

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

THUNDER LAKE

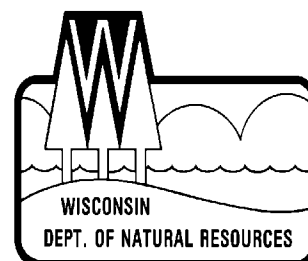
ONEIDA COUNTY

2015-16



Treaty Fisheries Publication

**Compiled by Jason Halverson &
Jeff Blonski
Treaty Fisheries Technicians**



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Cover Art: Steve Hilt, Portland, OR

Fish Graphics: Virgil Beck, Stevens Point, WI

INTRODUCTION

Fish populations can fluctuate due to natural forces (weather, predation, competition), management actions (stocking, regulations, habitat improvement), inappropriate development (habitat degradation), and harvest impacts. Wisconsin Department of Natural Resources fisheries crews regularly conduct fishery surveys on area lakes and reservoirs to gather the information needed to monitor changes, identify concerns, evaluate past management actions, and to prescribe fishery management strategies. Netting and electrofishing surveys are used to gather data on the status of fish populations and communities (species composition, population size, reproductive success, size/age distribution, and growth rates). The other key component of the fishery that we often need to measure is the harvest.

On many lakes in the Ceded Territory of northern Wisconsin, harvest of fish is divided between sport anglers and the six Chippewa tribes who harvest fish under rights granted by federal treaties. The tribes harvest fish mostly using a highly efficient method, spearing, during a relatively short time period in the spring. Every fish in the spear harvest is counted – a complete “census” of the harvest.

We measure the sport harvest to assess its impact on the fishery. However, it would be highly impractical and very costly to conduct a complete census of every angler who fishes on a lake. Therefore, we conduct creel surveys.

A creel survey is an assessment tool used to sample the fishing activities of anglers on a body of water and make projections, or estimates, of harvest and other fishery parameters. Creel survey clerks work on

randomly-selected days and shifts, forty hours per week, during the open season for gamefish from the first Saturday in May through the first Sunday in March. Creel surveys are not conducted in November when fishing effort is low and ice conditions are often unsafe. The survey is run during daylight hours, and shift times change from month to month as day length changes.

Creel survey clerks travel their lakes using a boat or snowmobile to count the number of anglers at predetermined times, and to interview anglers who have completed their fishing trip. Data is collected on what species they fished for, catch, harvest, lengths of fish harvested, marks (fin clips or tags), and hours of fishing effort. Collecting completed-trip data provides the most accurate assessment of angling activities, and it avoids the need to disturb anglers while they are fishing.

A computer program is used to make estimates of total catch and harvest of each species, catch and harvest rates, and total fishing effort by month, as well as for the year in total. Keep in mind that these are only estimates based on the best information available, and not a complete accounting of effort, catch, and harvest. Accurate estimates 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.

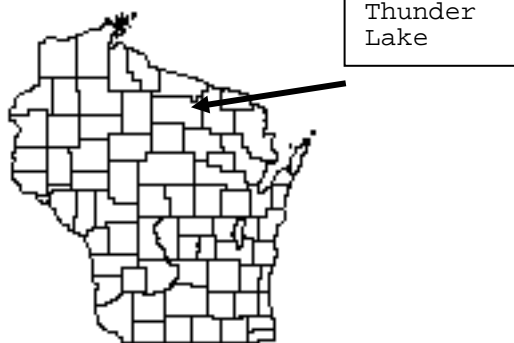
You may have encountered a DNR creel survey clerk on a recent fishing trip. We appreciate your cooperation during an interview. The survey only takes a moment of your time, and it gives the Department valuable information needed for management of the fishery.

This report provides estimates 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 Thunder Lake; discussion of results of the survey; and detailed summaries, by species, of fishing effort, catch and harvest.

GENERAL LAKE INFORMATION



Location

Thunder Lake is located in Oneida County in the Town of Three Lakes.

Physical Characteristics

Thunder Lake is an 1,835 acre drainage lake with a maximum depth of 9 feet. Littoral substrate consists primarily of sand, muck, and lesser amounts gravel. Thunder Lake contains soft water with slightly alkaline, light brown water with limited transparency.

Seasons Surveyed

The period referred to in this report as the 2015-16 fishing season ran from May 2, 2015 through March 6, 2016. The open water creel survey ran from May 2 through October 31, 2015, and the ice fishing creel survey ran from December 1, 2015 through March 6, 2016.

Weather

Ice-out on Thunder Lake was around April 13, 2015. Fishable ice formed on Thunder Lake in mid-December.

Fishing Regulations

The following seasons, daily bag limits, and length limits were in place on Thunder Lake during the 2015-16 fishing season:

Species	Season	Bag Limit	Min. Size
Largemouth Bass	5/2-3/6	5	14"
Smallmouth Bass	5/2-6/19	Catch&Release	
	6/20-3/6	5	14"
Musky	5/23-11/30	1	40"
Northern Pike	5/2-3/6	5	none
Walleye	5/2-3/6	3	18"
Panfish	year round	25	none
Rock Bass	year round	none	none

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 6 should be considered minimum estimates. Each species page has up to five graphs depicting the following:

1. **ESTIMATED FISHING EFFORT**
Total calculated number of hours during each month that anglers spent fishing for a species.
2. **ESTIMATED 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. **ESTIMATED 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 estimates contained in the report. This was the first time the department conducted a creel survey on Thunder Lake. Note: Thunder Lake experienced a significant fish kill during the winter of 2014, which likely contributed to the relatively low angler effort and catch statistics for some fish species documented during this survey.

General Angler Information

Anglers spent 5,917 hours, or 3.2 hours per acre, fishing Thunder Lake during the 2015-16 season (Table 1). That was less than the Oneida County average of 33.7 hours per acre. January was the most heavily fished month (1,175 hours). Fishing effort was lightest in October (5 hours). The creel clerks were able to conduct 241 interviews throughout the survey.

