WISCONSIN DEPARTMENT OF NATURAL RESOURCES

PETENWELL LAKE

MARCH-JUNE 2023 CREEL SURVEY REPORT

ADAMS, JUNEAU, & WOOD COUNTY

Fisheries Publication

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INTRODUCTION

Fish populations can fluctuate due to 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. Wisconsin Department of Natural Resources (DNR) fisheries crews 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.

The other key component of the fishery that we often need to measure is 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. 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. The survey is run during daylight hours, and shift times change from month to month as day length changes.

Creel survey clerks travel their lake to public boat launches or public access points using a vehicle to count and interview anglers who have completed their fishing trip. Data are collected on where the angler is from, what species they fished for, catch, harvest, why fish were released, lengths of fish harvested, marks (fin clips or tags) and hours of fishing effort. Collecting information at the end of a fishing trip 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 the total for the entire survey. 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 the lake, discussion of results of the survey and detailed summaries of fishing effort, catch and harvest.

GENERAL LAKE INFORMATION

LOCATION

Petenwell Lake is in Adams, Juneau and Wood counties near the cities of Necedah and Nekoosa.

PHYSICAL CHARACTERISTICS

Petenwell Lake is a 23,173-acre flowage with a maximum depth of 44 feet. Littoral substrate consists primarily of sand, with lesser amounts of muck and gravel. Petenwell Lake contains moderately hard water, slightly acidic and moderate to dark transparency.

SEASONS SURVEYED

The creel survey ran from March 1 through June 30, 2023. Funding to continue the survey through the ice fishing season was not available.

WEATHER

At the beginning of March, the lower end of the lake was ice covered, by mid-March the lake was open. Petenwell Lake has an annual 5-6-foot winter drawdown, only boat launches on the upper end are useable until water levels on the lake are returned to near full pool level. The unusable boat launches were considered closed and not creeled until the end of April. Flows in the river stretch below the Nekoosa Dam ranged from 3300-5000 cubic feet per second (cfs) from March 1-15th making use of boats difficult in the upper part of the river. Flows started to increase and went above 10,000 cfs on March 30th, above 20,000 cfs on April 1st, above 30,000 cfs on April 11th, reaching a high around 38,400 cfs on April 15th. Flows did not go below 10,000 cfs until April 29th.

FISHING REGULATIONS

The following seasons, daily bag limits and length limits were in place during the surveyed season:

SPECIES	SEASON	BAG LIMIT	MIN. SIZE
Largemouth Bass Smallmouth Bass	Open all year	5 in total	14"
Musky	First Sat. in May to Dec. 31 (Open water only)	1	50"
Northern Pike	Open all year	5	none
Walleye	Open all year	5*	15"
	20"-28" Protected Slot, 1>28		
Panfish	Open all year	25	none
Channel Catfish Flathead Catfish	Open all year	10 in total	none

*The bag limit for walleye was 5 during the creel survey and changed to a bag limit of 3 on April 1, 2024, due to a statewide inland bag limit change for walleye unless the bag limit was more restrictive.

SPECIES CATCH AND HARVEST INFORMATION

Summaries of angling effort, catch and harvest information for each species are in Table 2 and Figures 1-8. Each species (where there was sufficient data) has up to five graphs depicting the following:

1. **ESTIMATED FISHING EFFORT**
   The estimated number of hours during each month that anglers spent fishing for a species.

2. **ESTIMATED CATCH AND HARVEST**
   The estimated number of fish of the indicated species caught or harvested by all anglers, regardless of targeted species.

3. **ESTIMATED SPECIFIC CATCH AND HARVEST RATES**
   The 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.

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**
The largest and average length of a species of fish harvested that month. 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 or calculating the projections contained in the report. Weather, river flows and lake level impacted anglers' ability to fish from boat or shore, all factors that can vary daily and in each spring fishing season.

The creel survey was designed based on the use of boat launches and represented anglers that targeted walleye, white bass, freshwater drum and other species during March-June. Walleye was the focus for this creel survey and was designed appropriately. Total catch and harvest are conservative estimates as the creel survey was only daylight hours and not all busy launches could be surveyed during the same time. In May and June, creel clerks adjusted their schedules and spent more of time on the lower end of the lake compared to the upper end based on more use of those launches by anglers. Intercepting parties that targeted muskellunge, largemouth bass, and panfish at the upper end of the lake was difficult in May and June due to the limited time spent at those boat launches where more backwater habitat is found. Additional creel clerks or a survey designed to target those launches would have generated more party interviews for anglers targeting these species, therefore better estimates of specific total catches and specific catch rates.

GENERAL ANGLER INFORMATION

Anglers spent 227,009 hours, or 9.8 hours per acre, fishing Petenwell Lake during March-June 2023 (Table 1). Petenwell Lake was the most heavily fished in May (103,893 hours), and fishing effort was lightest in March (5,649 hours). The creel clerks were able to conduct 2,249 interviews throughout the survey. The total number of anglers in the interviewed parties was 4,373, an unknown number of these anglers were interviewed on multiple occasions, and 685 people did not fish.

Anglers were from 558 different zip codes (primary residence locations), which comprised 466 cities/towns/villages. Anglers interviewed were predominantly from Wisconsin (88.3%), yet anglers were from 16 other States that included: California (0.02%), Florida (0.12%), Illinois (9.4%), Indiana (0.02%), Iowa (0.5%), Kansas (0.05%), Minnesota (1.2%), Missouri (0.14%), Montana (0.02%), New York (0.02%), Ohio (0.05%), Oklahoma (0.05%), Tennessee (0.02%), Utah (0.05%), Virginia (0.07%), and Washington (0.02%). Anglers with primary residence in Wisconsin were from 307 cities/towns/villages in 61 counties. The primary residence for Wisconsin anglers were in Wood County (37.9%), Adams County (4.4%), and Juneau County (2.5%). Overall, 70.3% were from central Wisconsin, 19.9% were from southern Wisconsin, 4.3% were from western Wisconsin, 3.7% were from eastern Wisconsin and 1.8% were from northern Wisconsin.

