WISCONSIN DEPARTMENT OF NATURAL RESOURCES

2025 Decatur Lake Fisheries Summary

WATERBODY: Decatur Lake **COUNTY:** Green **YEAR:** 2025

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Introduction

Decatur Lake, an impoundment of the Sugar River, is a 109-acre drainage lake located in the town of Decatur in eastern Green County, Wisconsin. Decatur Lake has a maximum depth of 10 feet with substrate composed of primarily muck and a minimal amount of sand. The lake has shoreline access at a few locations including Headgates Park, Decatur Dam Park and Three Waters Reserve. Boaters and paddlers can access Decatur Lake at Headgates Park which has a small, gravel boat launch.

Decatur Lake was formed in the 1840s when the Decatur Dam was constructed to power a sawmill on the Sugar River. In the 1860s the Sugar River – East Channel, a 3.1-mile manmade channel locally called the “millrace”, was created to produce electricity for what is now the city of Brodhead. The Sugar River and Searles Creek are the only inlets to Decatur Lake which enter the lake on the north end. The Sugar River and the “millrace” are the only two outlets to the lake. The Sugar River exits Decatur Lake to the south while the “millrace” channel exits the lake to the east where it runs parallel to the natural channel of the Sugar River. This manmade channel goes through a series of dams including Headgates Dam and Brodhead Dam until it eventually drains into the Sugar River (Figure 1).

Decatur Lake follows all statewide general fishing regulations (Table 1). Stocking efforts have been limited on Decatur Lake over the years. Largemouth bass were stocked into the lake in the late 1980s and multiple different species were stocked into the lake in 2025 by the Decatur Lake Millrace Association (Table 2).

Decatur Lake is classified as a simple-riverine lake using a Wisconsin lakes classification system developed by the Wisconsin Department of Natural Resources (DNR) that compares lakes of similar physical characteristics (Rypel et al. 2019). Decatur Lake typically receives a spring electrofishing survey every 8 years. In 2025, DNR fisheries management conducted an electrofishing survey on Decatur Lake. The goals of this survey were to determine: (1) relative abundance of all fish species and (2) size structure for gamefish. Gamefish refers to all varieties of fish except rough fish and minnows. In this report, sport fish and panfish are considered types of gamefish. Sport fish refers to smallmouth bass, largemouth bass, northern pike and walleye. Panfish refers to yellow perch, bluegill, black crappie, white crappie, pumpkinseed, green sunfish, warmouth and orangespotted sunfish. Asiatic clam, curly-leaf pondweed and Eurasian watermilfoil are invasive species that are present in the lake.

Methods

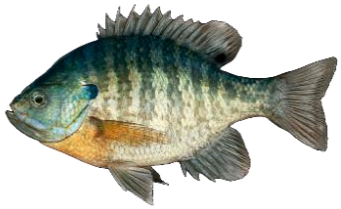
The DNR conducted a single night electrofishing survey around the entire perimeter of Decatur Lake as well as the north and south shoreline of the "millrace" above Headgates Dam on May 6, 2025 following standard procedures (Simonson 2015). For the purposes of this report, the entire area above the Decatur Dam and Headgates Dam will be considered Decatur Lake. A standard DNR miniboom electrofishing boat was used to sample 4.0 miles of shoreline. All fish species were collected throughout the survey. Gamefish species were measured to the nearest tenth of an inch while non-gamefish species were counted. All fish were immediately released. Relative abundance was calculated by dividing the number of one individual fish species by the number of shoreline miles sampled which resulted in a catch-per-unit-effort (CPUE).

Figure 1. *Locations of Decatur Lake, Sugar River, and "Millrace." Decatur Dam, Headgates Dam and Brodhead Dam are labeled as black rectangles on map.*

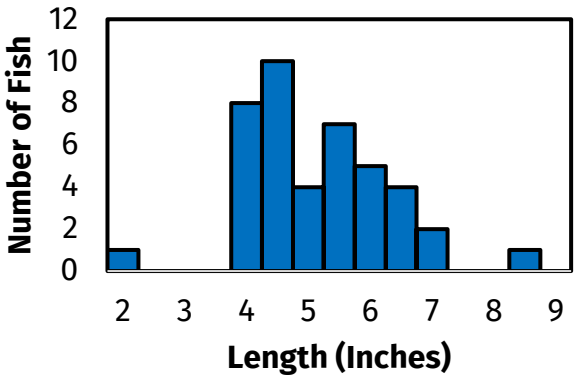
Fish Assemblage

A total of 25 fish species was found in Decatur Lake during the 2025 electrofishing survey (Table 3). Channel catfish and yellow perch have also been found in the lake in the past but were not present in the 2025 survey.

