

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

Big Arbor Vitae Lake

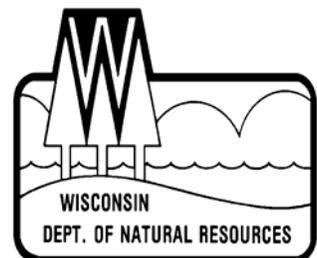
Vilas COUNTY

2008-09



**Treaty Fisheries Publication
2009**

**Compiled by Tim Tobias
Treaty Fisheries Technician**



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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 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.

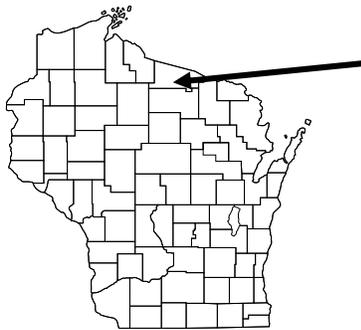
You may have encountered a DNR creel survey clerk on a recent fishing trip. We appreciate your cooperation during an interview. The survey only takes a moment of your time and it gives the Department valuable information needed for management of the fishery.

This report provides projections of:

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

GENERAL LAKE INFORMATION



Big Arbor Vitae Lake

Location

Big Arbor Vitae Lake is located in Vilas County just east of the town of Arbor Vitae.

Physical Characteristics

Big Arbor Vitae Lake is a 1,090-acre drainage lake of high fertility with a maximum depth of 36 feet. Littoral substrate consists primarily of sand, gravel and muck. Big Arbor Vitae Lake has low to moderate transparency based on algal response to the lakes fertility.

Seasons Surveyed

The period referred to in this report as the 2008-fishing season ran from May 3, 2008, through March 1, 2009. The open water creel survey ran from May 3 through October 31, 2008, and the ice fishing creel survey ran from December 1, 2008, through

March 1, 2009.

Weather

Ice-out on Big Arbor Vitae Lake was around May 2, 2008. Spring, summer and fall weather was dry. Fishable-ice formed on Big Arbor Vitae Lake in late November.

Sportfishing Regulations

The following seasons, daily bag limits, and length limits were in place on Big Arbor Vitae Lake during the 2008-09 fishing season:

Species	Season	Bag Limit	Min. Size
Largemouth Bass & Smallmouth Bass	5/03-6/20	Catch & Release	
	6/21-3/01	5	14"
Musky	5/24-11/30	1	34"
Northern Pike	5/03-3/01	5	none
Walleye	5/03-3/01	3*	none 1 > 14"
Panfish	year round	25	none
Rock Bass	year round	none	none

* The statewide bag limit was 5 fish, but due to tribal declarations it was reduced on Big Arbor Vitae Lake.

SPECIES CATCH AND HARVEST INFORMATION

Angling information is summarized for each species (Figures 1-10) with effort and/or catch information. 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 fifth time the department conducted a creel survey on Big Arbor Vitae Lake. The previous surveys took place in 2005, 1998, 1993 and 1982.

General Angler Information

Anglers spent 57,790 hours or 53.0 hours

per acre fishing Big Arbor Vitae Lake during the 2008 season (Table 1). That was 14.7 hours per acre less effort than the 2005-06 survey of 67.7 hours per acre, but 17.8 hours more per acre than the Vilas County average of 35.2. June was the most heavily fished month in 2008 (8.4 hours per acre). Fishing effort was lightest in October (2.3 hours per acre).

SPECIES INFORMATION

Walleye (Table 2, Figure 1)

Walleye received the most fishing pressure in Big Arbor Vitae Lake during the 2008 season. Anglers spent 21,665 hours targeting walleye. Walleye fishing effort was greatest in January (4,993 hours). October had the least amount of walleye fishing effort (402 hours).

Catch was 2,983 walleye with a harvest of 2,002 fish. Highest catch (1,227 fish) and harvest (892 fish) occurred in May. The 2008-09 survey showed an approximate 62% decrease in walleye catch and harvest compared to the 2005-06 census. Anglers fished 7.5 hours to catch and 11.1 hours to harvest a walleye during 2008 compared to 4.1 and 6.0 respectively in the 2005 survey.

The mean length of harvested walleye was 14.1 inches and the largest walleye measured was a 22.6-inch fish harvested in July.

Northern Pike (Table 2, Figure 2)

Fishing effort directed at northern pike was 812 hours during the 2008 season. Big Arbor Vitae Lake has a low density population of northern pike.

Catch was 56 northern pike with a harvest of 22 fish.

The mean length of harvested northern pike

was 24.0 inches and the largest northern pike measured was a 26.3-inch fish.

Muskellunge (Table 2, Figure 3)

Anglers spent 17,840 hours targeting muskellunge during the 2008 season. Muskellunge fishing effort was greatest in July (4,608 hours).

Catch was 735 muskellunge and harvest was 11 fish. Highest catch (286 fish) occurred in June. Anglers fished 27.2 hours to catch a muskellunge during 2008.

Smallmouth Bass (Table 2, Figure 4)

Fishing effort targeted at smallmouth bass was 849 hours during the 2008 season. Smallmouth bass fishing effort was greatest in June (306 hours).

Catch was 626 smallmouth with a harvest of 12 fish. Highest catch (177 fish) occurred in June. Anglers fished 2.6 hours to catch a smallmouth bass during 2008.

Largemouth Bass (Table 2, Figure 5)

Fishing effort directed at largemouth bass was 2,561 hours during the 2008 season. Largemouth bass fishing effort was greatest in August (953 hours).

Catch was 5,136 fish and harvest 16 fish. Highest catch (1,664 fish) occurred in June. Catch has increased almost five fold from the 2005 survey where 1,113 largemouth were caught. Anglers fished 1.4 hours to catch a largemouth bass during 2008 compared to 5.7 hours in 2005.

Panfish (Table 2, Figures 6-10)

Panfish effort was 43,675 hours during the 2008 season.

Yellow perch was the most sought after panfish during the survey. Yellow perch comprised 44% of panfish effort, 48% of

catch and 57% of panfish harvest. Anglers fished 0.6 hours to catch and 1.2 hour to harvest a yellow perch during 2008. The mean length of harvested yellow perch was 8.4 inches and the largest yellow perch measured was an 11.1-inch fish harvested in February.

Anglers directed 14,949 hours fishing for bluegill. Total catch was 26,995 bluegill with a harvest of 7,855 fish. Mean length of bluegill harvested was 7.1 inches.

Other panfish caught during the 2008 survey include, black crappie (5,400 caught, 2,438 harvested), pumpkinseed and rock bass.

ACKNOWLEDGMENTS

Completion of this survey was possible because of the efforts of the technical staff of the Treaty Fisheries Unit and Woodruff Fisheries Management. Treaty staff responsible for ensuring completion of this survey includes Steve Kramer, Joelle Underwood, Marty Kiepke, Tim Tobias, and Jason Halverson. Dean Johnson and Jeff Blonski were the creel clerks on Big Arbor Vitae Lake during the survey period.

The Department thanks Mike and Debbie Downar who generously allowed the department to keep a boat and snowmobile on their property during this survey.

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.

This creel survey report was reviewed by Mike Coshun, 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. Requests should be directed to:

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Table 1. Sportfishing effort summary, Big Arbor Vitae Lake, 2008-09 season.