RESULTS BY SPECIES

WALLEYE (Table 2, Figure 1)
Walleye received 67.4 percent of the fishing pressure during the survey. Anglers spent 152,971 hours targeting walleye. The greatest fishing effort for walleye was in May (54,313 hours). March had the least amount of walleye fishing effort (5,605 hours).

Total catch of walleye was 115,840 fish, with a harvest of 15,122. Highest catch (41,747 fish) and highest harvest (6,440 fish) of walleye occurred in April. Anglers fished an average of 1.4 hours to catch a walleye and 10.4 hours to harvest a walleye during the survey. Anglers released 100,718 walleyes, 83,240 fish (82.6%) were sub-legal, 3,785 fish (3.8%) were in the

protected slot, 11,092 fish (11.0%) were by catch and release anglers, and 2,540 fish (2.6%) were released due to various reasons – too small, reached their daily bag, concern of contaminates, not seeking and other. The mean length of harvested walleyes was 16.4 inches, and the largest measured were 19.9-inch fish. During the survey illegal fish were creeled and if still alive were returned to Petenwell Lake, six illegal walleyes were harvested. Daily bag limits of 5 occurred by 1.6% of interviewed walleye anglers. A daily bag limit of 3 walleyes took effect on April 1, 2024. If the 3 daily bag limit for walleyes would have been in effect for this creel survey, 4.1% of parties targeting walleyes or 3.4% of anglers interviewed would have had to reduce harvest. 10.1% of the walleyes harvested during the survey would have had to be released with a 3 daily bag limit.

NORTHERN PIKE (Table 2, Figure 2)
Northern pike received 5.2% of the fishing effort. Fishing effort directed at northern pike was 11,722 hours during the survey. Northern pike fishing effort was greatest in June (6,368 hours). Total catch of northern pike was 1,189 fish, with a harvest of 24. Anglers fished an average of 52.8 hours to catch a northern pike during the survey. Two harvested northern pike were measured by creel clerks, a 32 inch and 35.5-inch fish. Most anglers interviewed during the survey (64.0%) released northern pike because they were not seeking them. Anglers also released northern pike because they practice catch and release (18.4%), fish were sub-legal (15.0%), the fish was too big (1.8%) or other reasons (0.8%).

MUSKELLUNGE (Table 2)
Muskellunge received 1.4% of the fishing effort. Anglers spent 3,237 hours targeting Muskellunge during May and June of the survey, the open fishing season, catching 82 muskellunge. Anglers fished 87 hours to catch a muskellunge, and there was no documented harvest during the survey. Total incidental catch of muskellunge in March and April, closed to muskellunge fishing, by anglers seeking walleyes or other species was 206 fish. Some anglers shared their length measurements of muskellunge released that included fish that were 18 inches (n=1), 30-39 inches (n=8) and 40+ inches (n=3).

SMALLMOUTH BASS (Table 2, Figure 3)
Smallmouth bass received 6.7% of the fishing effort. Fishing effort targeted at smallmouth bass was 15,299 hours during the survey. Smallmouth bass fishing effort was greatest in June (7,963 hours). Total catch of smallmouth bass was 3,478 fish, with 248 harvested. Highest catch (2,044 fish) occurred in May. Anglers fished an average of 4.4 hours to catch a smallmouth bass during the survey. Sample size of fish harvested was too small to calculate average length harvested.

LARGEMOUTH BASS (Table 2)
Largemouth bass received 4.6% of the fishing effort. Fishing effort directed at largemouth bass was 10,514 hours during the season. Largemouth bass fishing effort was greatest in June (5,856 hours). Total catch of largemouth bass was 62 fish, with a harvest of 0. Highest catch (46 fish) occurred in May. Anglers fished an average of 169.6 hours to catch a largemouth bass during the survey.

PANFISH (Table 2; Figures 4 and 5)
YELLOW PERCH: received 4.8% of the fishing effort. Yellow perch had 10,959 hours of directed fishing effort. Total catch of yellow perch was 1,504 fish, with 734 harvested. The mean length of harvested fish was 10.1 inches.

BLACK CRAPPIE: received 5.7% of the fishing effort. Black crappie received 12,907 hours of directed fishing effort. Anglers caught 3,487 black crappies and harvested 2,122. The mean length of harvested fish was 10.5 inches.

BLUEGILL: received 2.1% of the directed fishing effort, 4,838 hours of directed fishing effort. Total catch of bluegills was 767 fish, with 63 harvested. Two harvested bluegills were measured, a 5.7-inch and a 7.7-inch fish.

WHITE CRAPPIE: 57 caught, 57 harvested.
PUMPKINSEED: 16 caught, 1 harvested.

CHANNEL CATFISH (Table 2, Figure 6)
Channel catfish received 10.3% of the fishing

effort. Fishing effort targeted at channel catfish was 23,352 hours during the survey. Total catch was 9,873 fish and 4,739 were harvested. The average length of channel catfish harvested was 22.3 inches and the largest was 30.0 inches.

FRESHWATER DRUM (Table 2, Figure 7)
Freshwater drum received 6.8% of the fishing effort. Fishing effort targeted at freshwater drum was 15,355 hours during the survey. Total catch was 26,467 fish and 9,988 were harvested during the survey. The average length of freshwater drum harvested was 13.1 inches and the largest was 18.5 inches.

WHITE BASS (Table 2, Figure 8)
White bass received 28.6% of the fish effort. Fishing effort targeted at white bass was 65,011 hours during the survey. White bass fishing effort was greatest in May (43,828 hours). Total catch was 59,077 fish and 39,463 were harvested during the survey, 88.6% of the harvest occurred in May. The average length of white bass harvested was 13.2 inches and the largest was 15.9 inches.

OTHER SPECIES
BIGMOUTH BUFFALO: 214 caught, 144 harvested.
BURBOT: 14 caught, 0 harvested,
COMMON CARP: 5,434 caught, 4,803 harvested.
FLATHEAD CATFISH: 95 caught, 0 harvested.
LAKE STURGEON: 824 caught, 0 harvested.
MUDPUPPY (not a fish): 103 caught, 0 harvested. **QUILLBACK**: 147 caught, 92 harvested.
SUCKERS: 113 caught, 0 harvested.
YELLOW BULLHEAD: 8 caught, 0 harvested.

