

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

BIG ARBOR VITAE LAKE

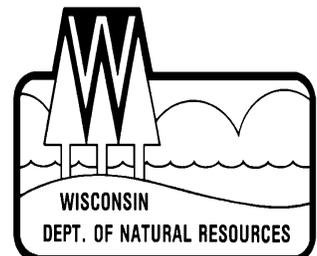
VILAS COUNTY

2011-12



Treaty Fisheries Publication

**Compiled by Tim Tobias & Jeff Blonski
Treaty Fisheries Technicians**



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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 good 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). But 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 also measure the sport harvest to assess its impact on the fishery. But because it would be highly impractical and very costly to conduct a complete census of every angler who fishes on a lake, 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, except during the month of 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 numbers of anglers on a lake at predetermined times, and to interview anglers who have completed their fishing trip to collect data on what species they fished for, catch, harvest, lengths of fish harvested, marks (finclips 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.

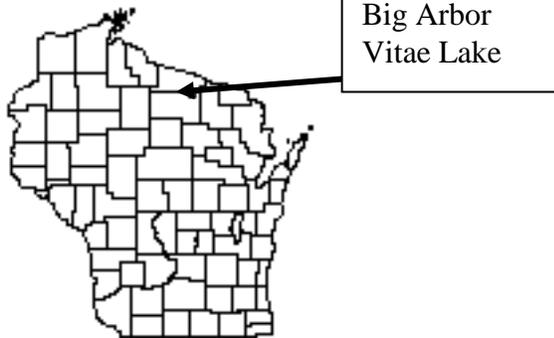
You may have encountered a DNR creel survey clerk on a recent fishing trip. We appreciate your cooperation during an interview. The survey only takes a moment of your time and it gives the Department valuable information needed for management of the fishery.

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

GENERAL LAKE INFORMATION



Location

Big Arbor Vitae Lake is located in Vilas County in the Town of Arbor Vitae.

Physical Characteristics

Big Arbor Vitae Lake is a 1,090 acre drainage lake with a maximum depth of 41 feet. Littoral substrate consists primarily of sand, gravel and muck. Big Arbor Vitae Lake has very fertile, alkaline clear water of moderate transparency.

Seasons Surveyed

The period referred to in this report as the 2011-12 fishing season ran from May 7, 2011 through March 4, 2012. The open water creel survey ran from May 7 through October 31, 2011 and the ice fishing creel survey ran from December 1, 2012 through March 4, 2012.

Weather

Ice-out on Big Arbor Vitae Lake was around April 28, 2011. Fishable-ice formed on Big Arbor Vitae Lake in mid December.

Sportfishing Regulations

The following seasons, daily bag limits, and length limits were in place on Big Arbor Vitae Lake during the 2011-12 fishing season:

Species	Season	Bag Limit	Min. Size
Largemouth Bass & Smallmouth Bass	5/7-6/17	Catch & Release	
	6/18-3/4	5	14"
Musky	5/28-11/30	1	34"
Northern Pike	5/7-3/4	5	none
Walleye	5/7-3/4	3*	none
			1 > 14"
Panfish	year round	25	none
Rock Bass	year round	none	none

* The statewide bag limit was 5 walleye, but due to tribal declarations it was reduced on Big Arbor Vitae 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 4 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 sixth time the Department conducted a creel survey on Big Arbor Vitae Lake. The last treaty survey took place in 2008-09.

General Angler Information

Anglers spent 59,130 hours or 54.2 hours per acre fishing Big Arbor Vitae Lake during the 2011-12 season (Table 1). That was more than the Vilas County average of 34.6

hours per acre. June was the most heavily fished month (11.6 hours per acre). Fishing effort was lightest in December (2.6 hours per acre) for those months when the entire month was creel.

RESULTS BY SPECIES

Walleye (Table 2, Figure 1)

Walleyes received the most fishing effort during the 2011-12 season. Anglers spent 24,624 hours targeting walleyes. The greatest fishing effort for walleyes was in May (5,196 hours). October had the least amount of walleye fishing effort (866 hours).

Total catch of walleyes was 3,013 fish with a harvest of 2,117 fish. Highest catch (689 fish) and harvest (507 fish) occurred in June. Anglers fished 8.5 hours to catch and 11.7 hours to harvest a walleye during 2011-12.

The mean length of harvested walleyes was 15.0 inches and the largest walleye measured was a 28.6 inch fish.

Northern Pike (Table 2, Figure 2)

Fishing effort directed at northern pike was 663 hours during the 2011-12 season. Northern pike fishing effort was greatest in December (345 hours).

Total catch of northern pike was 18 fish with a harvest of 9 fish.

The mean length of harvested northern pike was 31.8 inches and the largest northern pike measured was a 34.3 inch fish.

Muskellunge (Table 2, Figure 3)

Anglers spent 13,439 hours targeting muskellunge during the 2011-12 season. Muskellunge fishing effort was greatest in July (3,515 hours).

Total catch of muskellunge was 421 fish.

Highest catch (132 fish) occurred in July. Anglers fished 41.0 hours to catch a muskellunge during 2011-12.

Smallmouth Bass (Table 2, Figure 4)
Fishing effort targeted at smallmouth bass was 8,054 hours during the 2011-12 season. Smallmouth bass fishing effort was greatest in June (2,124 hours).

Total catch of smallmouth bass was 2,991 fish with 112 harvested. Highest catch (982 fish) occurred in July. Anglers fished 5.5 hours to catch a smallmouth bass during 2011-12.

Largemouth Bass (Table 2, Figure 5)
Fishing effort directed at largemouth bass was 8,703 hours during the 2011-12 season. Largemouth bass fishing effort was greatest in June (2,699 hours).

Total catch of largemouth bass was 10,017 fish with a harvest of 222 fish. Highest catch (3532 fish) occurred in June. Anglers fished 1.2 hours to catch a largemouth bass during 2011-12.

Panfish (Table 2, Figures 6-10)

Yellow perch were the most sought after panfish species during the survey. Fishing effort directed at yellow perch was 19,611 hours.

Total catch of yellow perch was 24,589 fish with 5,977 harvested. The mean length of yellow perch harvested was 8.6 inches.

Bluegills were the second most sought after panfish species during the survey. Fishing effort directed at bluegills was 17,003 hours.

Total catch of bluegills was 39,841 fish with 14,394 harvested. The mean length of bluegills harvested was 7.0 inches.

Black crappies were the third most sought

after panfish species during the survey. Fishing effort directed at black crappies was 15,685 hours.

Anglers caught 3,193 black crappies and harvested 2,072 fish. The mean length of black crappies harvested was 10.5 inches.

Pumpkinseeds and rock bass were also caught during the 2011-12 season.

ACKNOWLEDGMENTS

Completion of this survey was possible because of the efforts of the technical staff of the fisheries management and Treaty Fisheries Unit. Treaty staff responsible for ensuring completion of this survey included Jeff Blonski, Joelle Underwood, Marty Kiepke, Jason Halverson, and Tim Tobias. Scott Yonker, Richard Cechal and John Davis were the creel clerks on Big Arbor Vitae 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 the cooperators, Mike and Debbie Downar, who generously allowed the Department to keep a boat and snowmobile on their property during this survey.

This creel report was reviewed by, Steve Gilbert and Dennis Scholl 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/fish/ceded/reports.html>

Table 1. Sportfishing effort summary, Big Arbor Vitae Lake, 2011-12 season.