Month	Total Angler Hours	Total Angler Hours/Acre	Vilas County Average Hours/Acre	Statewide Average Hours/Acre
May	6110	5.6	5.4	5.8
June	9203	8.4	7.0	6.1
July	9068	8.3	7.6	6.4
August	7890	7.2	6.6	5.4
September	5908	5.4	4.2	3.8
October	2455	2.3	2.0	1.6
December	2597	2.4	0.5	1.7
January	8083	7.4	0.8	1.5
February	6293	5.8	0.9	1.3
March	184	0.2	0.1	**
*Summer Total	40633	37.3	32.8	29.1
*Winter Total	17157	15.7	2.4	4.5
Grand Total	57790	53.0	35.2	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, 2008-09 and 2005-06 fishing seasons.

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

* 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: 2005-06

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	31686	27.11%	7916	4.1	5358	6.0	13.8
Northern Pike	1619	1.39%	37	212.0	29	212.0	26.4
Muskellunge	21427	18.33%	936	28.3	10	2191.0	40.5
Smallmouth Bass	866	0.74%	1136	4.6	0		
Largemouth Bass	2276	1.95%	1113	5.7	50	89.3	14.2
Yellow Perch	27863	23.84%	79629	0.4	29478	1.0	8.1
Bluegill	17304	14.80%	29736	0.7	8860	2.1	6.9
Pumpkinseed	2686	2.30%	3514	0.9	1504	1.9	6.7
Rock Bass	325	0.28%	1662	0.7	306	1.5	6.6
Black Crappie	10836	9.27%	6228	1.9	3970	2.8	9.8

WALLEYE

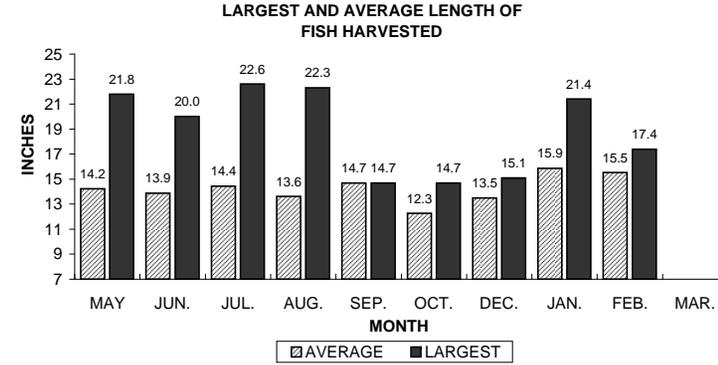
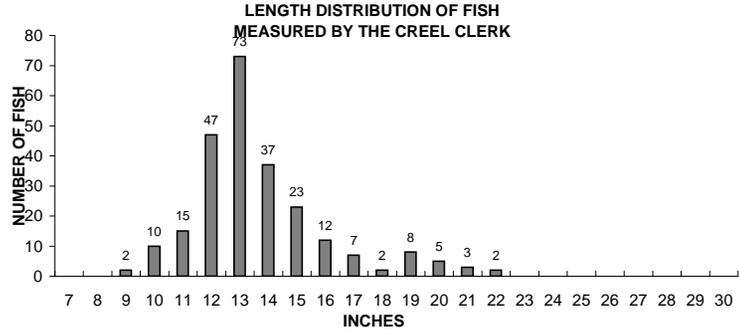
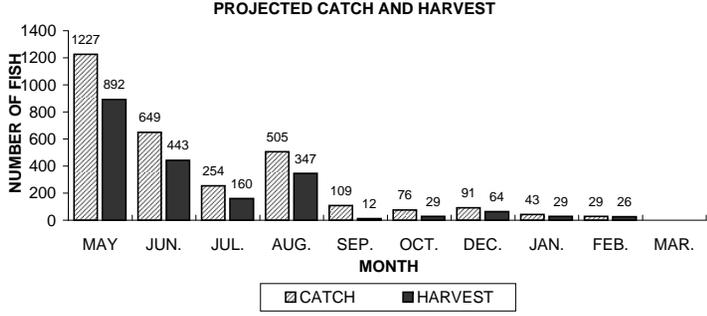
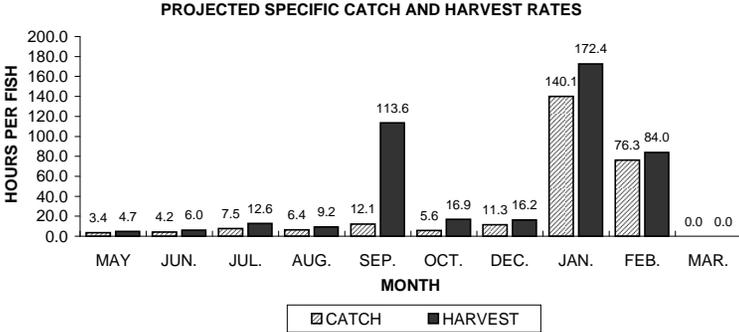
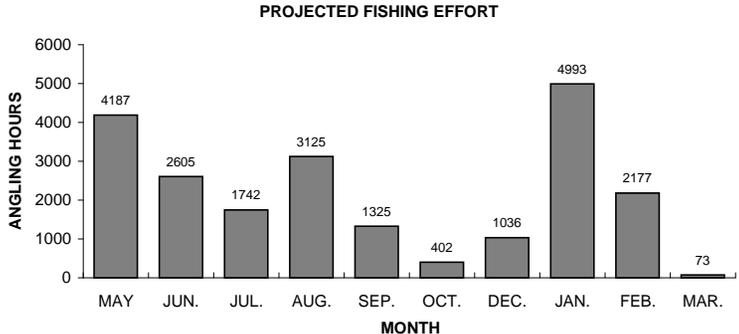
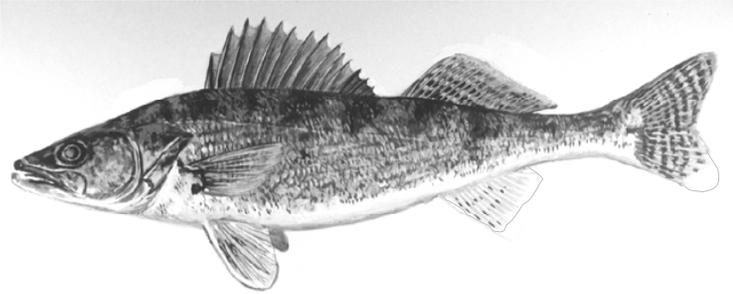
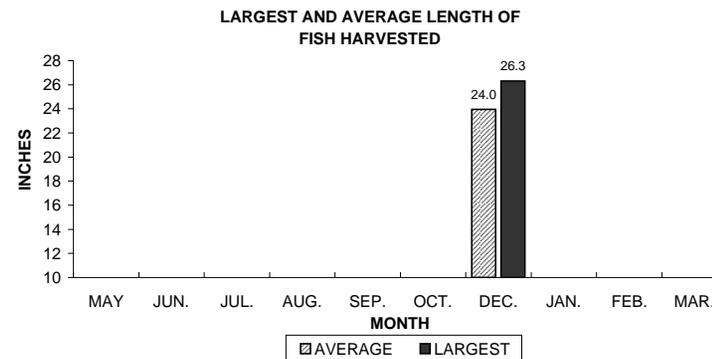
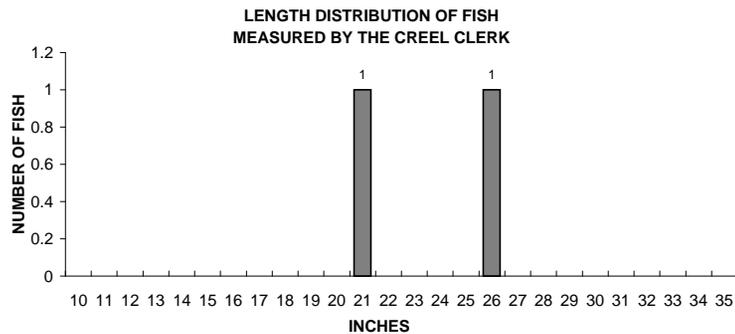
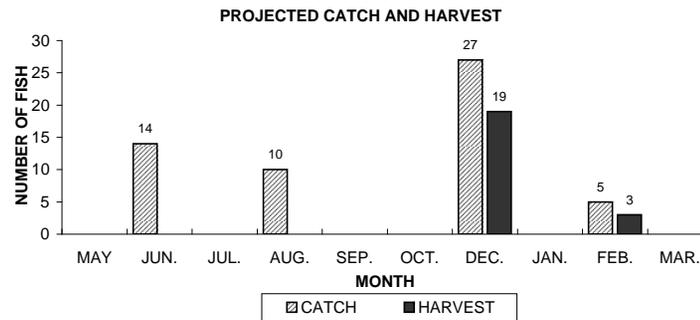
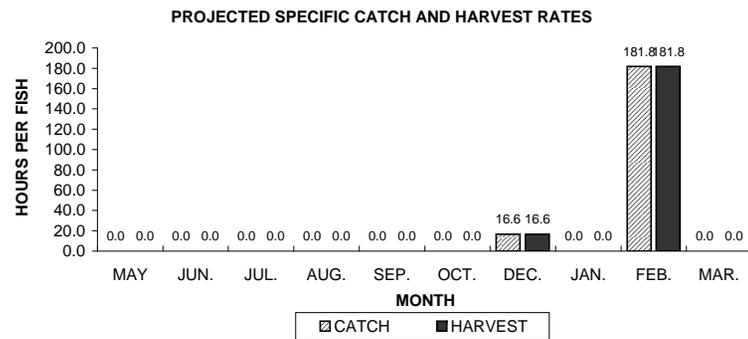
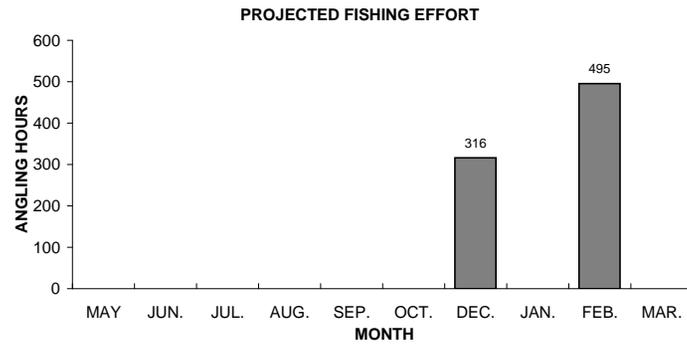
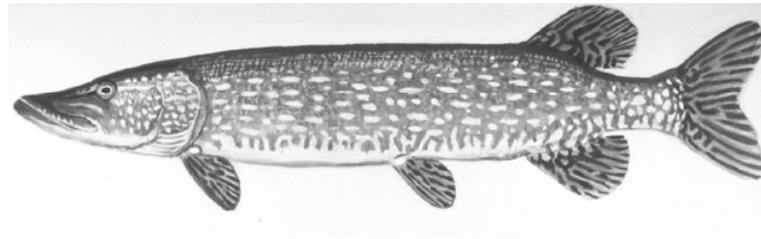


