

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

**MIDDLE EAU CLAIRE LAKE
BAYFIELD COUNTY**

2019-2020



Treaty Fisheries Publication

March 2020

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

Middle Eau Claire is located north of Hayward on Hwy 27 in Bayfield County.

Physical Characteristics

Middle Eau Claire is a drainage lake in the St. Croix River basin that covers 902 acres and has a maximum depth of 66 feet. There is one public boat landing located on the south end of the lake off Hwy 27.

Seasons Surveyed

An open water creel survey was conducted from opening day of gamefish season on May 4, 2019 and ran through the end of October. Winter creel was conducted from December 1st through the close of the gamefish season on March 1, 2020.

Harvest Regulations

The following seasons, daily bag limits, and length limits were in place on this lake in 2019-2020:

<u>Species</u>	<u>Season</u>	<u>Bag Limit</u>	<u>Min. Size</u>
Walleye	5/4-3/1	3	special*
Largemouth Bass	5/4-3/1	5	No Min
Smallmouth Bass	5/4-3/1	1	18 ^{**}
Muskellunge	5/25-11/30	1	40"
Northern Pike	5/4-3/1	5	none
Panfish	all year	10	none

* No minimum length limit, but walleye from 14"-18" may not be kept and only one over 18" is allowed.

**SMB catch and release 5/4-6/14, bag in combination with LMB from 06/15-03/1.

SPECIES CATCH AND HARVEST INFORMATION

Angling information is summarized on a single page for each species. If a page for a 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.

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

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, Bill Sobaski, Don Jacobson, Reed Miller, and Brooke Smith. We would especially like to recognize the efforts of our creel clerk Marty Kangas who collected the angler interviews.

The Department would like to thank Quentin and Helen Ruprecht. They generously allowed the department to keep a boat and snowmobile 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.

WALLEYE

FIGURE 1. ESTIMATED DIRECTED FISHING EFFORT

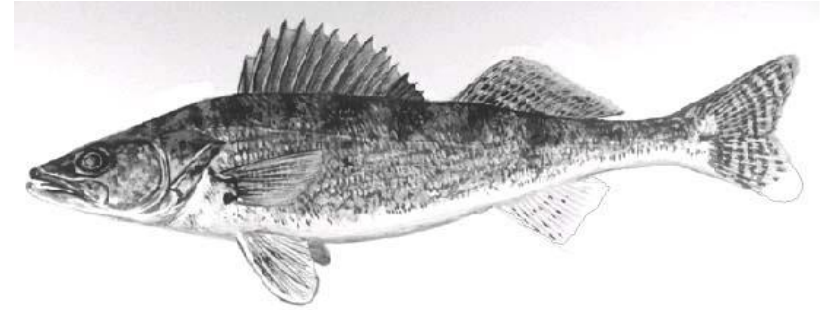
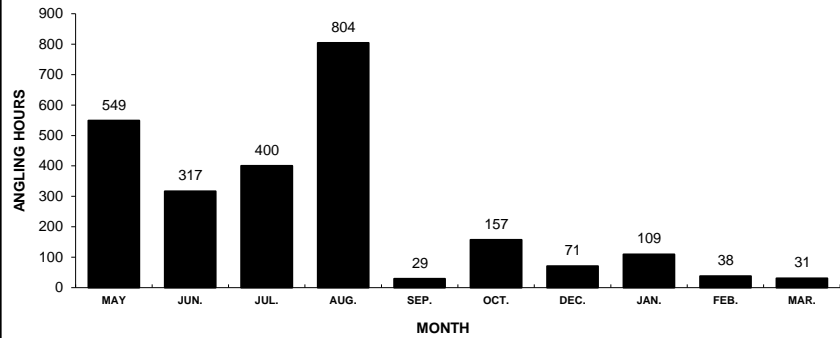


FIGURE 2. ESTIMATED DIRECTED ANGLER CATCH AND HARVEST RATES

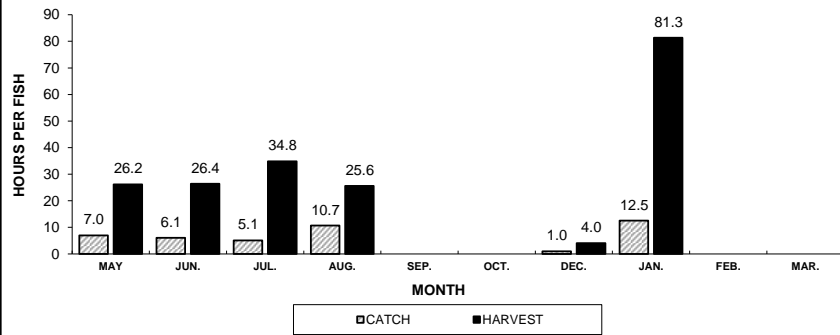


FIGURE 3. ESTIMATED TOTAL ANGLER CATCH AND HARVEST

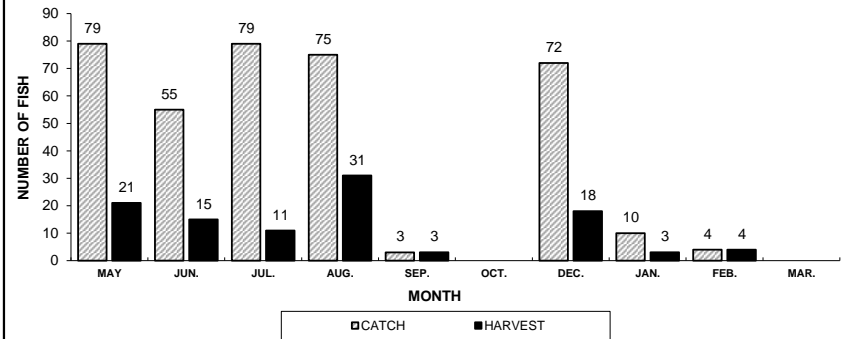


FIGURE 4. LENGTH DISTRIBUTION OF FISH MEASURED BY CLERK

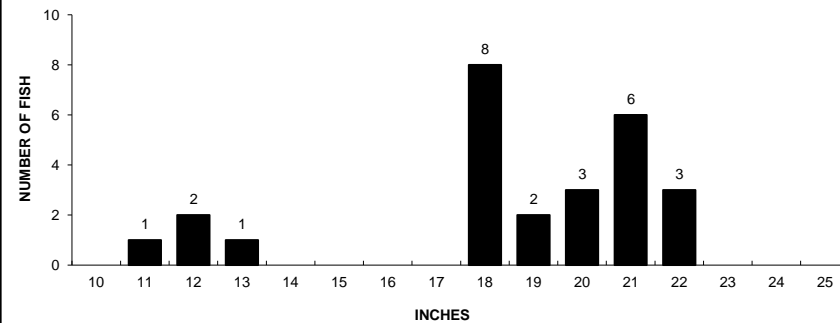
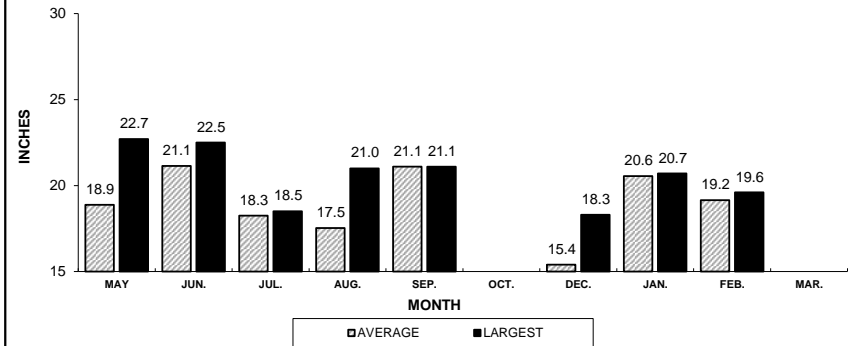


