

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

# RAINBOW FLOWAGE

2021 – 2022 CREEL SURVEY REPORT

ONEIDA COUNTY



Treaty Fisheries Publication

Created by  
Eric Brown & Jason Halverson  
DNR Treaty Fisheries Technicians



# CONTENTS

<b>INTRODUCTION</b> .....	1
General Lake Information .....	2
Location .....	2
Physical Characteristics .....	2
Seasons Surveyed.....	2
Weather .....	2
Fishing Regulations .....	2
Species Catch And Harvest Information .....	2
Creel Survey Results And Discussion .....	3
Survey Logistics.....	3
General Angler Information .....	3
Results By Species.....	3
Acknowledgments.....	4
 <b>SUMMARY TABLES</b>	
Table 1. Sportfishing Effort Summary .....	5
Table 2. Creel Survey Synopses.....	6
 <b>SPECIES CATCH AND HARVEST FIGURES</b>	
Gamefish	
Figure 1. Walleye .....	7
Figure 2. Northern Pike.....	8
Figure 3. Muskellunge .....	9
Figure 4. Smallmouth Bass.....	10
Figure 5. Largemouth Bass .....	11
Panfish	
Figure 6. Yellow Perch .....	12
Figure 7. Bluegill.....	13
Figure 8. Black Crappie.....	14
Figure 9. Pumpkinseed .....	15
Figure 10. Rock Bass.....	16
Other Species	
Figure 11. Bullhead species .....	17

## INTRODUCTION

Fish populations can fluctuate due to a variety of factors including natural forces like climate, reproductive success, predation and competition. Human activities such as fish harvest, stocking, habitat change and invasive species introduction can also have significant impacts. The Wisconsin Department of Natural Resources (DNR) fisheries crews regularly conduct fishery surveys on 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, measuring such parameters as species composition, population size, reproductive success, size and age distribution and growth rates. Harvest is another key component of fisheries that we need to measure.

On many lakes in the Ceded Territory of northern Wisconsin, harvest of fish is divided between sport anglers and the six Ojibwe bands who harvest fish under rights reserved by federal treaties. The tribes harvest fish primarily using spearing, a highly efficient method, during a relatively short time in the spring. Every fish in the spear harvest is counted and reported, creating a complete census of the harvest.

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

A creel survey is an assessment tool used to sample the fishing activities of anglers on a body of water to make estimates of harvest and other fishery parameters. Creel survey clerks work on randomly-selected days and shifts, forty hours per week. The survey is conducted during daylight hours throughout 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.

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 are 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 estimate catch and harvest of each species, catch and harvest rates and fishing effort by month, as well as for the year in total. Keep in mind that these are 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 depends on good cooperation and truthful responses by anglers when a creel clerk interviews them.

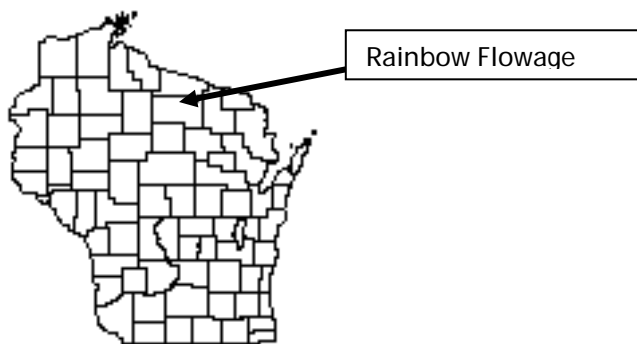
You may have encountered a DNR creel survey clerk on a recent fishing trip. We appreciate your cooperation during an interview. The survey only takes a few minutes of your time and it gives the DNR valuable information needed for management of the fishery.

This report provides estimates of:

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

Also included are a physical description of Rainbow Flowage, discussion of results of the survey and detailed summaries by species of fishing effort, catch and harvest.

## GENERAL LAKE INFORMATION



### LOCATION

Rainbow Flowage is located in Oneida County near the town of Saint Germain.

### PHYSICAL CHARACTERISTICS

The Rainbow Flowage is a 2,035-acre impoundment of the Wisconsin River with a maximum depth of 28 feet. Littoral substrate consists primarily of sand, with lesser amounts of muck and gravel. Rainbow Flowage contains soft, neutral, clear water of low transparency.

### SEASONS SURVEYED

The period referred to in this report as the 2021-22 fishing season ran from May 1, 2021 through March 6, 2022. The summer creel survey ran from May 1 through Oct. 31, 2021 and the winter creel survey ran from Dec. 1, 2021 through March 6, 2022.

### WEATHER

Ice-out on Rainbow Flowage occurred in early April 2021. Fishable ice formed on the Rainbow Flowage in mid-December 2021.

### FISHING REGULATIONS

The following seasons, daily bag limits and length limits were in place on Rainbow Flowage during the 2021-22 fishing season:

SPECIES	SEASON	BAG LIMIT	MIN. SIZE
Largemouth Bass	5/ 01 - 3/ 06	5	14"
Smallmouth Bass	5/ 01 - 6/ 18	Catch&Release	
	6/ 19 - 3/ 06	5	14"
Musky	5/ 01 - 12/ 31	1	50"
	On open water		
Northern Pike	5/ 01 - 3/ 06	5	None
Walleye	5/ 01 - 3/ 06	3	15"
	20" - 24" Protected Slot, 1>24"		
Panfish	Open all year	25	None
Rock Bass	Open all year	None	None

## SPECIES CATCH AND HARVEST INFORMATION

Summaries of angling effort, catch and harvest information for each species are in Table 2 and Figures 1-11. Table 2 also includes a comparison of these statistics with the previous creel survey. Information about species with fishing seasons extending beyond March 6, 2021 should be considered minimum estimates. Each species page has up to five graphs depicting the following:

- DIRECTED FISHING EFFORT**  
 Estimated number of hours during each month that anglers spent fishing for a species.
- TOTAL CATCH AND HARVEST**  
 Estimated number of fish of the indicated species caught or harvested by all anglers, regardless of targeted species.
- SPECIFIC CATCH AND HARVEST RATES**  
 Estimated 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.
- LENGTH DISTRIBUTION OF HARVESTED FISH**  
 All fish of a species that were measured by the clerk during the entire creel survey season.
- LARGEST AND AVERAGE LENGTH OF HARVESTED FISH**  
 The largest and average (mean) length

of a species of fish harvested. Only fish measured by the creel survey clerk are reported.

## CREEL SURVEY RESULTS AND DISCUSSION

### SURVEY LOGISTICS

We encountered no unusual problems conducting the survey. Given the size of the Rainbow Flowage and its number of access points, we used a bus route creel methodology during the summer survey (open water, thru October). During the winter survey (ice, thru end of gamefish season), we used our traditional access point creel methodology. This was consistent with methods used during the last Rainbow Flowage creel survey in 2012-13. Due to the differing creel methods (bus route vs. access point), some estimates cannot be combined, and are therefore presented separately by survey. Overall, this was the fourth time the DNR conducted a creel survey on Rainbow Flowage.

### GENERAL ANGLER INFORMATION

Anglers spent 67,556 hours, or 33.2 hours per acre, fishing Rainbow Flowage during the 2021-22 season (Table 1). Fishing effort matched the Oneida County average of 33.2 hours per acre, and more than the fishing effort documented during the 2012-13 creel survey (26.5 hours per acre). May was the most heavily fished month (15,996 hours), and fishing effort was lightest in February (3,251 hours). Creel clerks were able to conduct 754 interviews throughout the summer and winter surveys.

### RESULTS BY SPECIES

#### WALLEYE (Table 2, Figure 1)

Walleye received the most fishing effort of any gamefish species during the season. Anglers spent 44,967 hours targeting Walleye. The greatest fishing effort for Walleye was in May (10,794 hours). February had the least amount of Walleye fishing effort (1,063 hours). Total catch of Walleye was 13,503 fish, with a harvest of 1,813. The highest catch (3,082 fish)

and highest harvest (473 fish) both occurred in May. Anglers fished an estimated 3.0 hours to catch and 22.9 hours to harvest a Walleye during the summer. During the winter, anglers fished an estimated 15.6 hours to catch, and 106.7 hours to harvest a Walleye. Mean length of harvested Walleye was 16.2 inches, and the largest measured was a 20.2-inch fish.

