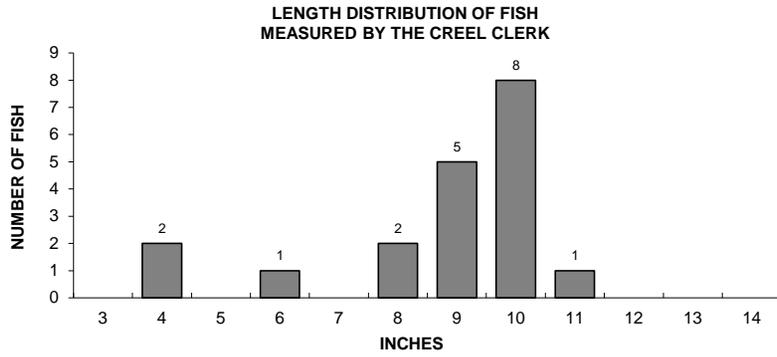
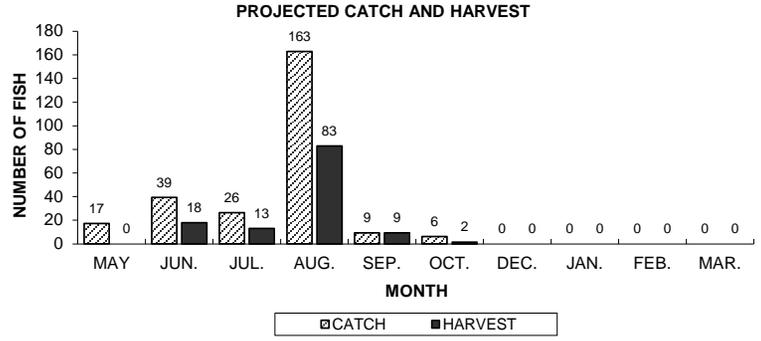
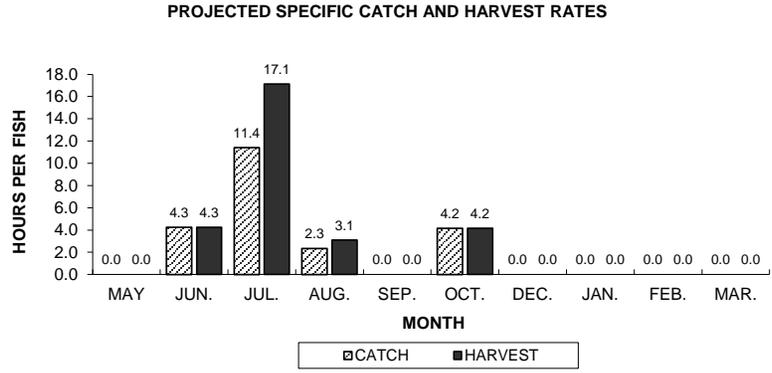
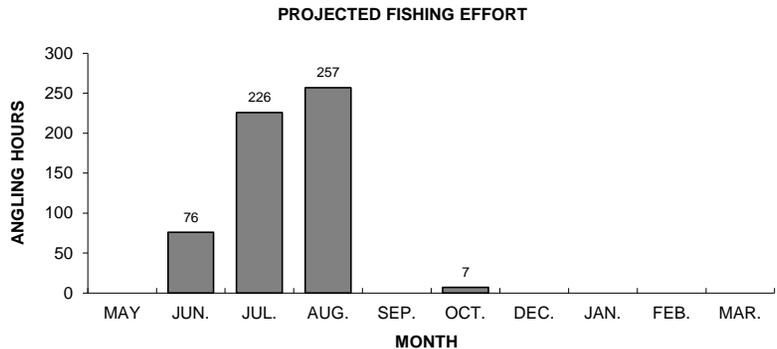


Figure 6. Yellow perch sportfishing effort, catch, harvest, and length distribution, Two Sisters Lake, during 2014-15.