RESULTS BY SPECIES

Walleye (Table 2, Figure 1)

Anglers spent 950 hours targeting walleyes during the 2015-16 season. The greatest fishing effort for walleyes was in January (388 hours). October had the least amount of walleye fishing effort (0 hours).

Total catch of walleyes was 16 fish with a harvest of 2 fish. Highest catch (6 fish) occurred in March, and highest harvest (2 fish) occurred in January. Anglers fished 76.3 hours to catch, and 526.3 hours to harvest, a walleye during the survey. The one walleye that was measured by the creel clerk was 21.0 inches.

Northern Pike (Table 2, Figure 2)

Northern Pike received the most fishing effort during the 2015-16 season. Fishing effort directed at northern pike was 3,781 hours. Northern pike fishing effort was greatest in January (1,094 hours). Total catch of northern pike was 5,044 fish with a harvest of 1,163 fish. The mean length of harvested northern pike was 21.3 inches, and the largest northern pike measured was a 39.1-inch fish.

Muskellunge (Table 2, Figure 3)

Anglers spent 6 hours targeting muskellunge during the 2015-16 season. The only fishing effort for Muskellunge was in October (6 hours). Total catch of muskellunge was 4 fish (all incidentally caught), and there was no documented harvest during the survey.

Smallmouth Bass (Table 2, Figure 4)

Fishing effort targeted at smallmouth bass was 17 hours during the 2015-16 season. Smallmouth bass fishing effort was greatest in August (11 hours). There was no documented catch or harvest of smallmouth bass during the survey.

Largemouth Bass (Table 2, Figure 5)

Fishing effort directed at largemouth bass was 27 hours during the 2015-16 season. Largemouth bass fishing effort was greatest in August (11 hours). Total catch of largemouth bass was 9 fish (all occurring in June) with no documented harvest.

Panfish (Table 2, Figures 6-10)

Yellow perch received 2,279 hours of directed fishing effort. Total catch of yellow perch was 2,791 fish, with 208 being harvested. The mean length of yellow perch harvested was 8.1 inches.

Bluegills were the most sought after panfish species during the survey. Fishing effort directed at bluegills was 3,011 hours. Total catch of bluegills was 1,555 fish, with 621 being harvested. The mean length of bluegills harvested was 8.3 inches.

Black crappies received 2,862 hours of directed fishing effort. Anglers caught 932 black crappies and harvested 427 fish. The mean length of black crappies harvested was 10.8 inches.

Pumpkinseeds received 597 hours of directed fishing effort. Total catch of pumpkinseeds was 457 fish, with 305 being harvested. The mean length of pumpkinseeds harvested was 8.2 inches. The majority of these fish were likely bluegill-pumpkinseed hybrids.

ACKNOWLEDGMENTS

Completion of this survey was possible because of the efforts of the following fisheries management and treaty fisheries staff: Lawrence Eslinger, Jeff Blonski, Joelle Underwood, Jason Halverson, John Kubisiak, Steve Timler, Tim Tobias, and Steve Gilbert. Shae Flood and Richard Cechal were the creel clerks on Thunder Lake during the survey period.

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

The department thanks our cooperator, Dave Smith, who generously allowed the department to keep a boat and snowmobile on his property during this survey.

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

Additional copies of this report, and those covering other local lakes, can be obtained from the Woodruff DNR or online at:
<http://dnr.wi.gov/topic/Fishing/north/trtycrsrvys.html>

Table 1. Sportfishing effort summary, Thunder Lake, 2015-16 season.

Month	Number of Angler Party Interviews	Total Angler Hours	Total Angler Hours/Acre	Oneida County Average Hours/Acre	Ceded Territory Average Hours/Acre
May	41	852	0.5	4.8	5.0
June	32	1005	0.5	6.4	6.4
July	27	691	0.4	7.3	6.8
August	24	331	0.2	5.7	5.5
September	23	269	0.1	3.3	3.3
October	5	17	0.0	1.7	1.5
December	15	300	0.2	1.2	1.1
January	45	1175	0.6	1.5	1.7
February	23	955	0.5	1.5	1.6
March	6	322	0.2	0.3	0.2
*Summer Total	152	3166	1.7	29.2	28.5
*Winter Total	89	2752	1.5	4.5	4.6
Grand Total	241	5917	3.2	33.7	33.1

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

Number of Angler Party Interviews is the number of groups of anglers interviewed by the creel clerk. A party is considered the members of a group who fish together in the same boat, ice shanty, or from shore. The clerk fills out one interview form for each group of anglers. The number of individual anglers actually contacted by the clerk is usually much greater than the number of groups listed in this table since most groups consist of more than one angler.

Total Angler Hours is the estimated total number of hours that anglers spent fishing on Thunder Lake during each month surveyed.

Total Angler Hours/Acre is the total angler hours divided by the area of the lake in acres. This is useful in order to compare effort on Thunder 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 is useful for fishing pressure comparisons with other waters.

Ceded Territory Average Hours/Acre is the average angler effort in hours per acre for inland lakes in the ceded territory that have been surveyed since 1990. This value can be used to compare Thunder Lake to other lakes in northern Wisconsin.