#### NORTHERN PIKE (Table 2, Figure 2)

Fishing effort directed at Northern Pike was 11,819 hours during the season. Northern Pike fishing effort was greatest in January (2,734 hours). Total catch of Northern Pike was 18,283 fish, and total harvest of 2,289 fish. Anglers fished an estimated 0.9 hours (summer) and 3.2 hours (winter) to catch a Northern Pike during the survey. Mean length of harvested Northern Pike was 20.4 inches and the largest measured was a 27.0-inch fish.

#### MUSKELLUNGE (Table 2, Figure 3)

Anglers spent 2,867 hours targeting Muskellunge during the season. Muskellunge fishing effort was greatest in June (696 hours). Total catch of Muskellunge was 118 fish. Anglers fished an estimated 36.7 hours to catch a Muskellunge, and there was no documented harvest during the survey.

#### SMALLMOUTH BASS (Table 2, Figure 4)

Fishing effort targeted at Smallmouth Bass was 5,792 hours during the season. Smallmouth Bass fishing effort was greatest in July (1,363 hours). Total catch of Smallmouth Bass was 3,731 fish, with 94 harvested. The highest catch (1,216 fish) occurred in July. Anglers fished an estimated 2.9 hours (summer) and 9.0 hours (winter) to catch a Smallmouth Bass during the survey.

#### LARGEMOUTH BASS (Table 2, Figure 5)

Fishing effort directed at Largemouth Bass was 2,552 hours during the season. Largemouth Bass fishing effort was greatest in July (943 hours). Total catch of Largemouth Bass was 144 fish, with a harvest of 12. The highest catch (44 fish) occurred in July. Anglers fished an estimated 29.2 hours (no winter effort) to catch a Largemouth Bass during the survey.



**PANFISH** (Table 2, Figures 6-11)

**YELLOW PERCH** received 20,594 hours of directed fishing effort. Total catch of Yellow Perch was 23,211 fish, with 5,935 harvested. Mean length of Yellow Perch harvested was 9.2 inches.

**BLUEGILL** received 6,558 hours of directed fishing effort. Total catch of Bluegill was 4,039 fish, with 1,263 harvested. Mean length of Bluegill harvested was 8.2 inches.

**BLACK CRAPPIE** was the most sought after panfish species during the survey. Fishing effort directed at Black Crappie was 24,200 hours. Anglers caught 8,986 Black Crappie and harvested 4,631. Mean length of Black Crappie harvested was 11.4 inches.

**PUMPKINSEED** received 788 hours of directed fishing effort. Total catch of Pumpkinseed was 215 fish, with 127 harvested. Mean length of Pumpkinseed harvested was 7.4 inches.

**ROCK BASS** received only 70 hours of directed fishing effort. However, anglers caught 770 Rock Bass and harvested 62. Mean length of Rock Bass harvested was 9.0 inches.

**BULLHEAD SPECIES** received 31 hours of directed fishing effort. Anglers caught 1,968 Bullhead species and harvested 127. Mean length of Bullhead species harvested was 11.0 inches.

**WHITE SUCKER** and **REDHORSE SPECIES** were caught in small numbers during the survey with no targeted fishing effort.

## **ACKNOWLEDGMENTS**

The DNR would like to 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.

We also thank our cooperator, Wisconsin Valley Improvement Company (WVIC), who generously allowed the DNR to keep a snowmobile on their property during this

survey.

Completion of this survey was possible because of the efforts of the following fisheries management and treaty fisheries staff: John Kubisiak, Lawrence Eslinger, Joelle Underwood, Jason Halverson, Eric Brown and Bob Consolo. Creel clerks on Rainbow Flowage during the survey period were Marty Kiepke, John Davis and Richard Cechal.

This creel report was reviewed by John Kubisiak and Lawrence Eslinger of the DNR.

Additional copies of this report and those covering other local lakes can be obtained from the DNR Woodruff Service Center or online at:

<http://dnr.wisconsin.gov/topic/Fishing/north/trtycrlsruvys.html>

**Table 1. Sportfishing effort summary, Rainbow Flowage, 2021-22 season; compared to 2012-13 creel results, Oneida County averages, and Ceded Territory averages.**

Month	Number of Angler Party Interviews	Total Angler Hours	Total Angler Hours/Acre	2012-13 Total Angler Hours/Acre	Oneida County Average Hours/Acre	Ceded Territory Average Hours/Acre
May	111	15,996	7.9	6.6	4.8	4.8
June	90	8,804	4.3	4.4	6.3	6.2
July	103	10,282	5.1	2.9	7.2	6.6
August	80	6,283	3.1	3.1	5.6	5.2
September	96	6,977	3.4	2.4	3.3	3.2
October	83	4,182	2.1	0.8	1.6	1.4
December	40	5,197	2.6	1.8	1.2	1.1
January	93	6,469	3.2	2.6	1.6	1.7
February	56	3,251	1.6	1.6	1.6	1.6
March	2	115	0.1	0.3	0.3	0.2
Summer Total	563	52,525	25.8	20.2	28.7	27.3
Winter Total	191	15,031	7.4	6.2	4.7	4.6
Grand Total	754	67,556	33.2	26.5	33.2	31.5

Note: 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 Rainbow Flowage 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 Rainbow Flowage to other lakes.

**2012-13 Total Angler Hours/Acre** is the total angler hours divided by the area of the lake in acres. This is from the previous creel survey that took place on Rainbow Flowage.

**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 Rainbow Flowage to other lakes in northern Wisconsin.

Table 2. Comparison of creel survey synopses, Rainbow Flowage, 2021-22 and 2012-13 fishing seasons.

**CREEL YEAR: 2021-22**

SPECIES	DIRECTED EFFORT (Hours)	PERCENT OF TOTAL	TOTAL CATCH	SUMMER SPECIFIC CATCH RATE (Hrs/Fish)	WINTER SPECIFIC CATCH RATE (Hrs/Fish)	TOTAL HARVEST	SUMMER SPECIFIC HARVEST RATE (Hrs/Fish)	WINTER SPECIFIC HARVEST RATE (Hrs/Fish)	MEAN LENGTH OF HARVESTED FISH
Walleye	44,967	37.4%	13,503	3.0	15.6	1,813	22.9	106.7	16.2
Northern Pike	11,819	9.8%	18,283	0.9	3.2	2,289	6.9	9.5	20.4
Muskellunge	2,867	2.4%	118	36.7	*	0	*	*	**
Smallmouth Bass	5,792	4.8%	3,731	2.9	9.0	94	117.4	*	18.7
Largemouth Bass	2,552	2.1%	144	29.2	*	12	207.8	*	19.7
Yellow Perch	20,594	17.1%	23,211	1.0	1.9	5,935	3.5	7.3	9.2
Bluegill	6,558	5.5%	4,039	2.2	1.5	1,263	6.3	12.1	8.2
Black Crappie	24,200	20.1%	8,986	2.5	3.9	4,631	4.3	19.6	11.4
Pumpkinseed	788	0.7%	215	16.4	7.4	127	16.4	30.9	7.4
Rock Bass	70	0.1%	770	3.4	*	62	0.0	*	9.0
Bullhead species	31	0.0%	1,968	0.0	*	127	0.0	*	11.0
Redhorse species	0	0.0%	12	*	*	0	*	*	**
White Sucker	0	0.0%	22	*	*	0	*	*	**

**CREEL YEAR: 2012-13**

SPECIES	DIRECTED EFFORT (Hours)	PERCENT OF TOTAL	TOTAL CATCH	SUMMER SPECIFIC CATCH RATE (Hrs/Fish)	WINTER SPECIFIC CATCH RATE (Hrs/Fish)	TOTAL HARVEST	SUMMER SPECIFIC HARVEST RATE (Hrs/Fish)	WINTER SPECIFIC HARVEST RATE (Hrs/Fish)	MEAN LENGTH OF HARVESTED FISH
Walleye	46,501	39.7%	10,546	3.6	15.1	4,221	9.2	32.1	17.0
Northern Pike	18,384	15.7%	7,858	2.3	11.0	2,106	6.7	17.5	23.6
Muskellunge	1,156	1.0%	54	44.2	*	0	*	*	**
Smallmouth Bass	7,268	6.2%	4,542	2.3	18.4	807	8.4	19.4	17.3
Largemouth Bass	2,295	2.0%	260	8.9	*	23	52.6	*	14.9
Yellow Perch	22,629	19.3%	12,343	1.8	3.2	5,677	3.6	7.0	9.0
Bluegill	7,872	6.7%	4,187	1.1	4.3	1,832	2.1	11.0	7.2
Black Crappie	10,978	9.4%	4,326	2.2	3.2	2,705	4.2	4.6	10.2
Pumpkinseed	138	0.1%	148	1.3	4.1	84	2.1	4.1	6.7
Rock Bass	0	0.0%	475	*	*	104	*	*	8.3