Figure 1. Walleye sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2008-09.

NORTHERN PIKE



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Figure 2. Northern pike sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2008-09.

MUSKELLUNGE

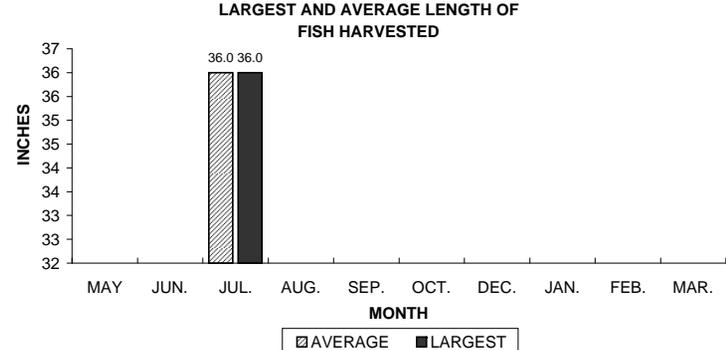
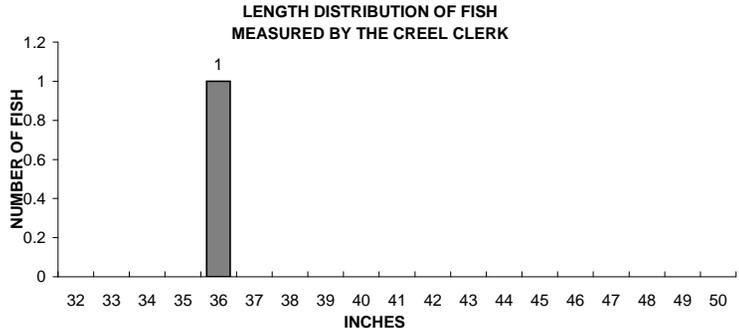
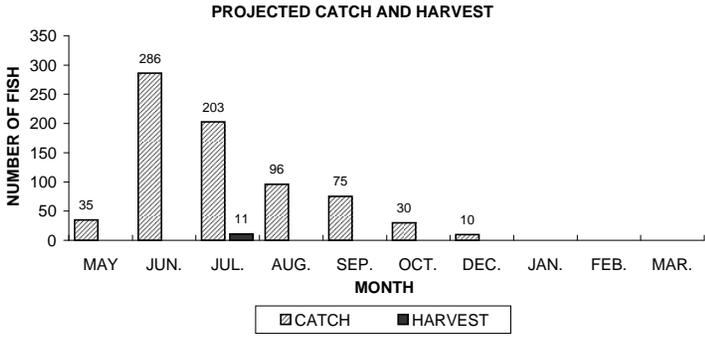
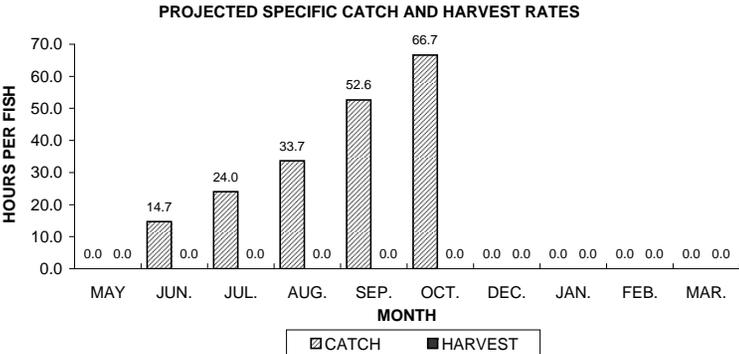
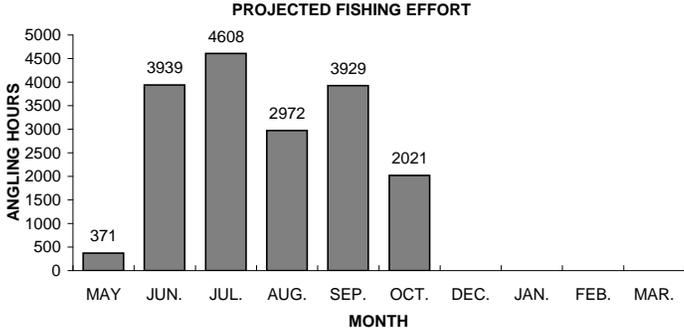
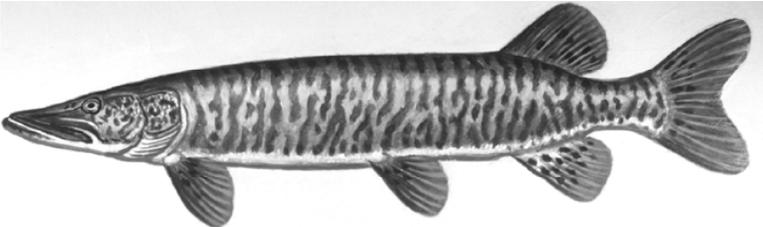


