FM 43 – Lake Management Status Report

Date of Report: 12/29/23	Fisheries Manager: Andrew Plauck	District: 6
Lake Name: Grunwald Lake	County: Kane	Water Number: 35006
Ownership (State, PUBC, PUBO): PUBC		Acreage: 15.2

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.

05/12/2014 – Conducted a fish population survey
09/22/2014 – Stocked 1,600 channel catfish fingerlings (4 inch, IDNR)
2014 - Stocked 500 smallmouth bass (5-8 inch, FPDKC)
2014 – Stocked 500 channel catfish (6-8 inch, FPDKC)
2017 – Stocked 30 Northern Pike (FPDKC)
05/31/2018 – Conducted a fish population survey.
2021 – Stocked 75 Northern Pike (FPDKC)
05/18/2023 – Conducted a fish population survey.

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

The Grunwald Lake fish survey consisted of 40 minutes of electrofishing with a 5000-watt DC boat mounted electrofishing unit. Water temperature was 66°F. 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 178 fish belonging to two species (Table 2). Largemouth Bass were the most abundant species in the sample making up 69% (N=122) of the fish captured. Bluegill were abundant and 56 were collected for a twenty-minute sub-sample of the survey. Black Crappie, Koi (Illegal pet dumping) and Hybrid Sunfish were captured in previous surveys. Northern Pike and Smallmouth Bass have been also stocked in Grunwald Lake.

Largemouth Bass were captured at a rate of 183 fish per hour (Table 1). We typically like to see Largemouth Bass abundance around 60 fish per hour. When abundance get as high as triple the management goal, we start to worry about the population getting stunted. We caught 122 Largemouth Bass ranging in size from 3.7” to 19.9” with the largest fish weighing 4.25 pounds (Table 2). The average length Largemouth Bass was 10.1 inches.

We like to see a broad size range of fish, from young of year to a few nice “trophy” size fish. In a typical lake management plan, a management goal for proportional stock density (PSD) is between 40 - 60%. The PSD is the percent of fish over a quality size (12 inches) in the stock (fish over eight inches). The PSD in Grunwald Lake was 23 meaning that 23% of the stock (bass over 8 inches) was longer than the “quality” size of 12 inches. We also look at relative stock density (RSD) to determine the proportion of the stock over a given length – typically 15 and 18 inches. We did sample Bass over 15 and 18 inches for RSD 15 and 18 indices to be calculated. RSD-15 and 18 were 6 and 3 respectively, meaning 6% of the stock were longer than 15 inches and 3% were longer than 18. These numbers are higher than the two previous surveys, when no fish over 15 inches were sampled.

We use relative weight (Wr) to measure the “plumpness” or health of a fish. A healthy fish will have a Wr value somewhere between 90 and 105. The average Wr value for this sample in Grunwald Lake was 89. This Wr is a little on the low side but most likely influenced by some spawned out individuals or evidence of an over-abundant bass population.

The presence of fish over 12 inches also allows the calculation of a young to adult ratio (YAR). This ratio gives a good estimate of recruitment (spawning success) after a population becomes established. A healthy population should have at least one to three “young” fish (under 6 inches) for every adult fish (over 12 inches). The YAR in Grunwald Lake was 0.42. This ratio is better sampled in the fall when more young fish are present in the system. The best estimate of recruitment is the fact that this lake has not been stocked with Largemouth Bass in the last ten years and there are several year classes of Bass – indicating natural reproduction is sustaining the population.

Based on this sample, the bass population is over-abundant. Size structure was better than in previous surveys but could be skewed by the timing of the sample as well as the morphology of this deep clear lake. This Bass population could use some harvest of smaller individuals (less than 14 inches), in accordance with the current regulation (three Largemouth Bass under 14 inches).

The Bluegill catch rate of 165 fish per hour is higher than the management goal, but not high enough to cause concern (Table 1). Bluegill abundance was lower in 2014 and 2018 when catch rates were 82 and 70 fish per hour. Size structure looked better in the 2014 and 2018 samples with over 60% of the stock measuring longer than 6 inches (Table1). Size structure has decreased in quality in our 2023 sample. Bluegill ranged in length from 1.3 to 6.9 inches, with an average length of 3.9 inches (Table 2). The Bluegill population exhibited a PSD of 6, which is lower than the management goal of 15-30. A proportional size distribution (PSD) of 6 indicates that of all the Bluegill in the sample of stock length or greater (4 inches), 6% were greater than 6 inches. In the two previous surveys we did see fish over 8 inches including a very high RSD-8 of 77 in 2018. An average relative weight (Wr) of 90 suggests that the Bluegill are healthy and most likely ready to spawn (some were seen on beds). We may have sampled this lake a little too early this time around, missing the largest Bluegills when they are in the shallows spawning. We don’t have creel data to know what harvest is like, but a 10 fish limit should prevent over-harvest of Bluegill.

No Black Crappies were collected in the most recent survey. Black Crappies tend to be very cyclical in their population numbers. We typically don’t manage for or stock Crappies in small ponds as they can become over-abundant and compete with young of year Largemouth Bass. The IDNR strongly discourages illegal stocking of Crappie for this reason.

Channel Catfish were not captured in this survey. Channel Catfish have been stocked in the past and anglers should not be surprised if they hook into one. Channel Catfish generally avoid surface DC electrofishing and are rarely caught in our springtime electrofishing surveys.

3. Lake Management Plan Progress Table (Table 1)

SPECIES	CRITERIA	LMP GOAL	2014	2018	2023	RATING*
Largemouth Bass	Catch Rate	60/hr.	180	92	183	Good
	PSD	40-60%	31	34	23	Fair
	RSD-15	15-30%	0	0	6	Fair
	RSD-18	1-5%	0	0	3	Good
	Relative Weight	90-105	90	79	89	Fair
	Young:adult ratio	1 - 3	0.11	0.31	0.42	Fair
	Average length (In)	NA	9.6	10.5	10.1	NA
Bluegill	Catch Rate	120/hr.	82	70	165	Poor
	PSD	15-30%	61	91	6	Fair
	RSD-8	1-5%	15	77	0	Poor
	Relative Weight	90-105	102	98	90	Good
	Average length (In)	NA	6.3	7.9	3.9	NA

* 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	122	3.74	19.88	10.14	0.02	4.25
Bluegill	56	1.34	6.93	3.90	0.04	0.23
Grand Total	**178**					

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 not 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.

- Grunwald 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 375 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 (75 fish).

-If additional sportfish are desired, smallmouth bass can be stocked at a rate of 25-50 fish per acre (375 – 750 fish). It is unlikely that smallmouth bass will establish themselves with their largemouth cousins being present and abundant in the system, but it is an added bonus for anglers.

- Discourage the release of live bait or aquarium fish in any lake or stream!

5. 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.

6. Evaluation
- Conduct a spring population survey every 4 to 5 years to assess the status of the 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.