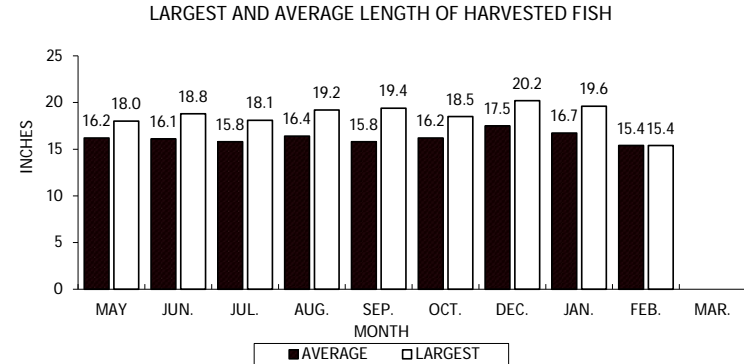
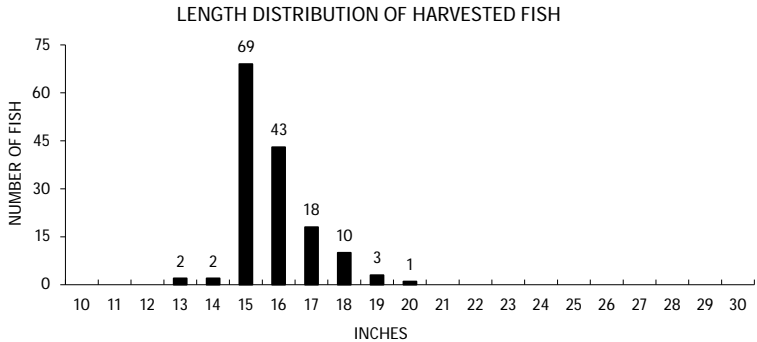
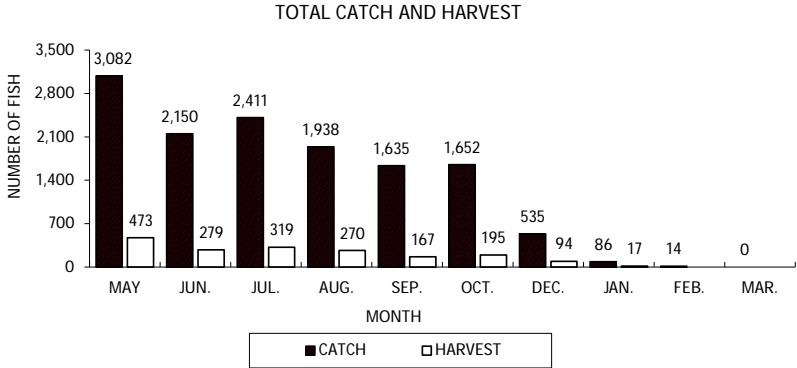
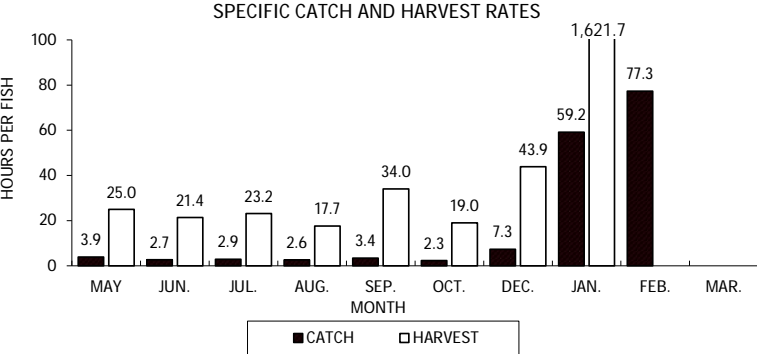
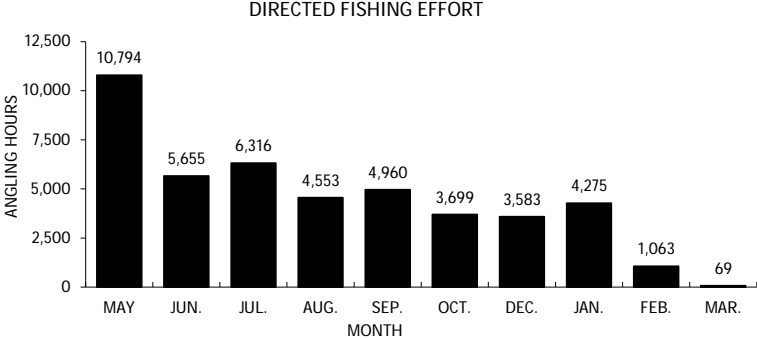
Note: If a species is not shown in a table, no data was collected by the creel clerks for that species.

\* Indicates that no fish of this species were caught or harvested (depending on the column) by anglers who specifically targeted this species.

\*\* Indicates that no fish were measured by the creel clerks for this species.



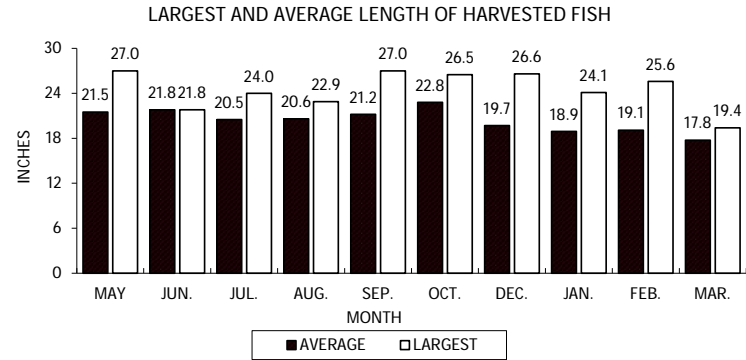
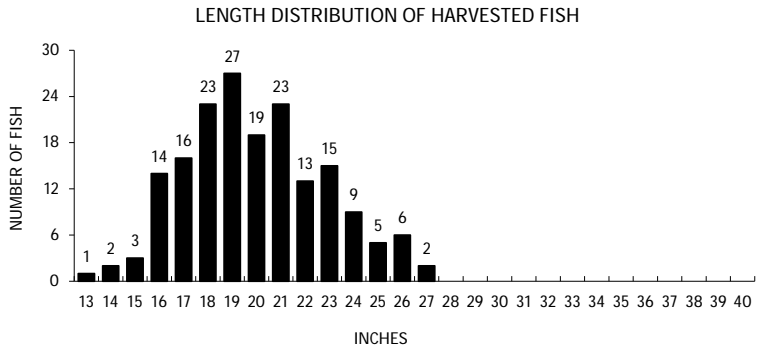
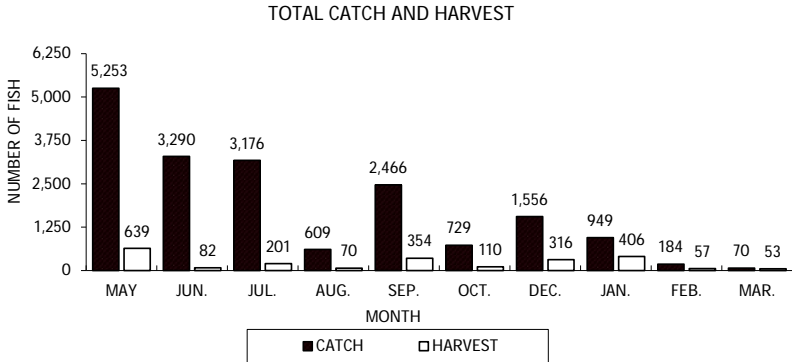
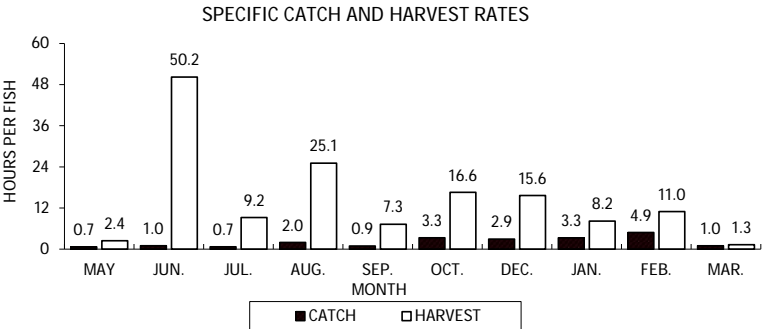
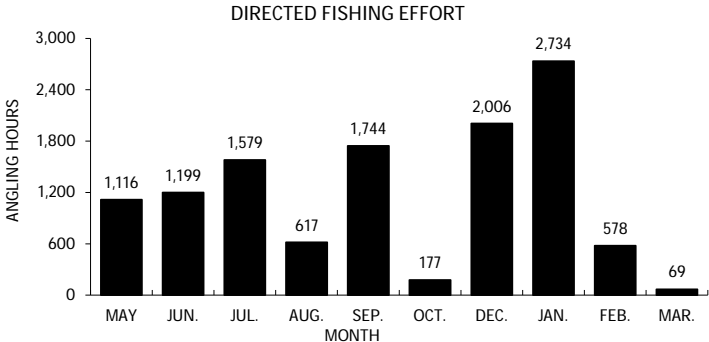
# WALLEYE



7

Figure 1. Walleye fishing effort, catch, harvest and length distribution, Rainbow Flowage, during 2021-22.

