Wakonda State Park Lake Report

Wakonda Lake
Agate Lake

Fishery Management Report 2022

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June 2022

EXECUTIVE SUMMARY

Management activities on Wakonda Lake and Agate Lake in Wakonda State Park included spring electrofishing surveys in 2019, 2020, and 2022 and annual channel catfish stocking at a rate of 5 per acre (Tables 1 and 2).

In 2008 and 2019, the Mississippi River levee that protects Wakonda State Park failed, allowing floodwaters to inundate the park and both lakes. Prior to inundation in 2019, several riverine fishes such as gars (longnose, shortnose, and spotted), common carp, and silver carp had nearly disappeared from both lakes. Abundance of these species in Wakonda Lake was similar between 2019 (pre-flood) and 2022, but increased in Agate Lake. Other riverine species such as bigmouth buffalo, smallmouth buffalo, river carpsucker, and quillback remain common in both lakes.

During the 2020 surveys, three juvenile yellow perch were collected from Wakonda Lake and one was collected from Agate Lake. None were collected from either lake in 2022.

Yellow bass were once common in these lakes but may now be extirpated. Capture rates in 2007 were 120 per hour in Wakonda Lake and 134 per hour in Agate Lake, then fell to 7 and 15 per hour respectively in 2009, one year after the lakes flooded. Capture rates fluctuated to highs of just over 30 per hour in the mid-2010's and began to decrease. No yellow bass were collected from either lake in 2022.

Hard cover abundance in Wakonda Lake remains fair. In Agate Lake, hard cover is extremely limited. Shoreline sand and gravel continues to wash into Agate Lake, making it shallow and difficult to access the shoreline during sampling.

No rooted aquatic vegetation was observed in either lake. Spike rush is the most common semi-aquatic plant, but it occurs in only a few scattered patches near-shore. Sand and gravel do not provide a suitable growth medium for most aquatic plant species.

During the mid-2010's, the shoreline plant water willow was introduced to Agate Lake. Two plant beds were established and were expanding. Cuttings were being introduced to other parts of the lake. Plants did not survive 2019 flooding, and no water willow was found in 2020 or 2022.

Wakonda Lake

Largemouth bass abundance in Wakonda Lake in 2022 was below the target objective, but comparable to past surveys (Table 3). Size structure indices were within or near the target objectives and comparable to past surveys. The electrofishing survey was completed in late spring, similar to past years, and was likely after spawning was completed.

Largemouth bass size structure in 2020 was better than the 5-year average and was likely an artifact of these fish having access to more food during 2019 flooding. The park superintendent reported that park use by the public, including fishing, increased during the Covid-19 pandemic of 2019 and 2020. This may have impacted survival of larger bass in the population, as they may have been harvested or succumbed to post-angling mortality. It was noted during the 2020 survey that largemouth bass mouth injuries were more anecdotally common than in past surveys.

Bluegill abundance remains high, but the size structure continues to be poor (Table 3).

Management recommendations include spring electrofishing surveys in 2024 and to continue stocking channel catfish at a rate of 5 per acre per year If schedules and budgets allow, additional hard cover should be added, and introduction of water willow should be attempted.

Agate Lake

Abundance of some riverine species increased in Agate Lake after the 2019 flood. No common carp were collected in 2019 but increased to 13 per hour in 2020 and 22 per hour in 2022. And though they are difficult to collect by electrofishing gear, more silver carp were observed leaping in 2020 and 2022 than in 2019.

Most notable is the increase in gar species abundance in Agate Lake. Gar were not collected in 2019 but were observed spawning in the rising floodwaters. No gar were collected in 2020 but anglers reported seeing them in the lake. In 2022, three gar species were collected at a combined rate of 45 per hour, making them the most abundant apex predator in the lake.

High gar abundance is likely having a negative impact on largemouth bass abundance.

Largemouth bass of all sizes were collected at a rate of only 10 per hour in 2022 (13 fish total), and at a rate of only 5 per hour for fish over 8 inches, well below the management objective. (Table 4).

Bluegill abundance has dropped well below the target objective (Table 4). They may also be impacted by the increased gar abundance.

Management recommendations include a spring electrofishing survey in 2024 and to continue stocking channel catfish at a rate of 5 per acre per year. If schedules and budgets allow, additional hard cover should be added and reintroduction of water willow should be attempted.

Table 1. Summary of channel catfish stocked into Wakonda Lake, 2012 - 2021.