Table 2. Creel survey synopsis, Thunder Lake, 2015-16

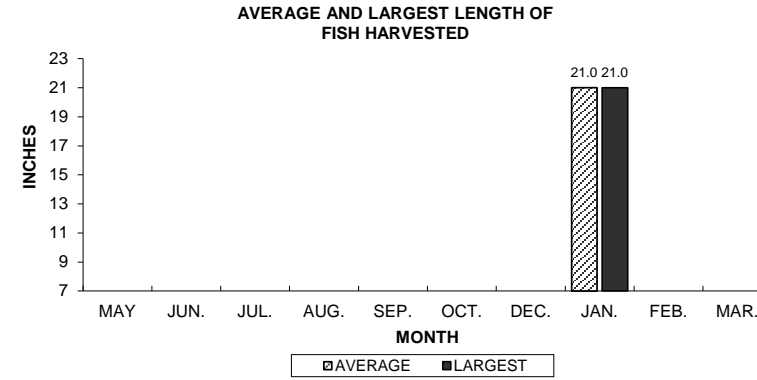
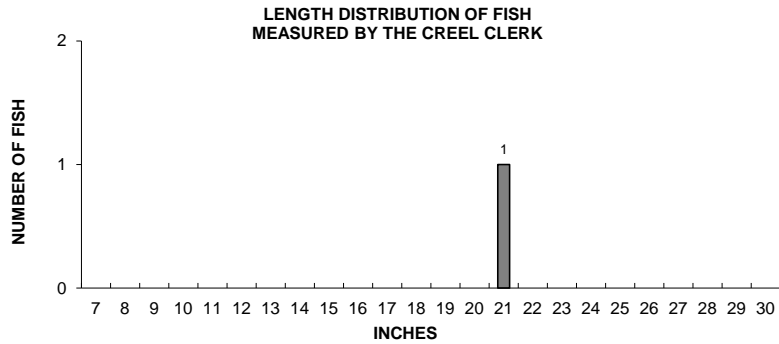
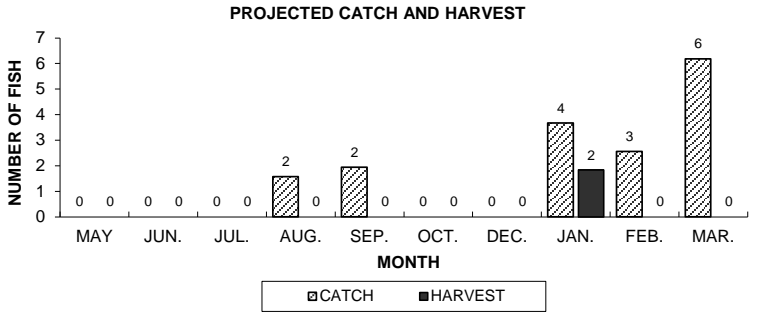
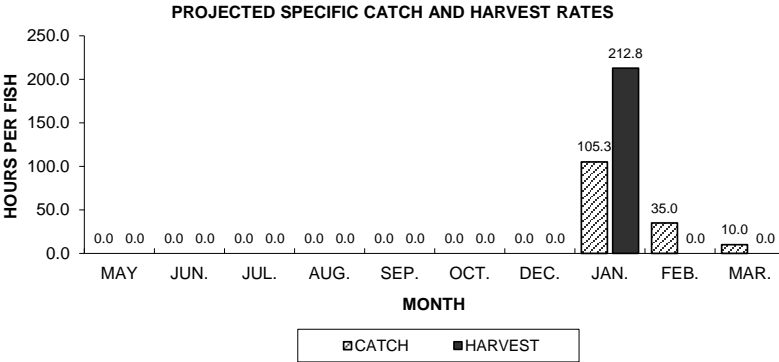
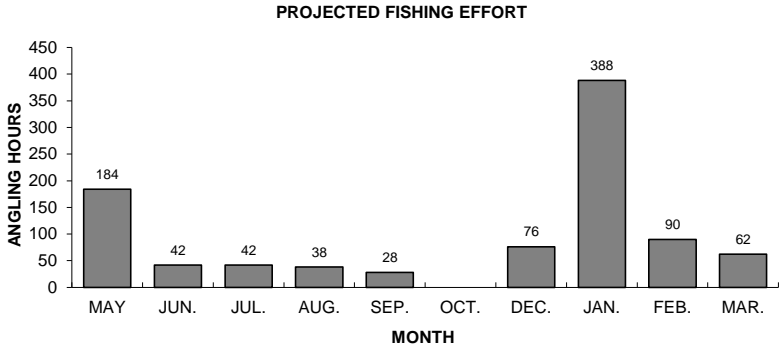
CREEL YEAR: 2015-16

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	950	7.0%	16	76.3	2	526.3	21.0
Northern Pike	3781	27.9%	5044	0.8	1163	3.3	21.3
Muskellunge	6	0.0%	4		0		
Smallmouth Bass	17	0.1%	0		0		
Largemouth Bass	27	0.2%	9		0		
Yellow Perch	2279	16.8%	2791	0.9	208	12.0	8.1
Bluegill	3011	22.3%	1555	1.9	621	4.9	8.3
Pumpkinseed	597	4.4%	457	1.4	305	2.0	8.2
Black Crappie	2862	21.2%	932	3.1	427	6.9	10.8

* 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.

WALLEYE



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Figure 1. Walleye sportfishing effort, catch, harvest, and length distribution, Thunder Lake, during 2015-16.