# NORTHERN PIKE



8

Figure 2. Northern Pike fishing effort, catch, harvest and length distribution, Rainbow Flowage, during 2021-22.

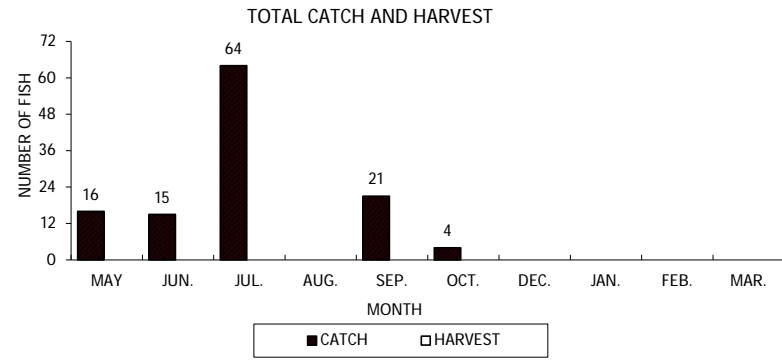
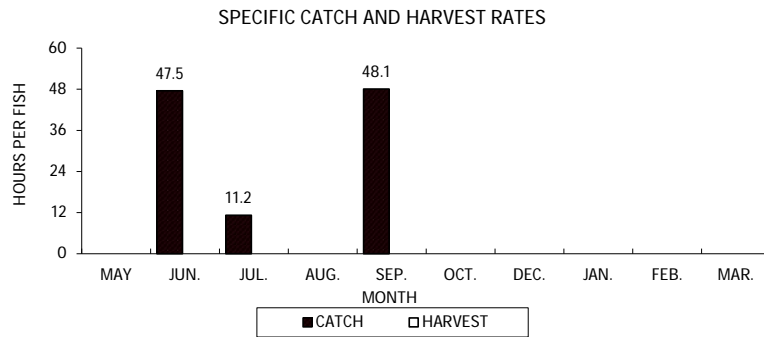
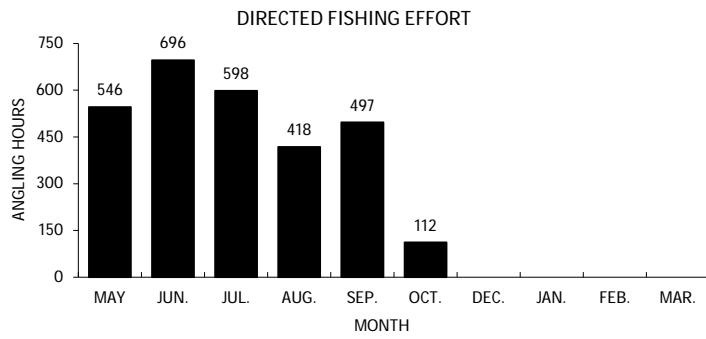


Figure 3. Muskellunge fishing effort, catch and harvest, Rainbow Flowage, during 2021-22.

# SMALLMOUTH BASS

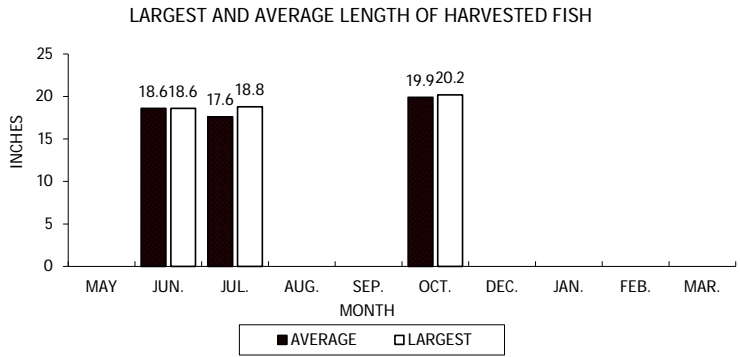
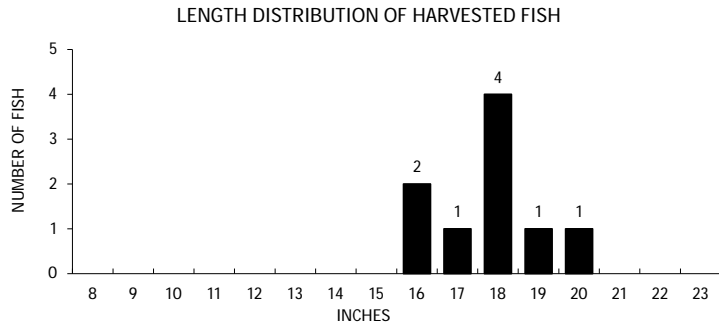
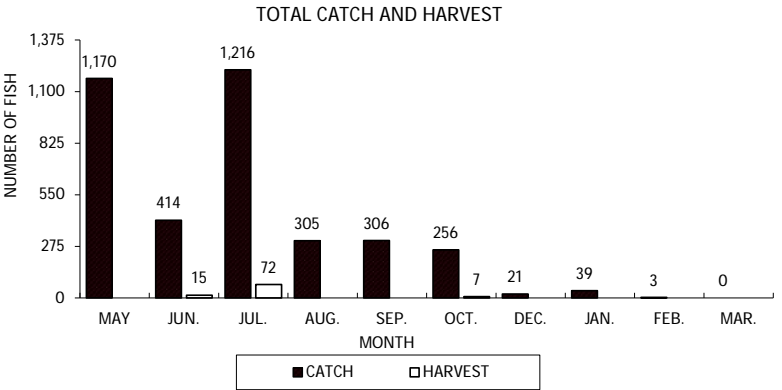
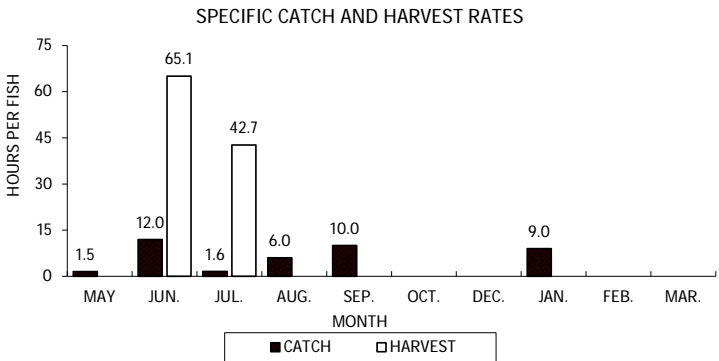
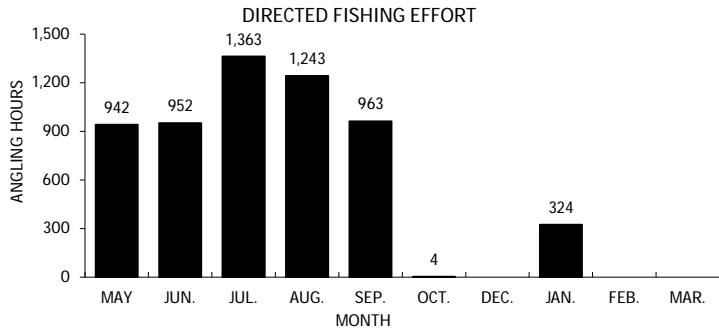


Figure 4. Smallmouth Bass fishing effort, catch, harvest and length distribution, Rainbow Flowage, during 2021-22.