# BLUEGILL

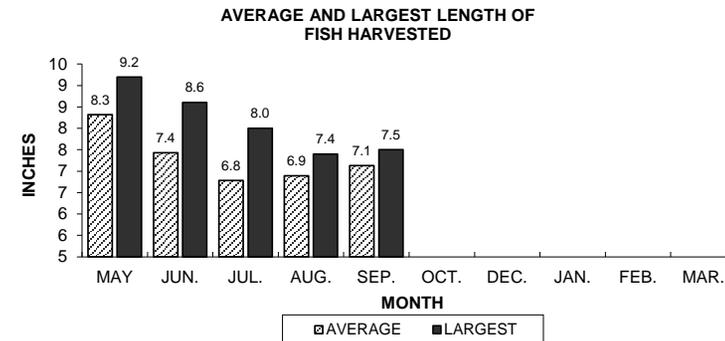
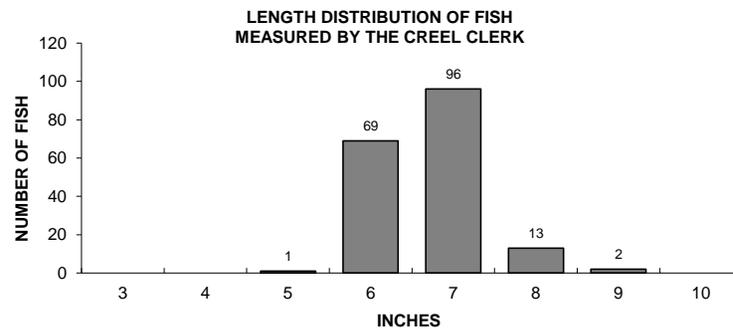
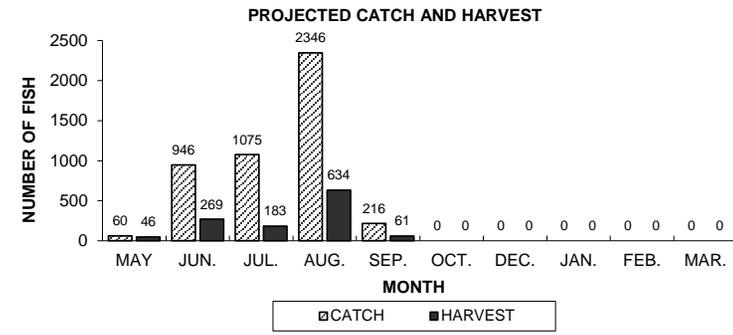
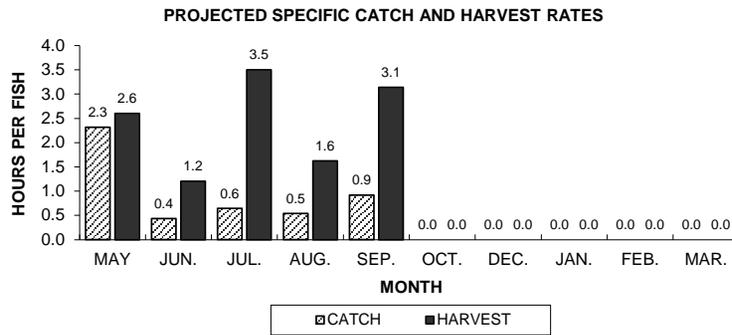
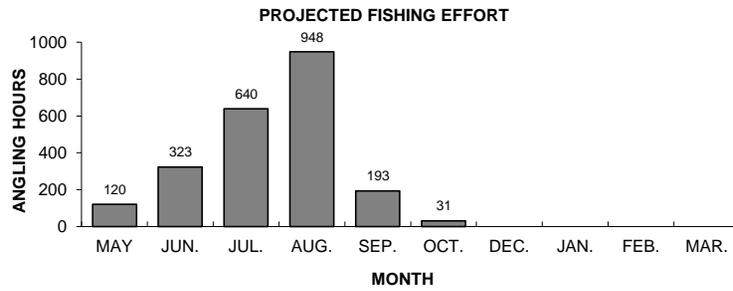
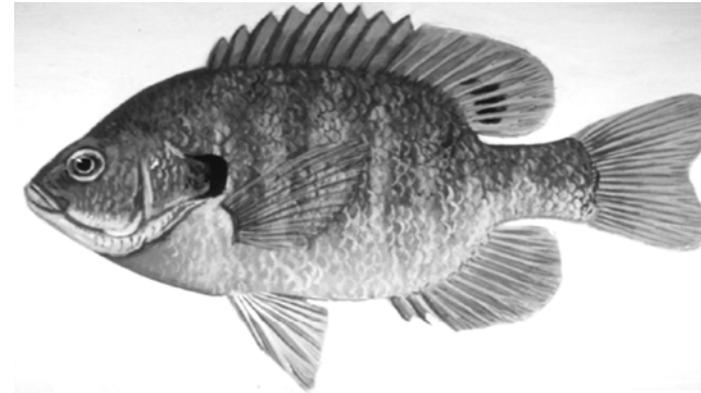


Figure 7. Bluegill sportfishing effort, catch, harvest, and length distribution, Two Sisters Lake, during 2014-15.

