

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

**DIAMOND LAKE
BAYFIELD COUNTY**

2015-2016



Treaty Fisheries Publication

March, 2016

INTRODUCTION

The Wisconsin Department of Natural Resources regularly conducts fishery surveys of area lakes and reservoirs to gather information on species composition, population size, reproductive success, size/age distribution, and growth rates. The information from the netting and electrofishing surveys helps the WDNR determine the best management practices for that body of water. Another important aspect of a fishery is the amount of harvest that is occurring on the lake. This information is collected by creel census or creel survey.

On lakes in the Ceded Territory of Wisconsin, harvest of fish is divided between sport anglers and the six Chippewa tribal bands. The six Chippewa tribal bands harvest fish under rights governed by federal treaties of 1837 and 1842. Most tribal fish harvest is done by spearing during a short period of time in the spring. All speared fish are individually counted by tribal creel clerks, allowing for a complete “census” of the tribal fish harvest in the spring.

Information is also collected on the effects of sport angler harvest on fish populations. Because it would be impractical and costly to conduct a complete “census” of the fish harvested by sport anglers on area lakes, a creel survey is conducted to estimate the amount of fish harvested by sports anglers.

A creel survey is a sampling tool used to measure the fishing activities of the sport anglers and to estimate the amount of fish harvested on a body of water. Creel surveys are designed to have a creel clerk on a lake, work random shifts, and forty hours each week throughout the fishing season. Each month these shifts cover a sample of all the daylight hours. Creel clerks travel their lakes using a boat, snowmobile or vehicle to count and to interview anglers.

The information collected from anglers during the interview includes the species of fish being targeted, catch and harvest, lengths of harvested fish, and hours of fishing effort. Typically only anglers that have completed their fishing trip are interviewed because it provides the most accurate information and it avoids the need to disturb anglers while they are fishing.

You may have encountered one of the DNR creel clerks on a recent fishing trip. The survey only takes a moment of your time and we appreciate your cooperation during an interview. The information collected gives the DNR valuable knowledge required for management of the fishery.

The data collected during the survey is processed by a computer program and summarized by month to calculate estimates of the total fishing pressure, fishing effort directed at each species, catch and harvest rates, and the number of fish caught and harvested.

This creel survey report will provide you with four types of estimated information for this body of water:

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

Also included in this report are physical information about the lake, discussion of results of this survey and detailed summaries by species.

GENERAL LAKE INFORMATION

Location

Diamond Lake is located in southeastern Bayfield County, and northeast of the town of Cable. The public boat landing is located on the south end of the lake, off of Pioneer Rd.

Physical Characteristics

Diamond Lake is a 341 acre drainage lake. The lake has a maximum depth of 83 feet, and the water is moderately clear.

Seasons Surveyed

An open water creel survey was conducted from opening day of gamefish season on May 2, 2015 and ran through the end of October. Winter creel was conducted from December 1st through the close of the gamefish season on March 6, 2016.

Harvest Regulations

The following seasons, daily bag limits, and length limits were in place on this lake in 2015-2016:

<u>Species</u>	<u>Season</u>	<u>Bag Limit</u>	<u>Min. Size</u>
Walleye*	05/02-03/06	3	15"
Largemouth Bass	05/02-03/06	5	14"
Smallmouth Bass	06/20-03/06	5	14"
Muskellunge	05/02-11/30	1	40"
Northern Pike	05/02-03/06	2	26"
Panfish	all year	25	none

*15" minimum length limit, 20"-24" protected slot, only 1>24" may be kept.

SPECIES CATCH AND HARVEST INFORMATION

Angling information is summarized on a single page for each species. If a page for a particular species is not present in this section it is because no one reported fishing

for that species and/or none were caught. Each species page has up to five graphs covering the following:

FIGURE 1

ESTIMATED DIRECTED FISHING EFFORT

Total calculated number of hours during each month that anglers spent fishing for this species.

FIGURE 2

ESTIMATED DIRECTED ANGLER CATCH AND HARVEST RATES

Calculated number of hours it takes an angler to catch or harvest a fish of this species. Only information from anglers who were **specifically** targeting this species is reported here.

FIGURE 3

ESTIMATED TOTAL ANGLER CATCH AND HARVEST

Calculated number of fish of this species caught or harvested by all anglers. This estimate also includes **incidental** catch and harvest of fish by anglers that were not specifically targeting this species.

FIGURE 4

LENGTH DISTRIBUTION OF HARVESTED FISH MEASURED BY CLERK

All fish of this species measured by the clerk during the entire creel survey season.

FIGURE 5

AVERAGE LENGTH AND LARGEST FISH HARVESTED

Average length and the largest fish of this species harvested each month. Only those fish measured by the creel clerk are reported here.

Seasonal Angler Effort Summary

The table provides a summary by month of the total angler hours and total angler hours per acre. Also, the table compares county average and ceded territory average to current survey results.

ACKNOWLEDGEMENTS

The completion of this survey was possible because of the efforts of the following Treaty Assessment Staff: Gene Hatzenbeler, Todd Brecka, Misty Rood, Jill Sunderland, Mac McInroy, and Jake Jacobson. We would especially like to recognize the efforts of our creel clerks Mark Murray and Cala Hakseth (summer) and Mike Christner (winter) who collected the angler interviews.

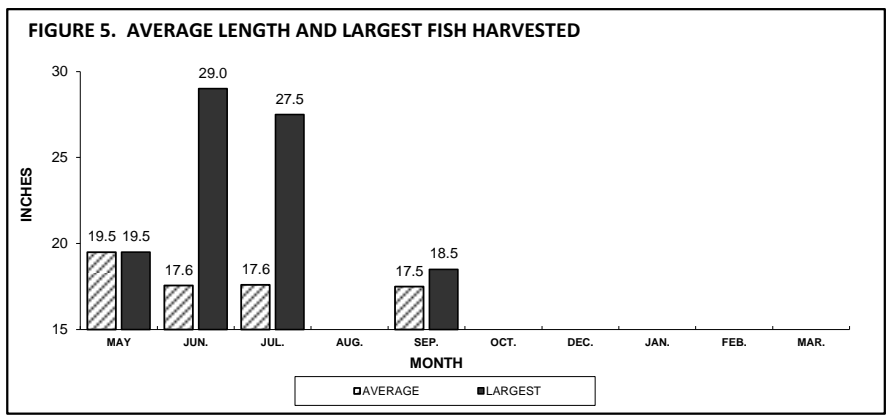
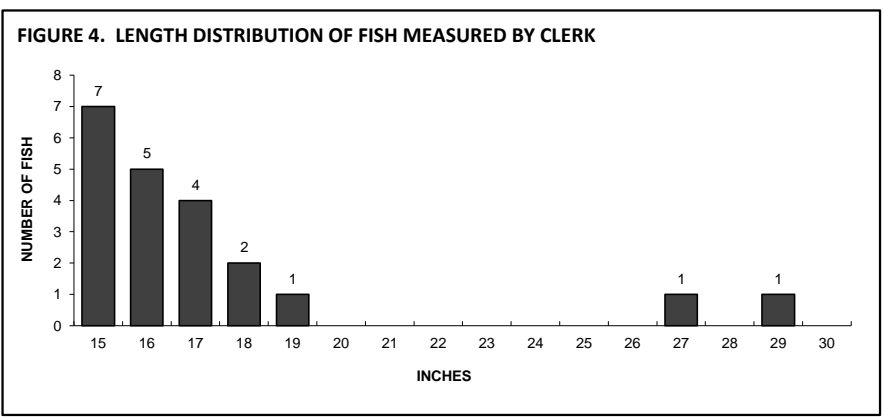
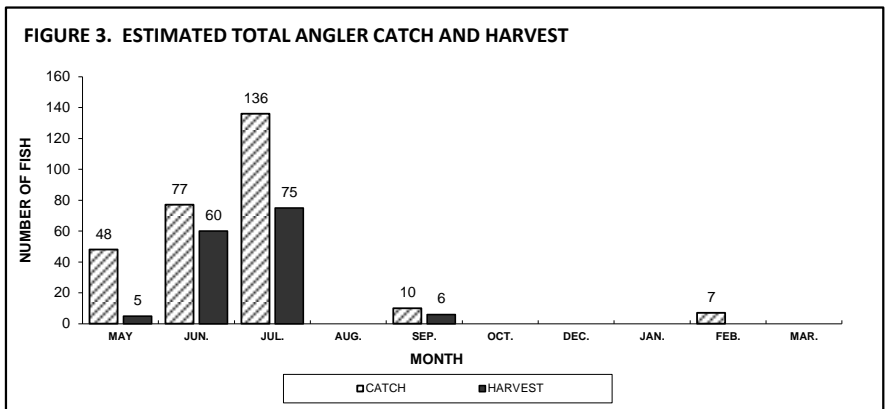
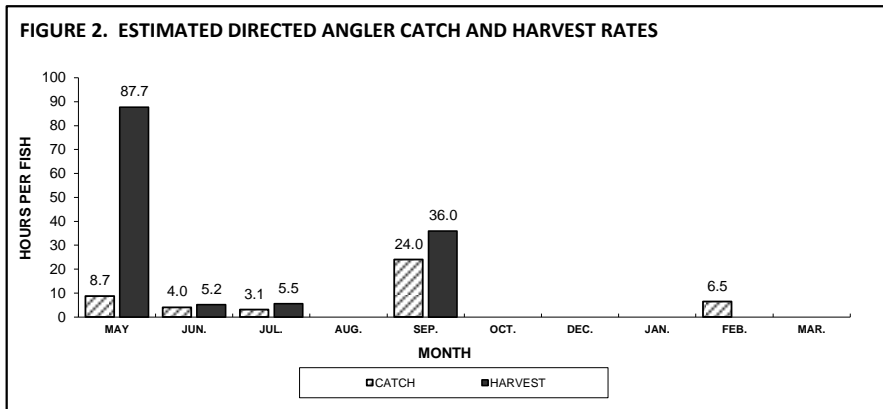
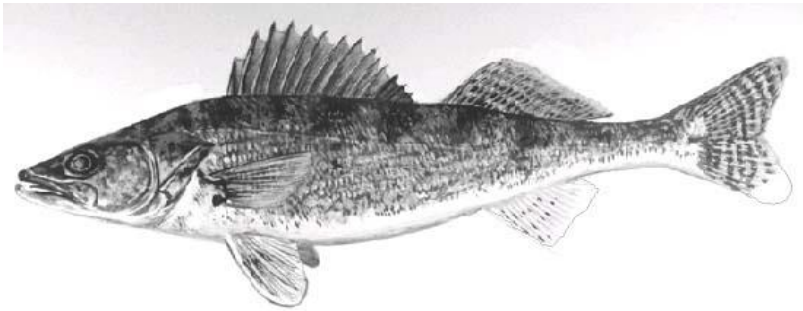
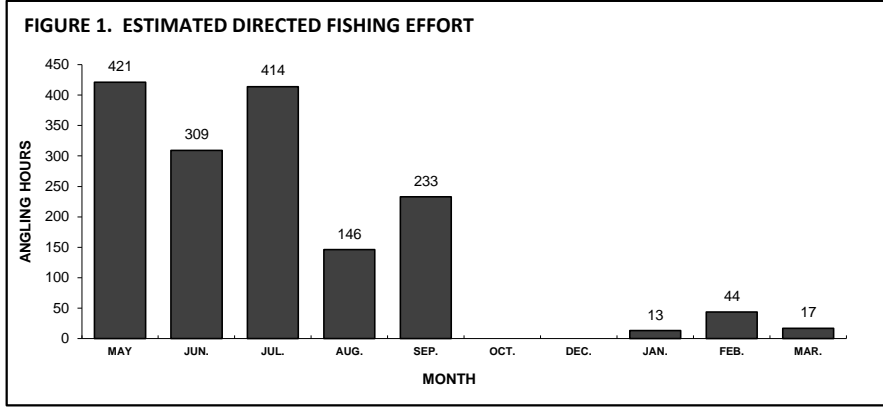
The Department would like to thank Chris and Dorothy Melland. They generously allowed the department to keep a boat at their property during this survey.