Figure 3. Muskellunge sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2008-09.

SMALLMOUTH BASS

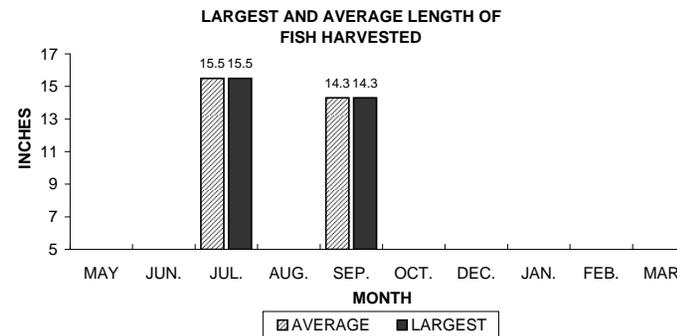
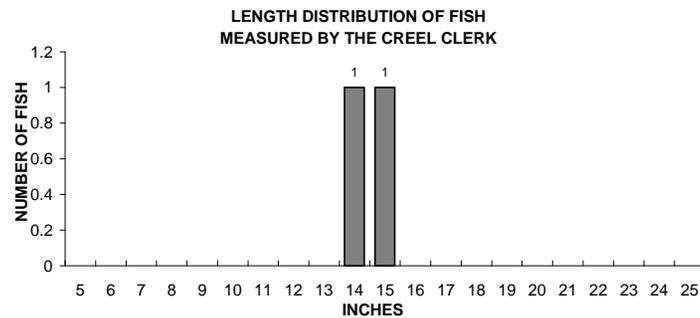
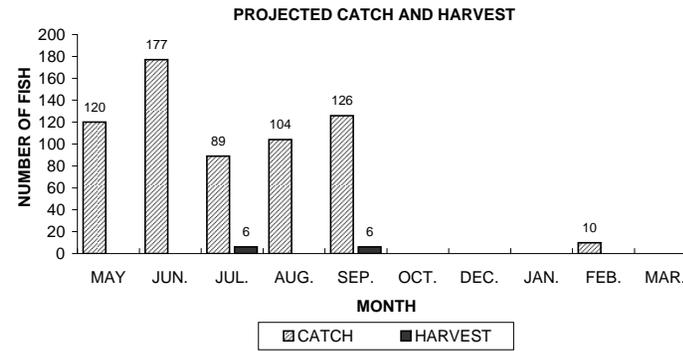
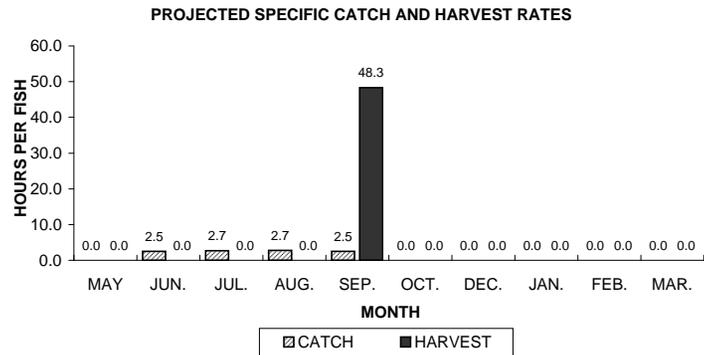
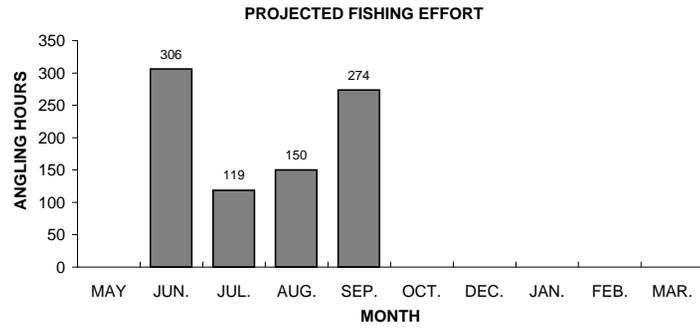
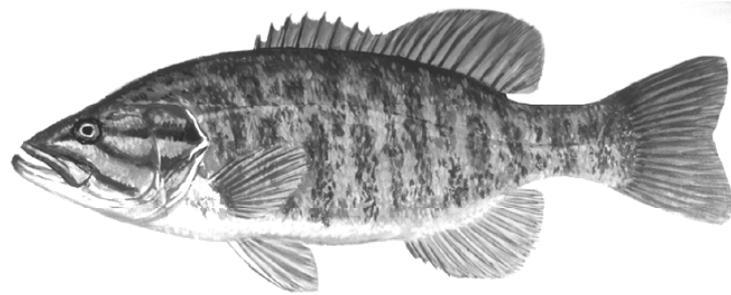


Figure 4. Smallmouth bass sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2008-09.