ACKNOWLEDGMENTS

The DNR would like to thank all the anglers who took the time to offer information about their fishing trip to the survey clerks. Without their cooperation, the survey would not have been possible.

Completion of this survey was possible because of the efforts of the following fisheries management and treaty fisheries staff: Gene Hatzenbeler, Lawrence Eslinger, Eric Brown, Zach Nemitz-Myer, Bradd Sims, Al Niebur, Lucas Koenig, Jason Spaeth, Jake Thompson, Dave Osier, Darien Woller, Adam Nickle, and Paul Frater.

Creel clerks during the survey period were Steven Hass, Anna Hintz, Jennifer Bergman, Colton Hutchinson (DNR), Kayla Reed (UW-Stevens Point), Darien Woller, Al Niebur and Jason Spaeth.

This creel report was reviewed by Gene Hatzenbeler, Lawrence Eslinger, Jason Spaeth, and Al Niebur.

We also thank DNR Law Enforcement and our cooperators who helped with identification of boat launch use including Wade Romberg (DNR), Patrick Seybert (DNR), Thomas Droste, Jason Mata, Joe Stuchlak, Jesse Quale, and Jason Schillinger. Also, thanks to Joe Stuchlak for sharing and promoting this creel survey via The Bighorn Store.

Additional copies of this report, and other creel reports can be obtained online at: http://dnr.wi.gov/topic/Fishing/north/trtycrlsrvys.html

Table 1. Fishing effort summary, Petenwell Lake, March-June 2023.

Month	Total Number of Party Interviews	% Angler Party Interviews	Number of Anglers	Number who Did Not Fish	Total Angler Hours	Total Angler Hours/Acre
March	204	98.5%	371	6	5,649	0.2
April	843	99.6%	1,602	7	51,929	2.2
May	685	86.3%	1,420	403	103,893	4.5
June	517	83.0%	980	269	65,538	2.8
Grand Total	2,249		4,373	685	227,009	9.8

Number of Party Interviews is the number of groups of boaters or shore users interviewed by the creel clerk. A party is considered the members of a group who are together in the same boat or from shore. The clerk fills out one interview form for each group of people. The number of individuals contacted by the clerk is usually much greater than the number of groups.

% of Angler Party Interviews is the percentage of groups that were anglers of all the Party Interviews.

Number of anglers is the total number of anglers that were in the Party Interviews that spent time fishing Petenwell Lake during each month surveyed.

Number who did not fish is the total number of people in the Party Interviews that did not fish Petenwell Lake during each month surveyed.

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

Total Angler Hours/Acre is the total angler hours divided by the area of the lake in acres.

Table 2. Creel survey synopses, Petenwell Lake, March- June 2023 fishing season. Estimated Fishing Pressure: 227,009 Hours.

SPECIES	DIRECTED EFFORT (Hours)	DIRECTED EFFORT (%)	TOTAL CATCH	SPECIFIC CATCH RATE (Fish/Hour)	TOTAL HARVEST	SPECIFIC HARVEST RATE (Fish/Hour)	MEAN LENGTH OF HARVESTED FISH
Walleye	152,971	67.4%	115,840	0.72	15,122	0.1	16.4
Muskellunge	3,237	1.4%	288	0.01	*	*	**
Northern Pike	11,722	5.2%	1,189	0.02	24	0.0	32.8
Largemouth Bass	10,514	4.6%	62	0.01	*	*	**
Smallmouth Bass	15,296	6.7%	3,478	0.13	248	0.0	15.8
Bluegill	4,838	2.1%	767	0.15	63	0.0	6.0
Pumpkinseed	305	0.1%	16	0.05	16	0.1	5.7
Crappies	13,704	6.0%	3,544	0.26	2,179	0.2	10.5
Yellow Perch	10,959	4.8%	1,504	0.09	734	0.1	10.1
White Bass	65,011	28.6%	59,077	0.81	39,463	0.6	13.2
Freshwater Drum	15,355	6.8%	26,467	0.85	9,988	0.6	13.1
Flathead Catfish	1,569	0.7%	95	0.06	*	*	**
Channel Catfish	23,352	10.3%	9,873	0.28	4,739	0.2	22.1
Bigmouth Buffalo	1,575	0.7%	241	0.15	144	0.1	27.4
Quilback	267	0.1%	147	0.55	92	0.3	21.0
Common Carp	3,202	1.4%	5,434	1.70	4,803	1.5	27.0