We would also like to thank all the anglers who took the time to offer information about their fishing trip to the survey clerk. Without your cooperation this survey would not have been possible.

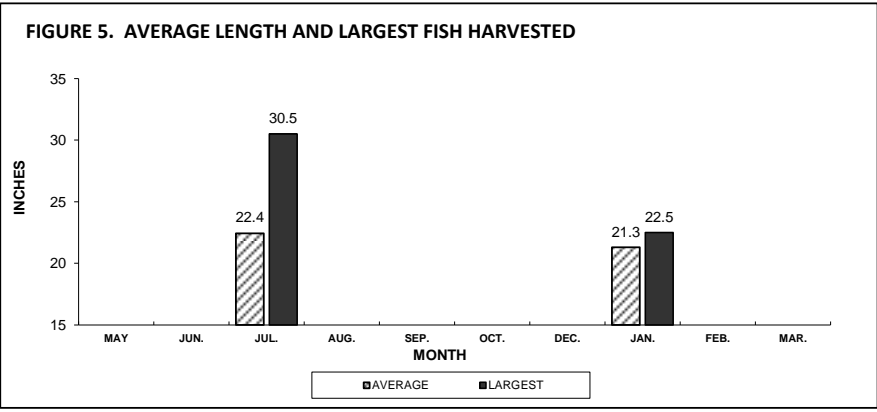
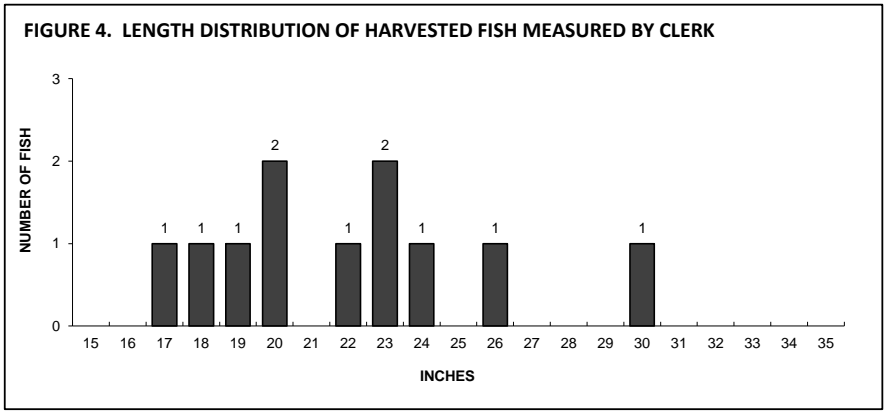
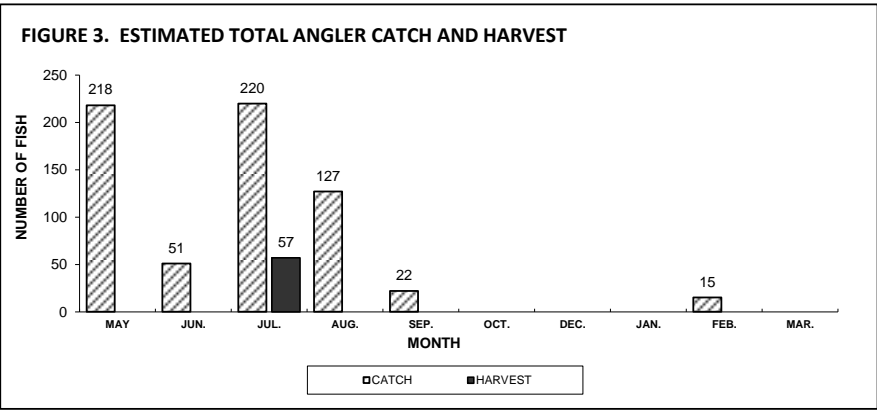
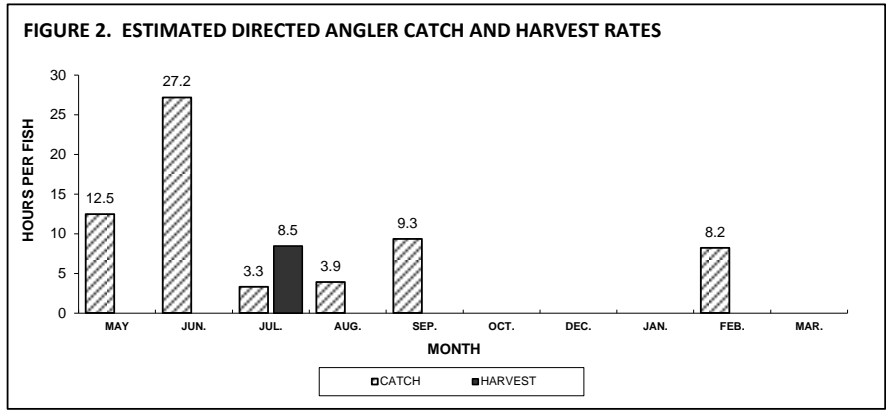
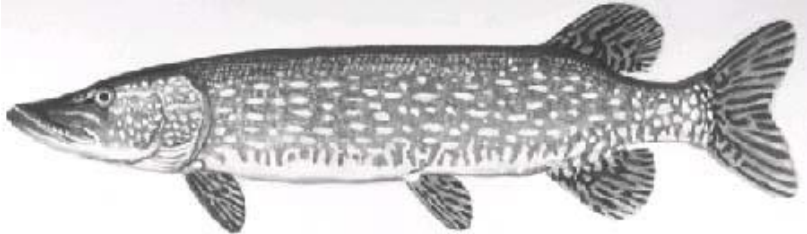
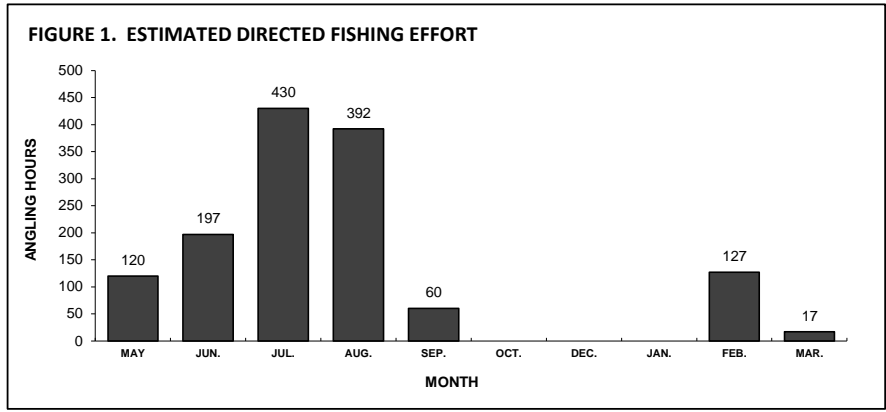
Additional copies of this report and those covering other local lakes can be obtained from the Treaty Fisheries Biologist in Spooner or WDNR Webpage.