LARGEMOUTH BASS

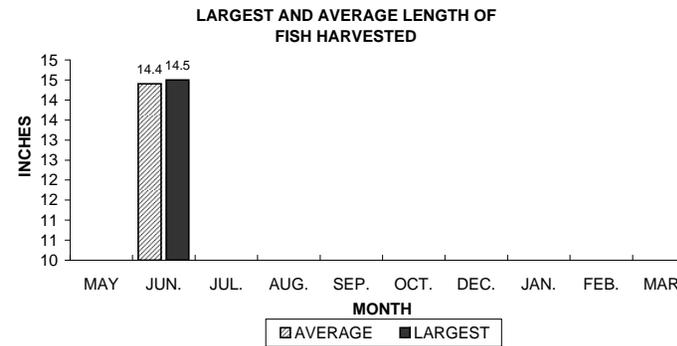
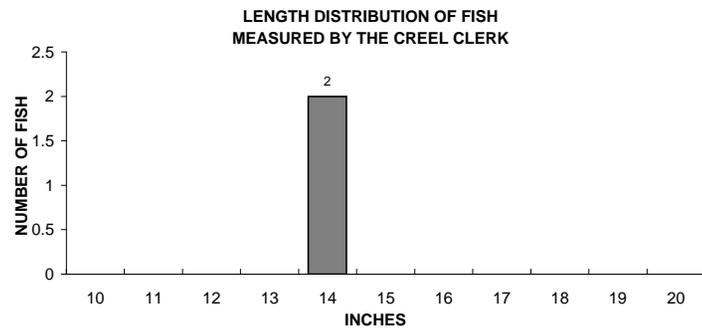
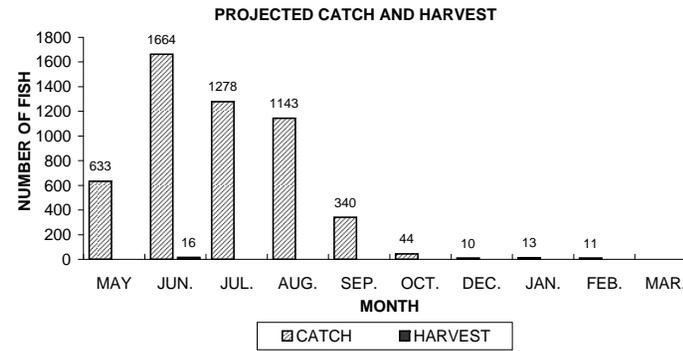
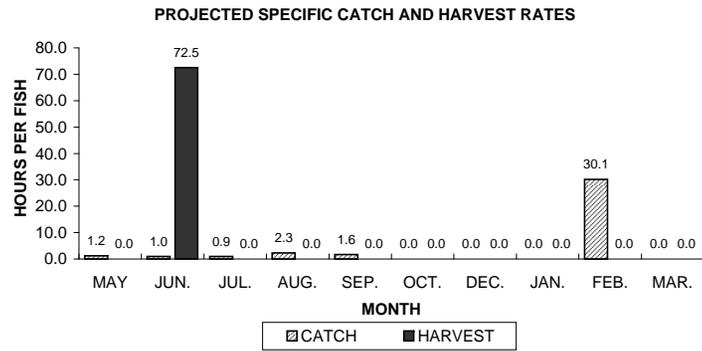
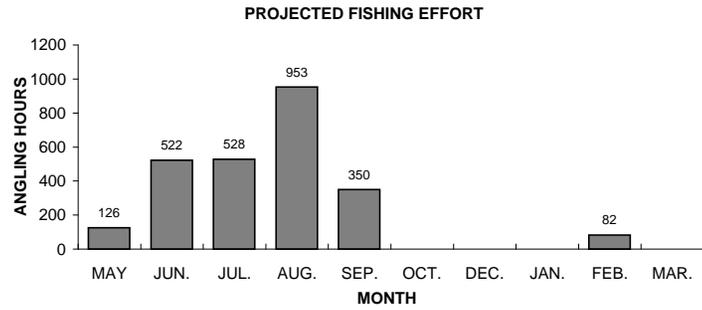
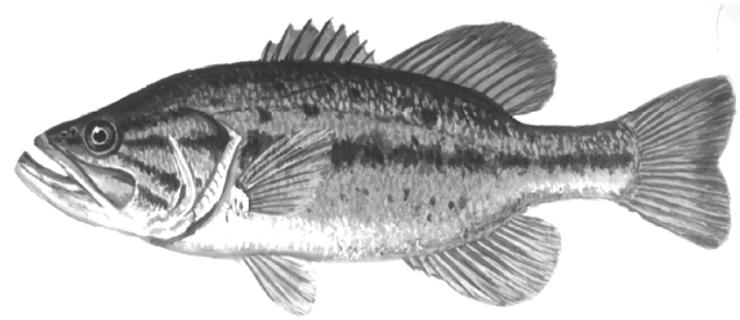


Figure 5. Largemouth bass sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2008-09.

YELLOW PERCH

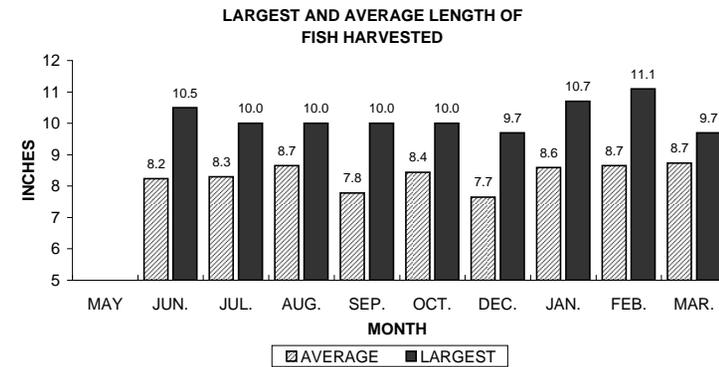
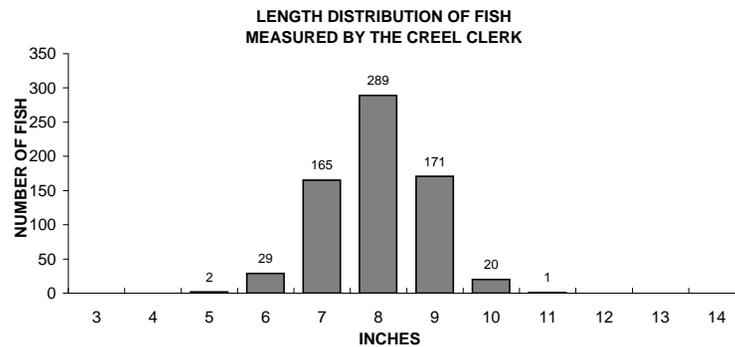
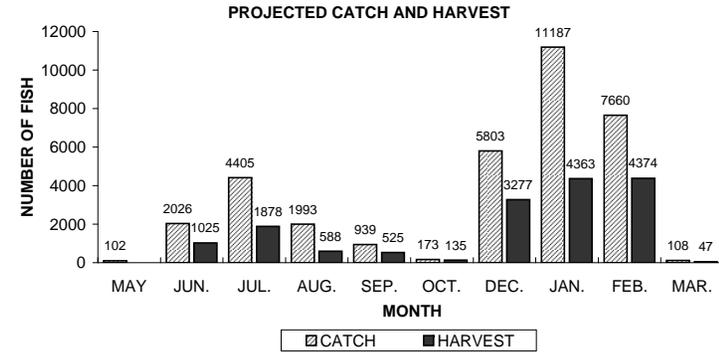
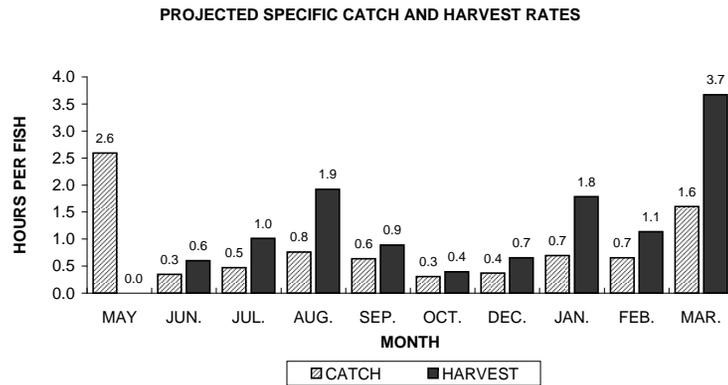
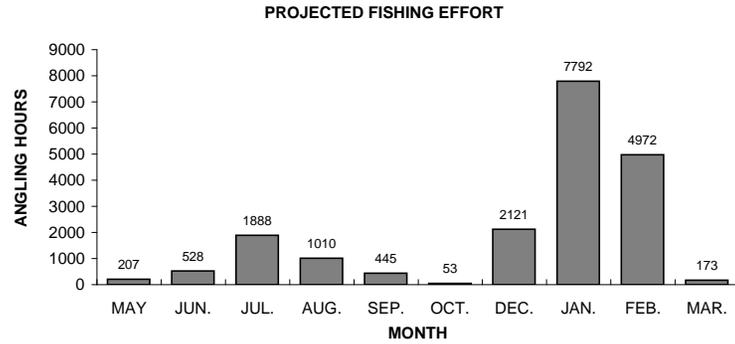
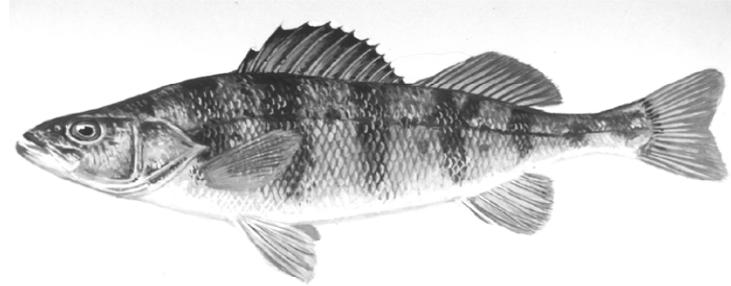