FIGURE 5. AVERAGE LENGTH AND LARGEST FISH HARVESTED



NORTHERN PIKE

FIGURE 1. ESTIMATED DIRECTED FISHING EFFORT

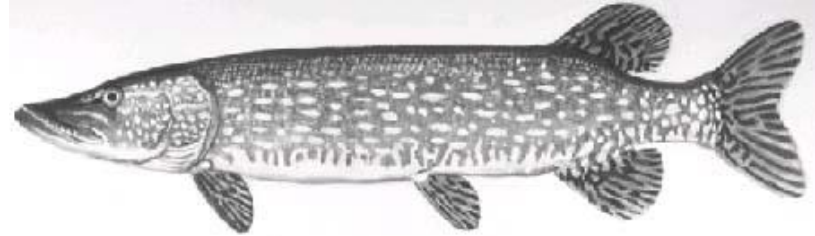
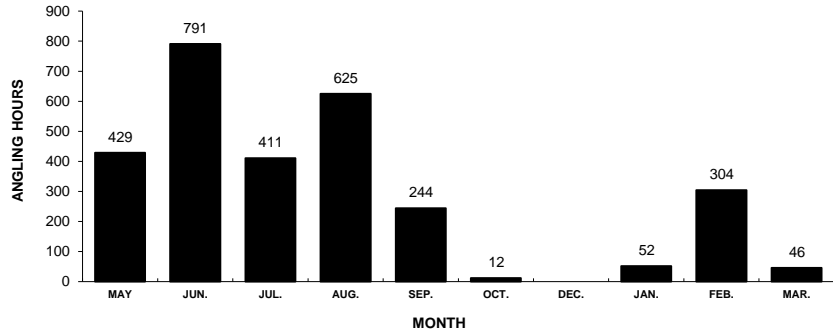


FIGURE 2. ESTIMATED DIRECTED ANGLER CATCH AND HARVEST RATES

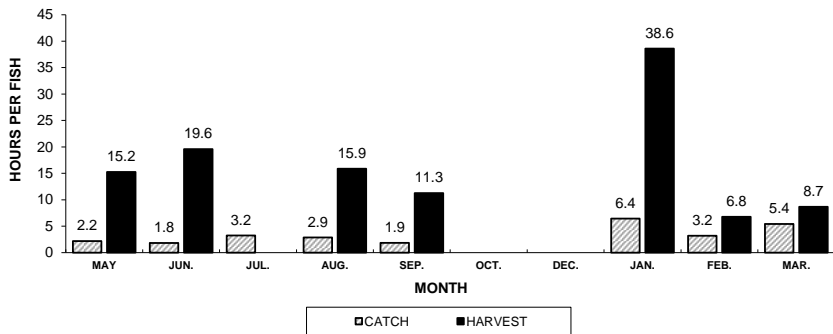


FIGURE 3. ESTIMATED TOTAL ANGLER CATCH AND HARVEST

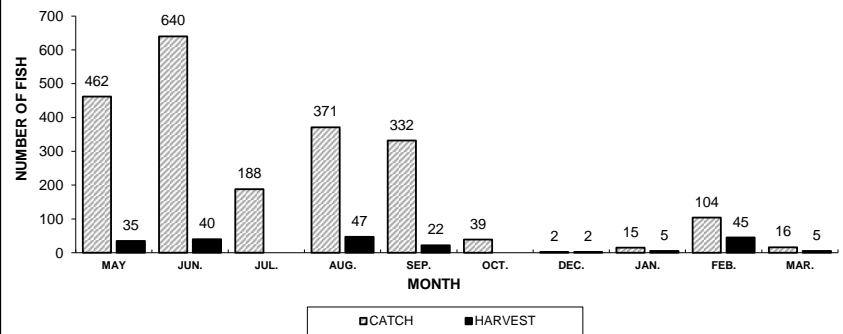


FIGURE 4. LENGTH DISTRIBUTION OF HARVESTED FISH MEASURED BY CLERK

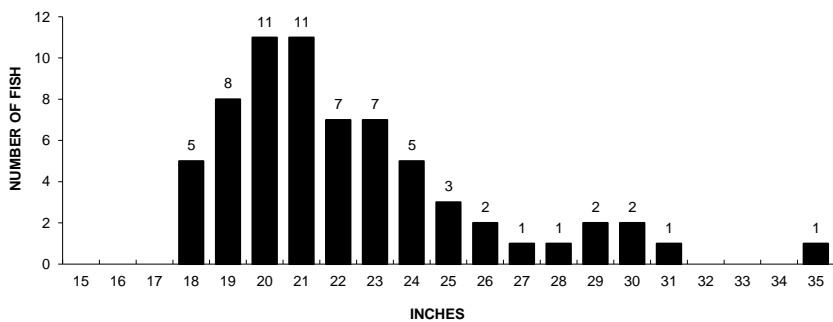
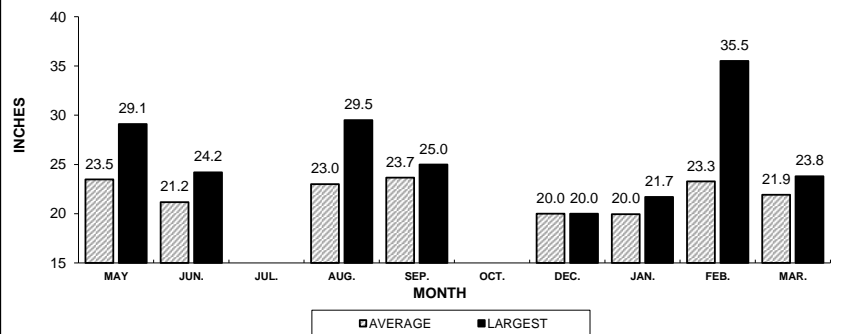
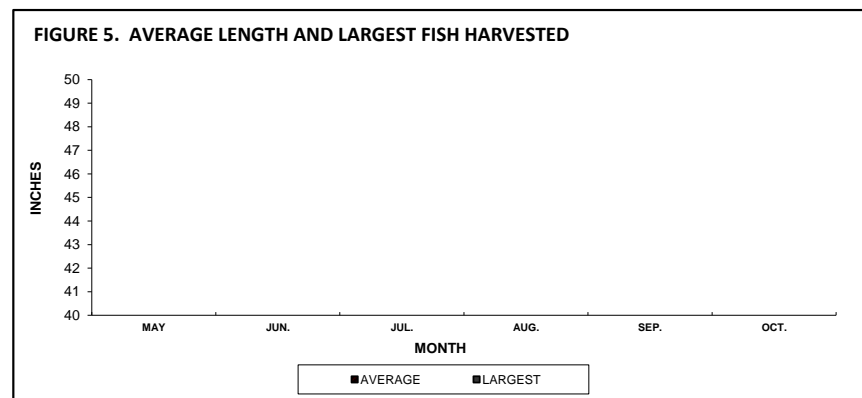
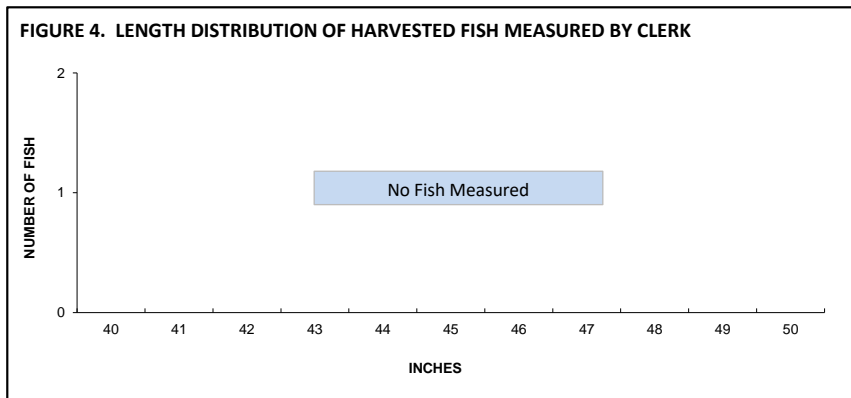
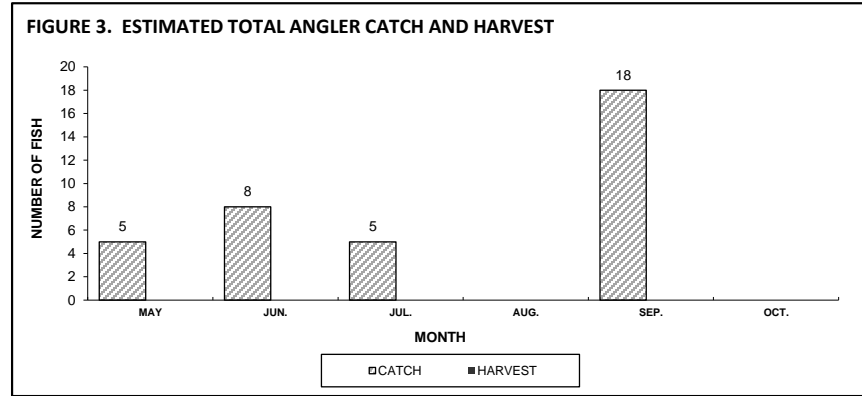
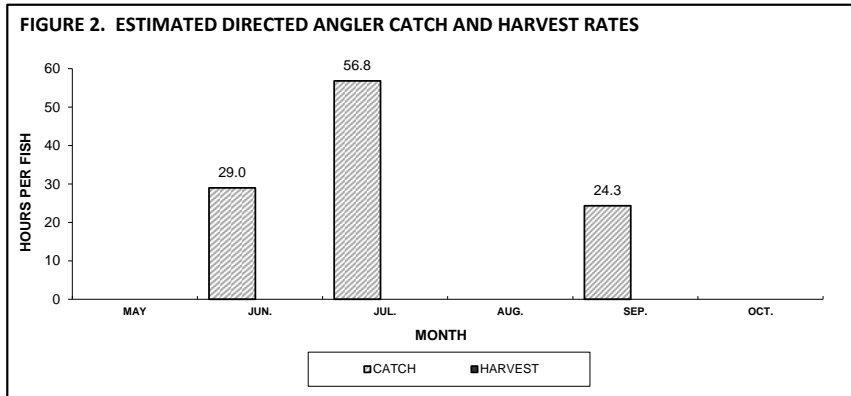
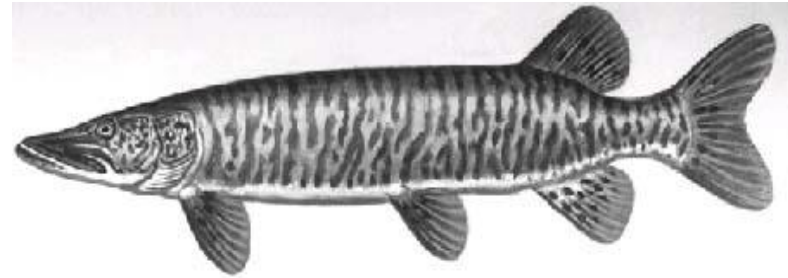
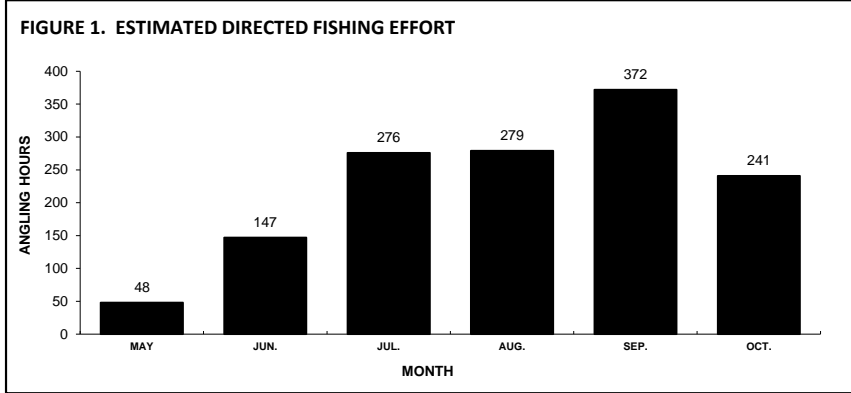


