FM 43 – Lake Management Status Report

Date of Report: 12/28/24	Fisheries Manager: Andrew Plauck	District: 6
Lake Name: Patterson Lake	County: Kane	Water Number: 548
Ownership (State, PUBC, PUBO): PUBC		Acreage: 48

Lake Management Status Reports Will Include the Following Sections:

1. Listing of the Sport Fish Regulations in Effect
2. Listing of Fisheries Management Activities Completed with Evaluation of Success
3. Lake Management Plan Progress Table
4. Recommendations for Observed Problem Trends

1. Listing of the Sport Fish Regulations in Effect.

-Two pole and line fishing only.
-Largemouth Bass – 14-18-inch protected slot limit; 4 fish daily creel limit with 3 fish that can be harvested under 14 inches and 1 fish 18 inches and larger.
-Bluegill – No minimum length limit; 10 fish daily creel limit.
-Channel Catfish – 3 fish daily creel limit.
-White and Black Crappie – 10 fish daily creel limit.
-Northern Pike – 24-inch minimum length limit; 1 fish daily creel limit.

2a. Listing of Fisheries Management Activities Completed (IDNR and FPDKC)

09/18/2012 – Stocked 10,000 channel catfish fingerlings (4 inch, IDNR)
2012 – Stocked 1,000 Smallmouth Bass (FPDKC)
05/13/2014 – Conducted a fish population survey.
09/22/2014 – Stocked 10,000 channel catfish fingerlings (4 inch, IDNR)
2014 - Stocked 1,000 smallmouth bass (5-8 inch, FPDKC)* (previous report had this listed)
2017 – Stocked 96 Northern Pike (FPDKC)
05/31/2018 – Conducted a fish population survey.
2021 – New Boat Ramp and Parking Lot project completed.
2021 – Stocked 234 Northern Pike (FPDKC)
2023 – Stocked 125 Northern Pike (FPDKC)
05/25/2023 – Conducted a fish population survey.

2b. Evaluation of Activities Listed in Part 2a.

The Patterson Lake fish survey consisted of 30 minutes of electrofishing with a 5000-watt DC boat mounted electrofishing unit. Water temperature was 67°F. Bluegill were extremely abundant and sub-sampled for ten minutes. All fish were measured; fish over four inches were weighed and released. Fish data was summarized and compared to previous surveys (Table 1). The following paragraphs describe the findings and how they are rated according to the lake management plan (LMP):

We captured 94 fish belonging to five different species (Table 2). Largemouth Bass were the most abundant at 50% of the sample. Bluegill were the next most abundant fish, making up 32% of the total number of fish captured. Common Carp (N=13), Black Crappie (N=3) and Northern Pike (N=1) were present in the sample. Golden Shiner were present in previous surveys and most likely still inhabit the lake. The vegetation (Lily Pads, Curly Leaf Pondweed and Eurasian Watermilfoil) had already grown out considerably potentially making fish more difficult to catch.

Population indices for Largemouth Bass in 2023 suggest that abundance is higher than in 2018, size structure was better in the 2018 survey. A catch rate of 94 fish per hour was higher than the LMP goal of 60 fish per hour (Table 1). Largemouth Bass ranged in length from 4.8 to 16.3 inches in length, with an average length of 11.6 inches (Table 2). The largest bass weighed 2.0 pounds but fish over five pounds were reported in the 2018 survey. We look at size structure in a population to determine availability of desirable fish for anglers as well as the general health or balance of the fish community. A proportional size distribution (PSD) of 52 indicates that of all the bass over stock size (8 inches) in the sample, 52% were of quality size (12 inches) or greater (Table 1). The high PSD value indicates that there are plenty of fish large enough to spawn as well as offering anglers fish of a quality size. Relative stock densities (RSD) provide the proportion of the stock (bass over 8 inches) that is longer than a given size (we typically use 15 and 18 inches). The RSD-15 and RSD-18 of 5 and 0 indicate that 5% of the stock is over 15 inches and none were longer than 18 inches. These PSD number is within the range considered "Good" according to the LMP but lower RSD's suggest there are fewer bass in the "preferred" length range (over 15 inches) available to anglers. We estimate a fish's "health" by its plumpness based on its length. This measure is a condition factor called relative weight (Wr). The relative weight of the average Largemouth Bass (Wr = 97) was within the range that we like to see in a healthy population. A high Wr suggests that bass have an ample forage base and the fish have fattened up for spawning. Relative weights have increased in the last three surveys suggesting lower abundance is providing more opportunity for foraging. We also measure recruitment in the population, simply defined, is the number of fish that survive their first winter. Our measure of recruitment is the ratio of bass under 3 inches compared to the number over six inches. The young to adult ratio in this sample was 0.04 which is much lower than the "goal" range of 1-3 and is considered poor. There is some sampling bias in trying to capture small (less than three inch) bass early in the spring. It is better to look at this ratio in the fall of the year when more young fish are vulnerable to our electrofishing gear. The fact that bass aren't stocked in this lake and is self-sustaining is always better measure of recruitment! While we didn't sample any large fish in this survey, Patterson Lake seems to have a good number of fish and the newly refurbished boat ramp makes them a little more accessible!