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

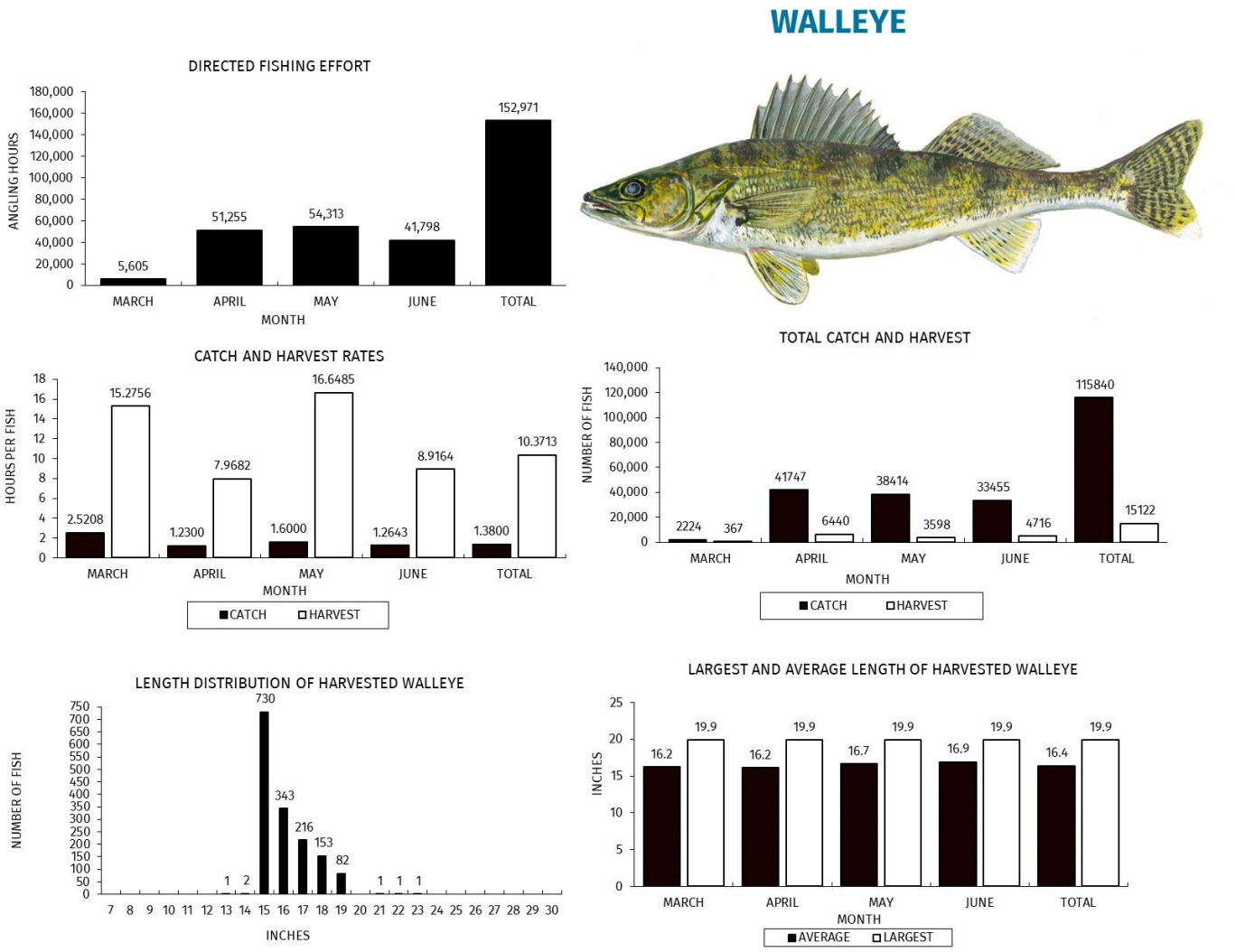

Figure 1. Walleye fishing effort, catch, harvest and length distribution, Petenwell Lake, during March-June, 2023.

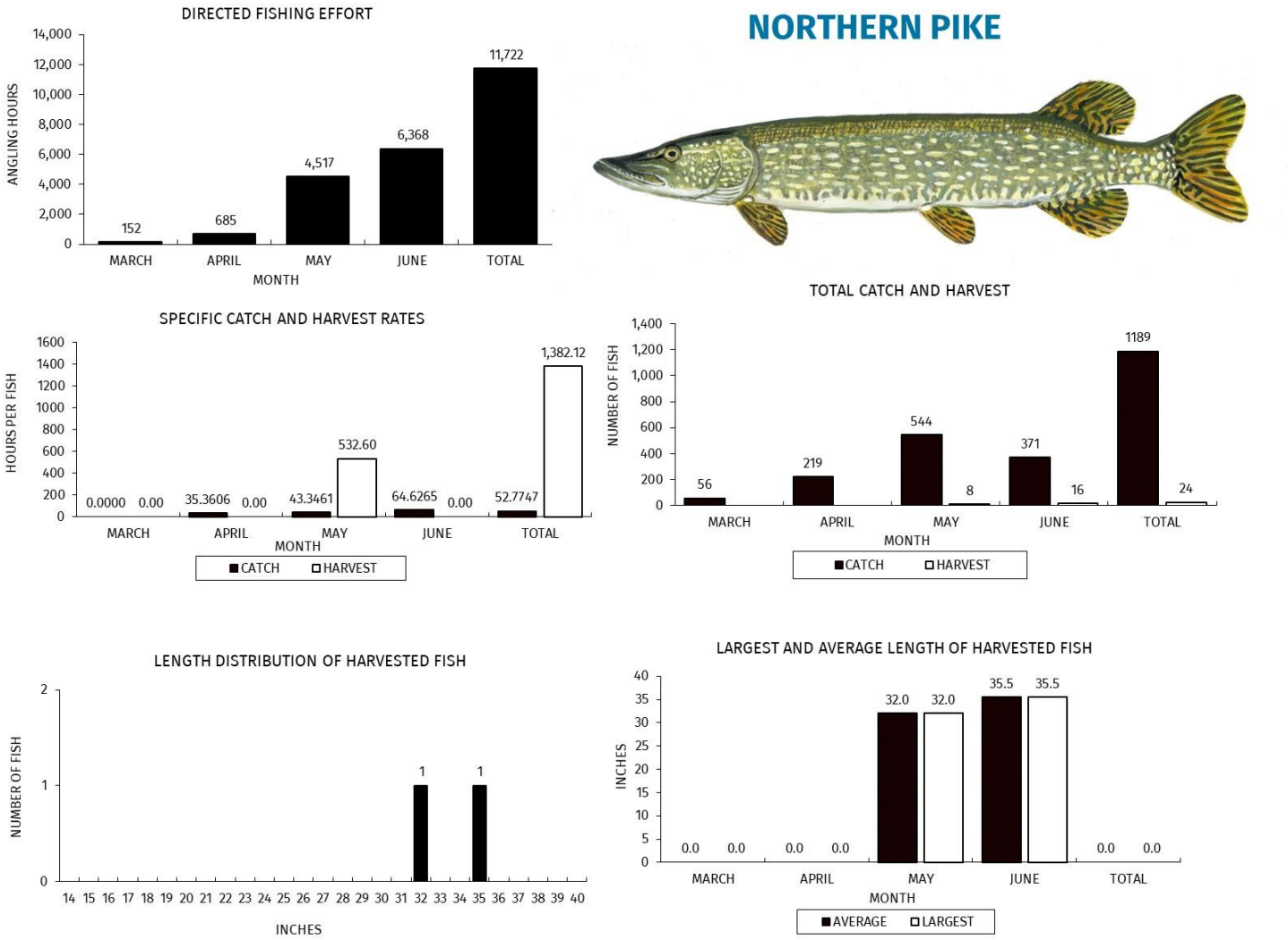

Figure 2. Northern pike fishing effort, catch, harvest and length distribution, Petenwell Lake, during March-June, 2023.