# PUMPKINSEED

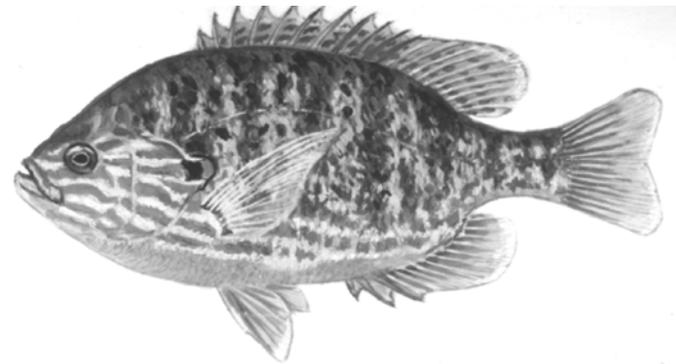
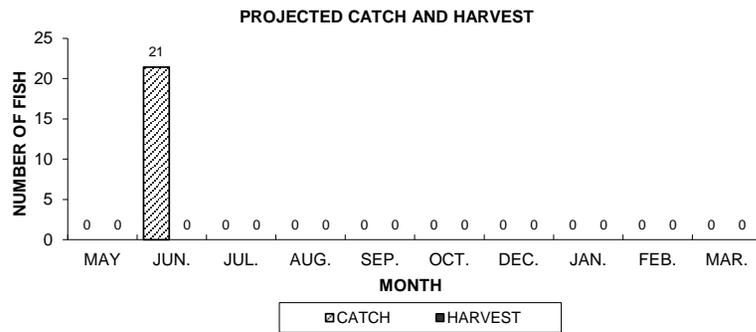


Figure 8. Pumpkinseed sportfishing effort, catch, harvest, and length distribution, Two Sisters Lake, during 2014-15.