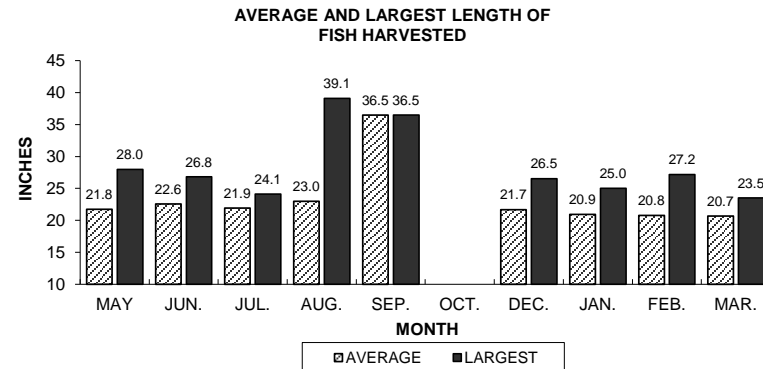
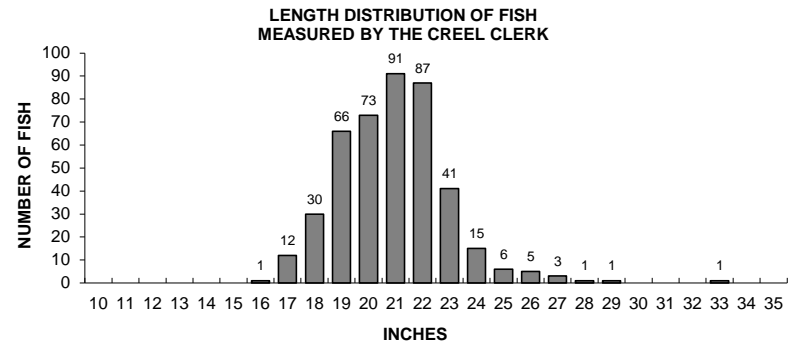
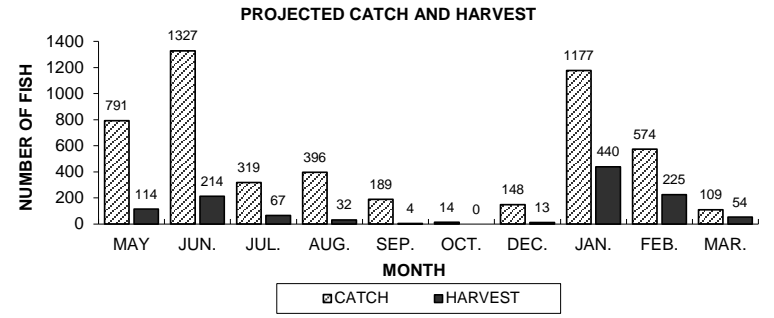
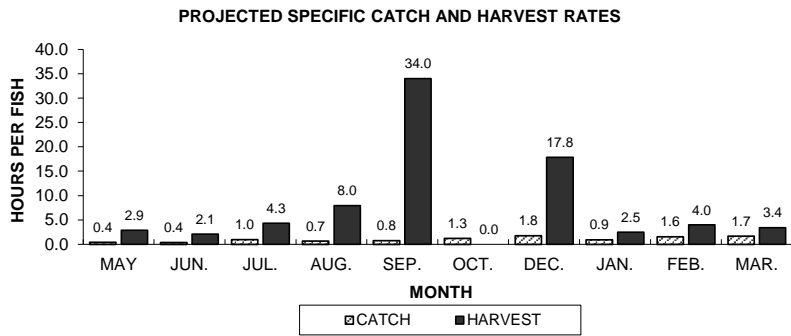
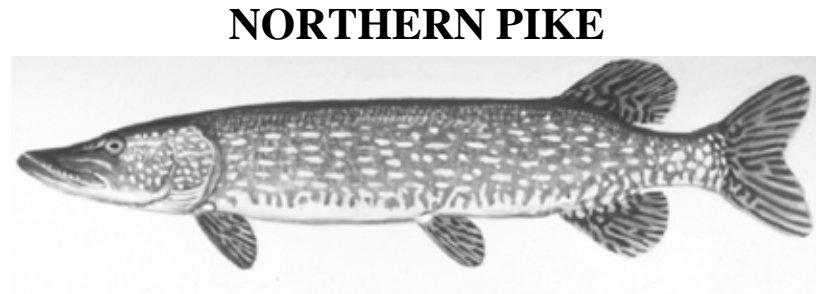
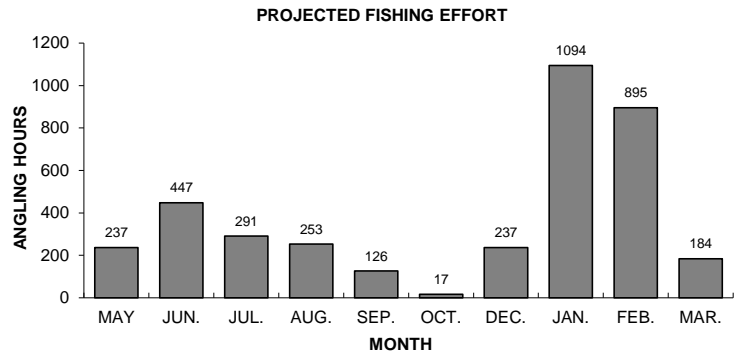


Figure 2. Northern pike sportfishing effort, catch, harvest, and length distribution, Thunder Lake, during 2015-16.

MUSKELLUNGE



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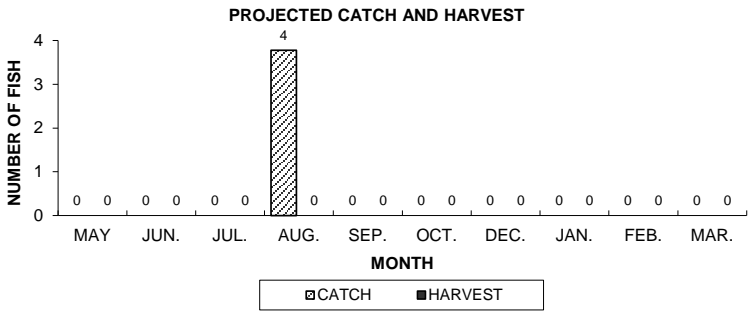
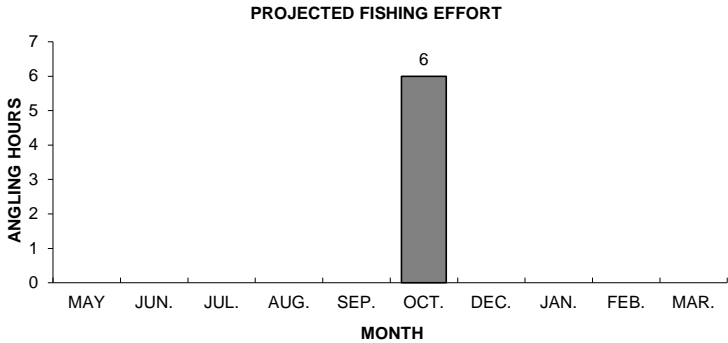
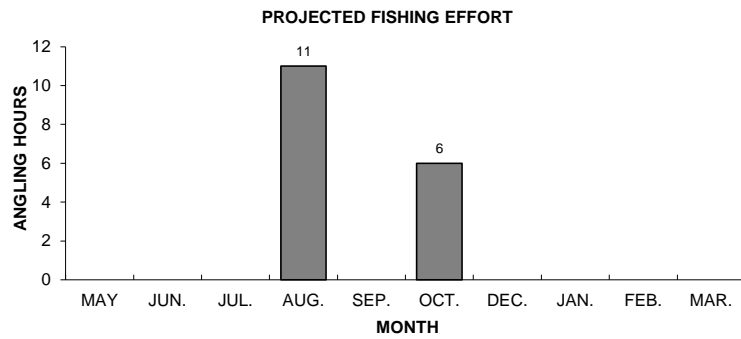


Figure 3. Muskellunge sportfishing effort, catch, harvest, and length distribution, Thunder Lake, during 2015-16.