Month	Total Angler Hours	Total Angler Hours/Acre	Vilas County Average Hours/Acre	Statewide Average Hours/Acre
May	8088	7.4	5.2	5.8
June	12641	11.6	6.8	6.1
July	11547	10.6	7.5	6.4
August	8386	7.7	6.4	5.4
September	6461	5.9	4.2	3.8
October	2963	2.7	2.0	1.6
December	2842	2.6	0.5	1.7
January	3133	2.9	0.8	1.5
February	2985	2.7	1.0	1.3
March	86	0.1	0.2	**
*Summer Total	50085	45.9	32.1	29.1
*Winter Total	9046	8.3	2.5	4.5
Grand Total	59130	54.2	34.6	33.6

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

**Too few lakes have been surveyed in March to give a meaningful statewide average.

Total Angler Hours is the estimated total number of hours that anglers spent fishing on Big Arbor Vitae 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 Big Arbor Vitae Lake to other lakes.

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.

Statewide Average Hours/Acre is the average angler effort in hours per acre for inland lakes in the state surveyed between 1990 and 1995. This value can be used to compare Big Arbor Vitae Lake to other lakes statewide.

Table 2. Comparison of creel survey synopses, Big Arbor Vitae Lake, 2011-12 and 2008-09 fishing seasons.

CREEL YEAR: 2011-12

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	24624	20.86%	3013	8.5	2117	11.7	15.0
Northern Pike	663	0.56%	18	384.6	9	384.6	31.8
Muskellunge	13439	11.38%	421	41.0	7	2000.0	37.3
Smallmouth Bass	8054	6.82%	2991	5.5	112	111.1	15.7
Largemouth Bass	8703	7.37%	10017	1.2	222	55.9	15.0
Yellow Perch	19611	16.61%	24589	0.9	5977	3.7	8.6
Bluegill	17003	14.40%	39841	0.5	14394	1.3	7.0
Pumpkinseed	9165	7.76%	15350	0.8	5790	1.7	6.8
Rock Bass	1106	0.94%	3743	3.3	432	6.1	8.1
Black Crappie	15685	13.29%	3193	5.3	2072	8.1	10.5

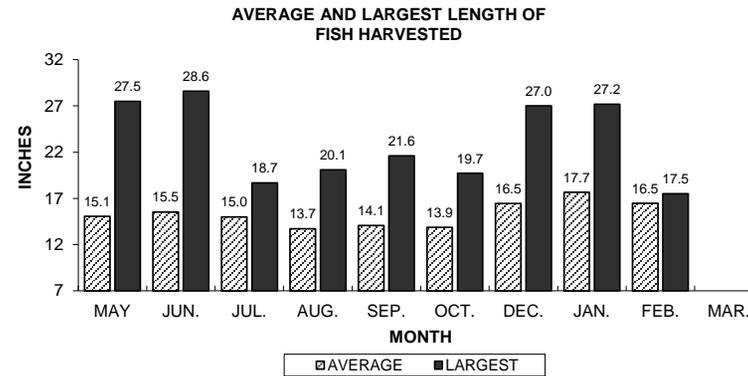
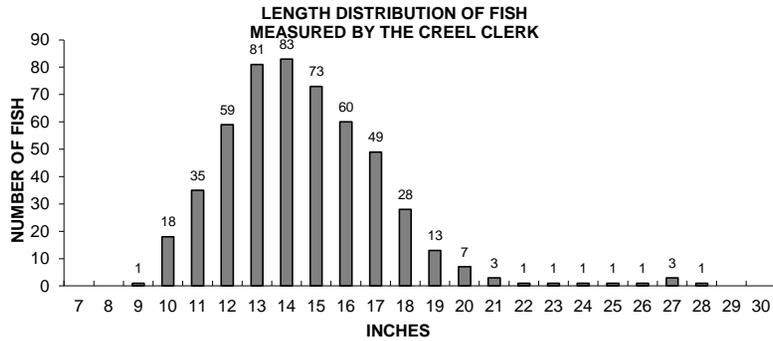
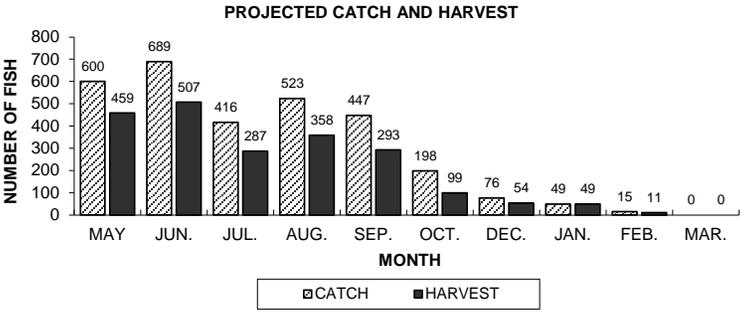
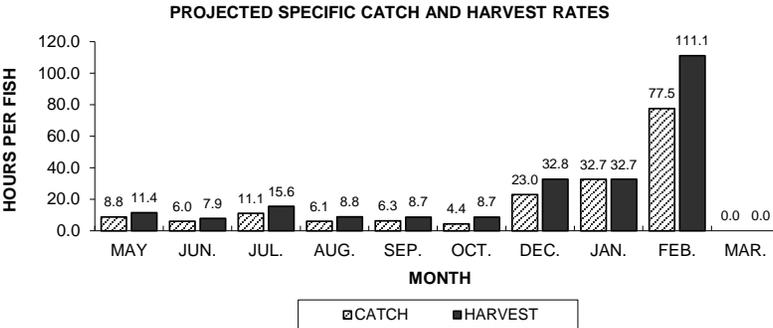
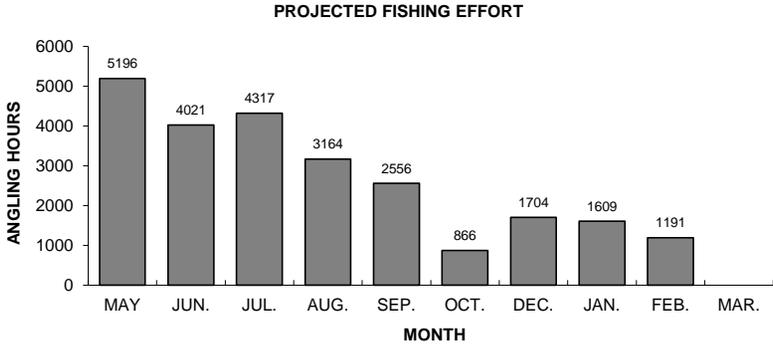
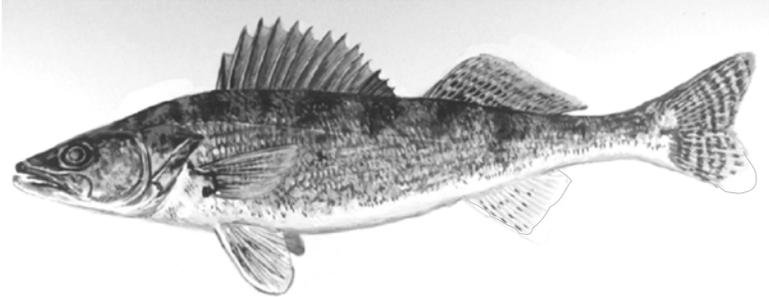
* A blank cell in this column indicates that no fish of a given species were caught by anglers who specifically targeted that species.

** 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: 2008-09

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	21665	24.79%	2983	7.5	2002	11.1	14.1
Northern Pike	812	0.93%	56	37.2	22	37.2	24.0
Muskellunge	17840	20.41%	735	27.2	11		36.0
Smallmouth Bass	849	0.97%	626	2.6	12	149.3	14.9
Largemouth Bass	2561	2.93%	5136	1.4	16	357.1	14.4
Yellow Perch	19189	21.95%	34396	0.6	16212	1.2	8.4
Bluegill	14949	17.10%	26995	0.6	7855	2.0	7.1
Pumpkinseed	2365	2.71%	4770	0.5	2060	1.2	6.8
Rock Bass	0	0.00%	873		80		7.5
Black Crappie	7172	8.21%	5400	1.4	2438	3.0	10.7

WALLEYE



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Figure 1. Walleye sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2011-12.