# ROCK BASS

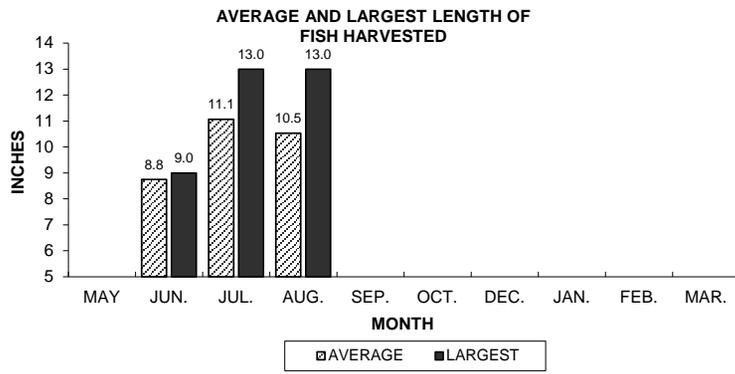
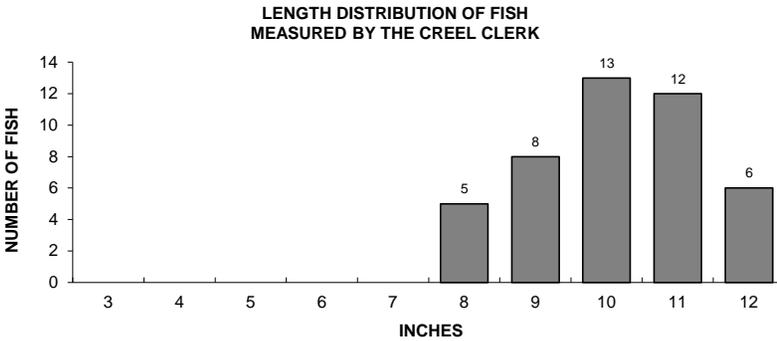
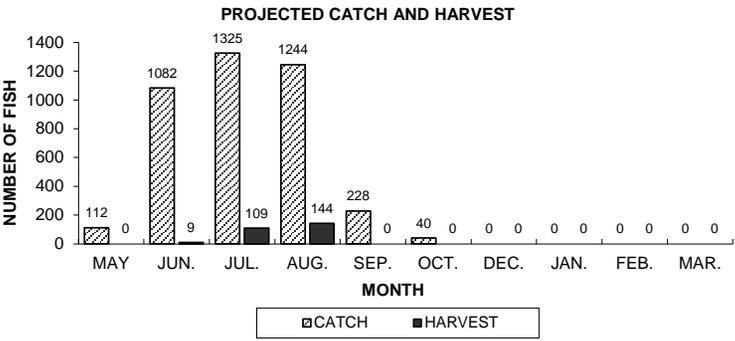
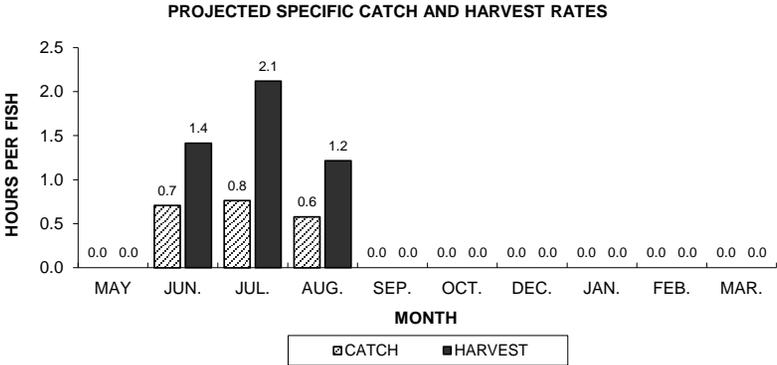
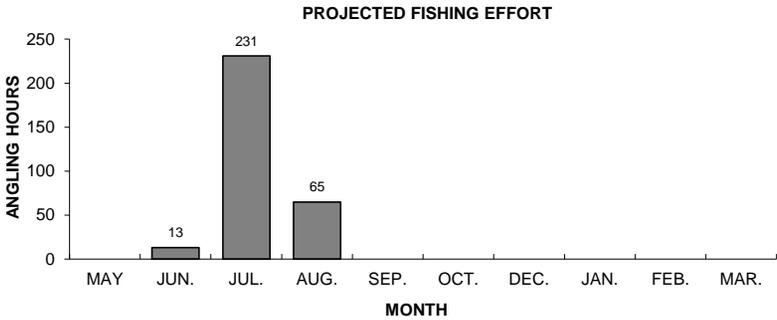
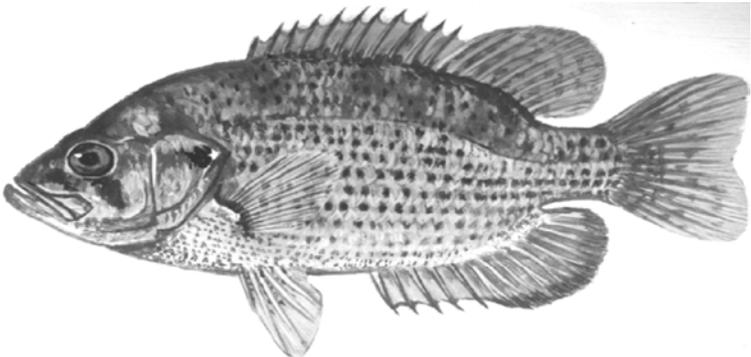


Figure 9. Rock bass sportfishing effort, catch, harvest, and length distribution, Two Sisters Lake, during 2014-15.