Date	Count	Source	Size
09/28/2021	400	Hunnewell Fish Hatchery	8-12"
09/29/2020	400	Hunnewell Fish Hatchery	8-12"
09/25/2019	400	Hunnewell Fish Hatchery	8-12"
10/02/2018	400	Hunnewell Fish Hatchery	8-12"
10/04/2017	382	Hunnewell Fish Hatchery	8-12"
09/28/2016	390	Hunnewell Fish Hatchery	8-12"
09/29/2015	390	Lost Valley Fish Hatchery	8-12"
09/30/2014	390	Lost Valley Fish Hatchery	8-12"
10/01/2013	390	Lost Valley Fish Hatchery	8-12"
10/02/2012	390	Hunnewell Fish Hatchery	8-12"

Table 2. Summary of channel catfish stocked into Agate Lake, 2012 - 2021.

Date	Count	Source	Size
09/28/2021	835	Hunnewell Fish Hatchery	8-12"
09/29/2020	835	Hunnewell Fish Hatchery	8-12"
09/25/2019	838	Hunnewell Fish Hatchery	8-12"
10/02/2018	851	Hunnewell Fish Hatchery	8-12"
10/04/2017	835	Hunnewell Fish Hatchery	8-12"
09/28/2016	835	Hunnewell Fish Hatchery	8-12"
09/29/2015	835	Lost Valley Fish Hatchery	8-12"
09/30/2014	835	Lost Valley Fish Hatchery	8-12"
10/01/2013	835	Lost Valley Fish Hatchery	8-12"
10/02/2012	835	Hunnewell Fish Hatchery	8-12"

Table 3. Summary of fish population surveys at Wakonda, Agate, and Jasper Lakes.

Wakonda Lake - Wakonda State Park
Ownership: Missouri Department of Natural Resources
Size: Wakonda Lake: 78 Acres
Location: Lewis County

Sampling Conditions

Date: May 17, 2022 Effort: 1.5 hours day-time electrofishing
Secchi: 26 inches Water Temperature: 78° F

Species	Regulation
Largemouth Bass	12- to15-inch slot, 6 daily
Channel Catfish	4 daily
Crappie	30 daily
All others	20 in aggregate
	No more than 4 may be walleye (15-inch length limit) or sauger
	No more than 15 may be white bass or yellow bass

Bowfishing is permitted for non-game species.

Species Parameters

Largemouth Bass

	2011	2013	2019	2020	2022	Objective
CPUE (fish ≥ 8 inches)	55	45	33	39	50	80 – 100 per hour
PSD-12	74	57	82	91	64	40 - 60
PSD-15	37	27	15	47	16	15 - 25

Bluegill

CPUE (fish≥ 3 inches)	148	360	212	224	188	150 – 200 per hour
PSD-6	10	2	16	13	7	30 - 50
PSD-8	0	0	0	2	0	5 - 10

Seventeen other fish species were either collected or observed during the survey: channel catfish, flathead catfish, walleye, black crappie, white crappie, freshwater drum, smallmouth buffalo, bigmouth buffalo, river carpsucker, common carp, silver carp, shortnose gar, spotter gar, bowfin, gizzard shad, fathead minnow, and brook silverside.

Table 4. Summary of fish population surveys at Agate Lake.

Agate Lake - Wakonda State Park
Ownership: Missouri Department of Natural Resources
Size: 167 Acres
Location: Lewis County

Sampling Conditions

Date: May 19, 2022	Effort: 1.3 hours day-time electrofishing
Secchi: 28 inches	Water Temperature: 77° F

Species	Regulation
Largemouth Bass	12- to 15-inch slot, 6 daily
Channel Catfish	4 daily
Crappie	30 daily
All others	20 in aggregate
	No more than 4 may be walleye (15-inch length limit) or sauger
	No more than 15 may be white bass or yellow bass

Bowfishing is permitted for non-game species.

Species Parameters

Largemouth Bass

	2011	**2013**	**2019**	**2020**	**2022**	**Objective**
CPUE (fish ≥ 8 inches)	21	X	28	30	5	80 – 100 per hour
PSD-12	78	X	64	53	83	40 - 46
PSD-15	59	X	39	27	50	15 - 25

Bluegill

CPUE (fish≥ 3 inches)	384	X	128	344	36	150 – 200 per hour
PSD-6	5	X	13	3	19	30 - 50
PSD-8	> 1	X	0	0	0	5 - 10

X – Agate Lake not sampled that year.

Nineteen other fish species were collected or observed during the survey: flathead catfish, black crappie, white crappie, freshwater drum, smallmouth buffalo, bigmouth buffalo, river carpsucker, quillback, common carp, silver carp, shortnose gar, spotter gar, longnose gar, bowfin, gizzard shad, orangespotted sunfish, green sunfish, and red shiner.