FIGURE 5. AVERAGE LENGTH AND LARGEST FISH HARVESTED



MUSKELLUNGE



SMALLMOUTH BASS

FIGURE 1. ESTIMATED DIRECTED FISHING EFFORT

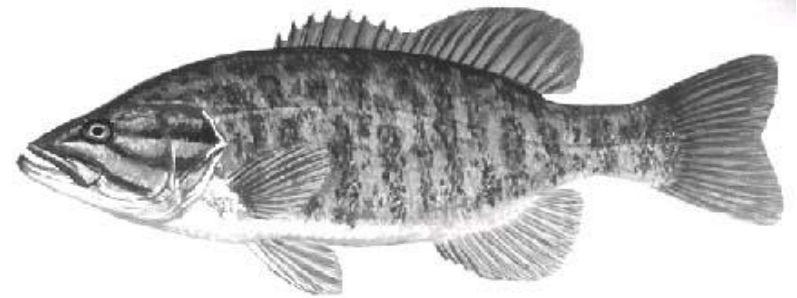
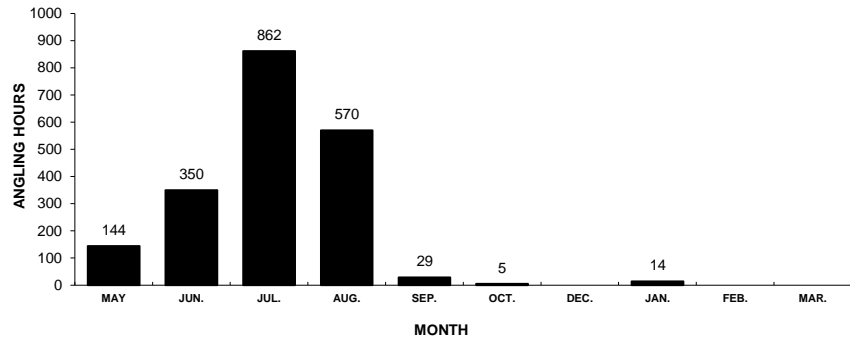


FIGURE 2. ESTIMATED DIRECTED ANGLER CATCH AND HARVEST RATES

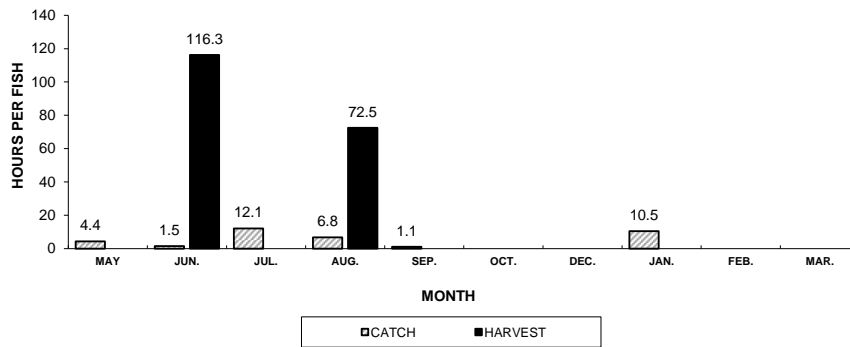


FIGURE 3. ESTIMATED TOTAL ANGLER CATCH AND HARVEST

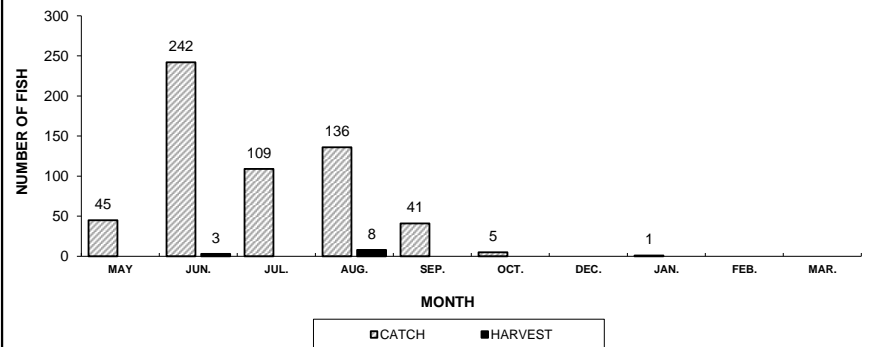


FIGURE 4. LENGTH DISTRIBUTION OF HARVESTED FISH MEASURED BY CLERK

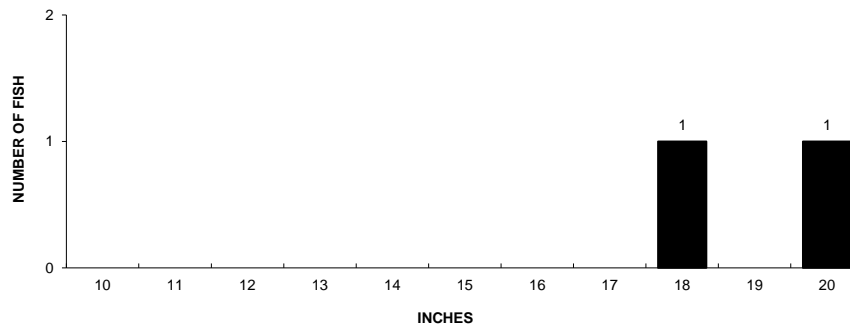
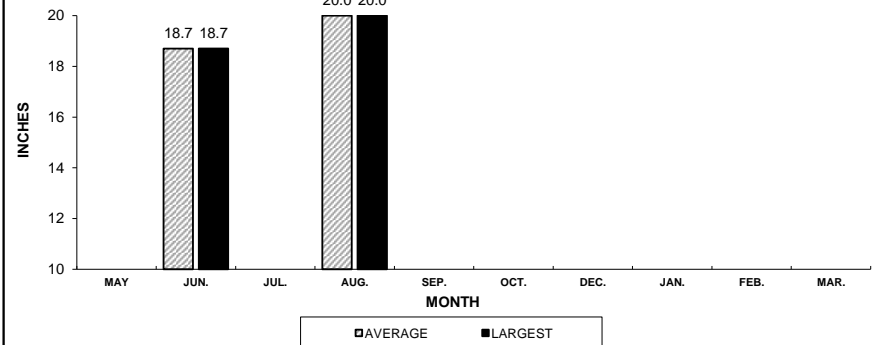