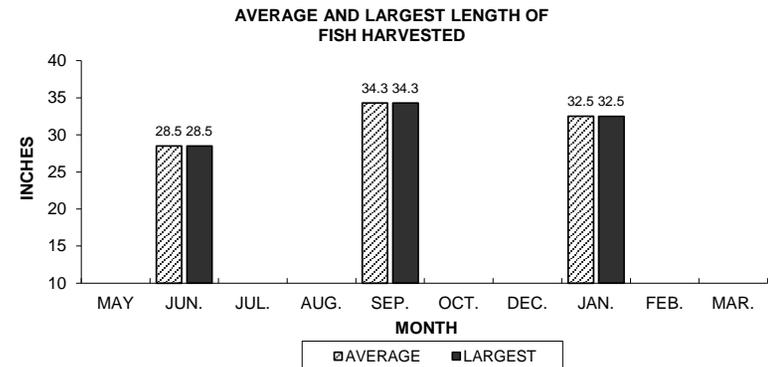
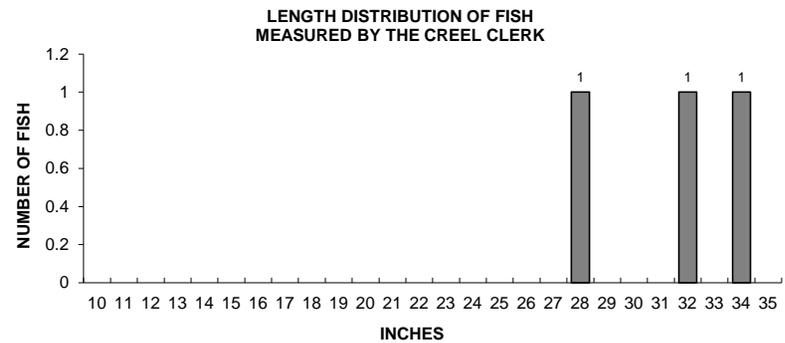
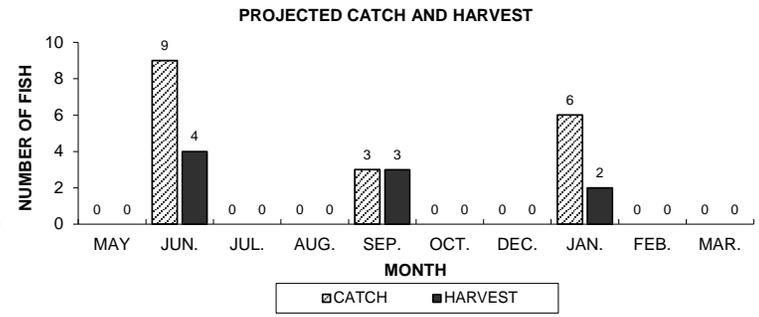
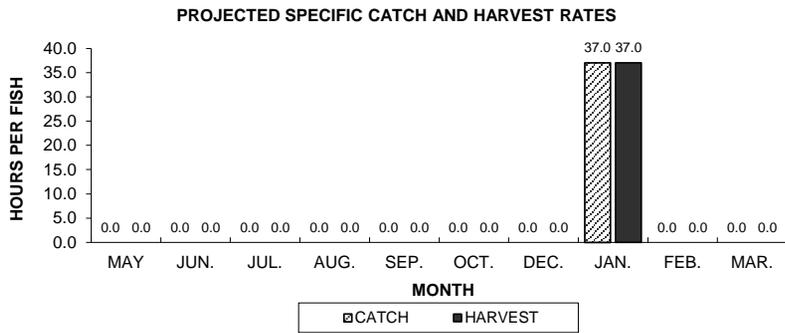
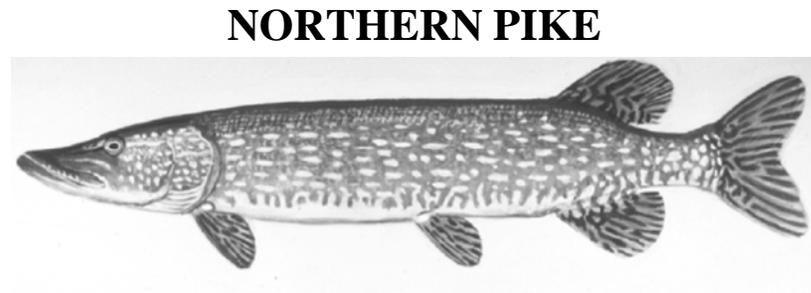
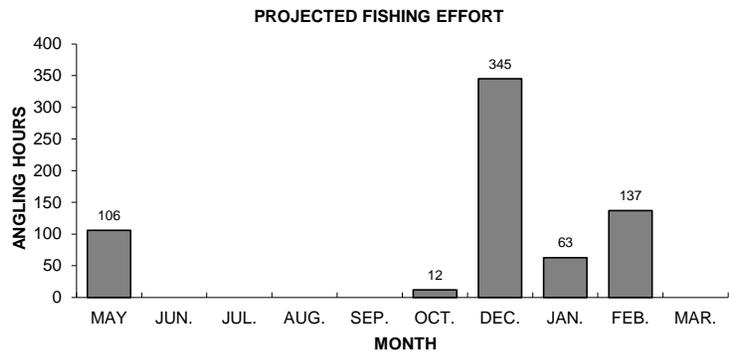
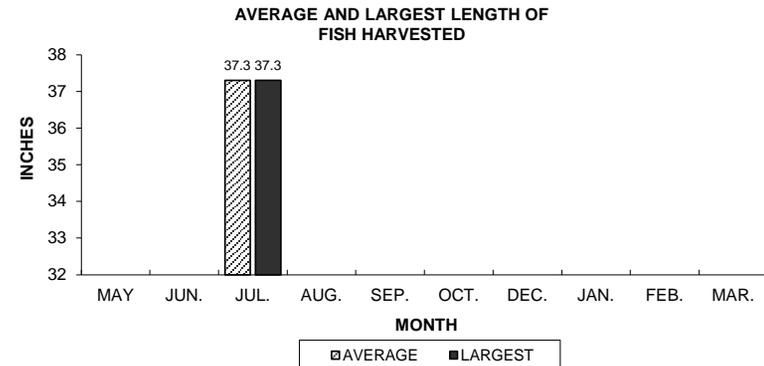
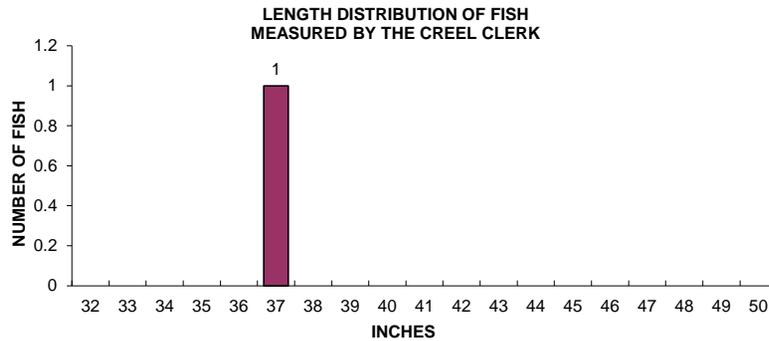
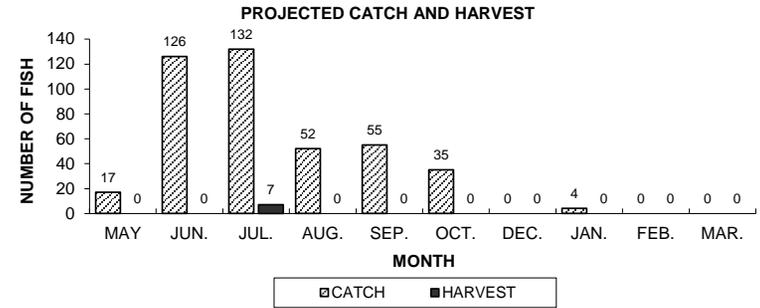
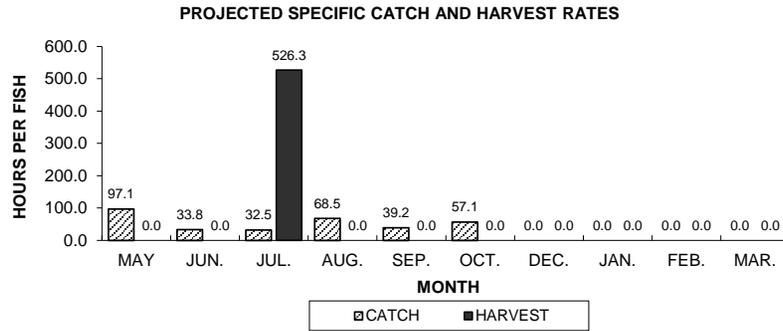
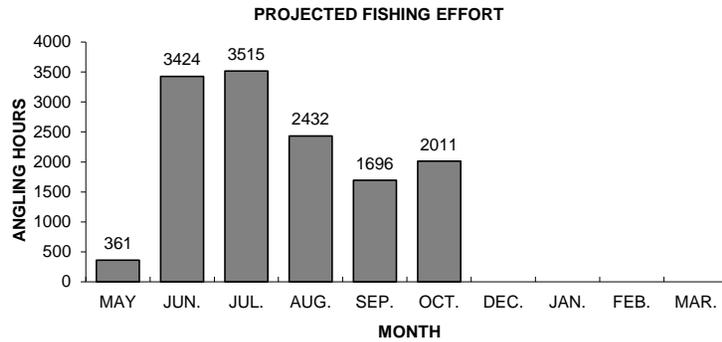
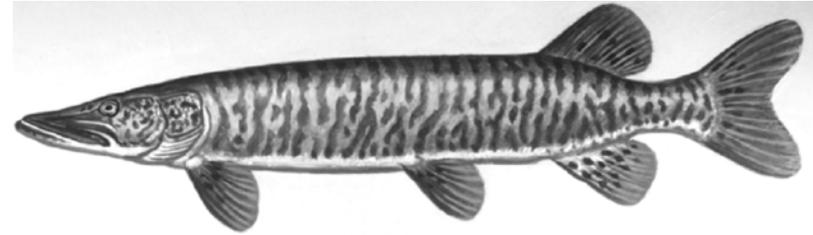