Questions about the report can be directed to
Gene Hatzenbeler
WDNR Spooner Office
810 W. Maple Street
Spooner, WI 54801
Phone: (715)635-4164
Email: Gene.Hatzenbeler@Wisconsin.gov

WALLEYE



NORTHERN PIKE



MUSKELLUNGE

FIGURE 1. ESTIMATED DIRECTED FISHING EFFORT

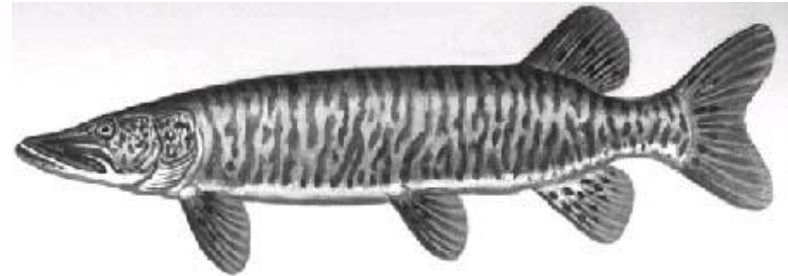
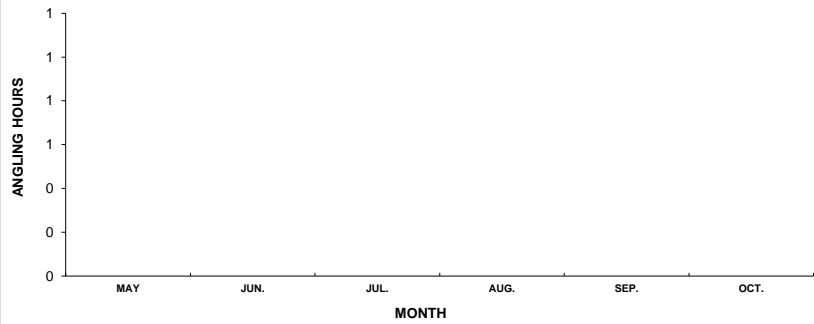


FIGURE 2. ESTIMATED DIRECTED ANGLER CATCH AND HARVEST RATES

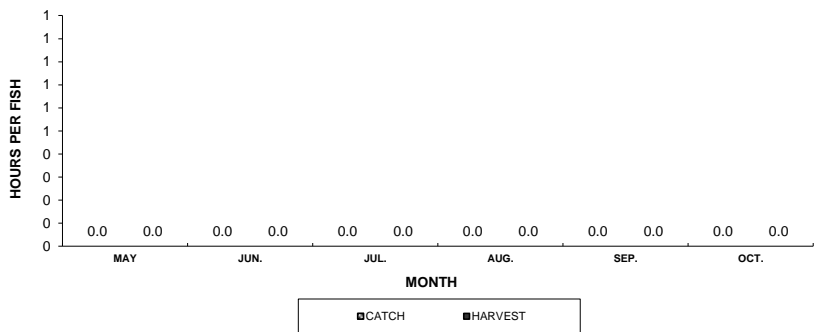


FIGURE 3. ESTIMATED TOTAL ANGLER CATCH AND HARVEST

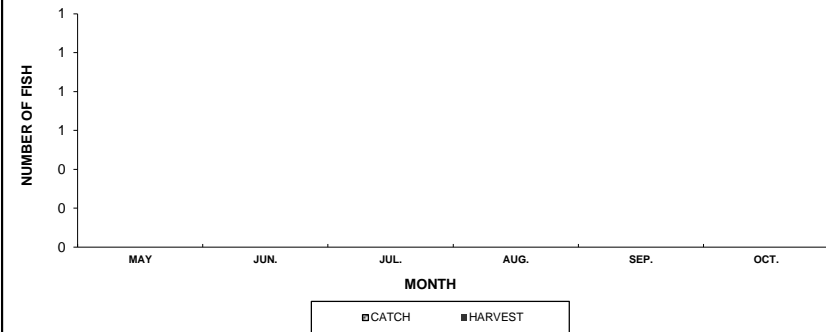


FIGURE 4. LENGTH DISTRIBUTION OF HARVESTED FISH MEASURED BY CLERK

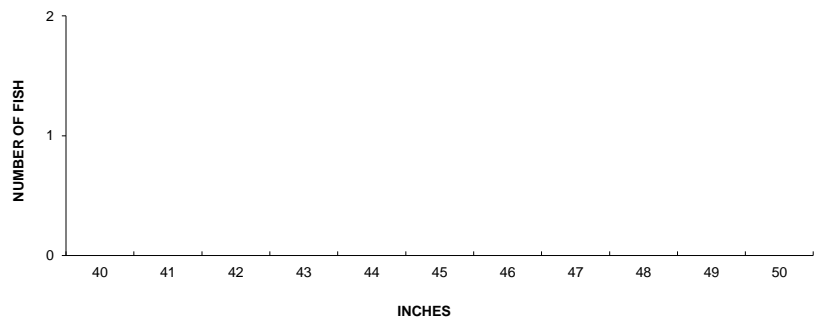
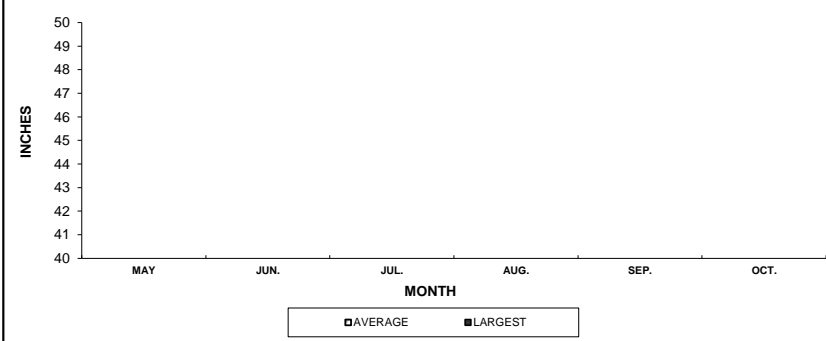


FIGURE 5. AVERAGE LENGTH AND LARGEST FISH HARVESTED



SMALLMOUTH BASS

FIGURE 1. ESTIMATED DIRECTED FISHING EFFORT

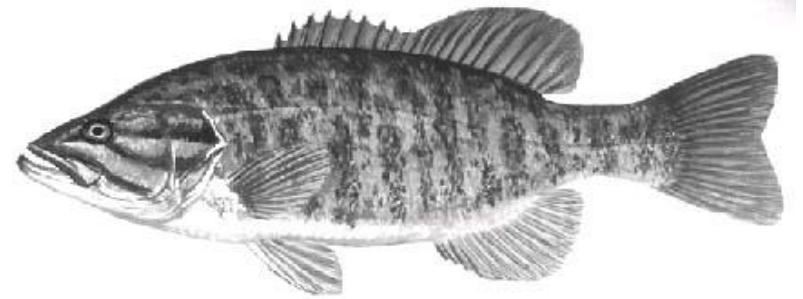
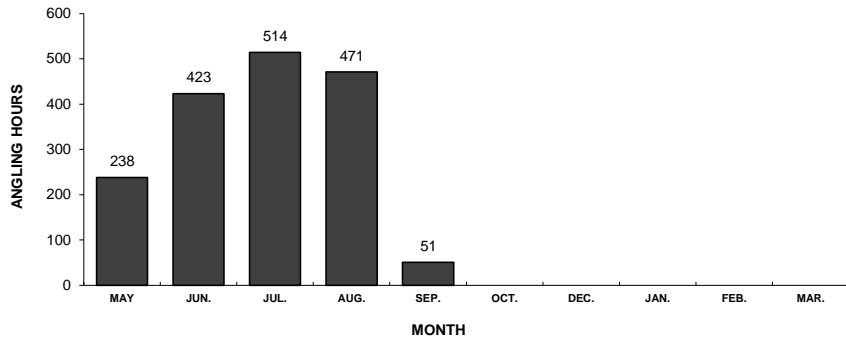