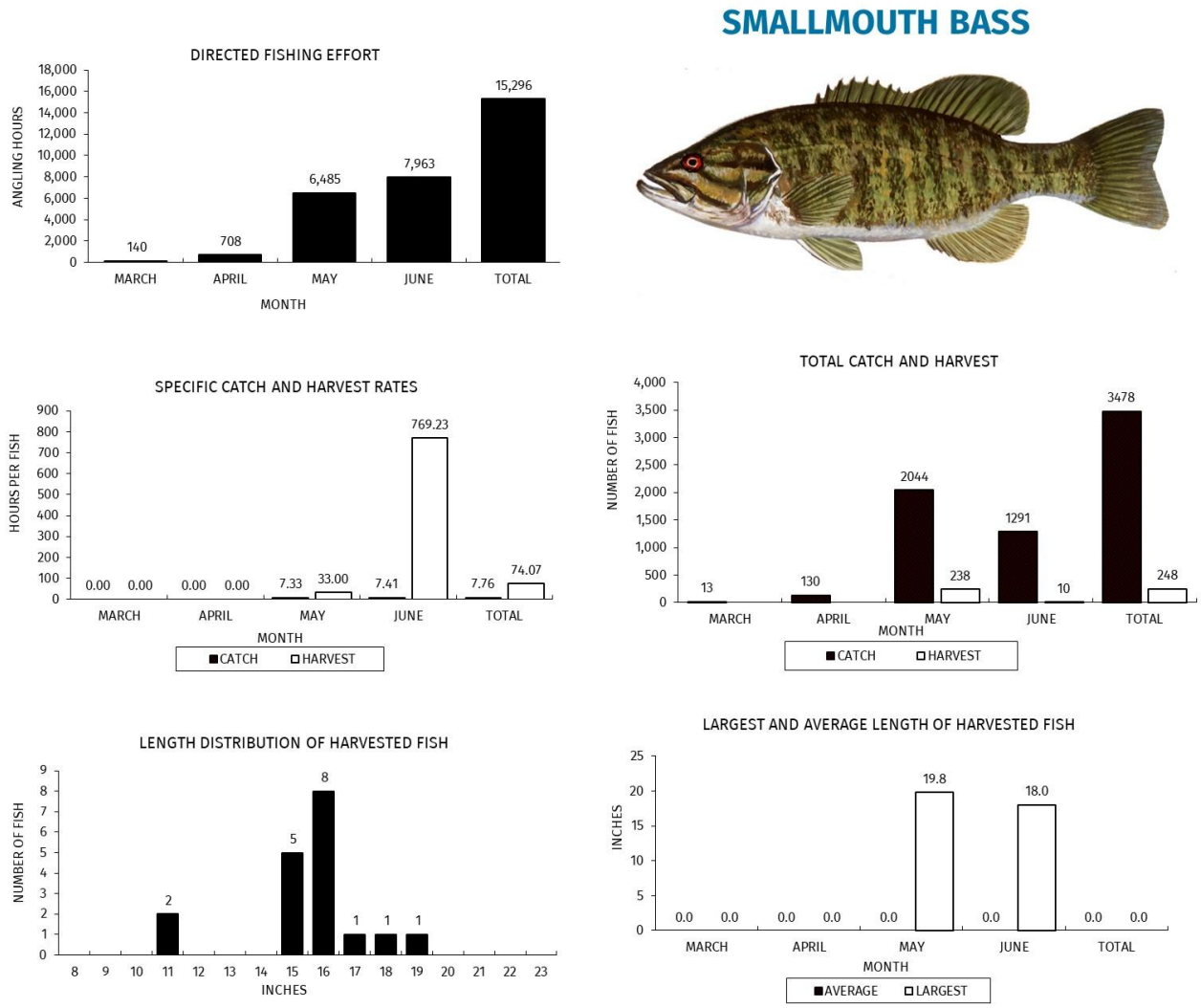

Figure 3. Smallmouth bass fishing effort, catch, harvest and length distribution, Petenwell Lake, during March-June, 2023.