Figure 2. Northern pike sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2011-12.

MUSKELLUNGE



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Figure 3. Muskellunge sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2011-12.

SMALLMOUTH BASS

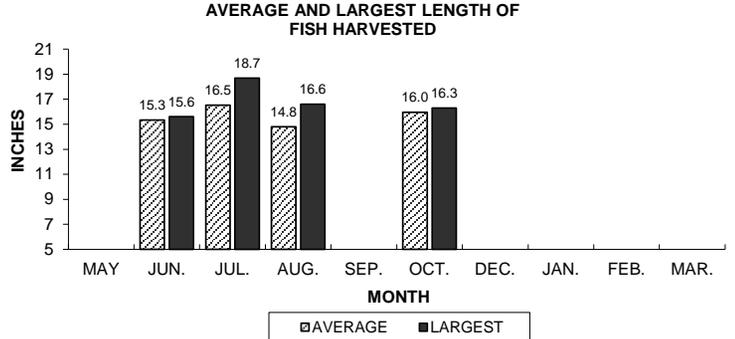
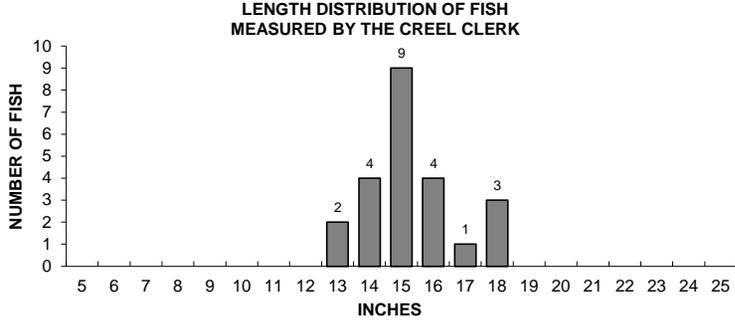
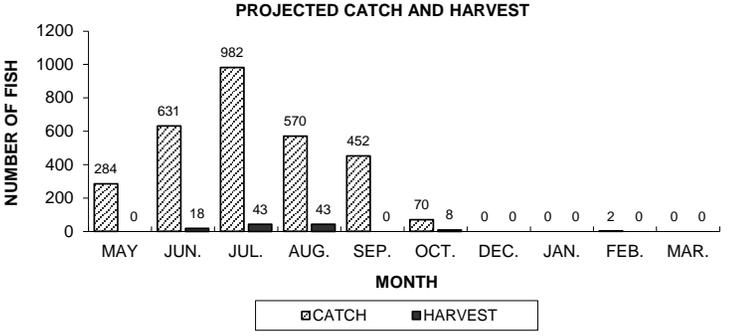
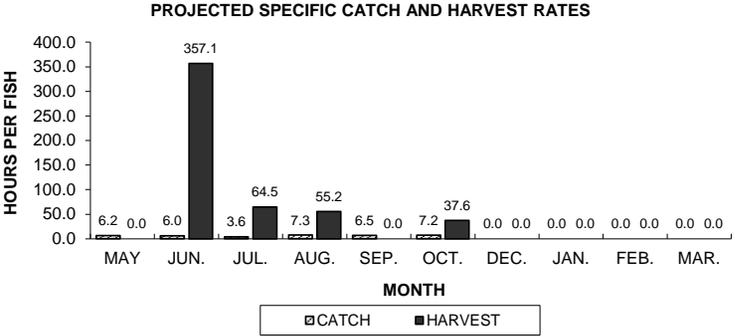
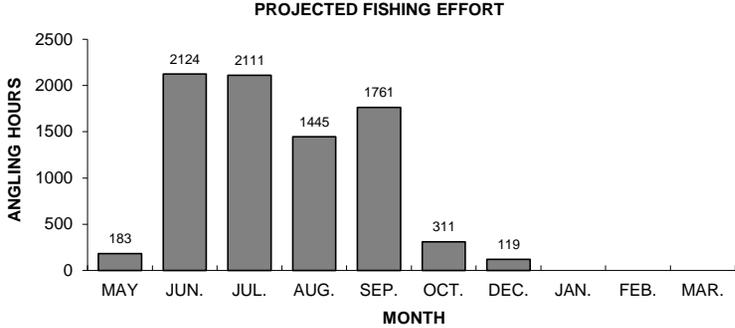
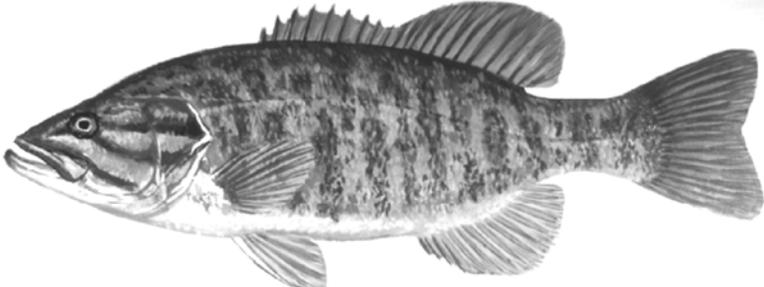
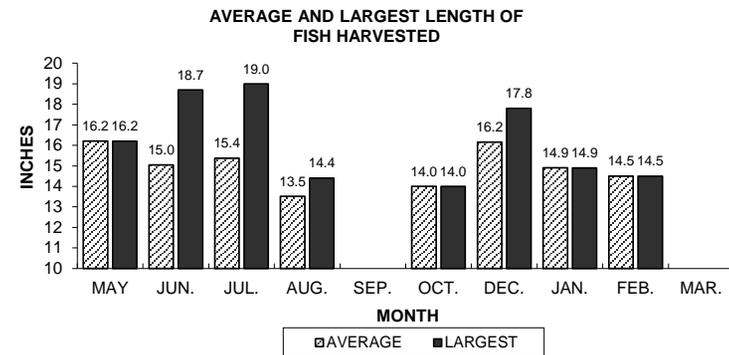
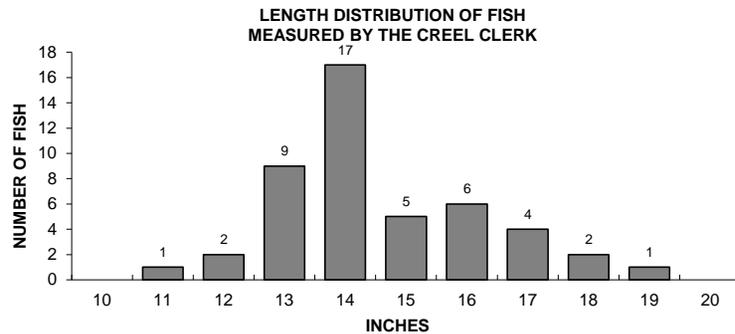
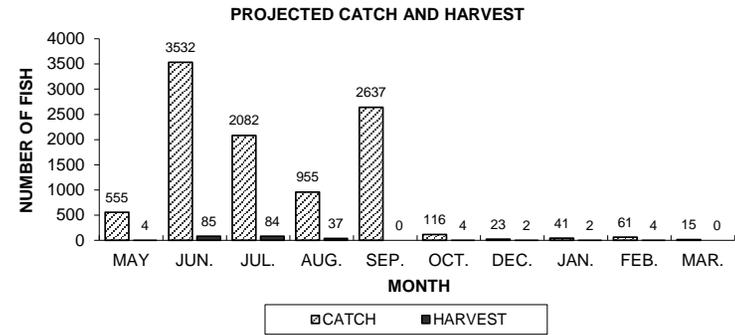
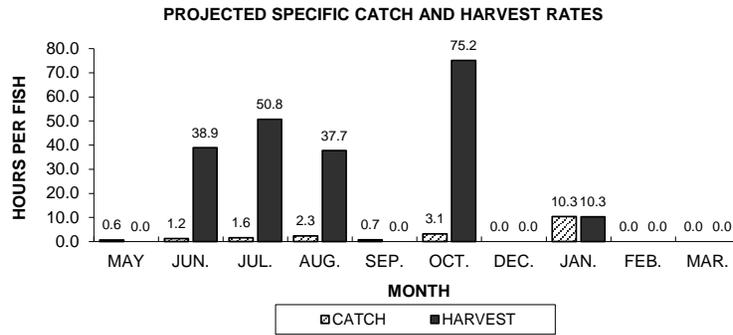
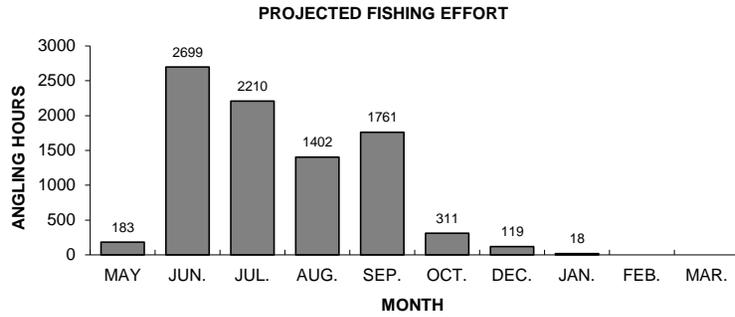
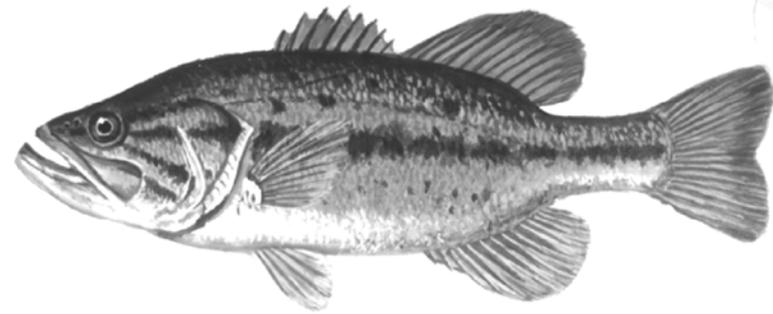


Figure 4. Smallmouth bass sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2011-12.

LARGEMOUTH BASS



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Figure 5. Largemouth bass sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2011-12.