FIGURE 2. ESTIMATED DIRECTED ANGLER CATCH AND HARVEST RATES

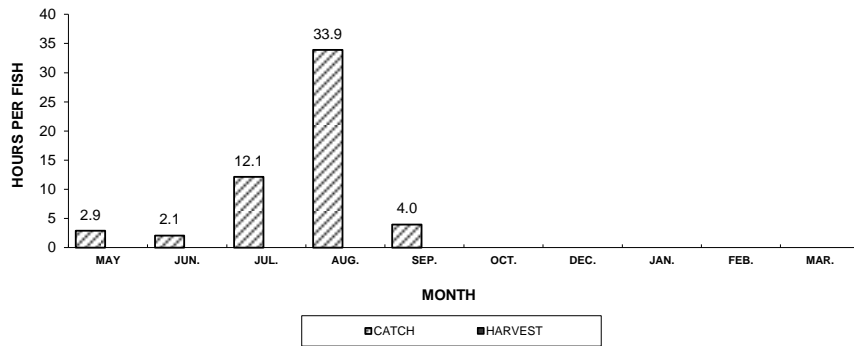


FIGURE 3. ESTIMATED TOTAL ANGLER CATCH AND HARVEST

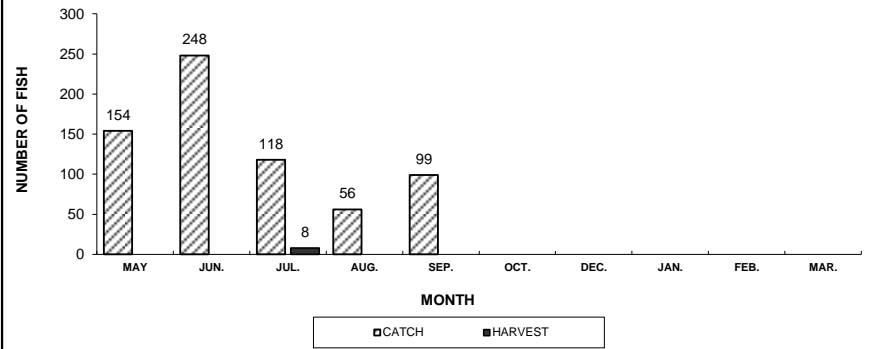


FIGURE 4. LENGTH DISTRIBUTION OF HARVESTED FISH MEASURED BY CLERK

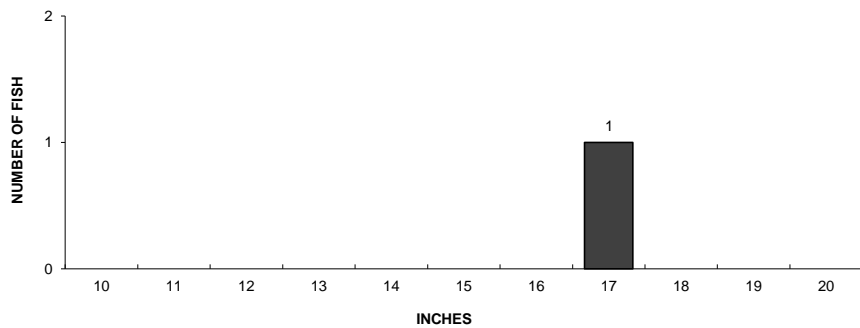
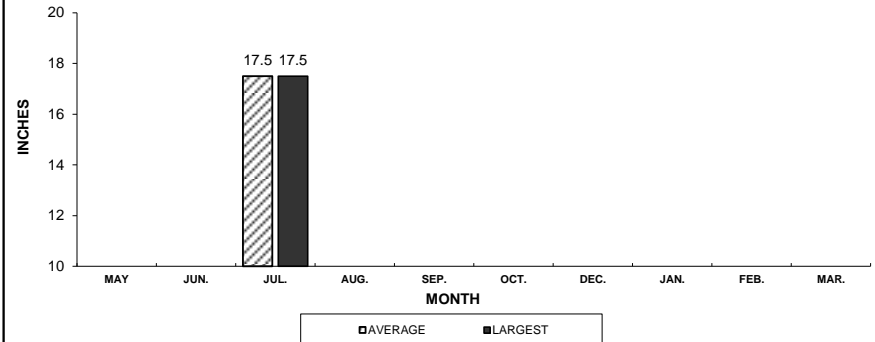


FIGURE 5. AVERAGE LENGTH AND LARGEST FISH HARVESTED



LARGEMOUTH BASS

FIGURE 1. ESTIMATED DIRECTED FISHING EFFORT

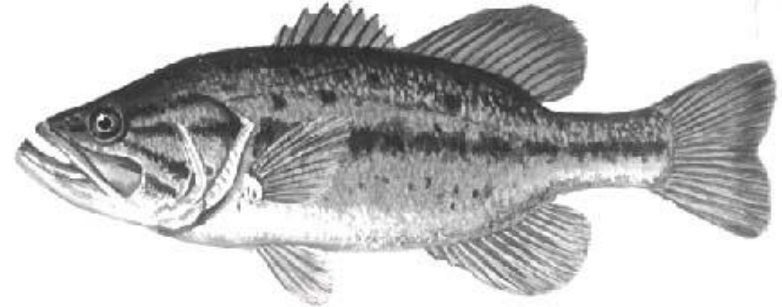
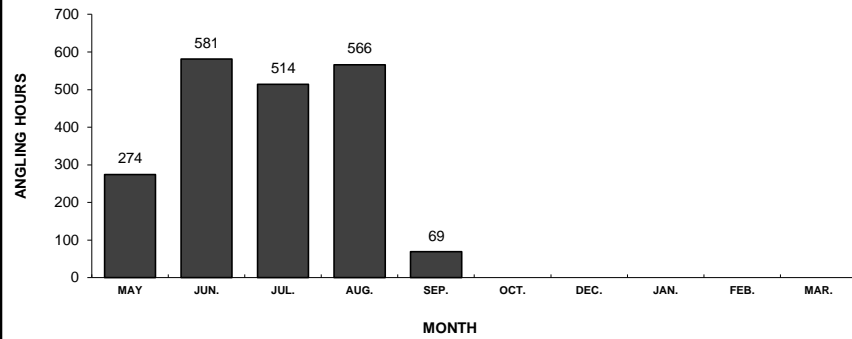


FIGURE 2. ESTIMATED DIRECTED ANGLER CATCH AND HARVEST RATES

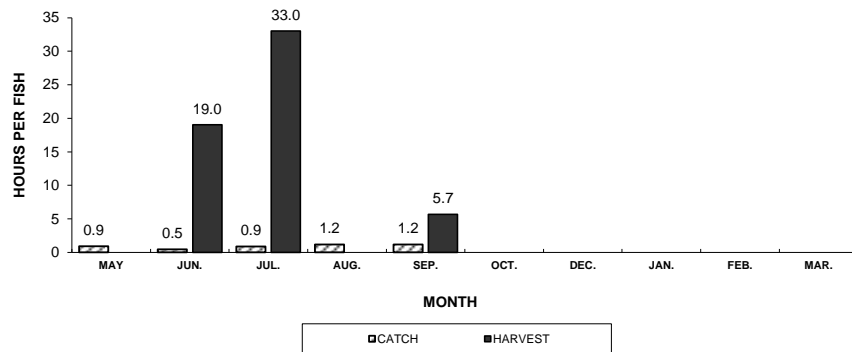


FIGURE 3. ESTIMATED TOTAL ANGLER CATCH AND HARVEST

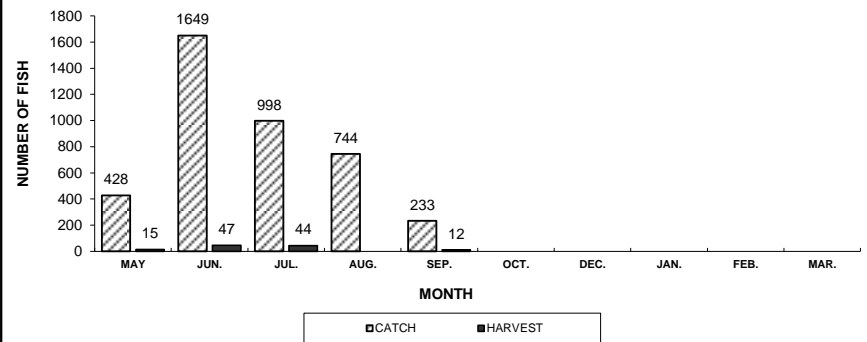


FIGURE 4. LENGTH DISTRIBUTION OF HARVESTED FISH MEASURED BY CLERK

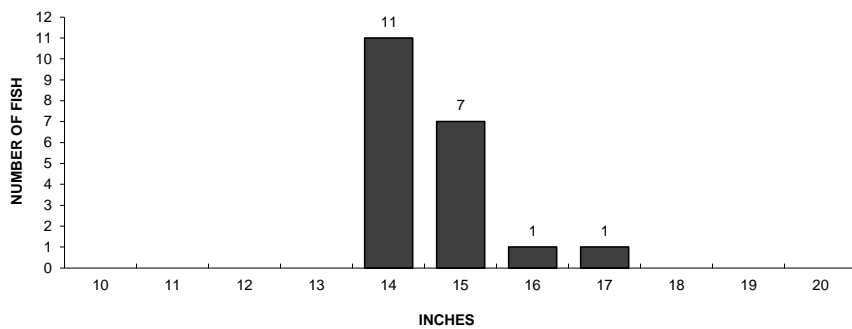
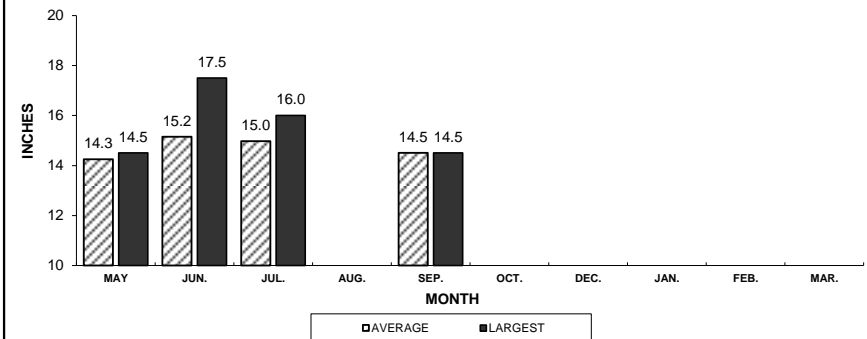