FIGURE 5. AVERAGE LENGTH AND LARGEST FISH HARVESTED



LARGEMOUTH BASS

FIGURE 1. ESTIMATED DIRECTED FISHING EFFORT

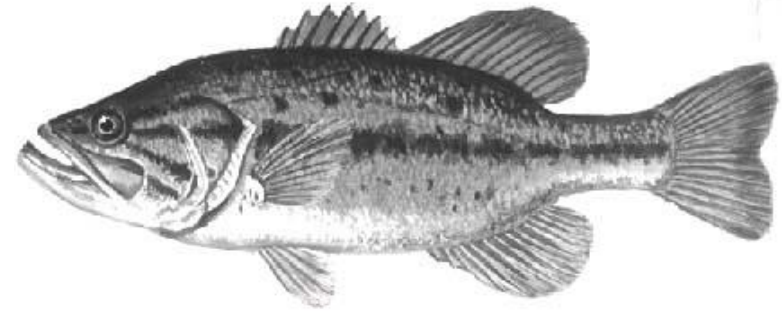
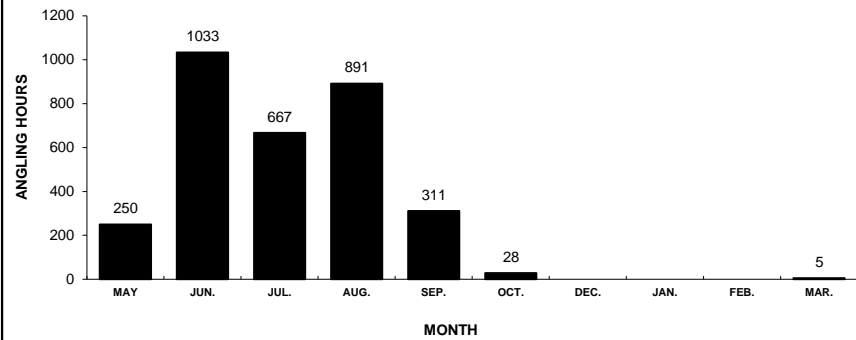


FIGURE 2. ESTIMATED DIRECTED ANGLER CATCH AND HARVEST RATES

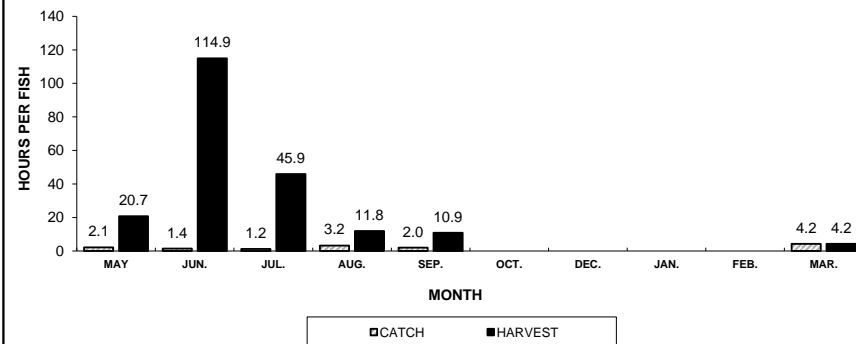


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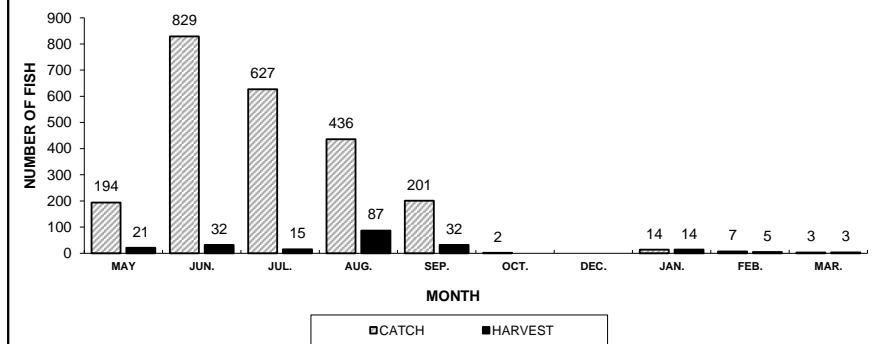


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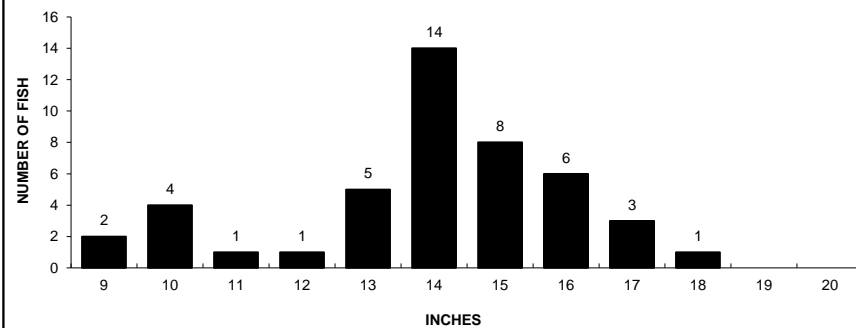
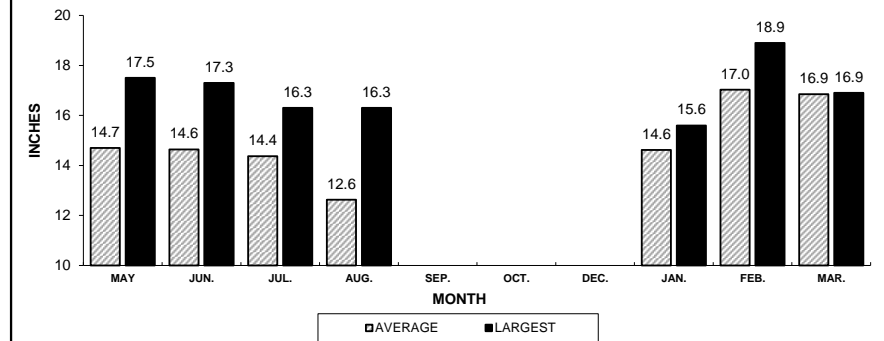


FIGURE 5. AVERAGE LENGTH AND LARGEST FISH HARVESTED



BLUEGILL

FIGURE 1. ESTIMATED DIRECTED FISHING EFFORT

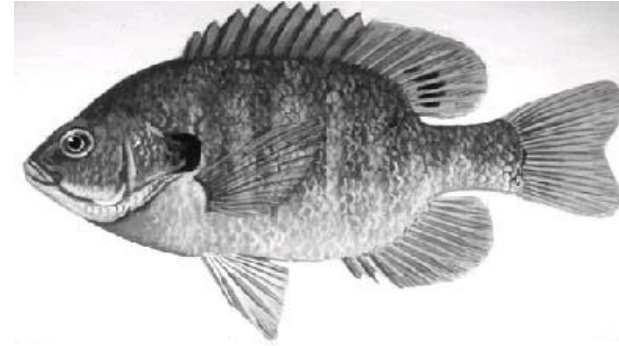
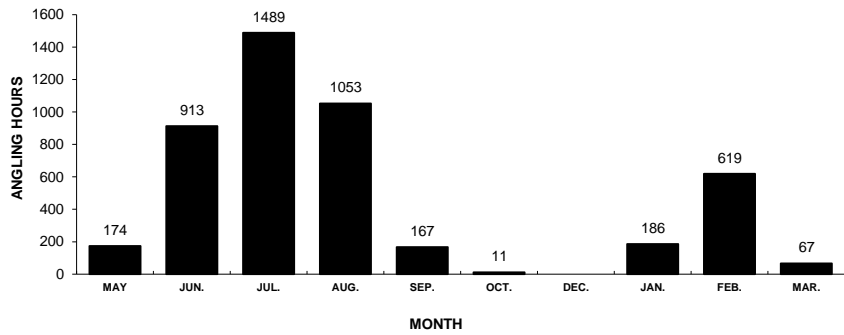