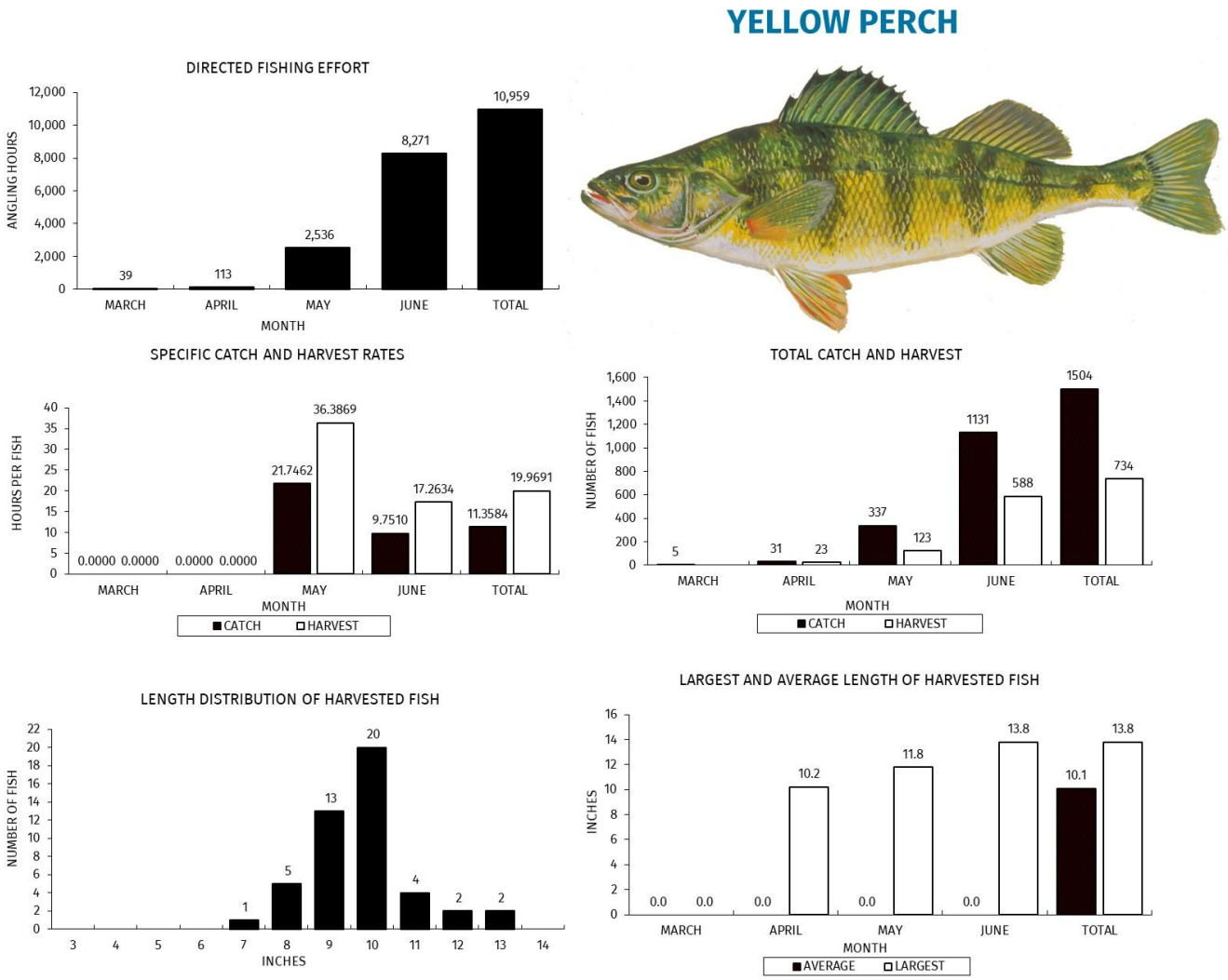

Figure 4. Yellow perch fishing effort, catch, harvest and length distribution, Petenwell Lake, during March-June, 2023.

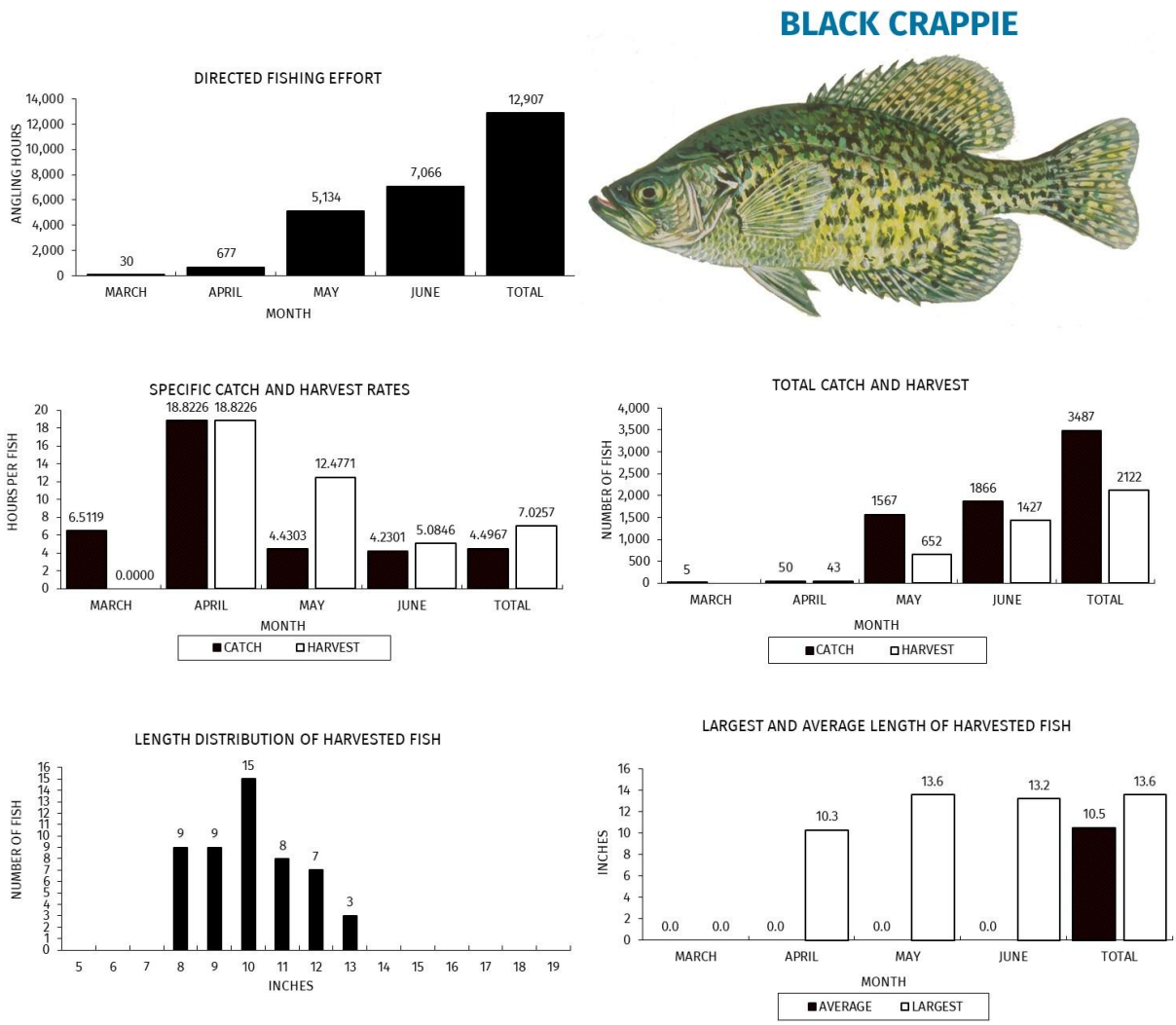

Figure 5. Black crappie fishing effort, catch, harvest and length distribution, Petenwell Lake, during March-June, 2023.