Figure 6. Yellow perch sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2008-09.

BLUEGILL

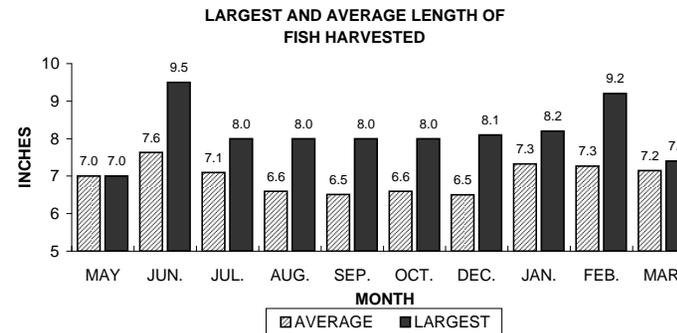
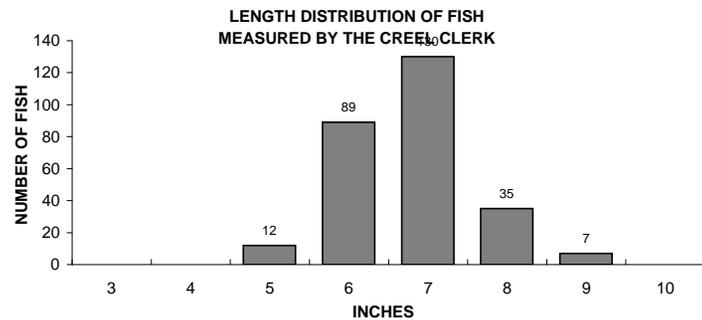
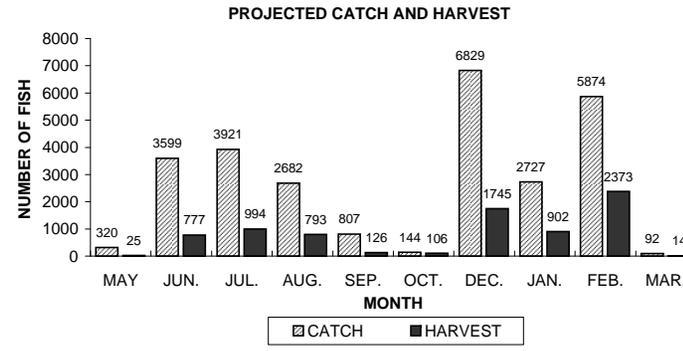
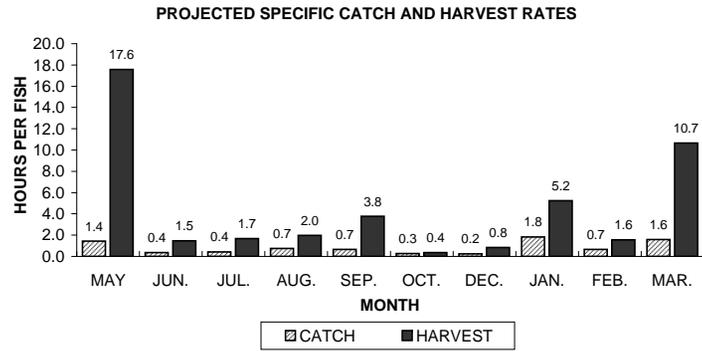
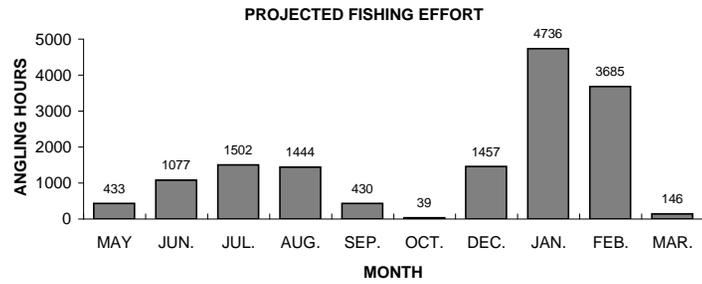
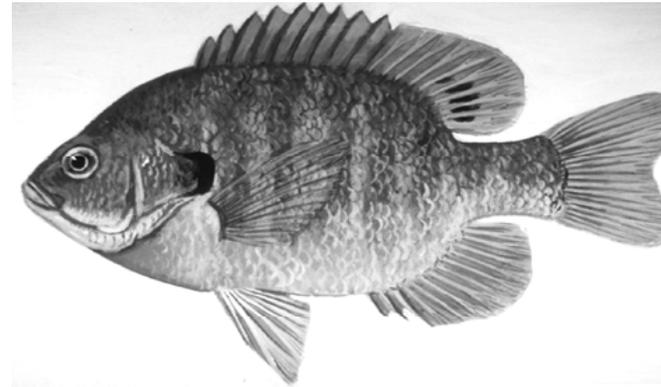


Figure 7. Bluegill sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2008-09.