# LARGEMOUTH BASS

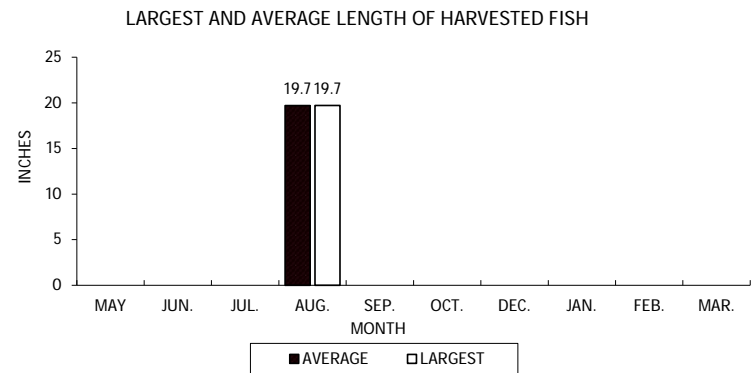
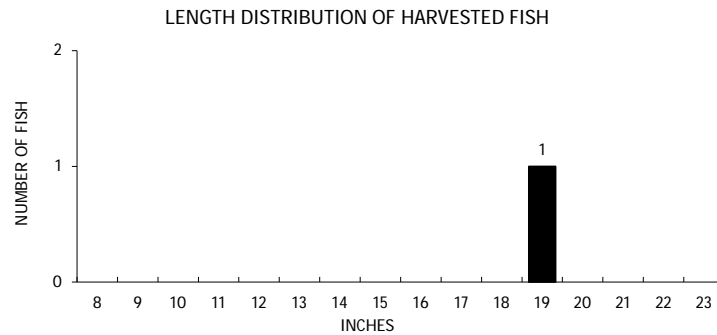
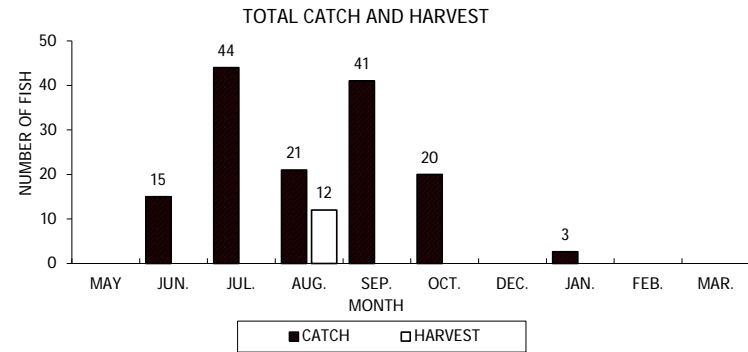
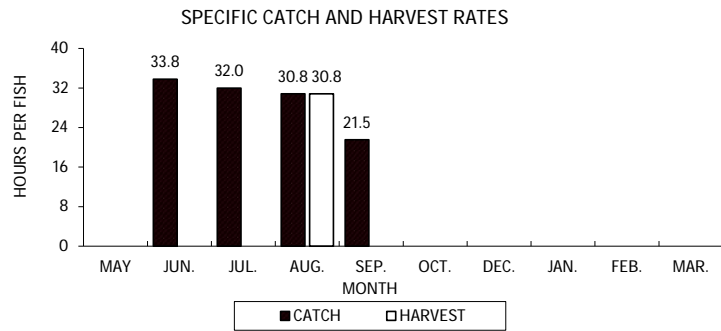
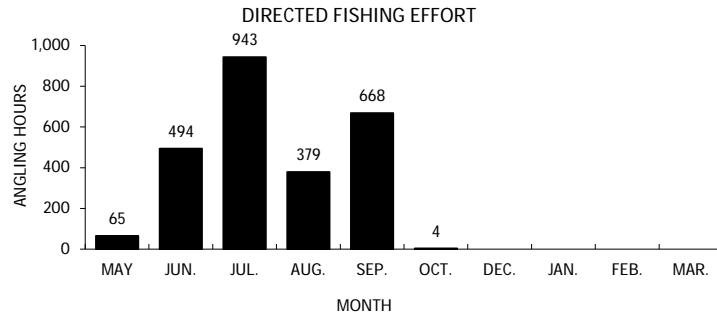
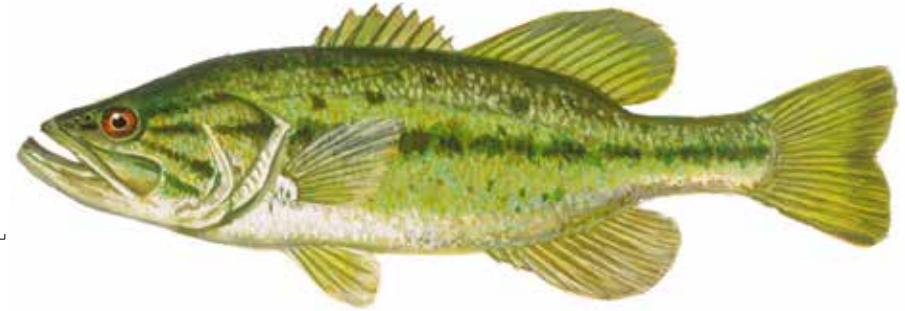


Figure 5. Largemouth Bass fishing effort, catch, harvest and length distribution, Rainbow Flowage, during 2021-22.

# YELLOW PERCH

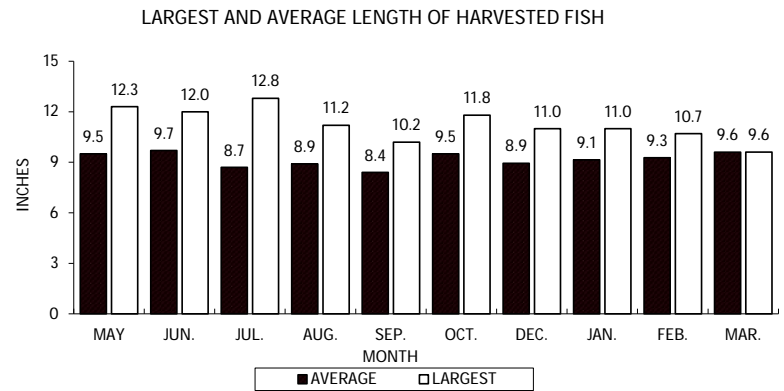
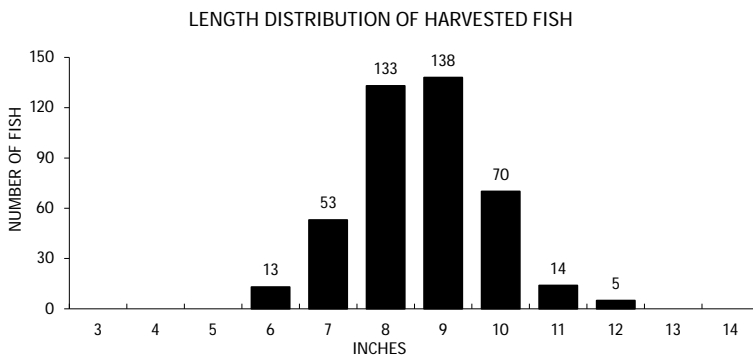
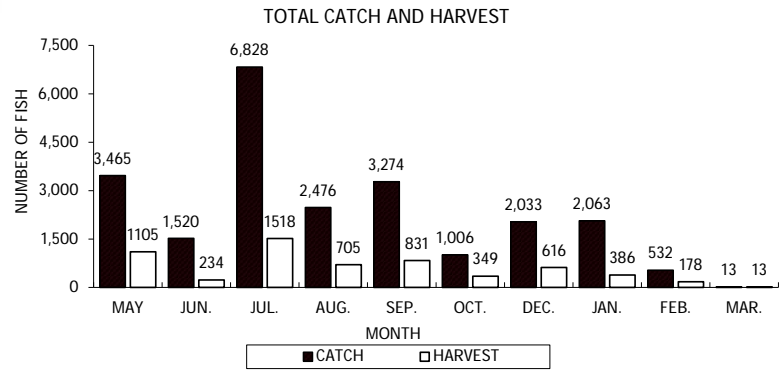
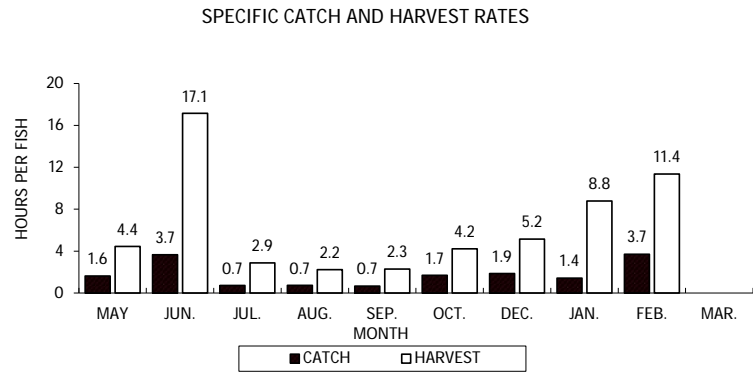
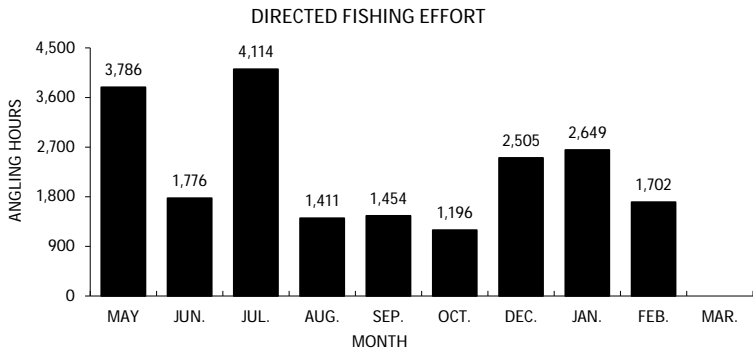