YELLOW PERCH

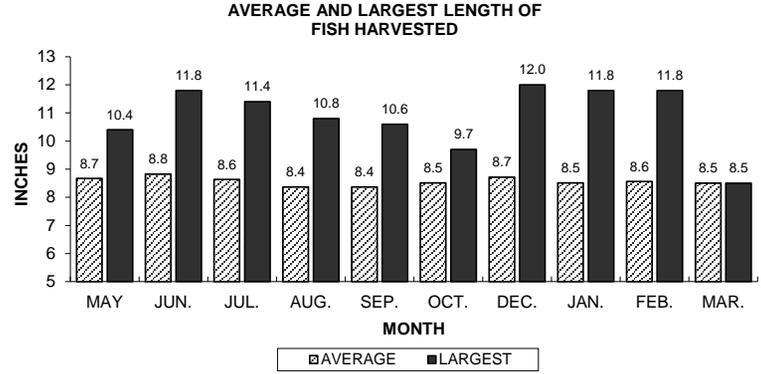
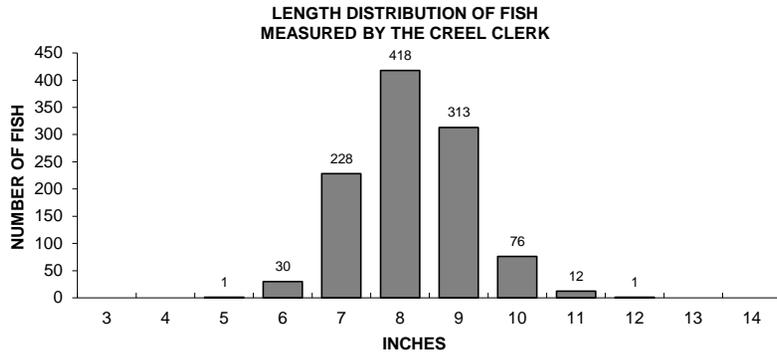
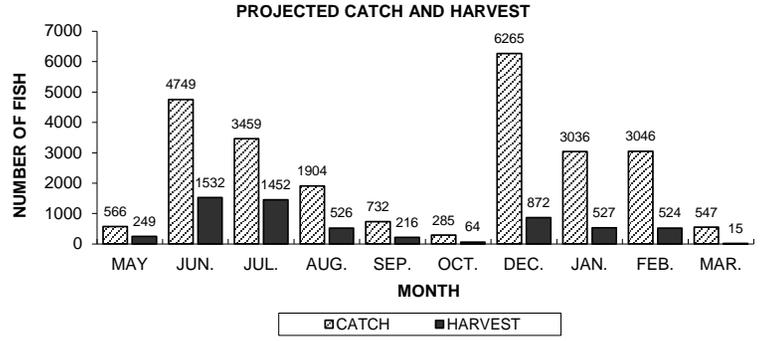
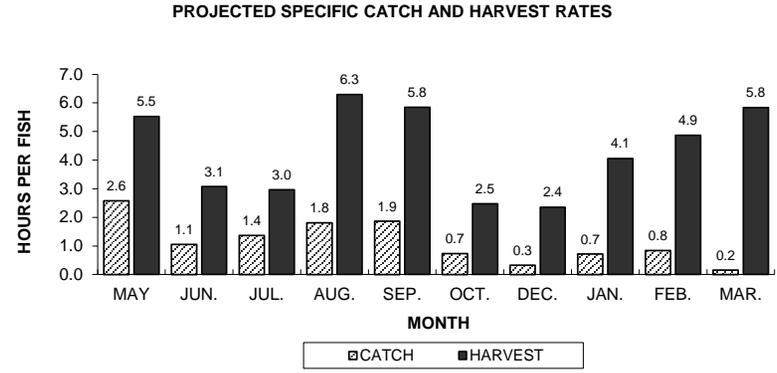
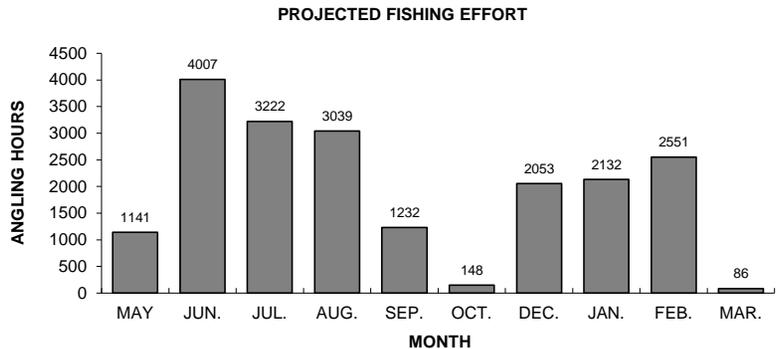


Figure 6. Yellow perch sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2011-12.

BLUEGILL

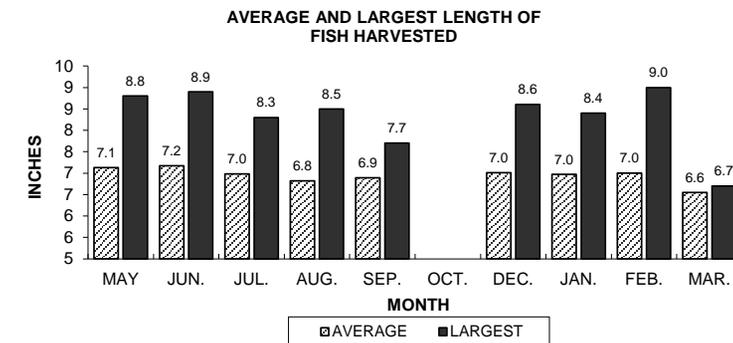
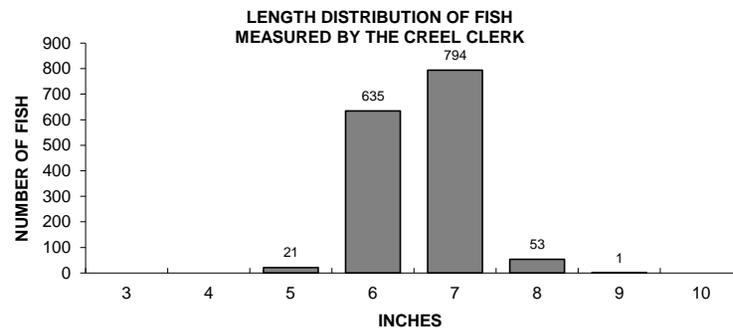
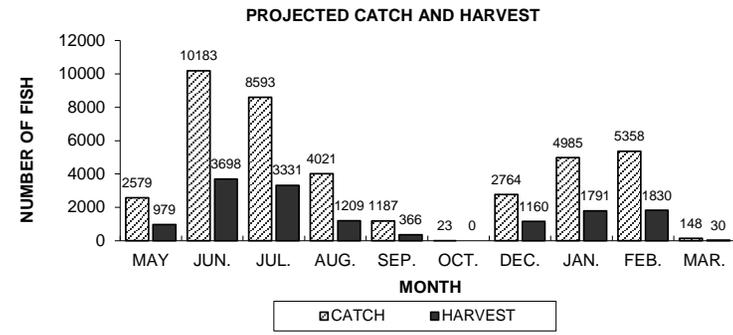
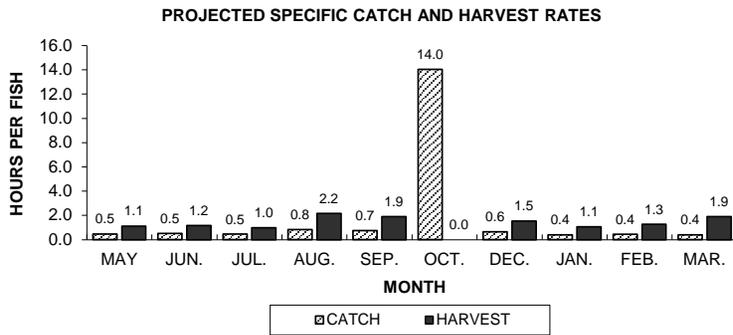
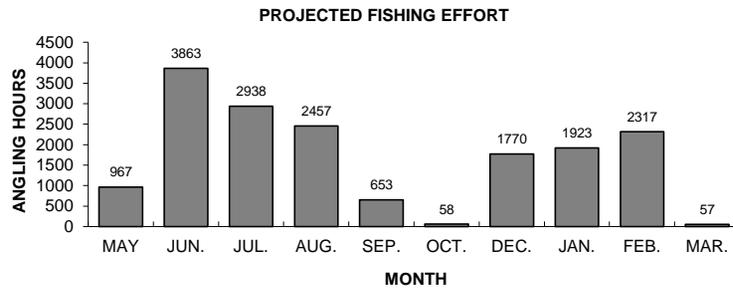
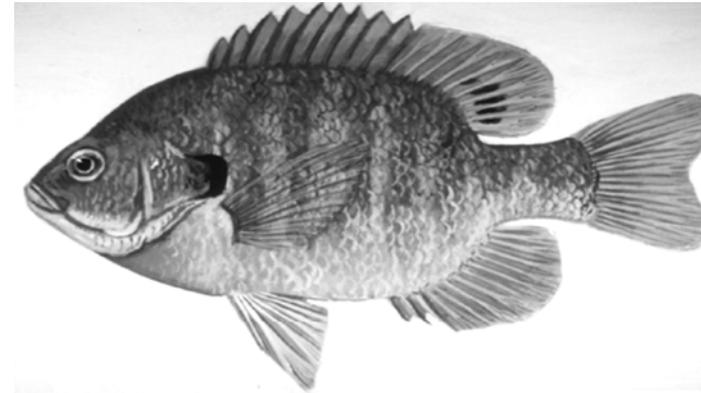


Figure 7. Bluegill sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2011-12.