FIGURE 2. ESTIMATED DIRECTED ANGLER CATCH AND HARVEST RATES

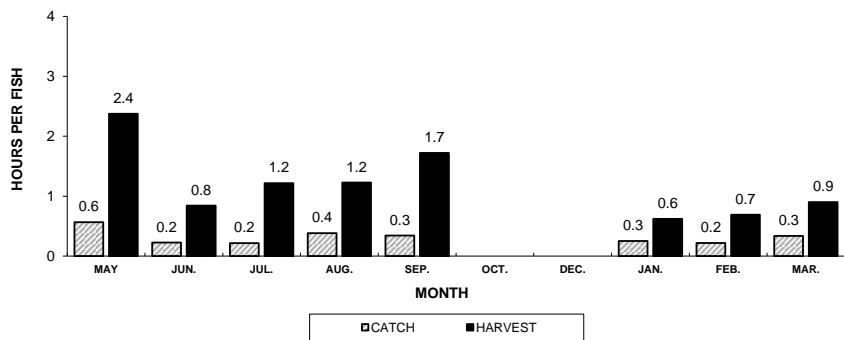


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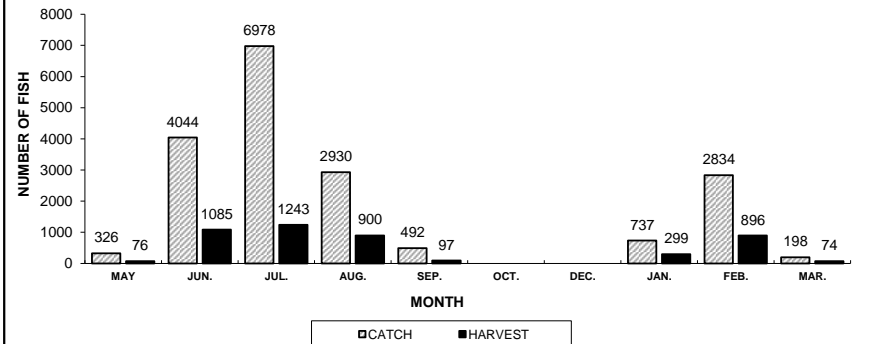


FIGURE 4. LENGTH DISTRIBUTION OF HARVESTED FISH MEASURED BY CLERK

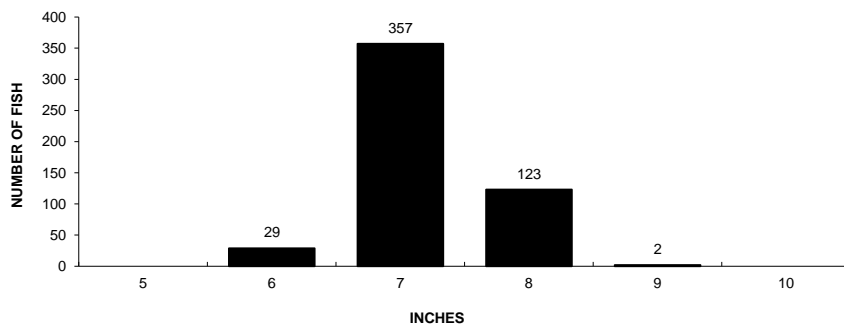
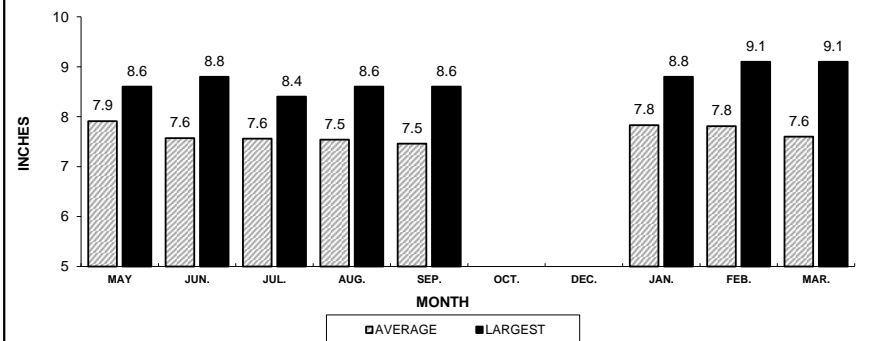


FIGURE 5. AVERAGE LENGTH AND LARGEST FISH HARVESTED



PUMPKINSEED

FIGURE 1. ESTIMATED DIRECTED FISHING EFFORT

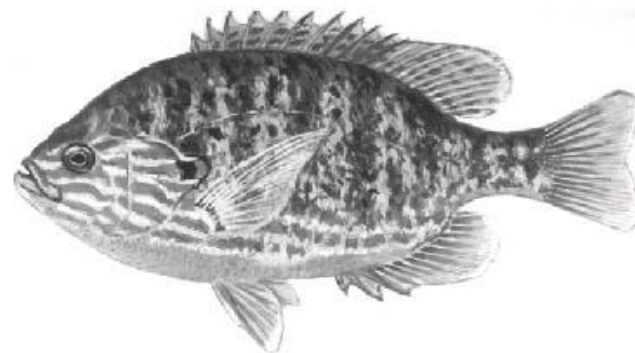
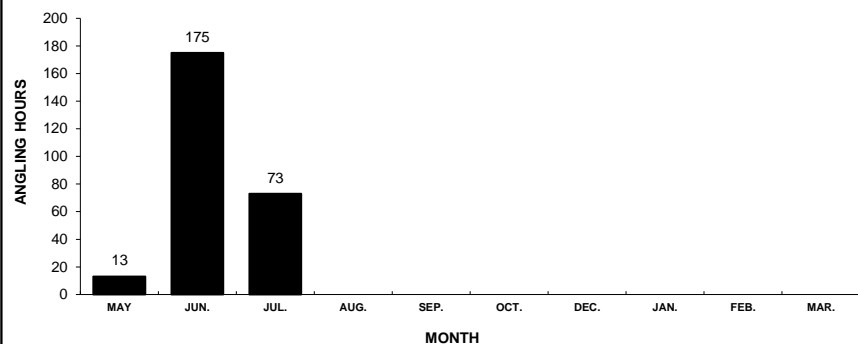