FIGURE 5. AVERAGE LENGTH AND LARGEST FISH HARVESTED



BLUEGILL

FIGURE 1. ESTIMATED DIRECTED FISHING EFFORT

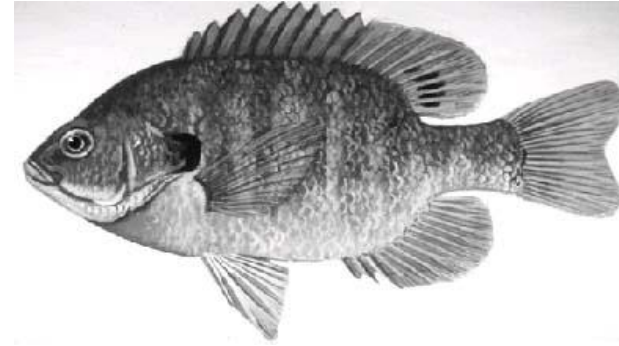
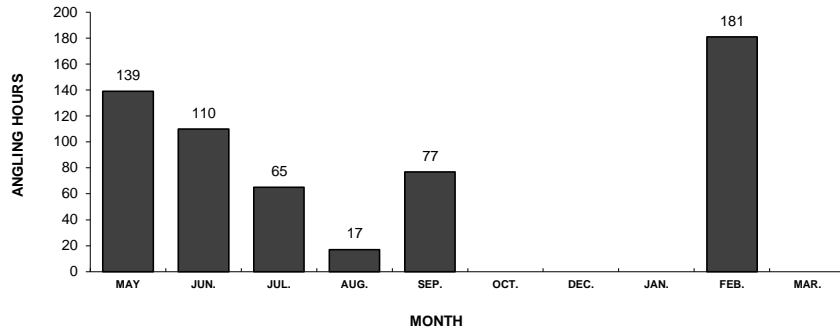


FIGURE 2. ESTIMATED DIRECTED ANGLER CATCH AND HARVEST RATES

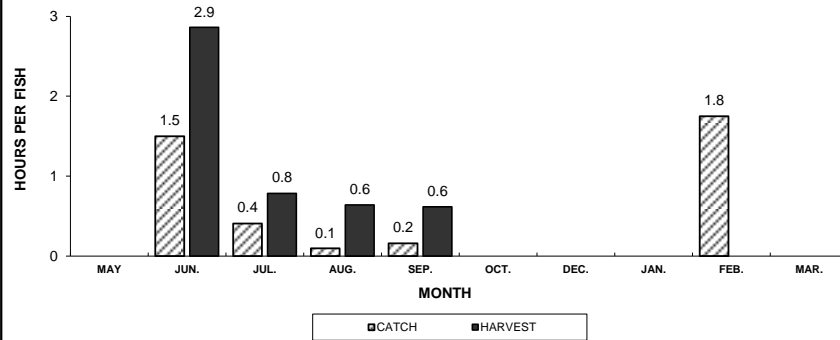


FIGURE 3. ESTIMATED TOTAL ANGLER CATCH AND HARVEST

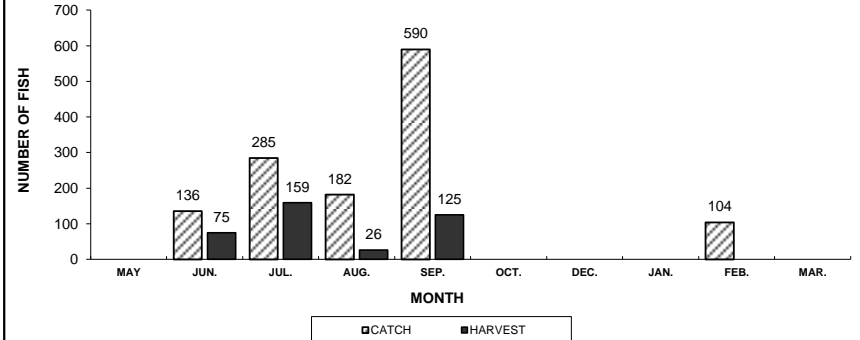


FIGURE 4. LENGTH DISTRIBUTION OF HARVESTED FISH MEASURED BY CLERK

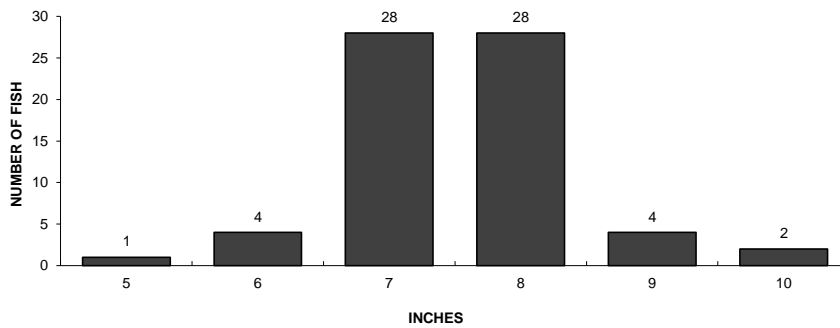
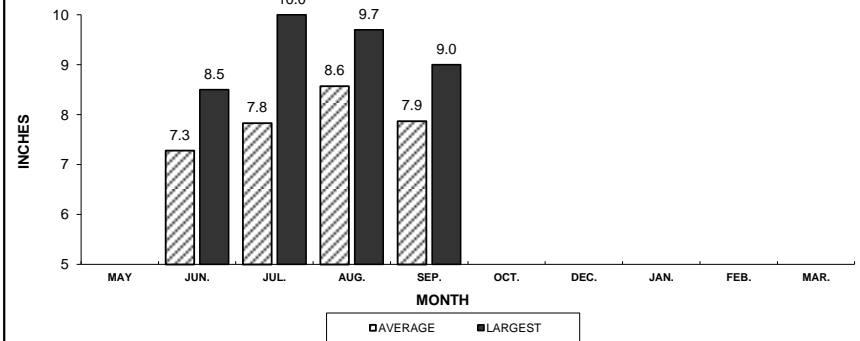


FIGURE 5. AVERAGE LENGTH AND LARGEST FISH HARVESTED



PUMPKINSEED

FIGURE 1. ESTIMATED DIRECTED FISHING EFFORT

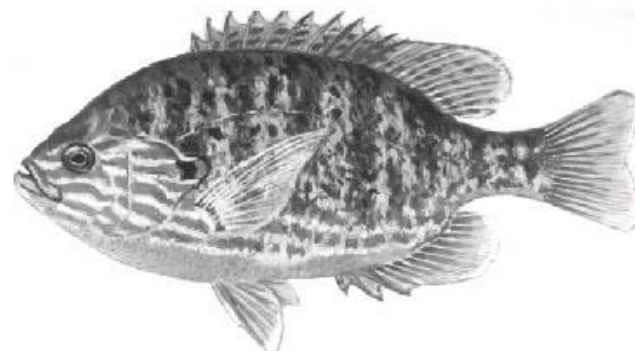
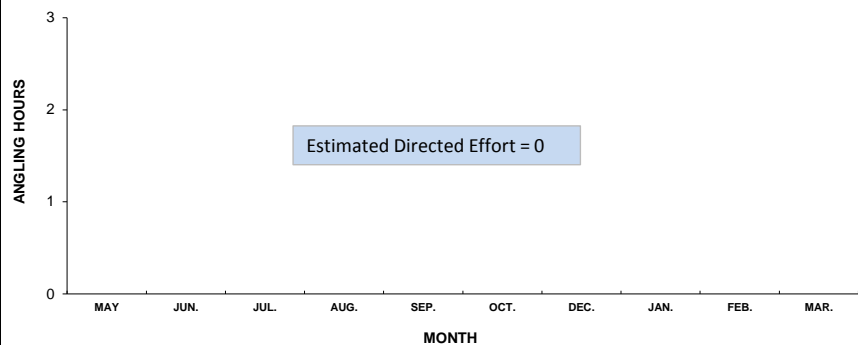