PUMPKINSEED

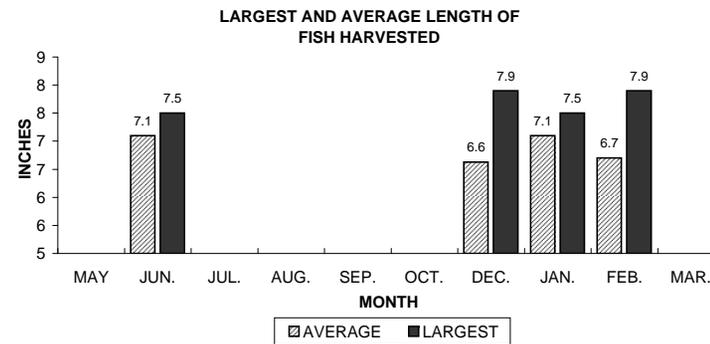
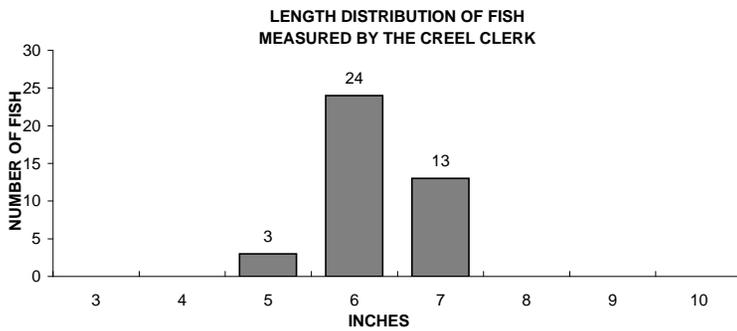
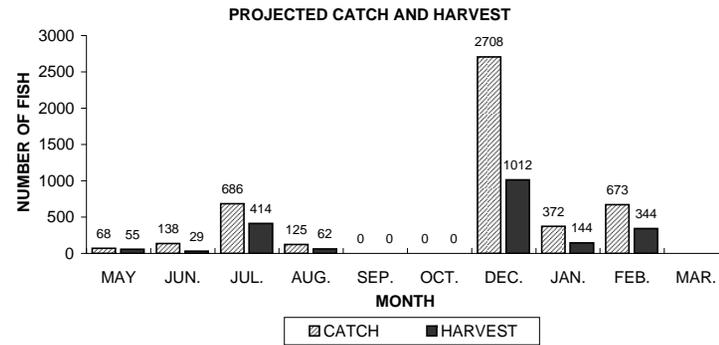
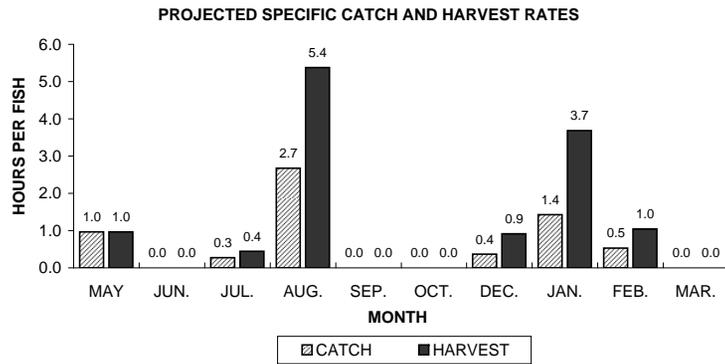
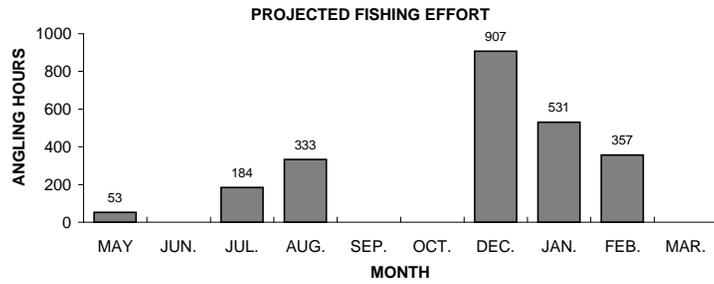
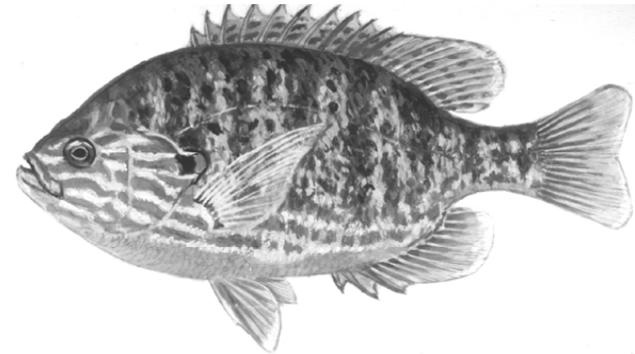


Figure 8. Pumpkinseed sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, 2008-09 during .

ROCK BASS

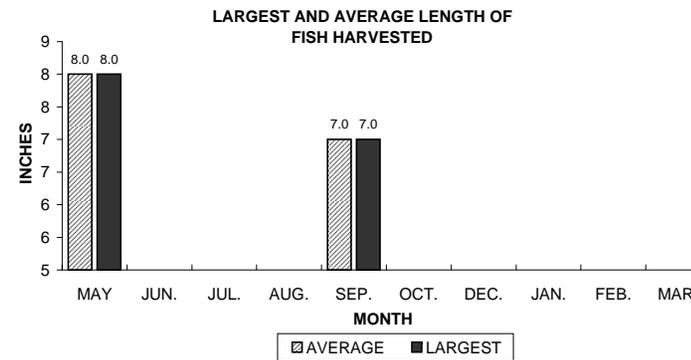
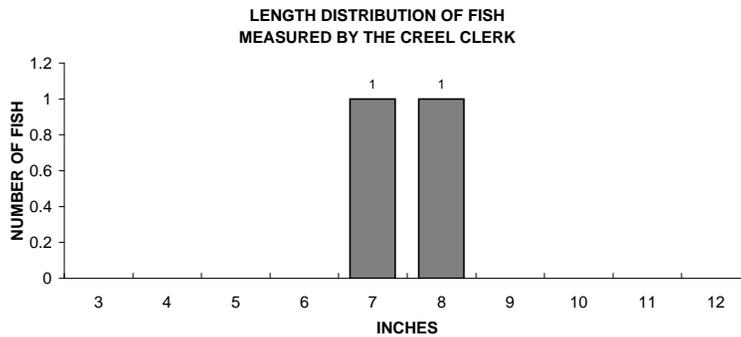
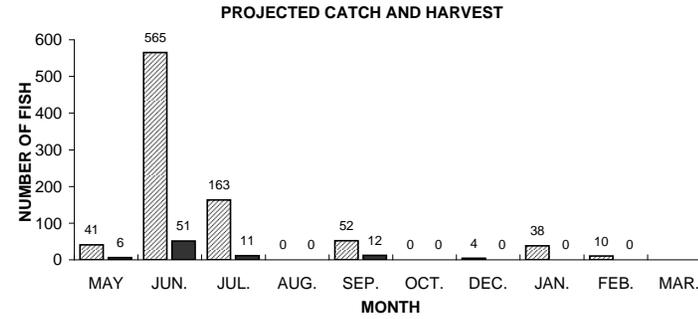
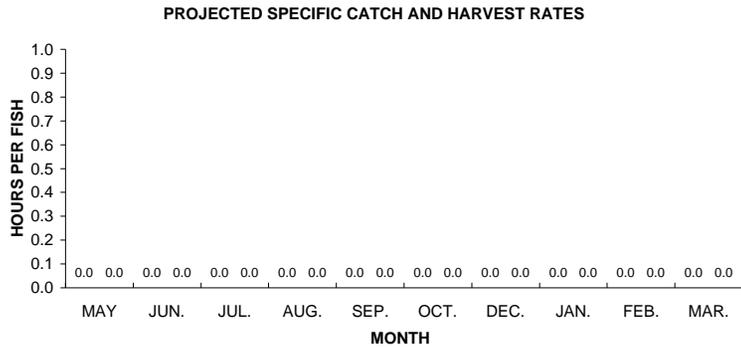
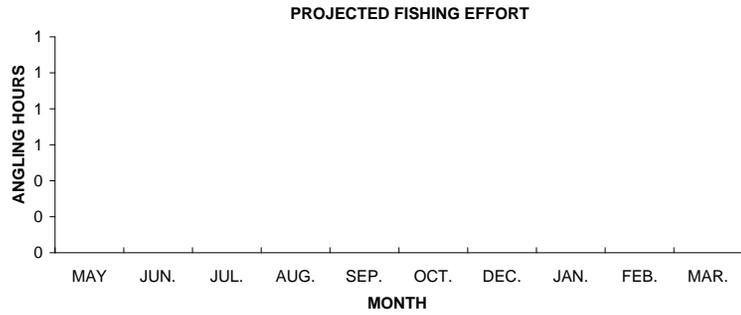
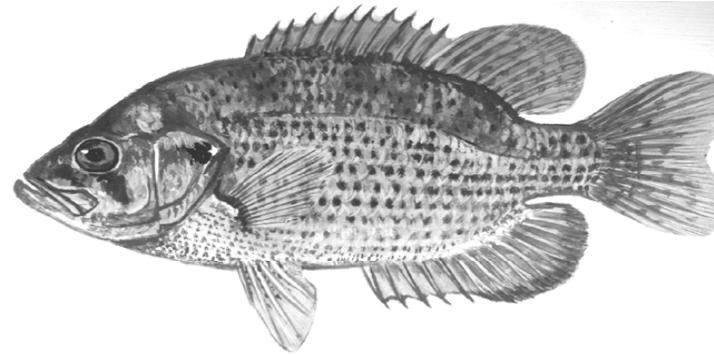