FIGURE 2. ESTIMATED DIRECTED ANGLER CATCH AND HARVEST RATES

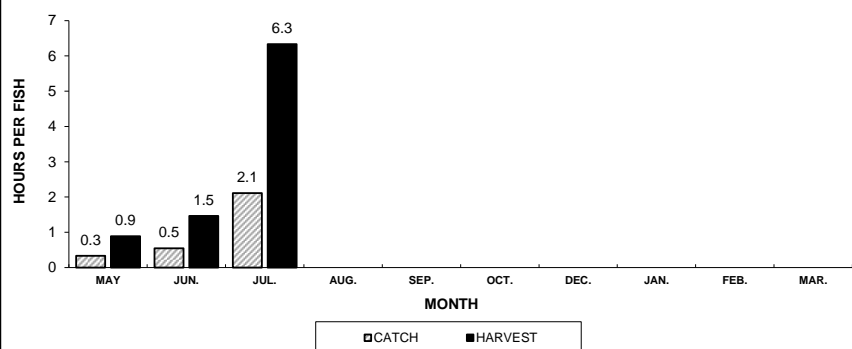


FIGURE 3. ESTIMATED TOTAL ANGLER CATCH AND HARVEST

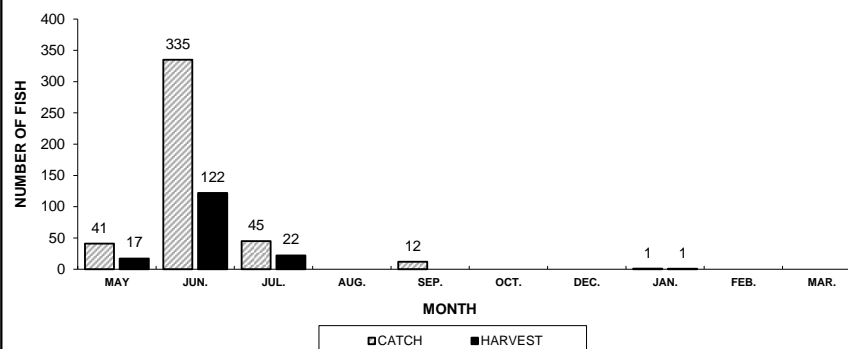


FIGURE 4. LENGTH DISTRIBUTION OF HARVESTED FISH MEASURED BY CLERK

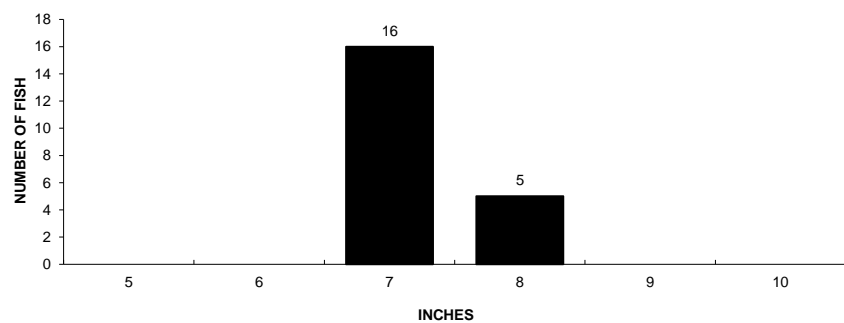
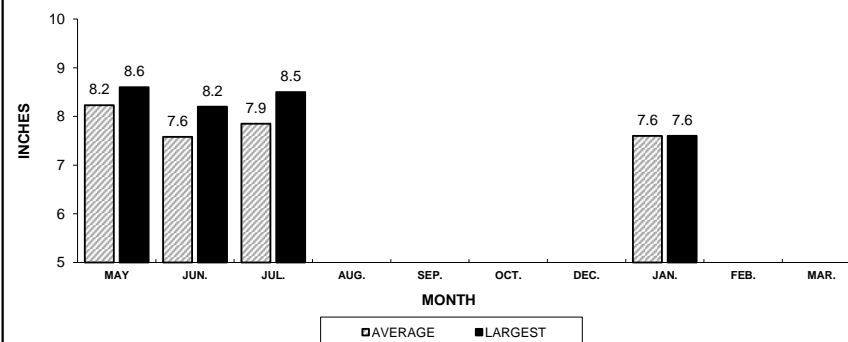


FIGURE 5. AVERAGE LENGTH AND LARGEST FISH HARVESTED



BLACK CRAPPIE

FIGURE 1. ESTIMATED DIRECTED FISHING EFFORT

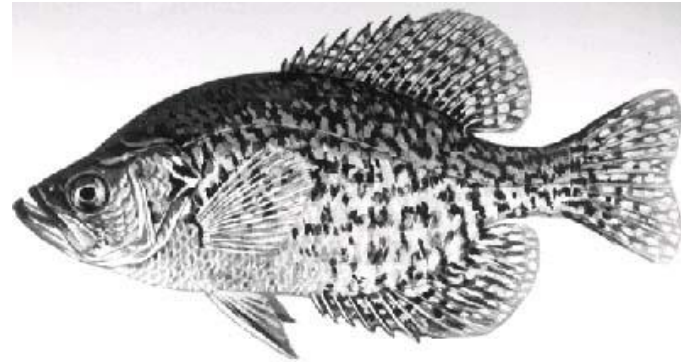
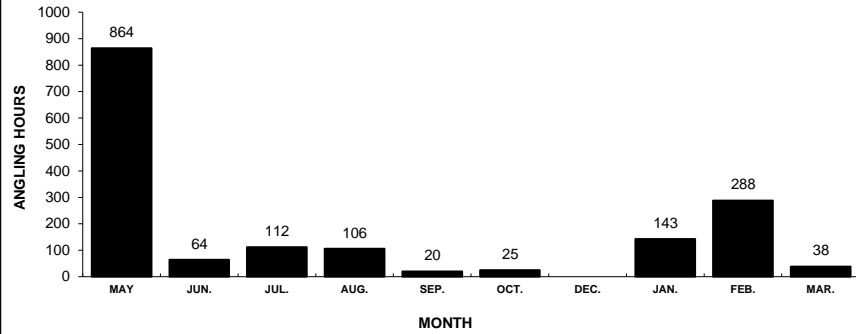


FIGURE 2. ESTIMATED DIRECTED ANGLER CATCH AND HARVEST RATES

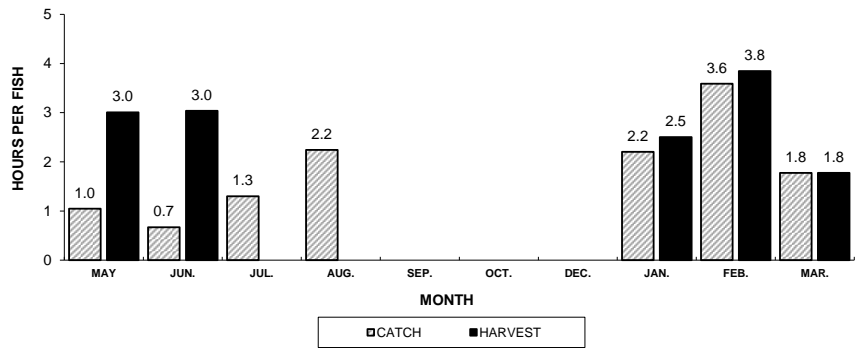


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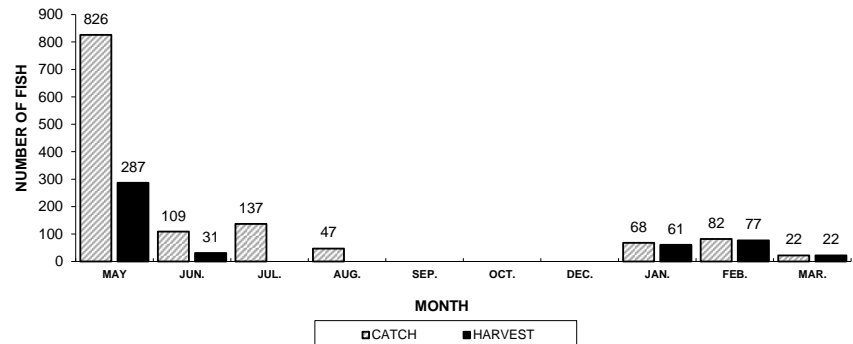