PUMPKINSEED

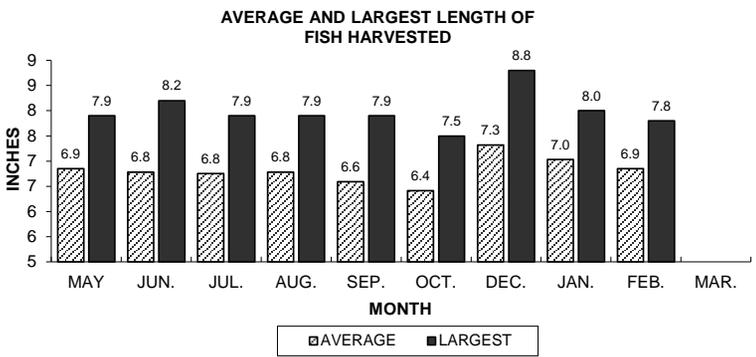
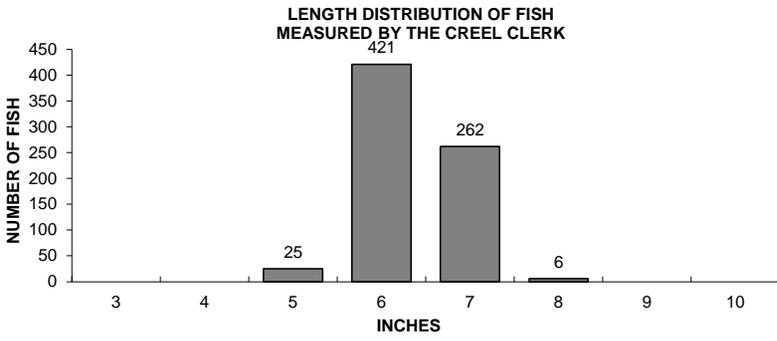
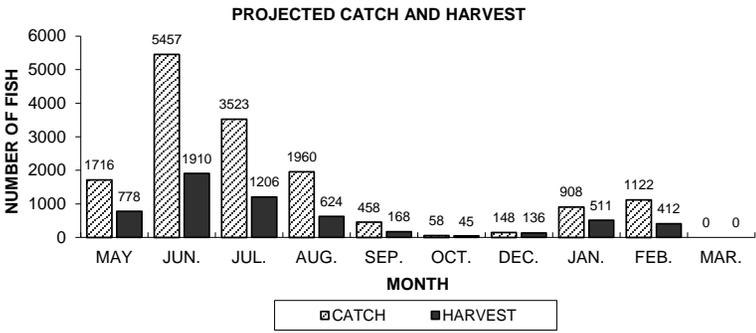
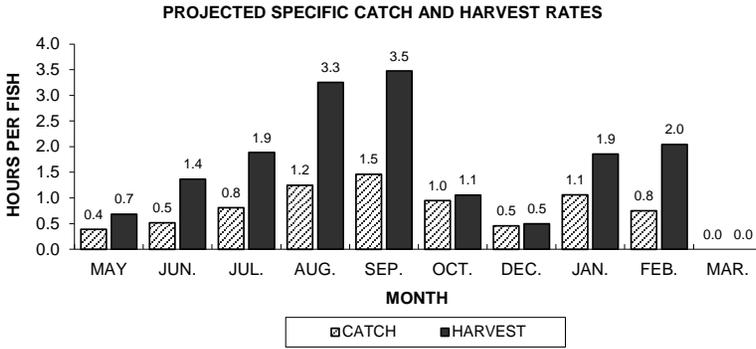
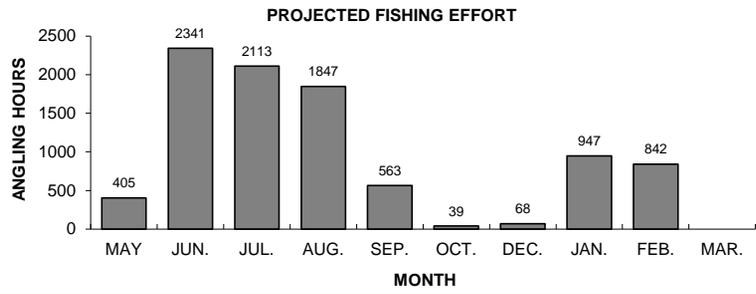
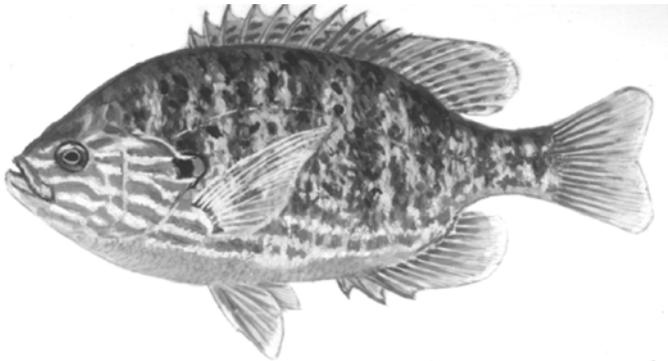


Figure 8. Pumpkinseed sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2011-12.