Figure 9. Rock bass sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2008-09.

BLACK CRAPPIE

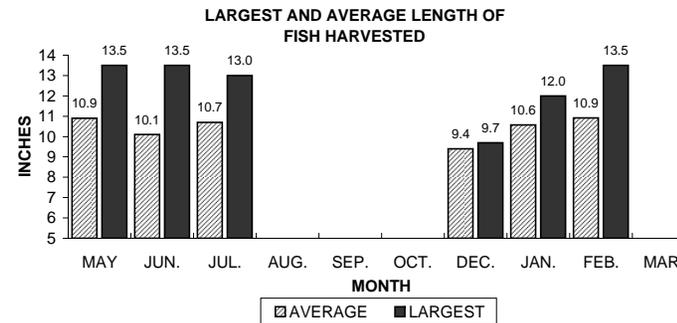
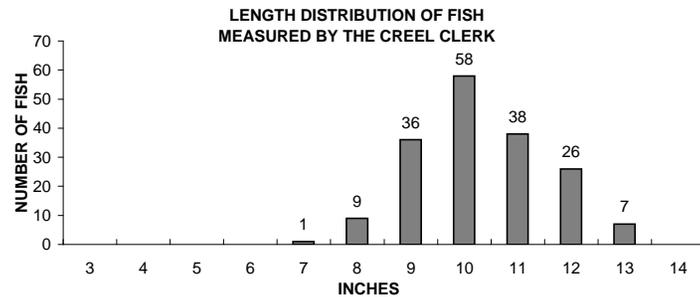
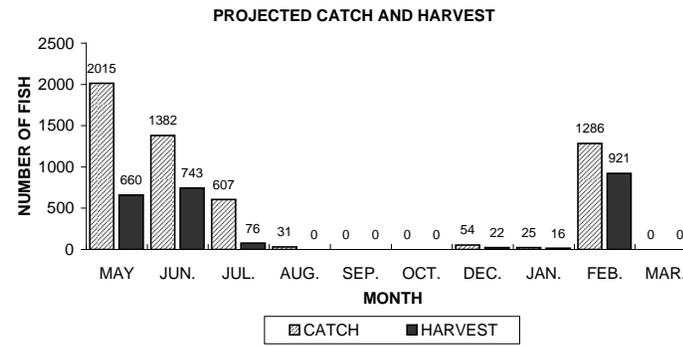
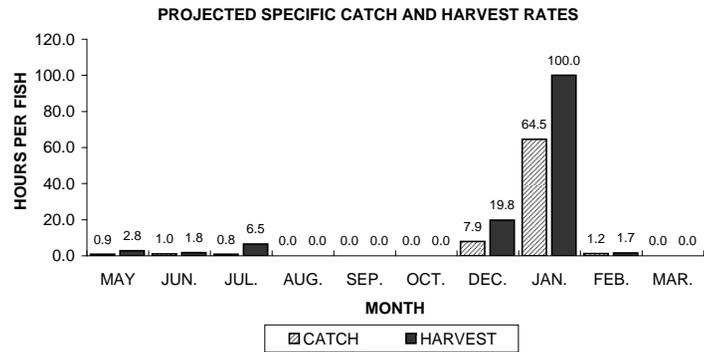
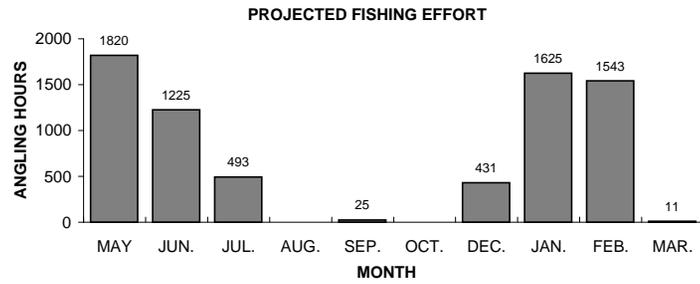
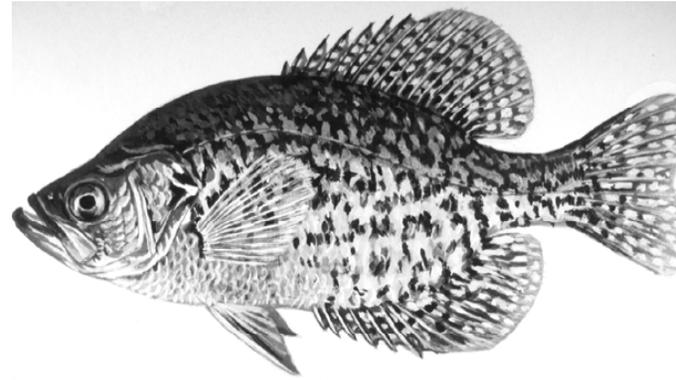


Figure 10. Black crappie sportfishing effort, catch, harvest, and length distribution, Big Arbor Vitae Lake, during 2008-09.