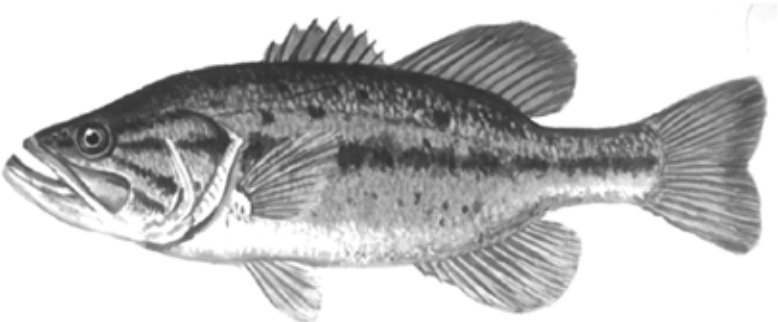


SMALLMOUTH BASS



Figure 4. Smallmouth bass sportfishing effort, catch, harvest, and length distribution, Thunder Lake, during 2015-16.

LARGEMOUTH BASS



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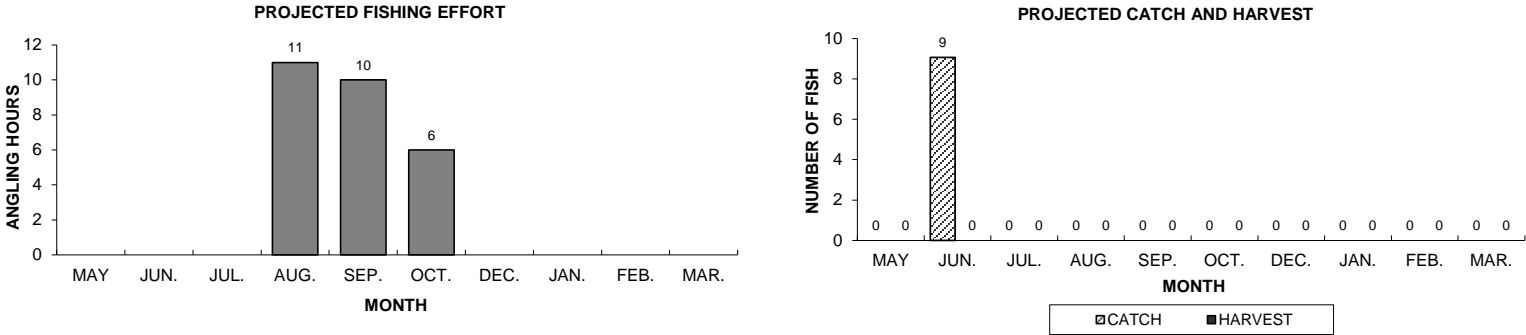


Figure 5. Largemouth bass sportfishing effort, catch, harvest, and length distribution, Thunder Lake, during 2015-16.

YELLOW PERCH

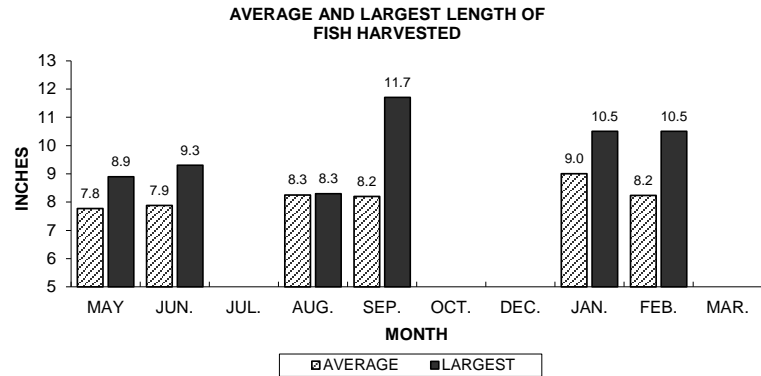
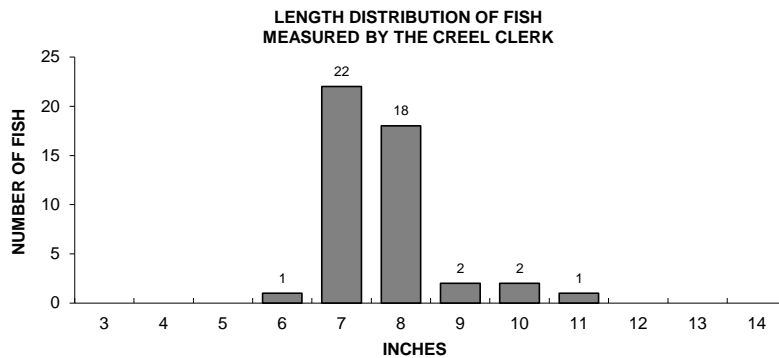
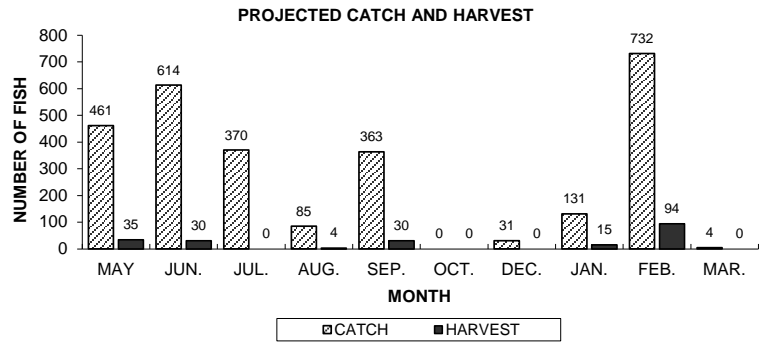
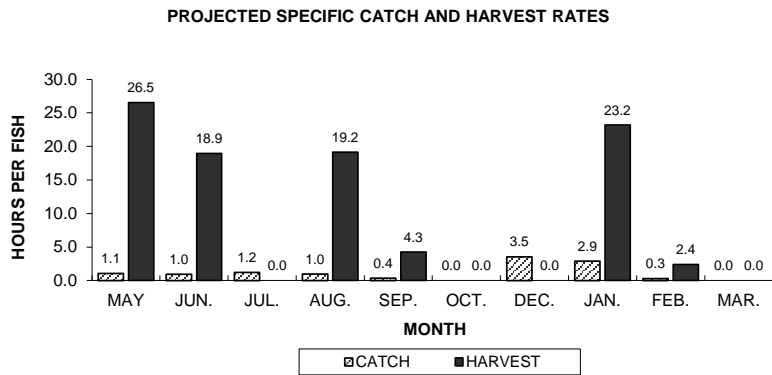
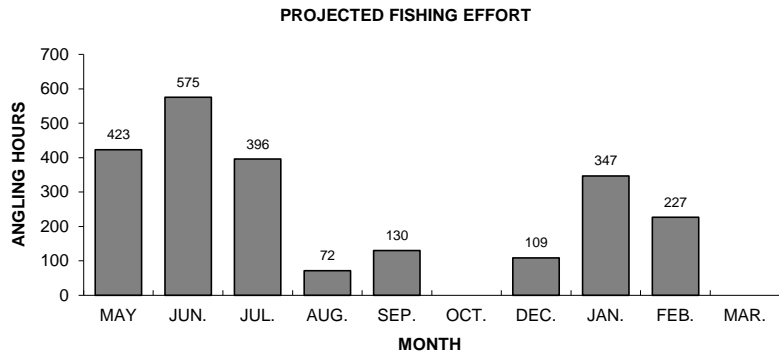