Figure 6. Yellow Perch fishing effort, catch, harvest and length distribution, Rainbow Flowage, during 2021-22.



# BLUEGILL

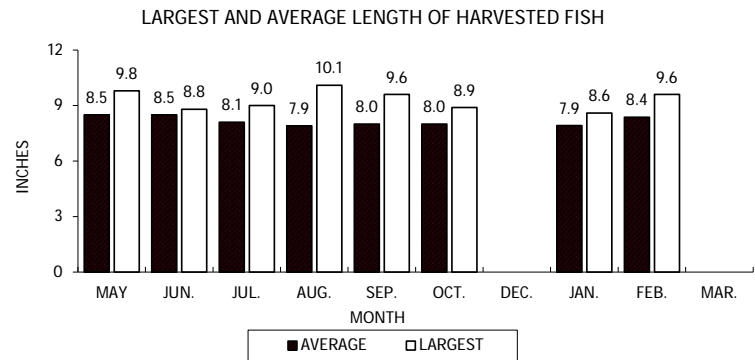
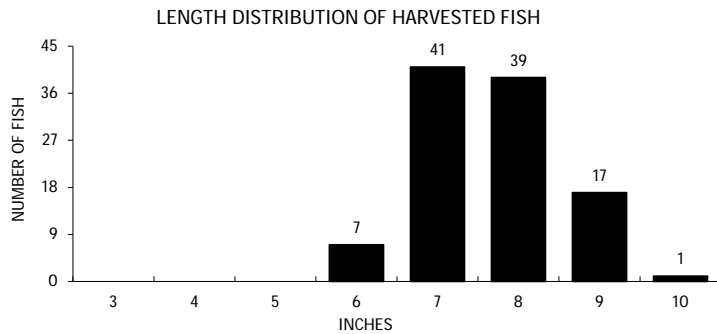
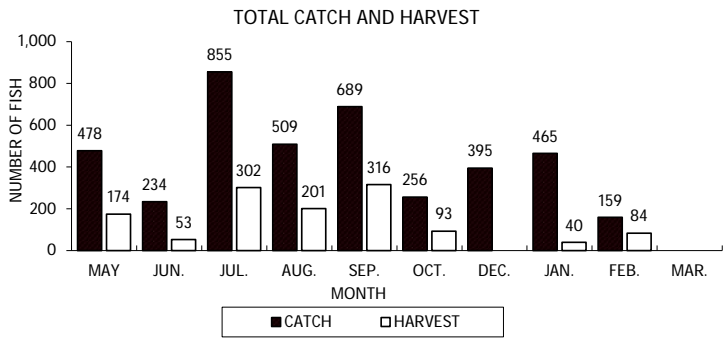
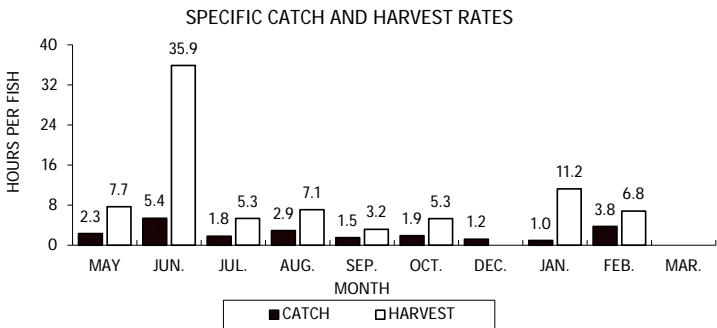
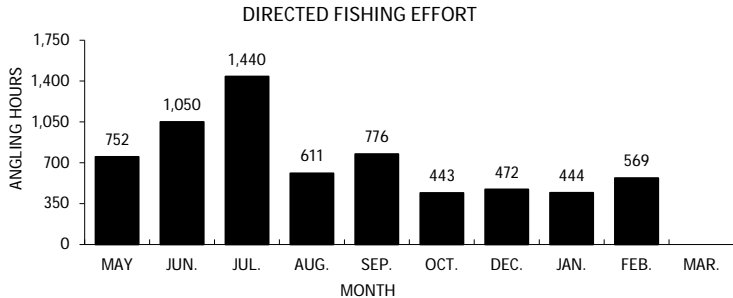


Figure 7. Bluegill fishing effort, catch, harvest and length distribution, Rainbow Flowage, during 2021-22.

# BLACK CRAPPIE

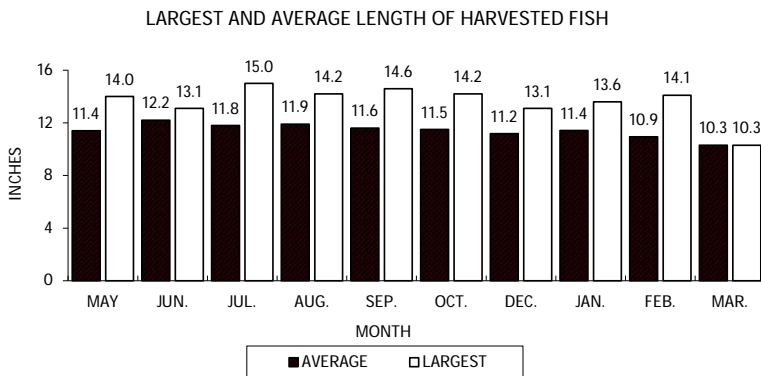
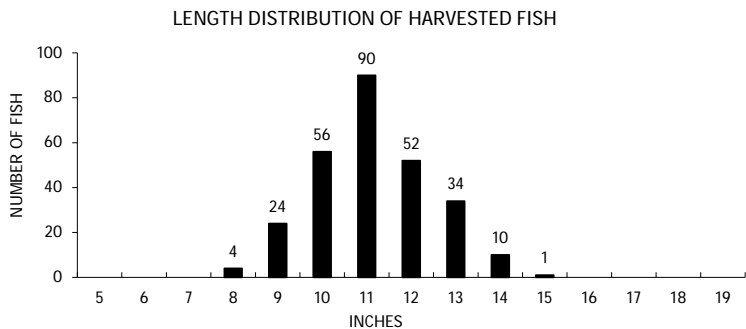
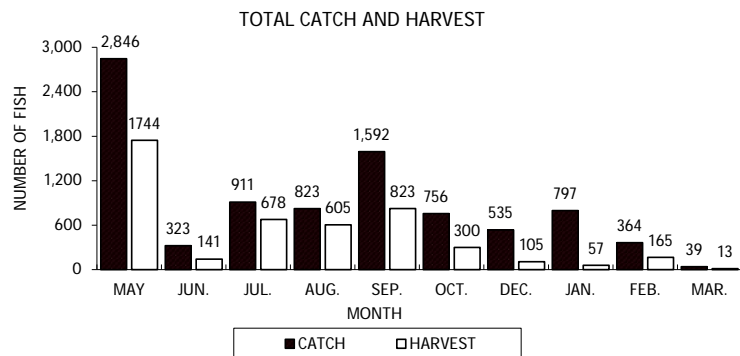
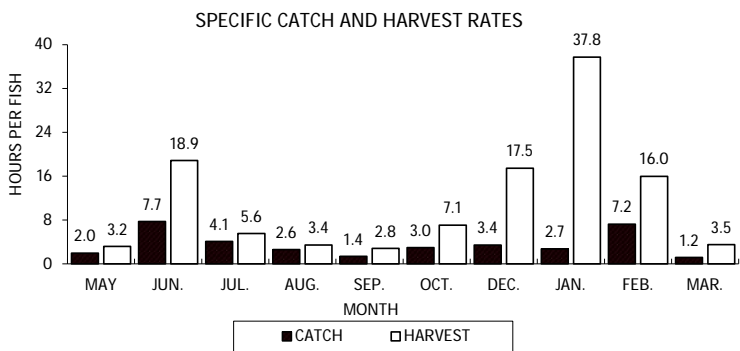
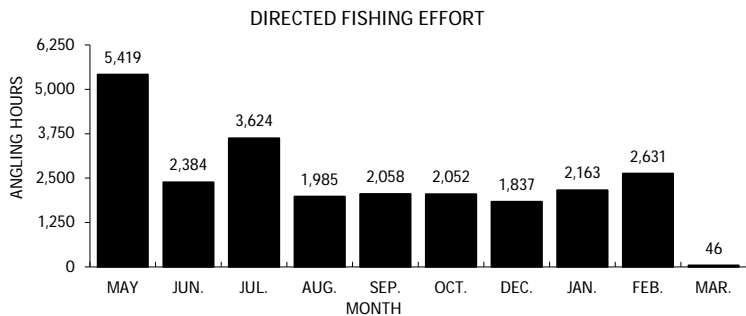
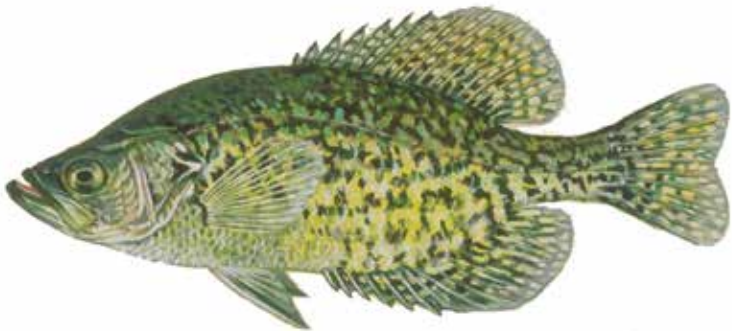