FIGURE 2. ESTIMATED DIRECTED ANGLER CATCH AND HARVEST RATES

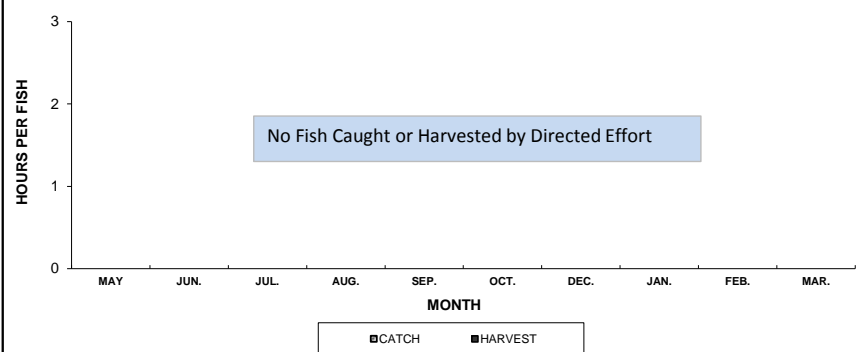


FIGURE 3. ESTIMATED TOTAL ANGLER CATCH AND HARVEST

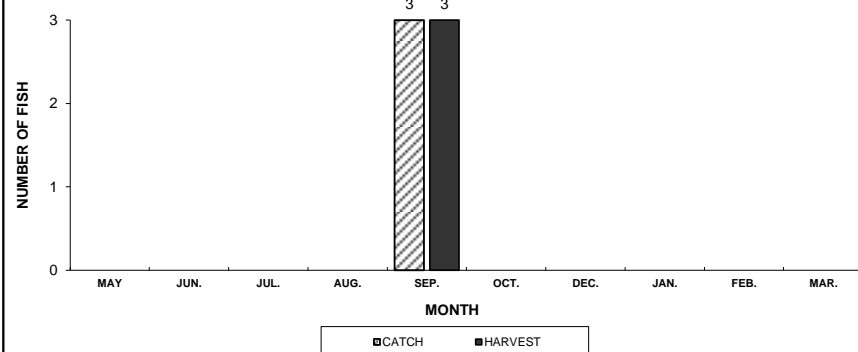


FIGURE 4. LENGTH DISTRIBUTION OF HARVESTED FISH MEASURED BY CLERK

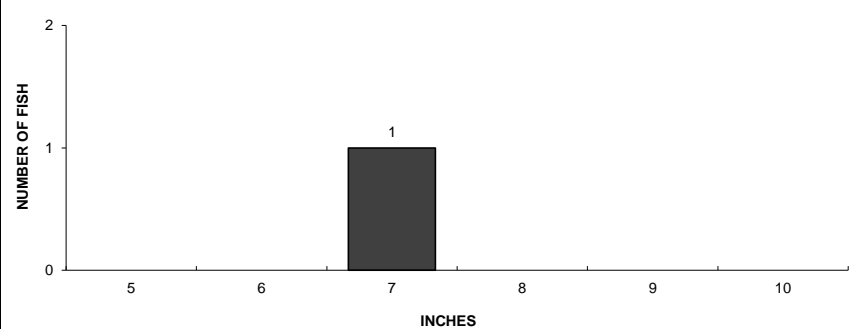
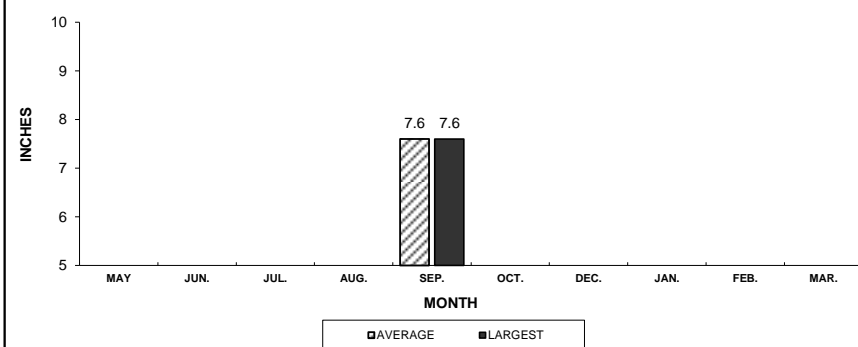


FIGURE 5. AVERAGE LENGTH AND LARGEST FISH HARVESTED



BLACK CRAPPIE

FIGURE 1. ESTIMATED DIRECTED FISHING EFFORT

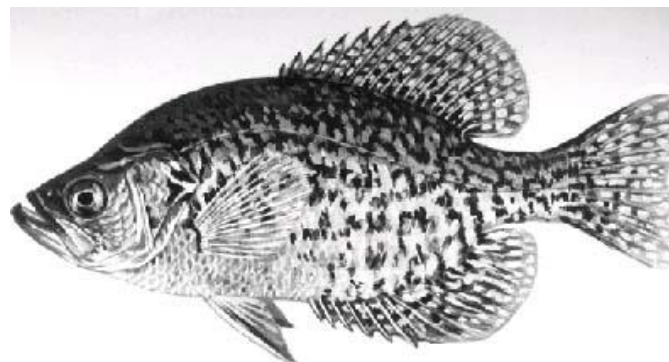
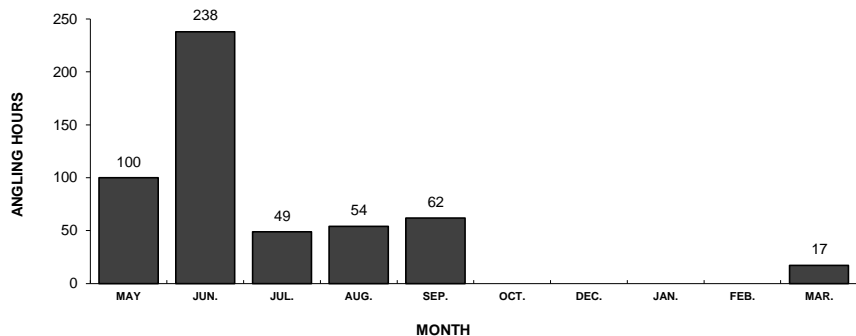


FIGURE 2. ESTIMATED DIRECTED ANGLER CATCH AND HARVEST RATES

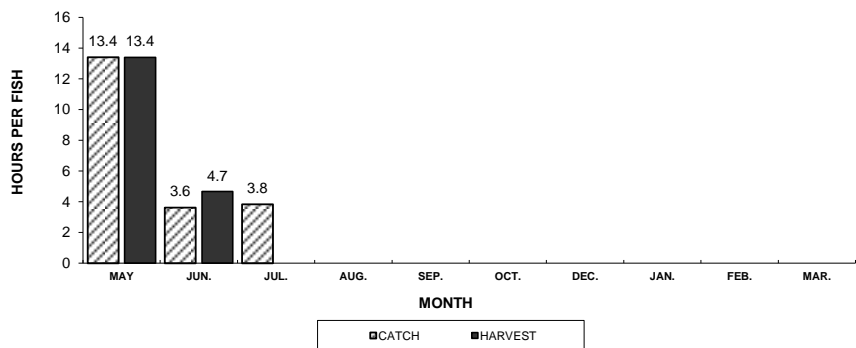


FIGURE 3. ESTIMATED TOTAL ANGLER CATCH AND HARVEST

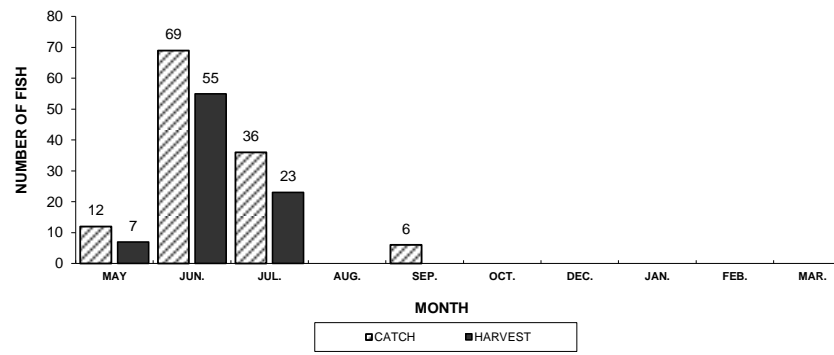


FIGURE 4. LENGTH DISTRIBUTION OF HARVESTED FISH MEASURED BY CLERK

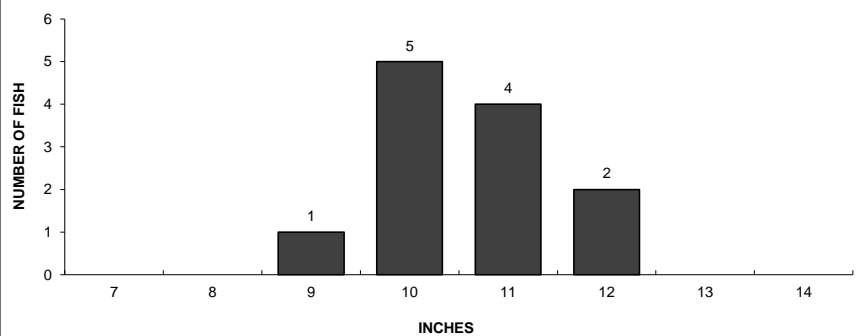
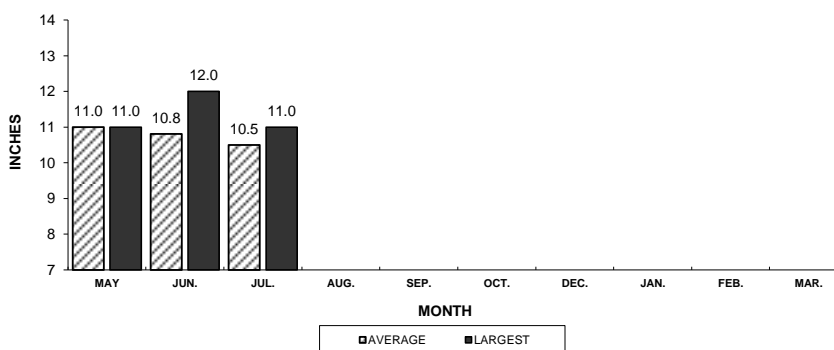