Figure 6. Yellow perch sportfishing effort, catch, harvest, and length distribution, Thunder Lake, during 2015-16.

BLUEGILL

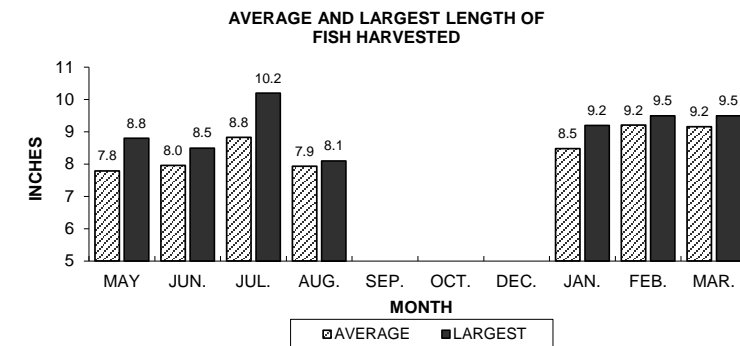
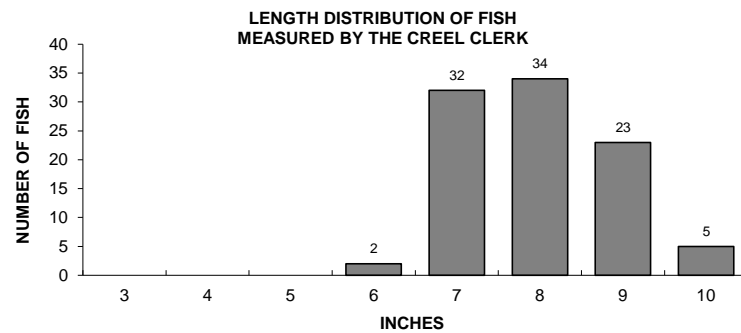
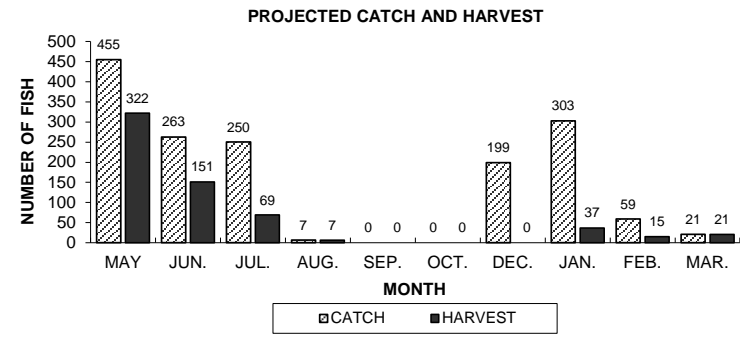
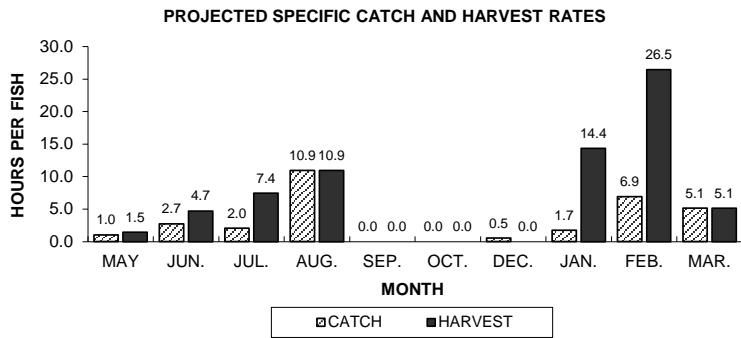
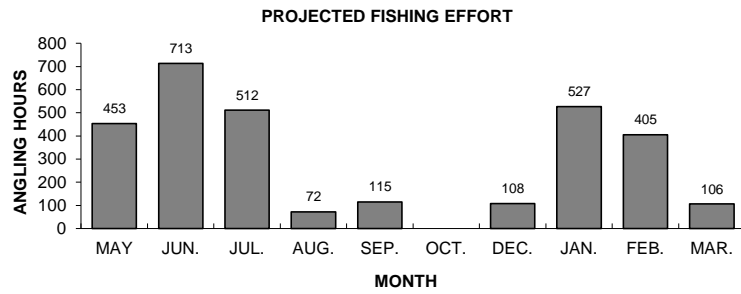
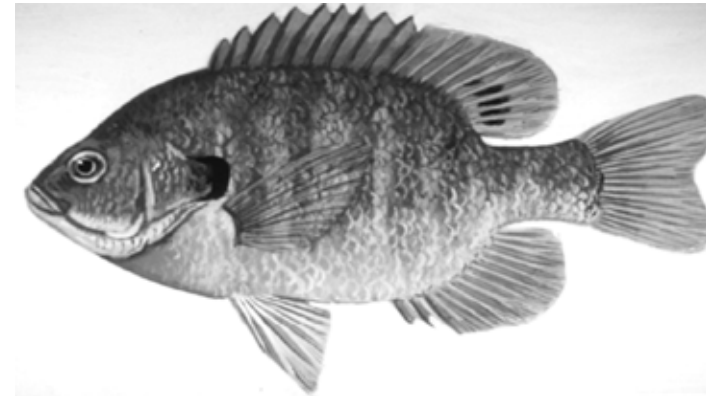