ROCK BASS

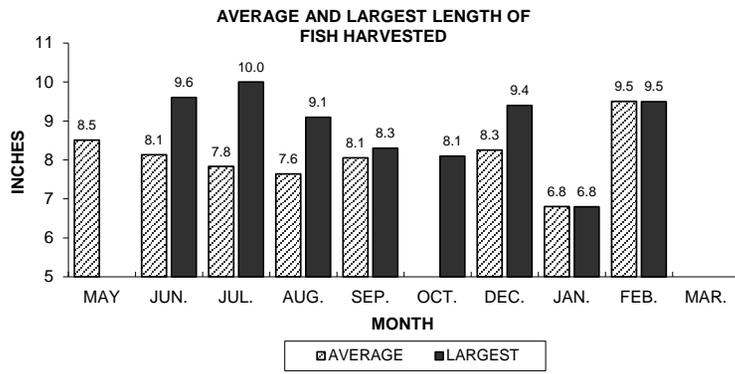
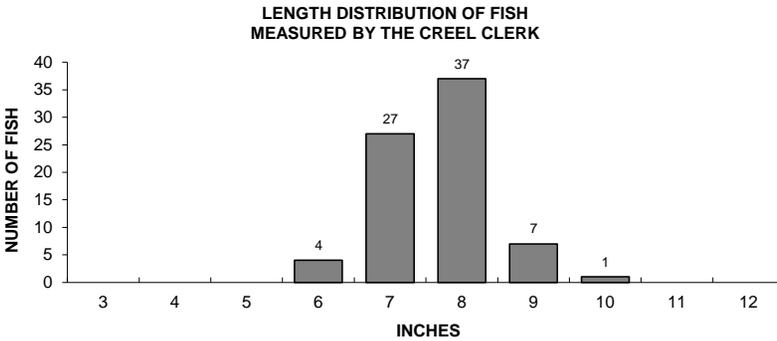
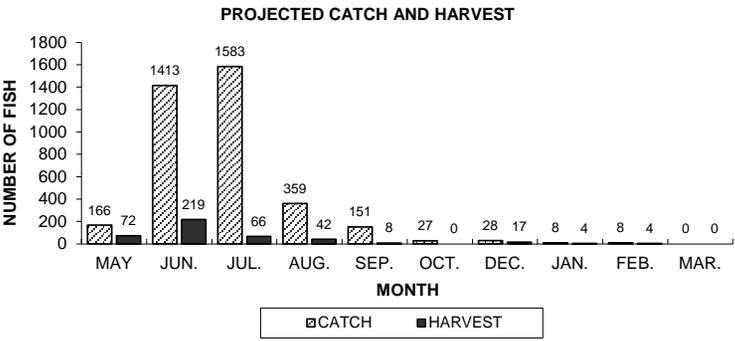
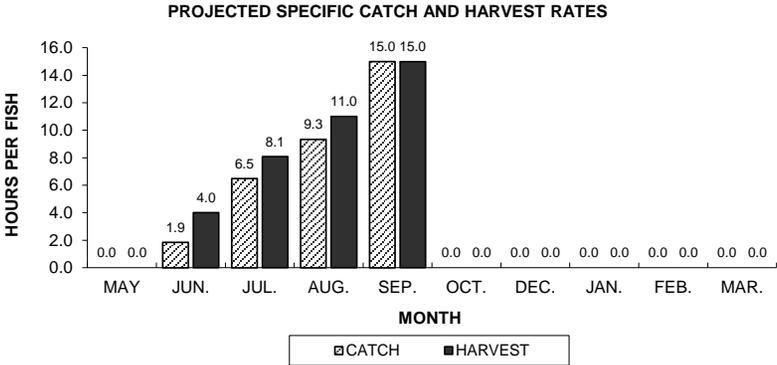
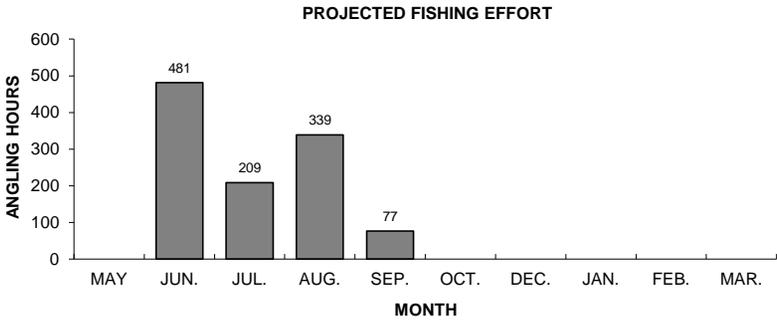
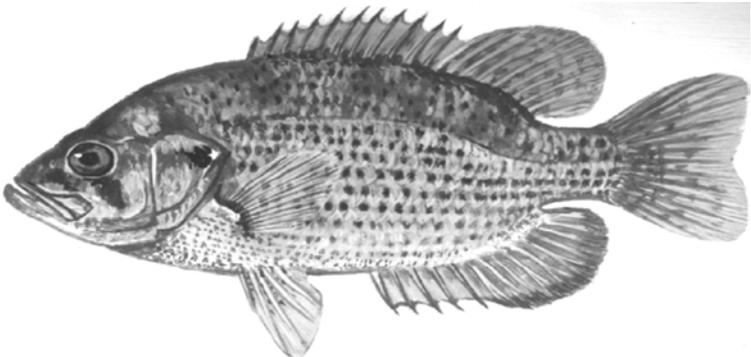


Figure 9. Rock bass sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2011-12.