FIGURE 4. LENGTH DISTRIBUTION OF HARVESTED FISH MEASURED BY CLERK

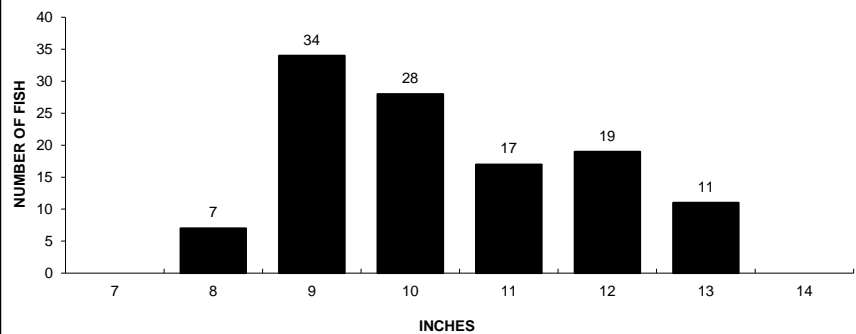
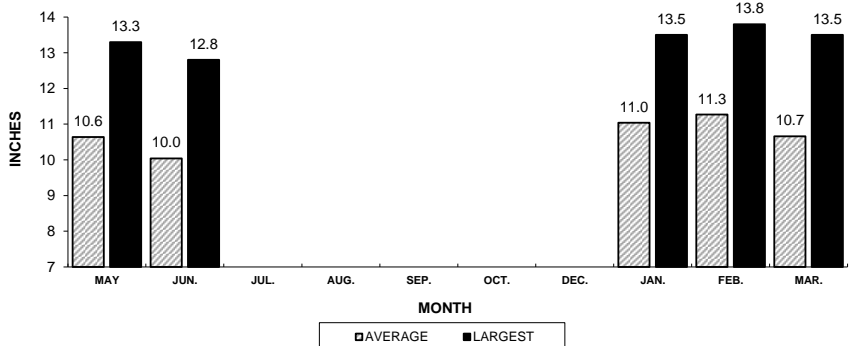
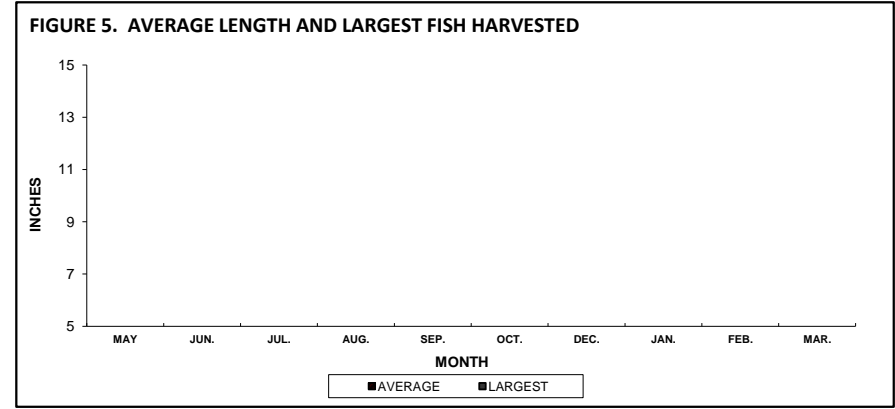
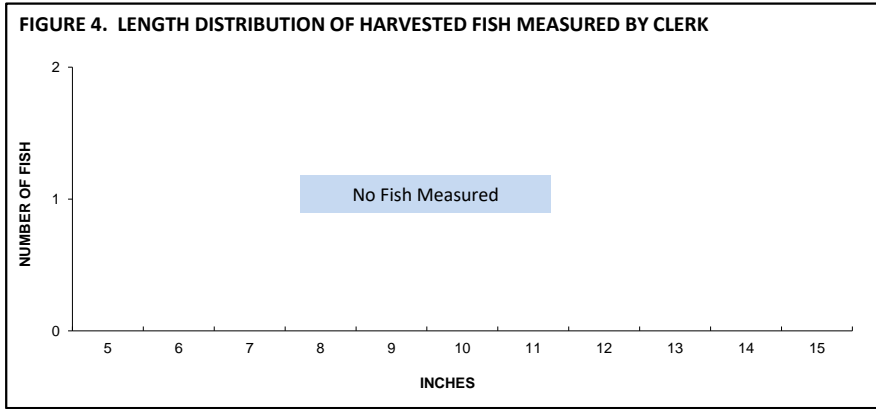
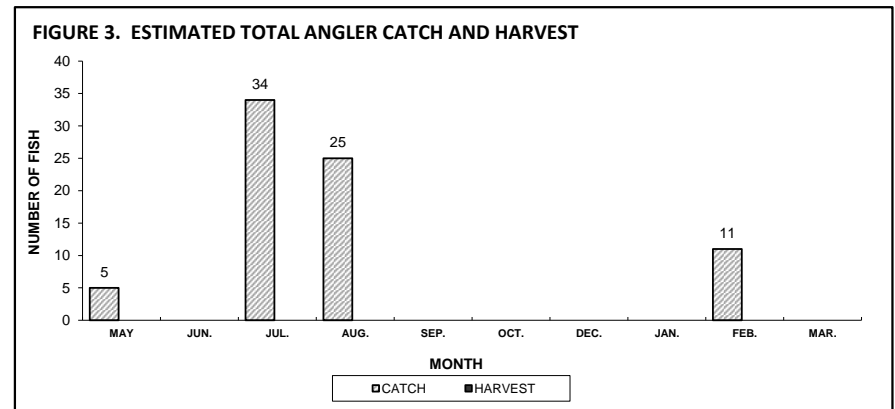
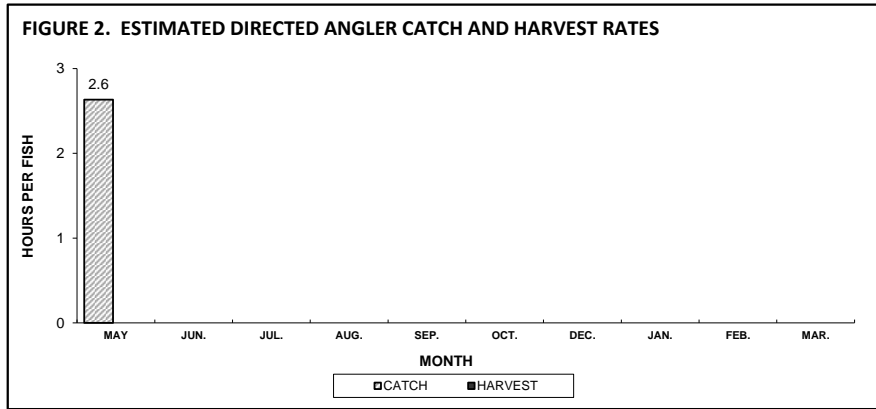
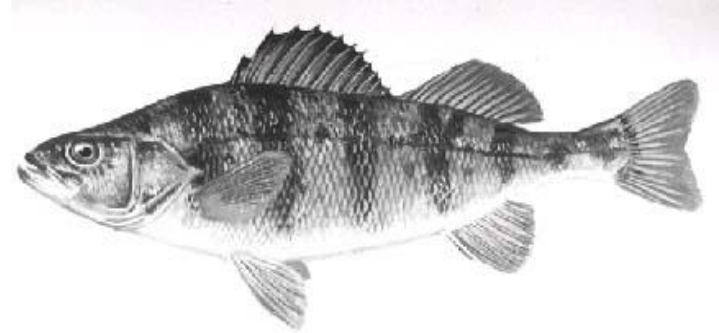
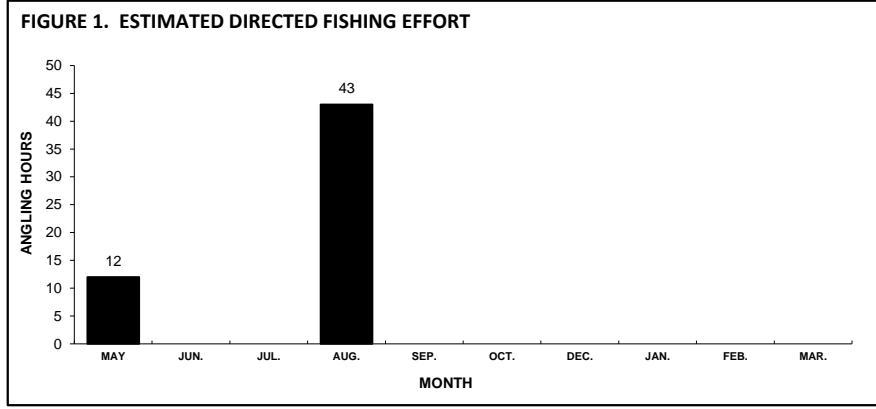


FIGURE 5. AVERAGE LENGTH AND LARGEST FISH HARVESTED



YELLOW PERCH



ROCK BASS

FIGURE 1. ESTIMATED DIRECTED FISHING EFFORT

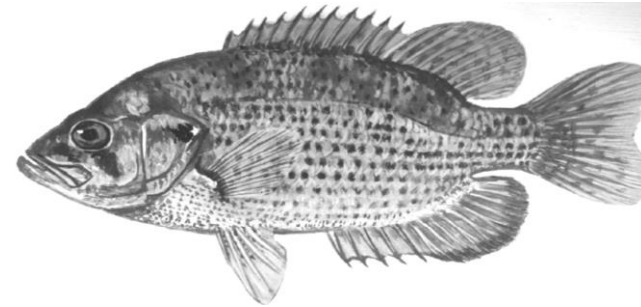
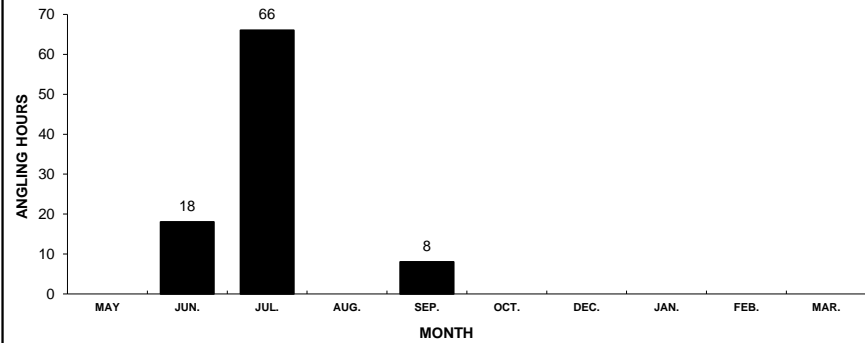