FIGURE 5. AVERAGE LENGTH AND LARGEST FISH HARVESTED



YELLOW PERCH

FIGURE 1. ESTIMATED DIRECTED FISHING EFFORT

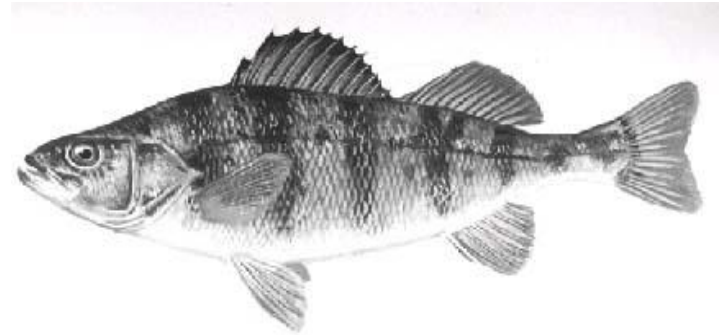
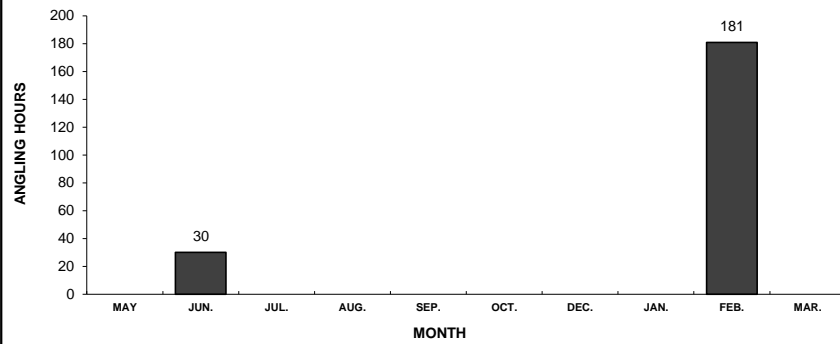


FIGURE 2. ESTIMATED DIRECTED ANGLER CATCH AND HARVEST RATES

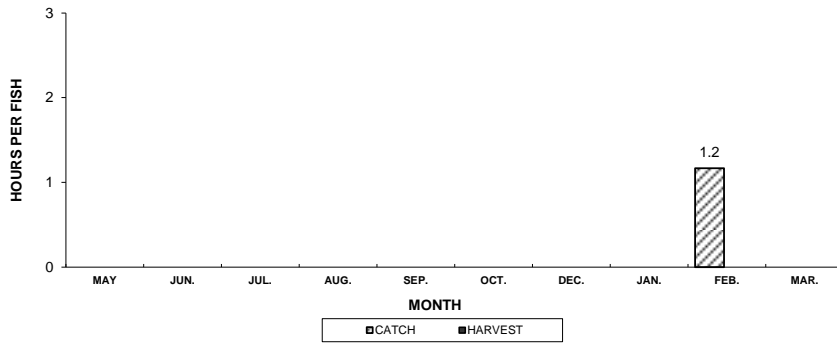


FIGURE 3. ESTIMATED TOTAL ANGLER CATCH AND HARVEST

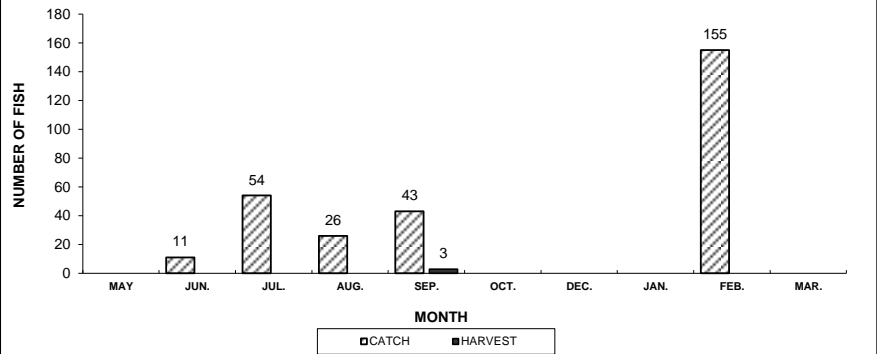


FIGURE 4. LENGTH DISTRIBUTION OF HARVESTED FISH MEASURED BY CLERK

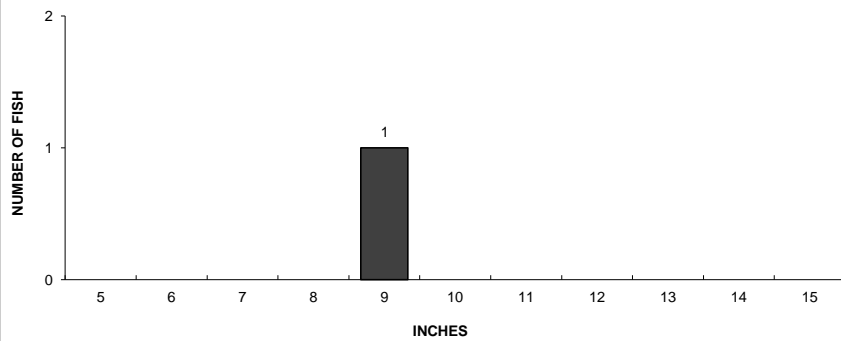
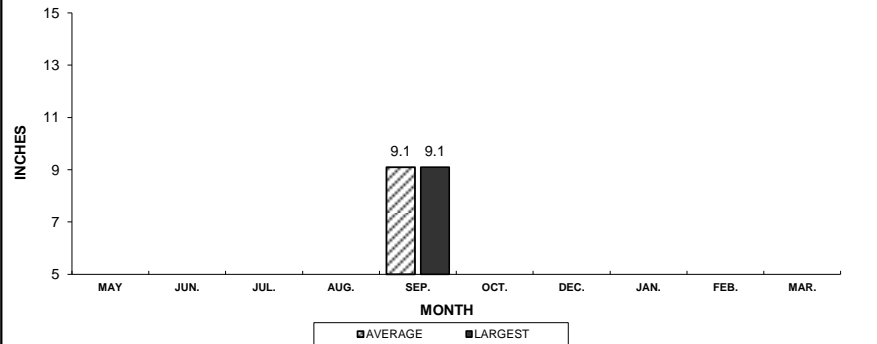


FIGURE 5. AVERAGE LENGTH AND LARGEST FISH HARVESTED



FISH NAME (IN CUSTOM HEADER)

FIGURE 1. ESTIMATED DIRECTED FISHING EFFORT

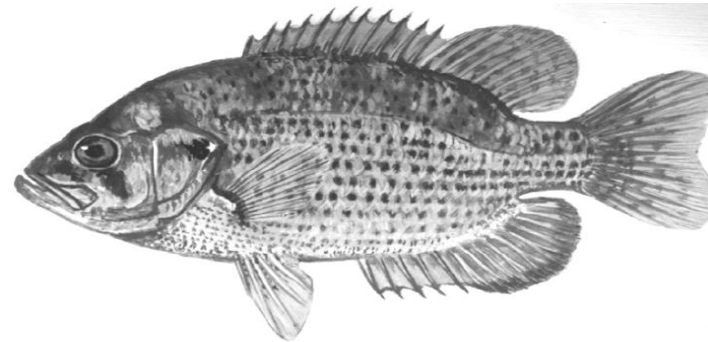
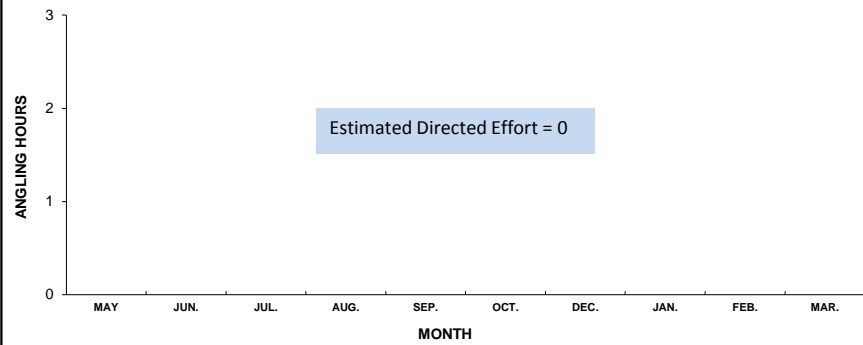