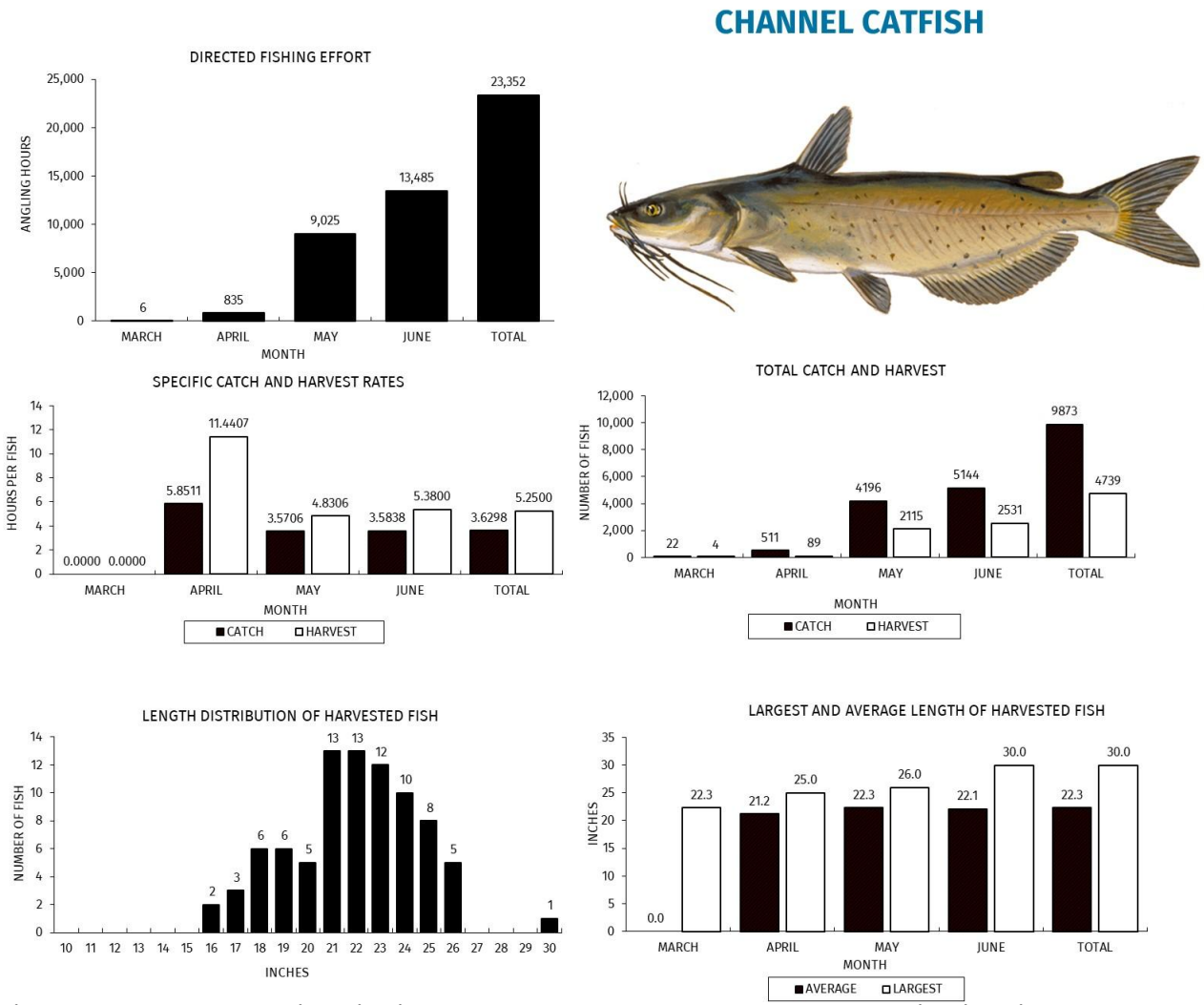

Figure 6. Channel catfish fishing effort, catch, harvest and length distribution, Petenwell Lake, during March-June, 2023.