The Bluegill catch rate of 180 fish per hour is a little higher than the management goal, but not high enough to cause concern (Table 1). Bluegill abundance was good in 2014 with a catch rate of 156 fish per hour and dropped to 96 fish per hour in the 2018 survey. Size structure of the Bluegill looked good based on the small sample. Bluegill ranged in length from 2.7 to 6.8 inches, with an average length of 4.8 inches (Table 2). The Bluegill population exhibited a PSD of 37, which is higher than the management goal of 15-30. A proportional size distribution (PSD) of 37 indicates that of all the Bluegill in the sample of stock length or greater (4 inches), 37% were greater than 6 inches. In the two previous surveys we did see fish over 7 inches, but none were sampled in 2023. An average relative weight (Wr) of 115 suggests that we got most of these fish prior to them spawning.

Common Carp were not over-abundant in this sample. Thirteen Common Carp were removed during the survey. The longest carp was just under 29 inches. Since carp can damage aquatic vegetation and centrarchid (bass and Bluegill) nesting with their feeding behavior as well as compete for resources with other species, they are considered a nuisance. Carp should be removed from the lake when caught.

One Northern Pike was caught in this survey. The Pike measured 34.6 inches and was in good condition (Wr=98) at 9.6 pounds. Northern Pike are stocked as a “bonus” fish and help keep panfish population under controll.

Only three Black Crappie were found in this survey, but 54 Black Crappies were caught in the 2014 survey. Twenty percent of that sample was over nine inches, with the longest being 11.5 inches. Only one of the Crappie collected in 2023 was over nine inches long. Black Crappies tend to be very cyclical in their population numbers. We typically don’t manage for or stock Crappies in small lakes as they can become over-abundant and compete with young of year Largemouth Bass.

Channel Catfish were not captured in this survey. Channel Catfish were stocked in 2012 and 2014 which means there should be some very large catfish available in this lake. We rarely see Channel Catfish in our springtime electrofishing surveys. Patterson Lake is on the list of fisheries for stocking when our hatcheries produce surplus Catfish.

3. Lake Management Plan Progress Table (Table 1)

SPECIES	CRITERIA	LMP GOAL	2014	2018	2023	Rating*
Largemouth Bass	Catch Rate	60/hr.	175	60	94	Good
	PSD	40-60%	75	86	52	Good
	RSD-15	15-30%	8	24	5	Fair
	RSD-18	1-5%	1	3	0	Low
	Relative Weight	90-105	92	91	97	Good
	Young:adult ratio	1 - 3	0.01	0.06	0.04	Poor
	Average length (In)	NA	12.7	13.3	11.6	
Bluegill	Catch Rate	120/hr.	156	96	180	Good
	PSD	15-30%	56	31	37	Good
	RSD-7	6-10%	21	25	0	Poor
	RSD-8	1-5%	0	13	0	Poor
	Relative Weight	90-105	92	93	115	Good
	Average length (In)	NA	5.9	5.9	4.8	

* Index ratings are based on Spring 2023 data.

For abundance, size structure, and young:adult ratio (YAR) estimates “Good” indicates goal was met, “Fair” indicates goal was almost met, and “Poor” indicates goal was not met.

For relative weight estimates “Good” indicates Wr values between 90-105, “Fair” indicates values between 80-89, and “Poor” indicates values < 80.

Table 2. Summary of Catch

	Number	Length (Inches)			Weight (pounds)	
Species	Collected	Min	Max	Avg.	Min	Max
Largemouth Bass	47	4.8	16.3	11.6	0.2	2.0
Bluegill	30	2.7	6.8	4.8	0.1	0.3
Common Carp	13	21.5	28.9	25.2		
Black Crappie	3	4.5	9.5	6.7	0.1	0.5
Northern Pike	1	34.8	34.8	34.8	9.6	9.6
Grand Total	94					

4. Recommendations for Observed Problem Trends:

1. Nutrients and Bank Erosion

- Establishing a buffer strip of native vegetation around the entire shoreline is another way to reduce nutrient input and help prevent bank erosion. Not mowing grasses and other shoreline vegetation also will make the lake less attractive to Canada geese, which are known to add nutrients to the water and contribute to shoreline erosion.

2. Aquatic Vegetation

-Vegetation was dense at the time of this survey. Spot treat fishing access areas with an approved granular herbicide when heavy vegetation is noticed.

3. Fish Community

-Largemouth Bass and Bluegill seem to be doing well. No additional stocking is needed at this time.

- Patterson Lake is on the list of waters to stock when surplus channel catfish are available through IDNR hatcheries. If additional channel catfish are desired purchase and stock no more than 1200 8-12 inch fish per year (25 fish per acre)

-Stock northern pike annually or every other year at a rate of five fish per acre (240 fish).

- Encourage anglers to remove Common Carp.

4. Fish Attractors and Physical Habitat

-Construct and install fish attractors, such as Christmas tree attractors, brush piles, or pallet structures, to increase cover for young fish and surface area for invertebrates. A few attractors near each shore fishing area should improve fishing.

5. Evaluation

- Conduct a spring population survey every 4-5 years to assess the status of the sport and non-game fish community.

– Assign a staff member to check periodically during later winter and early spring for dead fish from winterkill, to get an idea of the magnitude of any fish lost. Contact IDNR fisheries biologist at (815) 675-2386 ext. 214 immediately if dead fish are noticed.