FIGURE 2. ESTIMATED DIRECTED ANGLER CATCH AND HARVEST RATES

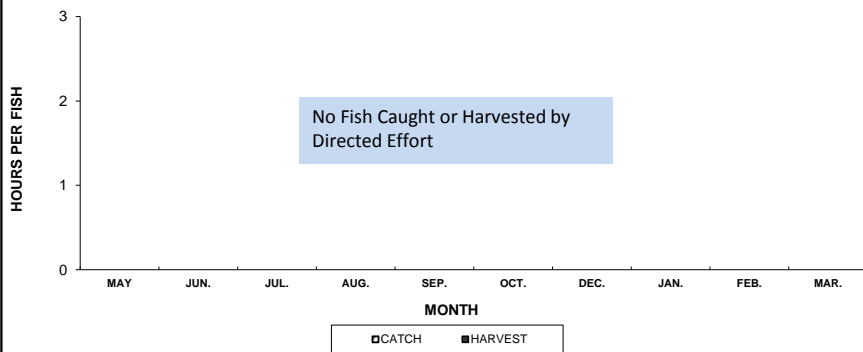


FIGURE 3. ESTIMATED TOTAL ANGLER CATCH AND HARVEST

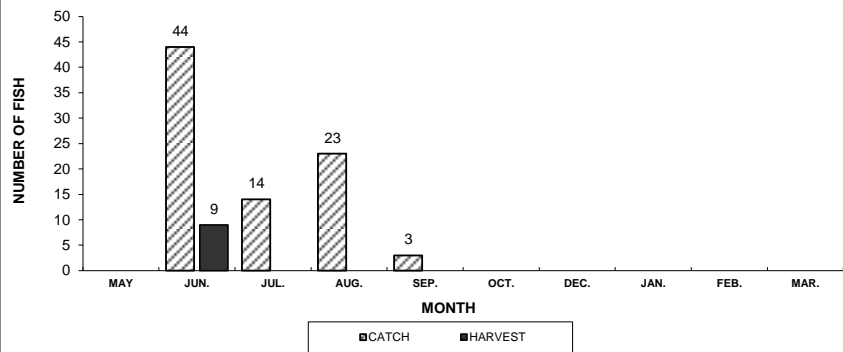


FIGURE 4. LENGTH DISTRIBUTION OF HARVESTED FISH MEASURED BY CLERK

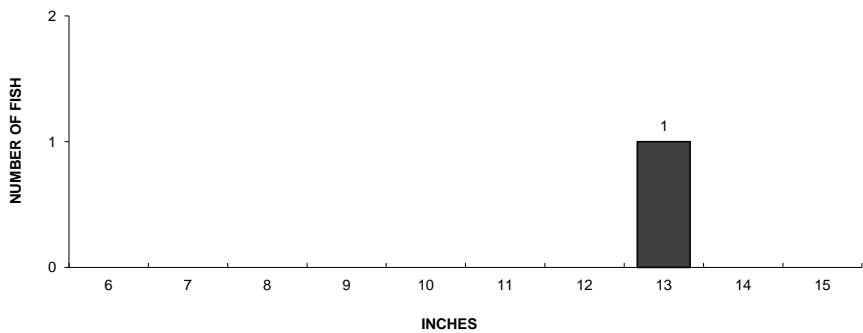
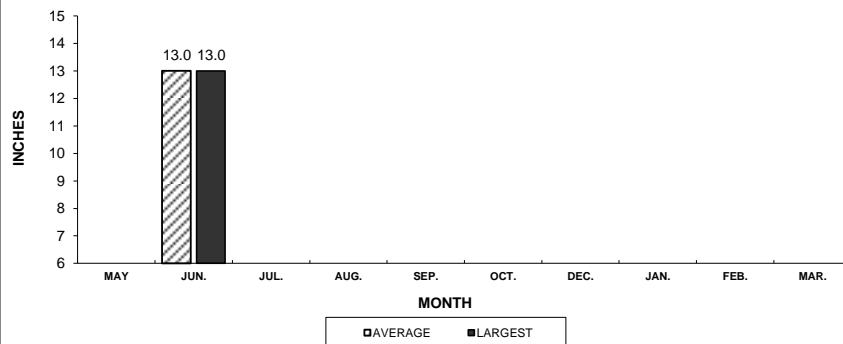
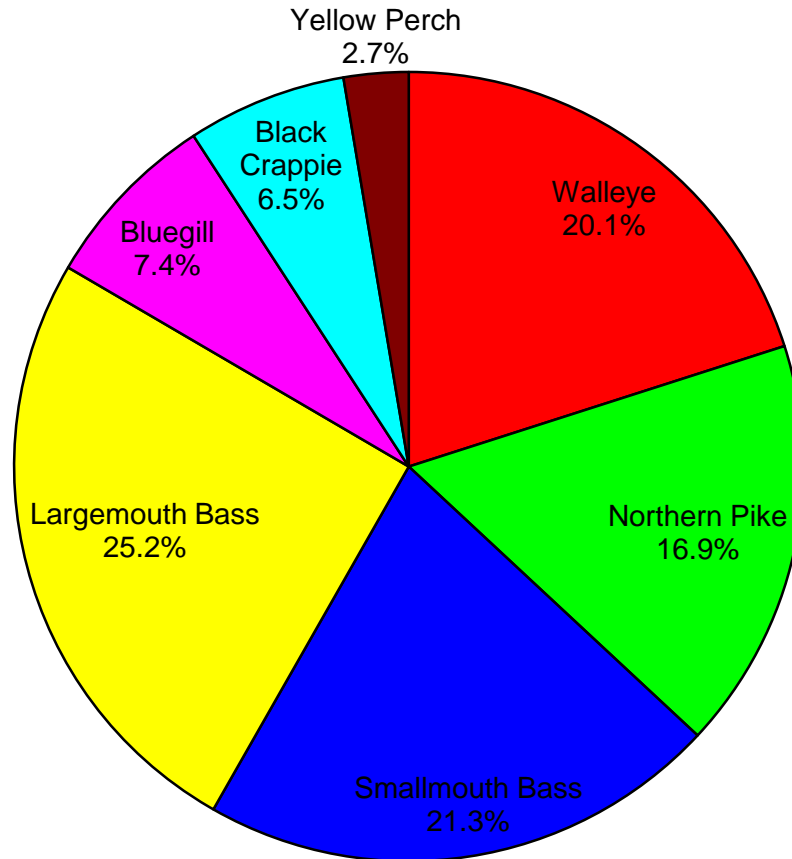


FIGURE 5. AVERAGE LENGTH AND LARGEST FISH HARVESTED



TOTAL ANNUAL ANGLER DIRECTED EFFORT BY SPECIES Diamond Lake 2015-16

This graph illustrates the percentage of time that anglers spent fishing for each species during the entire creel survey. The percentages are based on the species of fish anglers told the clerk they were fishing for, not what they actually caught. If a particular species is not present in the graph it is because no one reported they were fishing for that species.



SEASONAL ANGLER EFFORT SUMMARY

2015-16

Estimated angler fishing effort on Diamond Lake for each month surveyed and by season(Summer and Winter).

Month	Number of Angler Party Interviews	Total Angler Hours	Total Angler Hours/Acre	Bayfield County Average Hours/Acre	Ceded Territory Average Hours/Acre
May	44	735	2.2	3.5	5.1
June	42	1065	3.1	5.3	6.4
July	44	923	2.7	5.5	6.9
August	44	711	2.1	4.2	5.4
September	40	331	1.0	2.3	3.3
October	36	46	0.1	1.1	1.5
December	27	0	0.0	0.6	1.1
January	37	13	0.0	0.8	1.6
February	32	308	0.9	0.8	1.5
March	4	17	0.0		0.2
*Summer Total	250	3811	11.2	21.9	28.6
*Winter Total	100	337	1.0	2.3	4.4
Grand Total	350	4148	12.2	24.1	33.0

*"Summer" is May-October; "Winter" is December-March

*March includes only data collected to the end of the gamefish season.

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 this 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 if you wish to compare effort on this lake to others.

County Average Hours/Acre is the average angler effort in hours per acre for county lakes that have been surveyed since 1990. This value can be useful in comparisons as well.

Ceded Territory Average Hours/Acre is the average angler effort in hours per acre for inland lakes in the ceded territory surveyed between 1990 and 2013. This value can be used to compare this lake to other lakes in the ceded territory.

CREEL SURVEY HISTORY/SYNOPSIS

DIAMOND LAKE, BAYFIELD COUNTY

CREEL YEAR: 2015-16

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	1597	20.1%	278	5.8	146	10.9	17.7
Northern Pike	1343	16.9%	653	5.0	57	26.5	22.2
Smallmouth Bass	1697	21.3%	675	4.8	8		17.5
Largemouth Bass	2004	25.2%	4052	0.7	118	34.4	14.9
Bluegill	589	7.4%	1297	0.6	385	2.2	7.8
Pumpkinseed	0	0.0%	3		3		7.6
Black Crappie	520	6.5%	123	6.1	85	8.9	10.8
Yellow Perch	211	2.7%	289	1.4	3		9.1
Rock Bass	0	0.0%	84		9		13.0

CREEL YEAR 2012-13

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	1784	21.8%	173	11.1	94	20.0	16.1
Northern Pike	1033	12.6%	899	2.3	0		0.0
Smallmouth Bass	1719	21.0%	815	2.9	38	50.0	16.4
Largemouth Bass	2068	25.2%	3603	0.7	166	16.7	15.3
Bluegill	987	12.0%	3451	0.3	951	1.1	7.5
Pumpkinseed	44	0.5%	14	3.2	14	3.2	7.5
Black Crappie	458	5.6%	121	9.1	51	10.0	11.6
Yellow Perch	107	1.3%	106	6.3	37	8.3	8.7