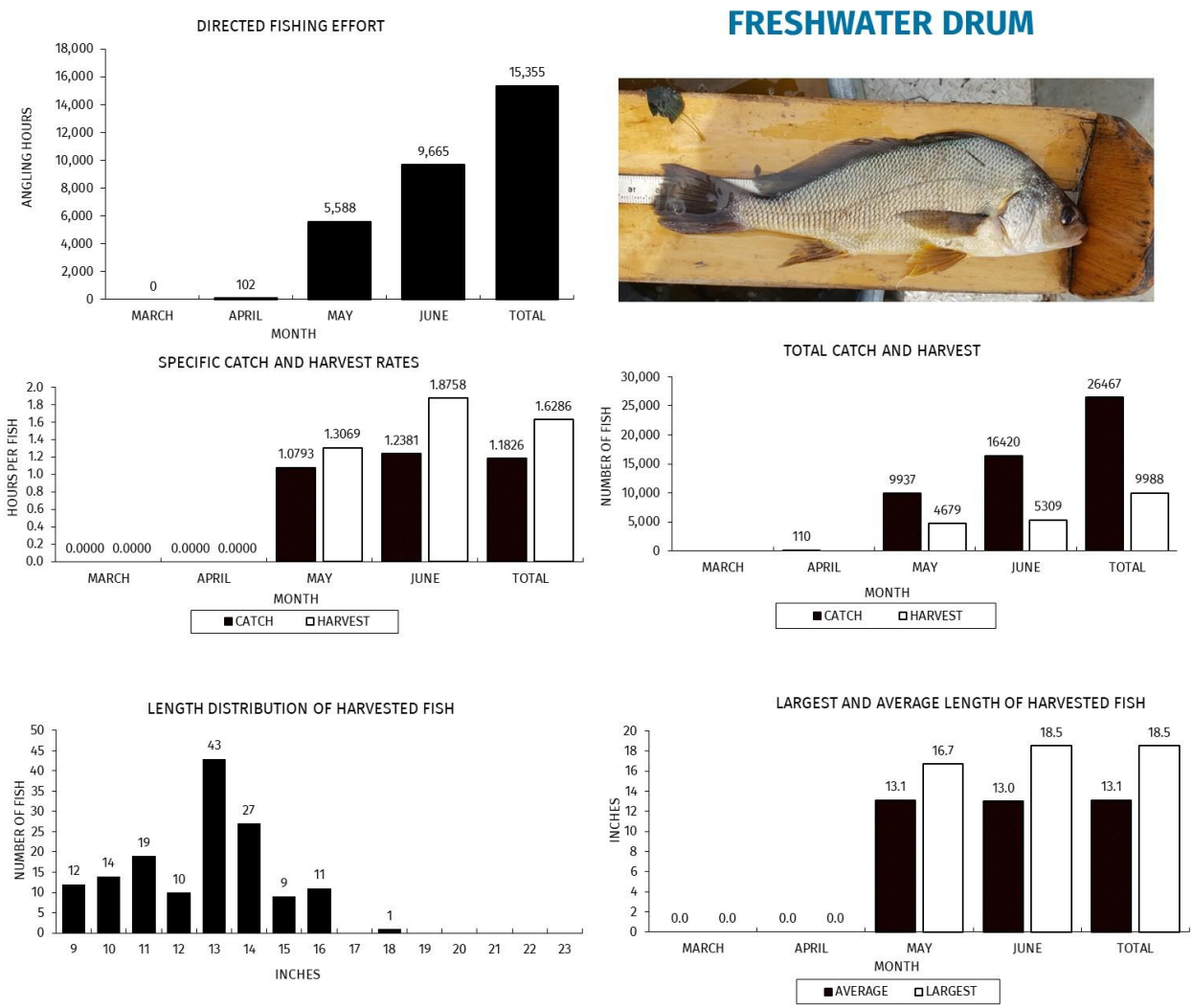

Figure 7. Freshwater drum fishing effort, catch, harvest and length distribution, Petenwell Lake, during March-June, 2023.

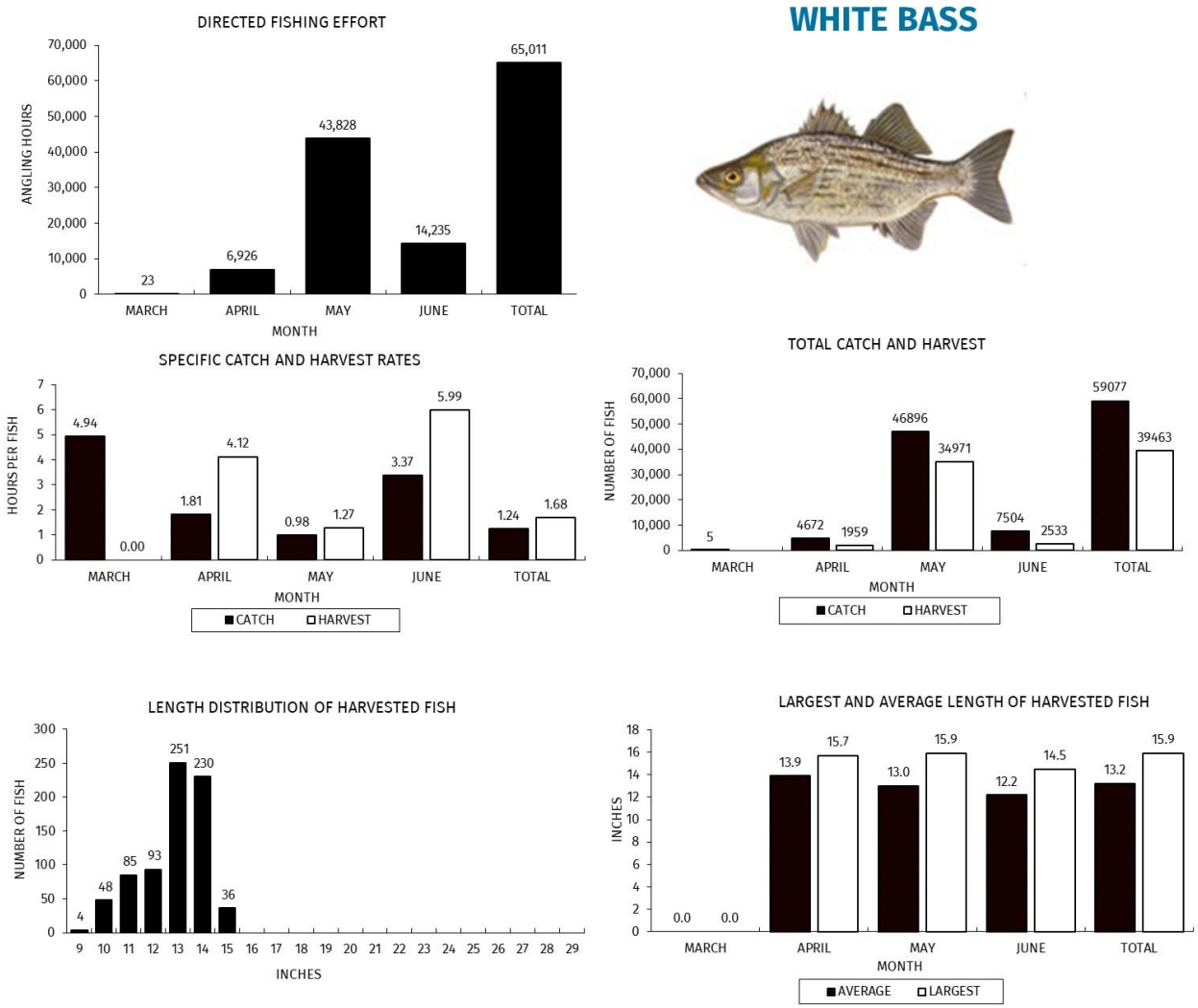

Figure 8. White bass fishing effort, catch, harvest and length distribution, Petenwell Lake, during March-June, 2023.