Figure 7. Bluegill sportfishing effort, catch, harvest, and length distribution, Thunder Lake, during 2015-16.

BLACK CRAPPIE

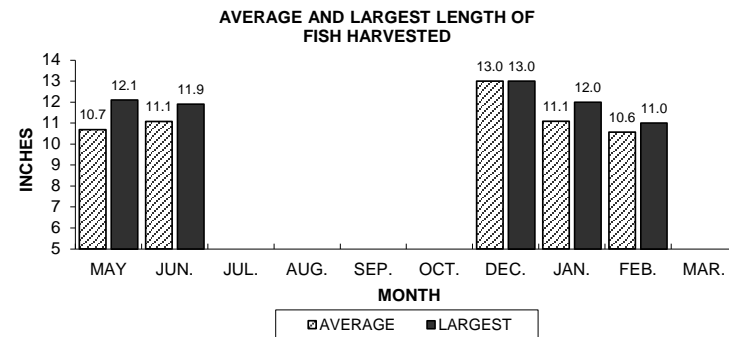
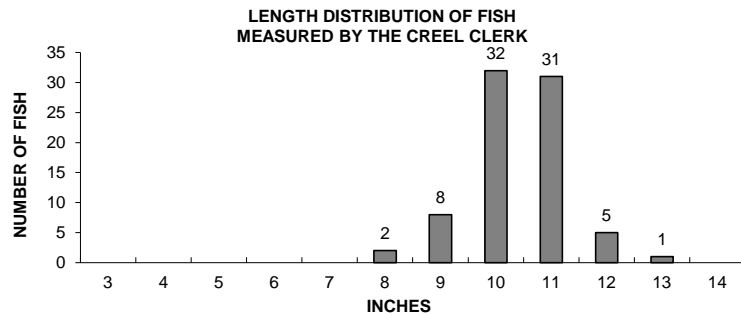
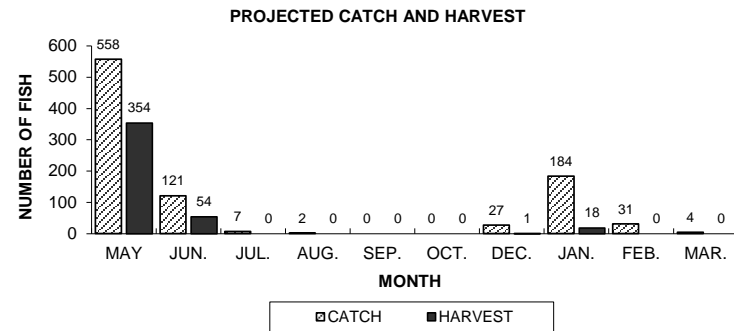
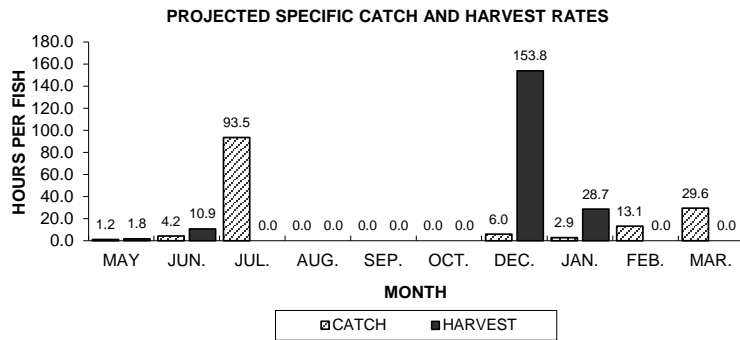
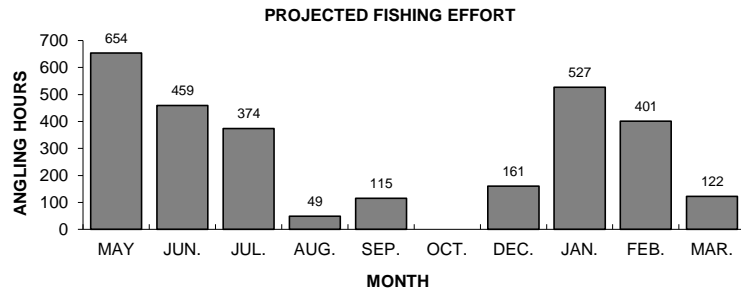
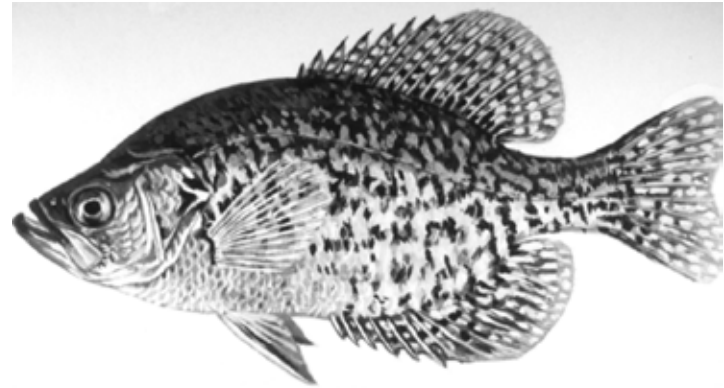


Figure 8. Black crappie sportfishing effort, catch, harvest, and length distribution, Thunder Lake, during 2015-16.