BLACK CRAPPIE

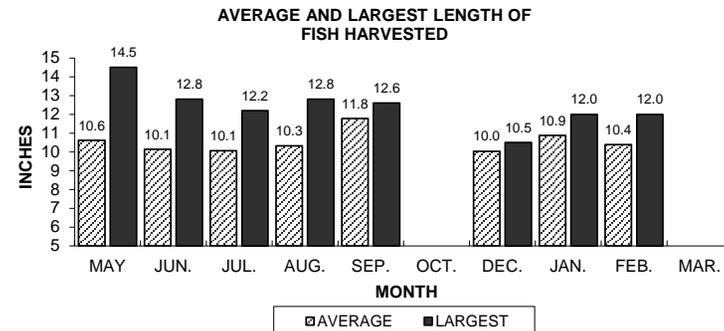
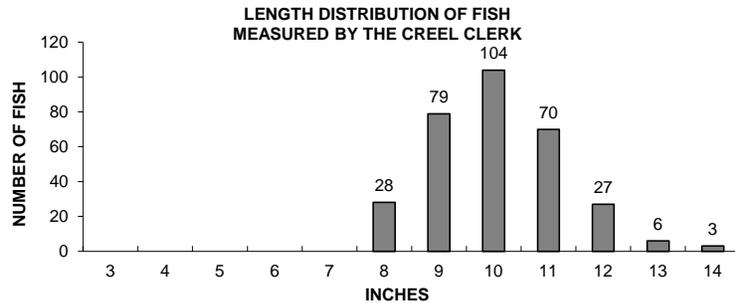
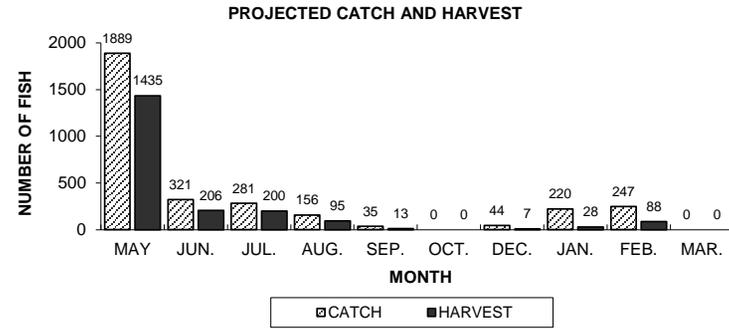
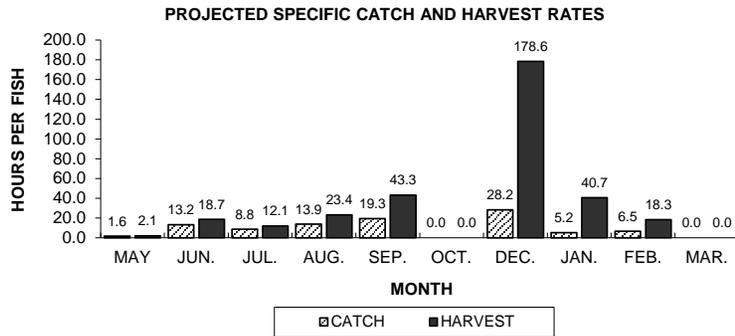
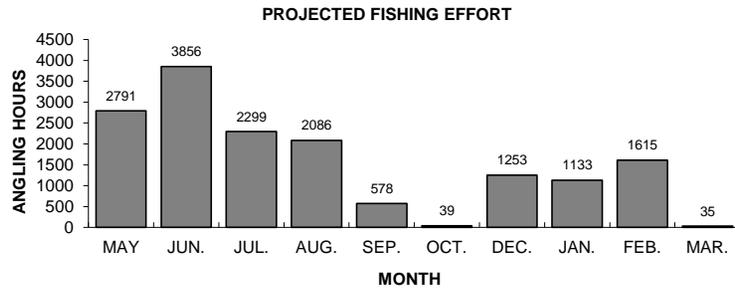
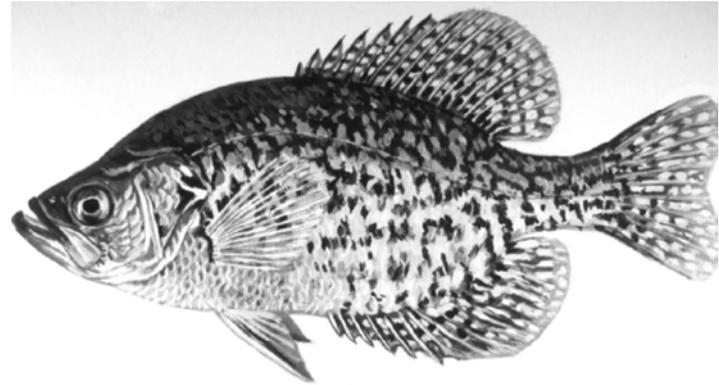


Figure 10. Black crappie sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2011-12.