# BLACK CRAPPIE

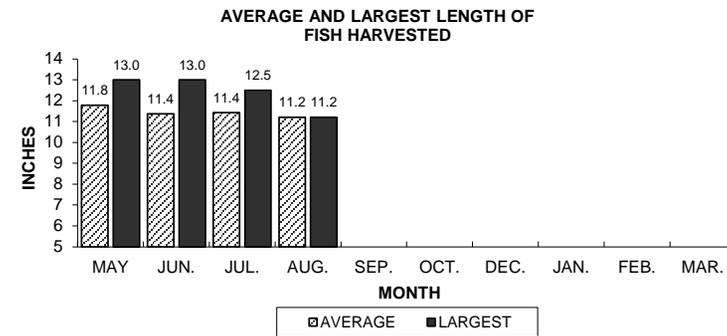
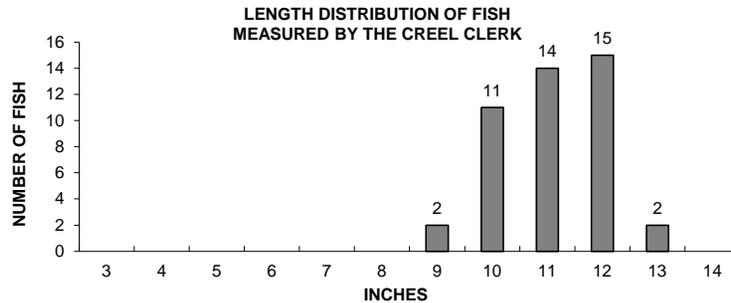
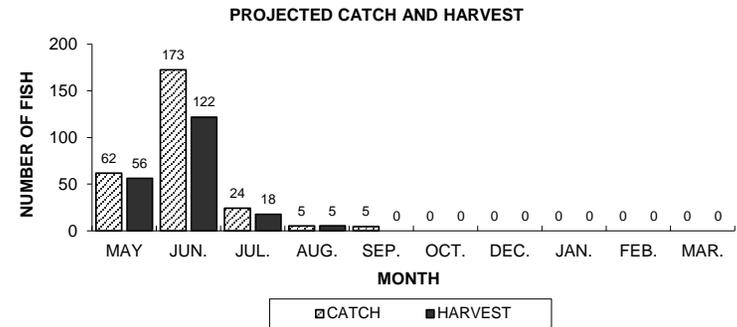
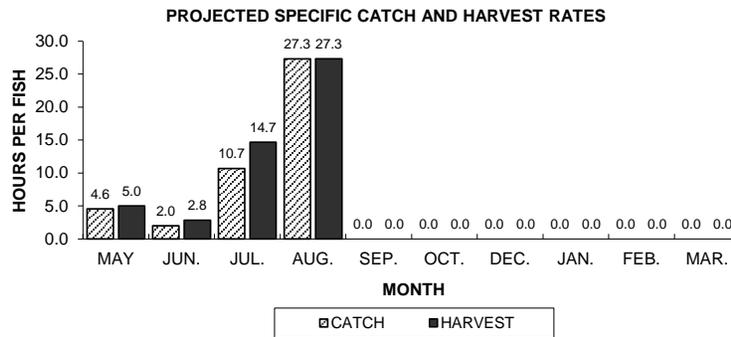
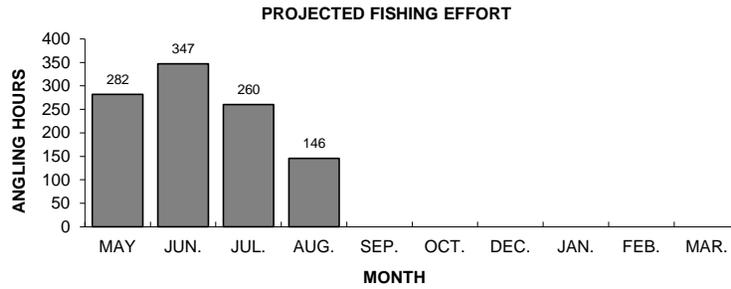
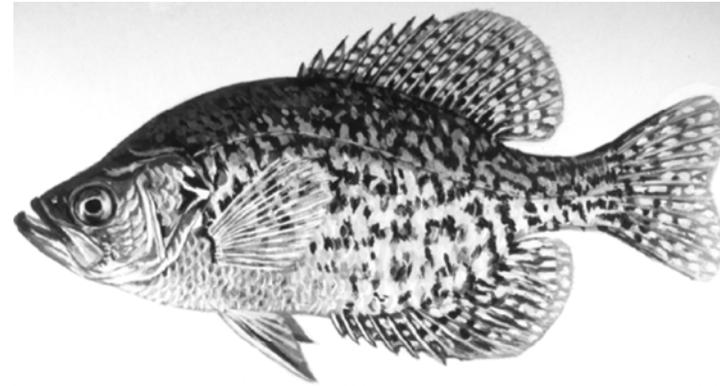


Figure 10. Black crappie sportfishing effort, catch, harvest, and length distribution, Two Sisters Lake, during 2014-15.