PUMPKINSEED

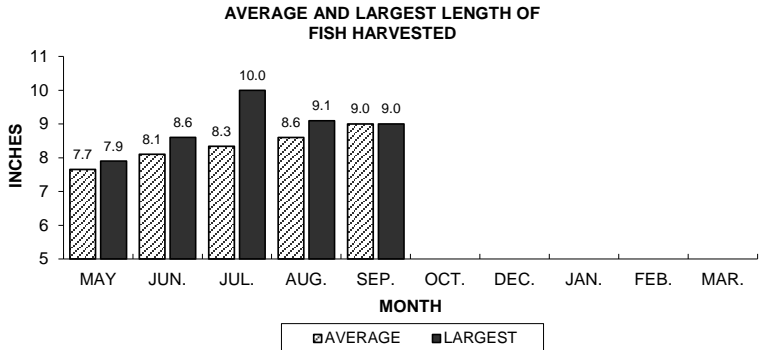
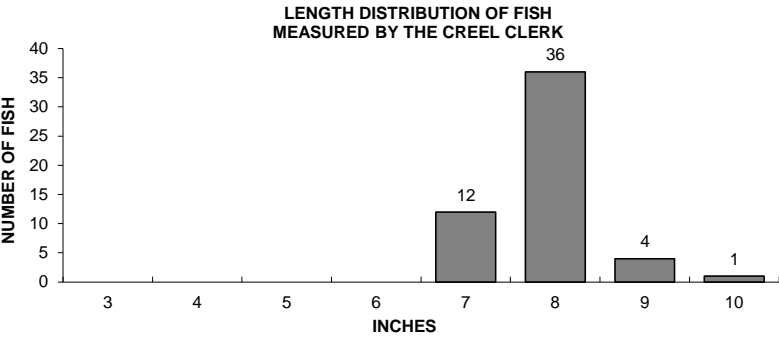
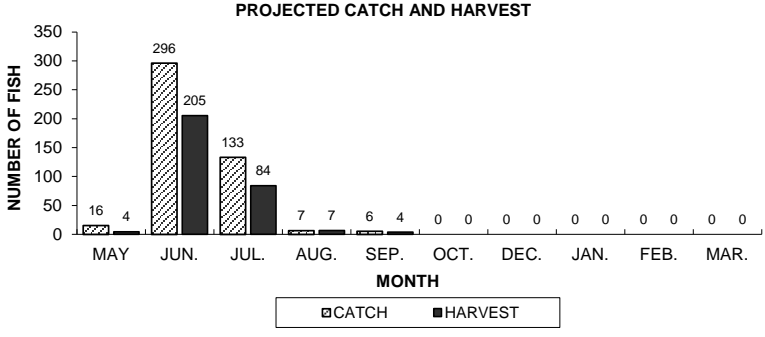
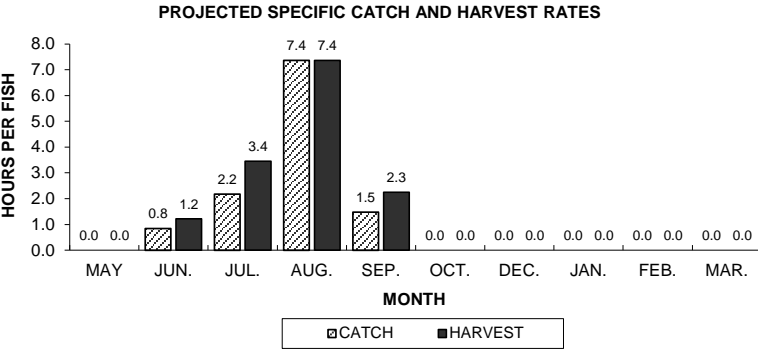
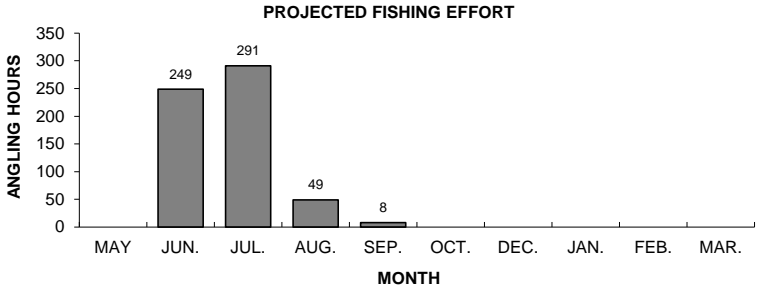
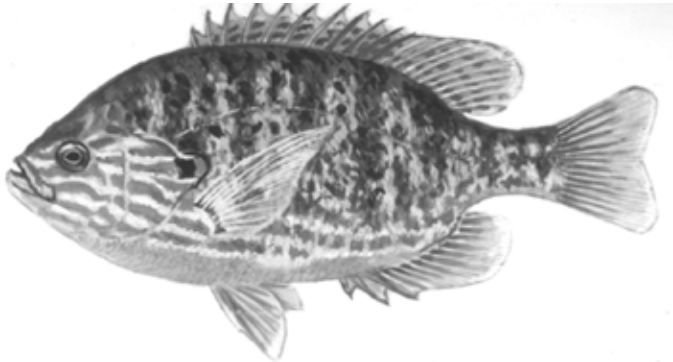


Figure 9. Pumpkinseed sportfishing effort, catch, harvest, and length distribution, Thunder Lake, during 2015-16.