Figure 8. Black Crappie fishing effort, catch, harvest and length distribution, Rainbow Flowage, during 2021-22.

# PUMPKINSEED

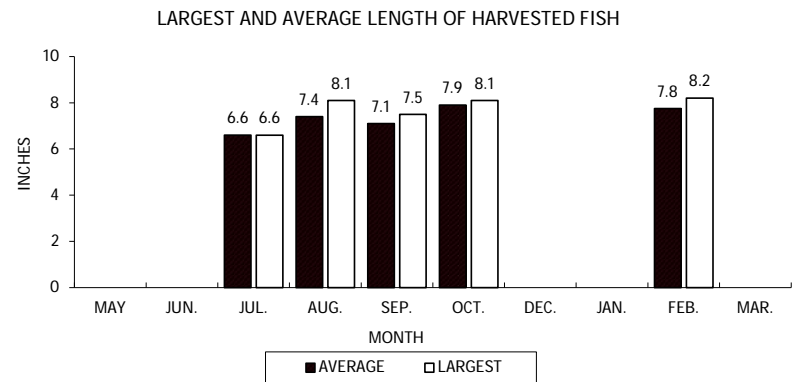
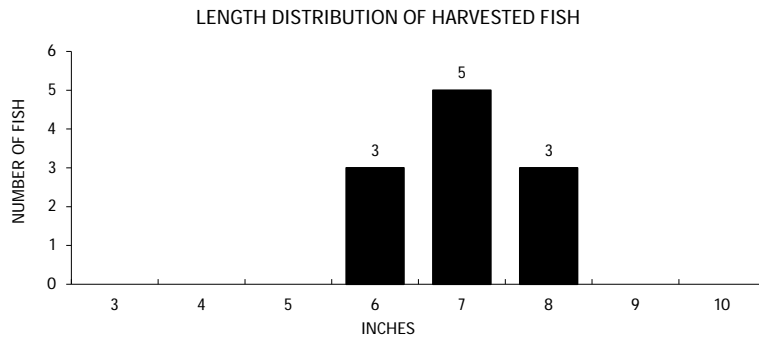
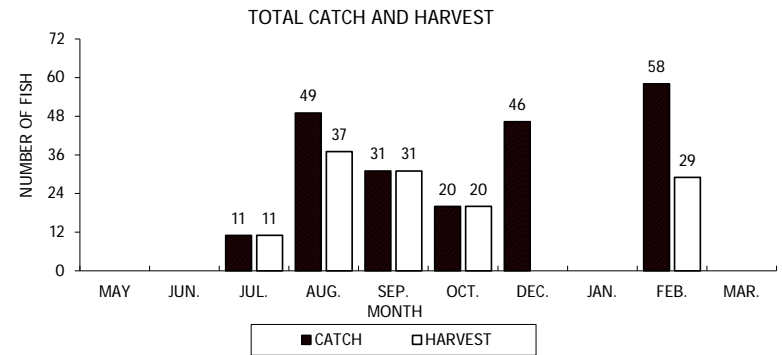
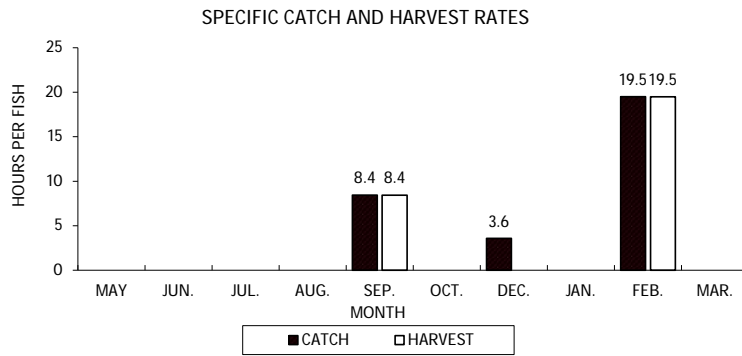
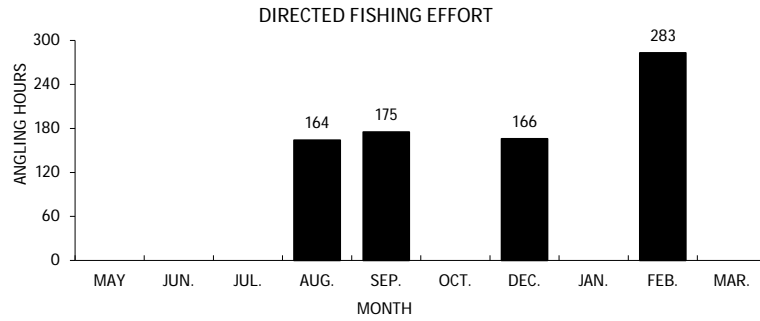


Figure 9. Pumpkinseed fishing effort, catch, harvest and length distribution, Rainbow Flowage, during 2021-22.