FIGURE 2. ESTIMATED DIRECTED ANGLER CATCH AND HARVEST RATES

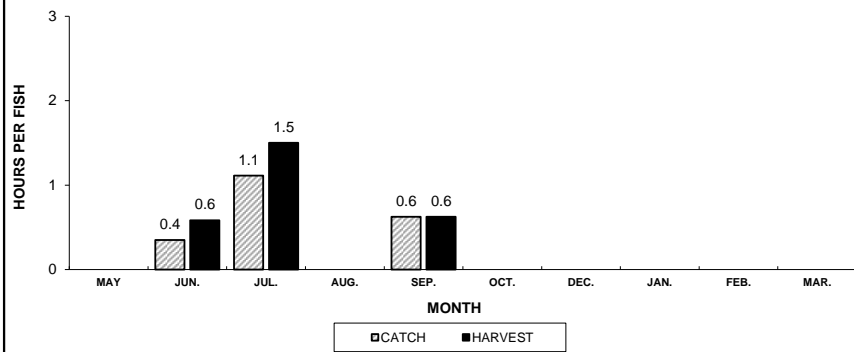


FIGURE 3. ESTIMATED TOTAL ANGLER CATCH AND HARVEST

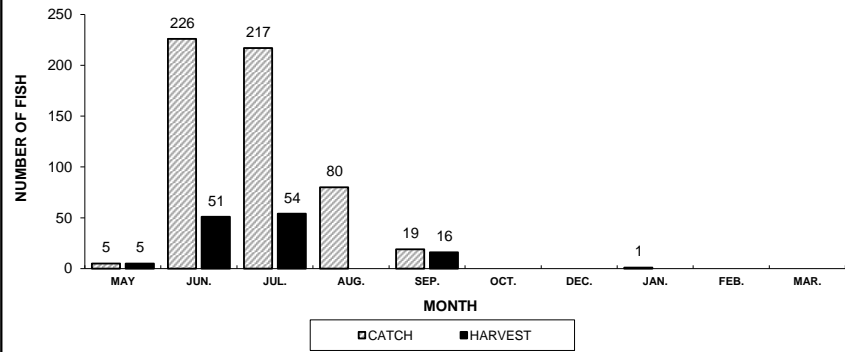


FIGURE 4. LENGTH DISTRIBUTION OF HARVESTED FISH MEASURED BY CLERK

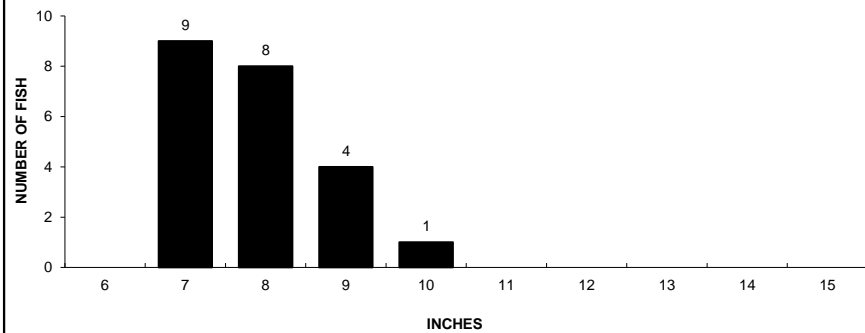
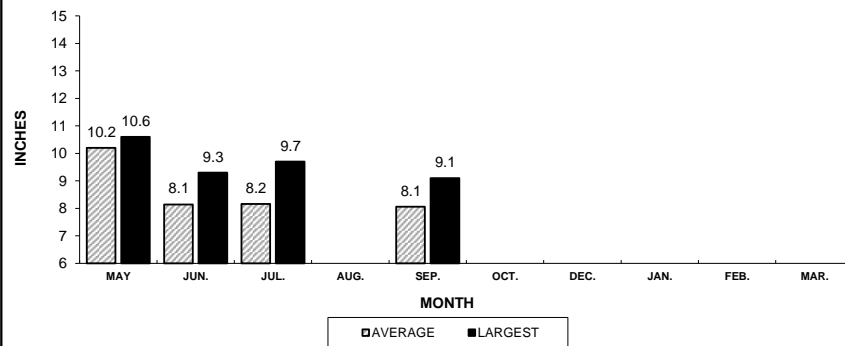


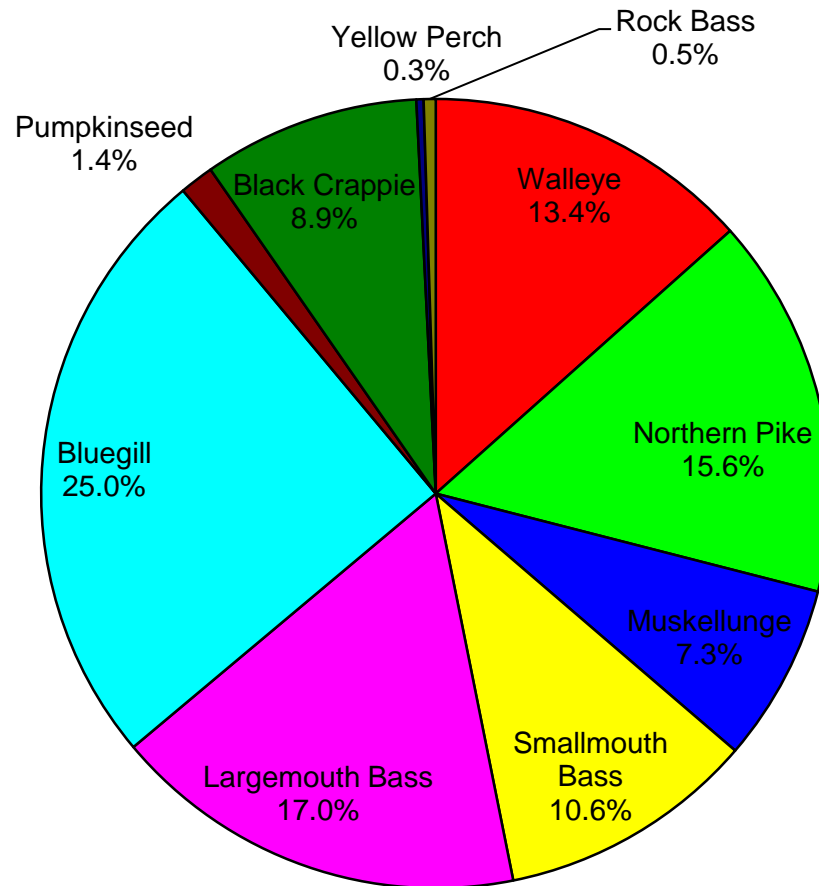
FIGURE 5. AVERAGE LENGTH AND LARGEST FISH HARVESTED



TOTAL ANNUAL ANGLER DIRECTED EFFORT BY SPECIES

Middle Eau Claire Lake 2019-20

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

2019-20

Estimated angler fishing effort on Middle Eau Claire 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	82	1790	2.0	3.2	5.1
June	90	2643	2.9	4.8	6.4
July	68	3339	3.7	5.0	6.9
August	60	2794	3.1	3.8	5.4
September	36	929	1.0	2.0	3.3
October	21	423	0.5	1.0	1.5
December	3	71	0.1	0.6	1.1
January	20	320	0.4	0.8	1.6
February	32	791	0.9	0.8	1.5
March	9	115	0.1	0.1	0.2
*Summer Total	357	11918	13.2	19.9	28.6
*Winter Total	64	1297	1.4	2.4	4.4
Grand Total	421	13215	14.7	22.2	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

MIDDLE EAU CLAIRE LAKE, BAYFIELD COUNTY

CREEL YEAR: 2019-20

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	2505	13.4%	377	6.8	106	26.3	19.0
Northern Pike	2914	15.6%	2169	2.4	201	16.1	22.8
Muskellunge	1363	7.3%	36	54.1	0	NA	0.0
Smallmouth Bass	1974	10.6%	579	4.5	11	181.8	19.4
Largemouth Bass	3185	17.0%	2313	1.8	209	22.7	14.4
Bluegill	4679	25.0%	18539	0.3	4670	1.0	7.7
Pumpkinseed	261	1.4%	434	0.7	162	1.8	7.7
Black Crappie	1660	8.9%	1291	1.4	478	3.6	10.8
Yellow Perch	55	0.3%	75	12.0	0	NA	0.0
Rock Bass	92	0.5%	548	0.7	126	1.1	8.3

CREEL YEAR: 2016-17

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	3730	16.5%	556	7.3	127	34.5	18.0
Northern Pike	3334	14.8%	2896	2.9	297	11.8	23.7
Muskellunge	2361	10.5%	45	88.5	0	NA	0.0
Smallmouth Bass	1975	8.8%	1225	1.9	97	22.9	16.0
Largemouth Bass	2936	13.0%	2428	2.2	116	63.7	15.0
Bluegill	6210	27.5%	27804	0.2	7157	0.9	7.6
Pumpkinseed	44	0.2%	124	1.0	71	1.8	7.5
Black Crappie	1759	7.8%	1532	1.2	1222	1.5	11.4
Yellow Perch	80	0.4%	125	5.1	9	NA	6.9
Rock Bass	135	0.6%	509	1.4	137	1.4	8.4