# ROCK BASS

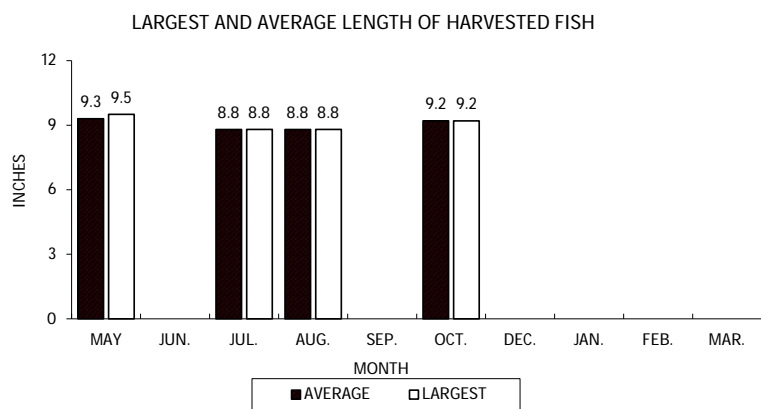
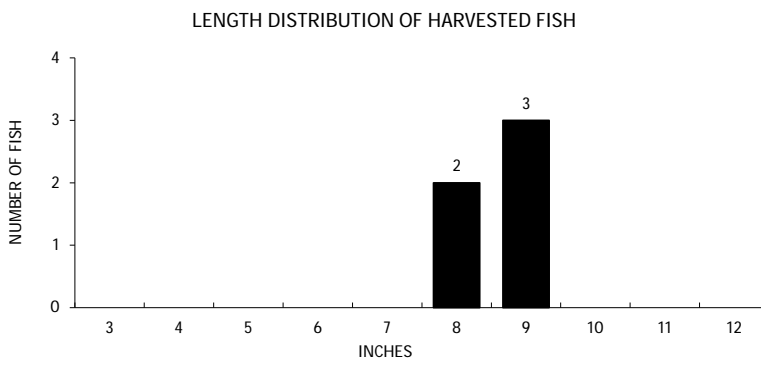
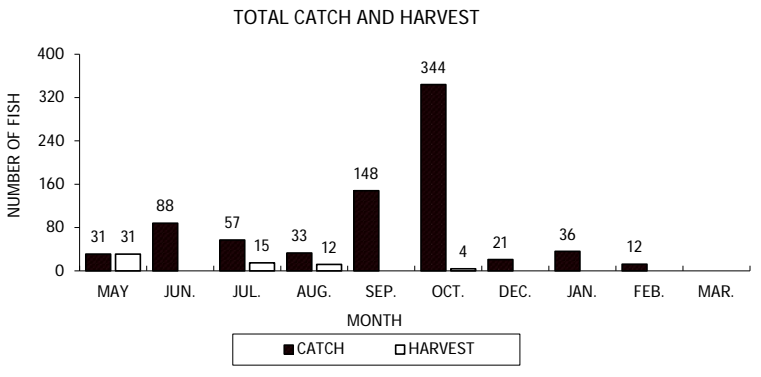
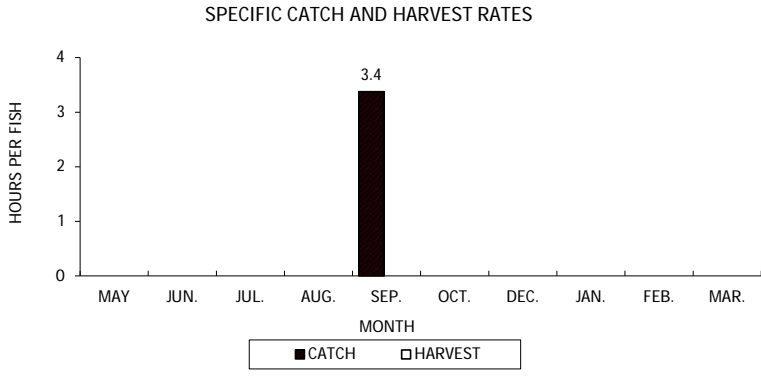
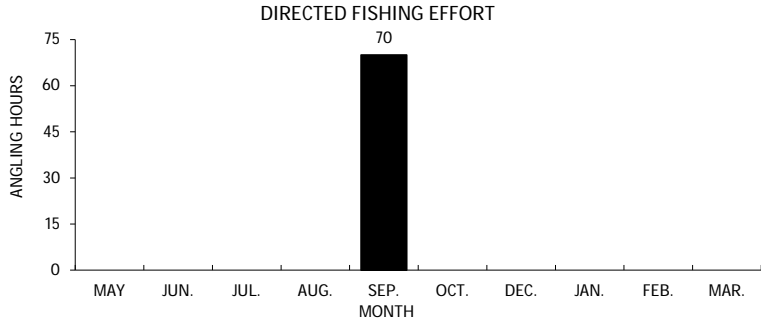
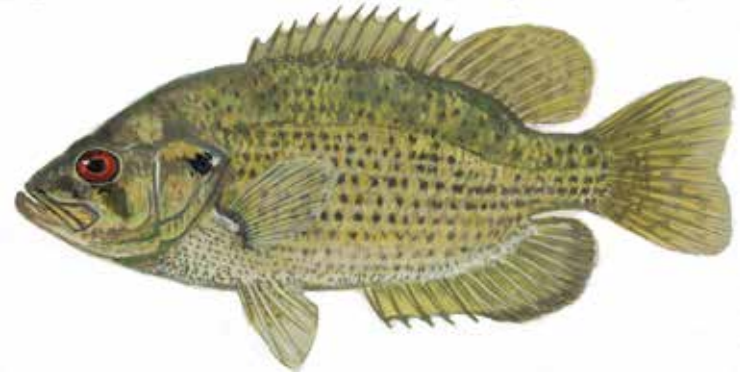
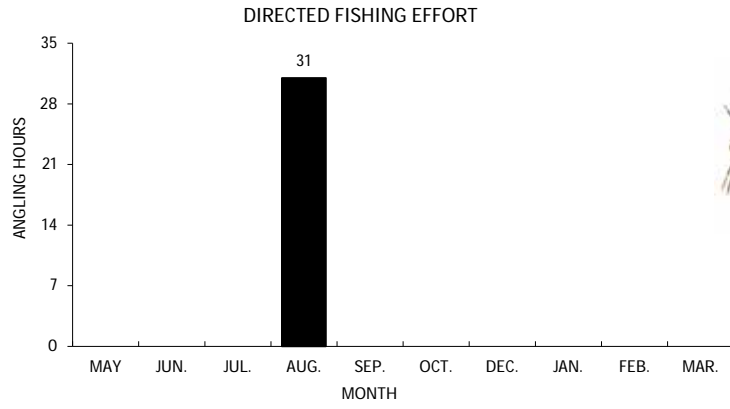


Figure 10. Rock Bass fishing effort, catch, harvest and length distribution, Rainbow Flowage, during 2021-22.



Black Bullhead (left image, black barbels on chin) and Yellow Bullhead (right image, white barbels on chin) are both present in Rainbow Flowage.

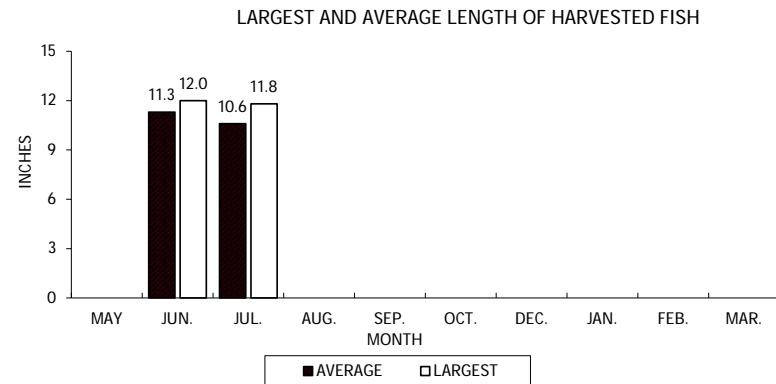
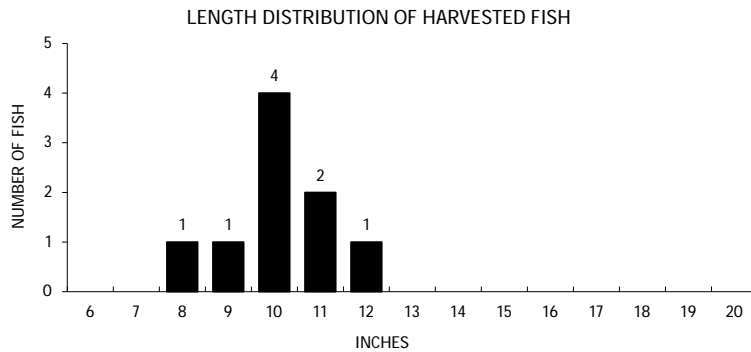
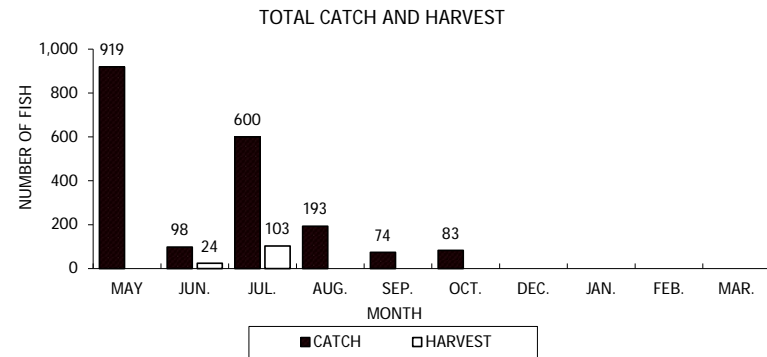


Figure 11. Bullhead species fishing effort, catch, harvest and length distribution, Rainbow Flowage, during 2021-22.