BLUEGILL



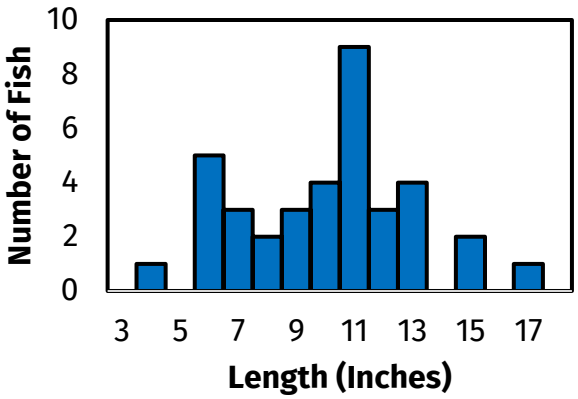
A total of 42 bluegill was sampled which resulted in a catch rate of 10.5 fish per mile, higher than observed in 2015 (4.4 fish per mile). Compared to other simple-riverine lakes found in Wisconsin, the 2025 bluegill catch rate ranks low (Figure 2). The average length of bluegill collected was 5.4 inches with sizes varying from 2 inches to 8.8 inches.



YEAR	2015	2025
# Captured Per Mile	4.4	10.5
% Quality Size (Fish≥ 6)	57%	29%
% Preferred Size (Fish≥ 8)	0%	2%

SMALLMOUTH BASS

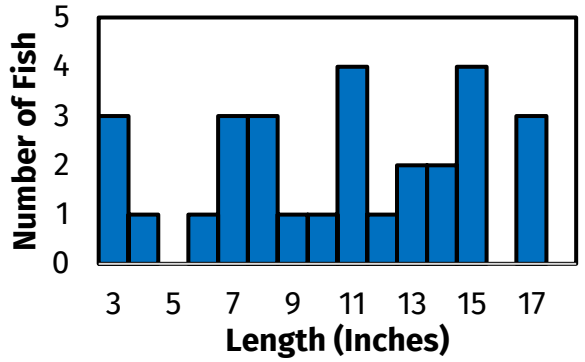
A total of 37 smallmouth bass was sampled which resulted in a catch rate of 9.2 fish per mile, lower than observed in 2015 (18.1 fish per mile). Compared to other simple, riverine lakes found in Wisconsin, the 2025 smallmouth bass catch rate ranks high (Figure 3). The average length of smallmouth bass collected was 10.5 inches with sizes varying from 4.6 inches to 17.7 inches.



YEAR	2015	2025
# Captured Per Mile	18.1	9.2
% Quality Size (Fish ≥ 11)	38%	51%
% Preferred Size (Fish ≥ 14)	3%	8%

LARGEMOUTH BASS

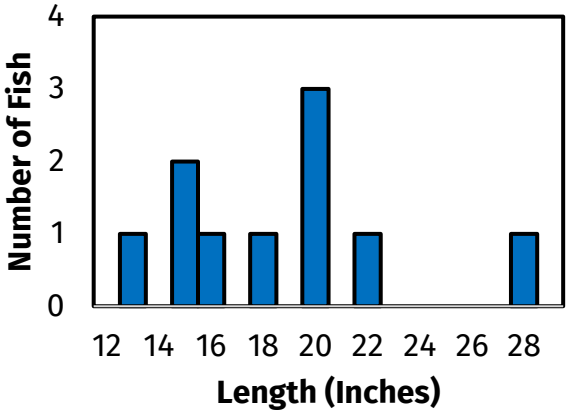
A total of 29 largemouth bass was sampled which resulted in a catch rate of 7.2 fish per mile, higher than observed in 2015 (5 fish per mile). Compared to other simple-riverine lakes found in Wisconsin, the 2025 largemouth bass catch rate ranks low (Figure 4). The average length of largemouth bass collected was 10.9 inches with sizes varying from 3 inches to 17.8 inches.



YEAR	2015	2025
# Captured Per Mile	5	7.2
% Quality Size (Fish ≥ 12)	38%	41%
% Preferred Size (Fish ≥ 15)	0%	24%

NORTHERN PIKE

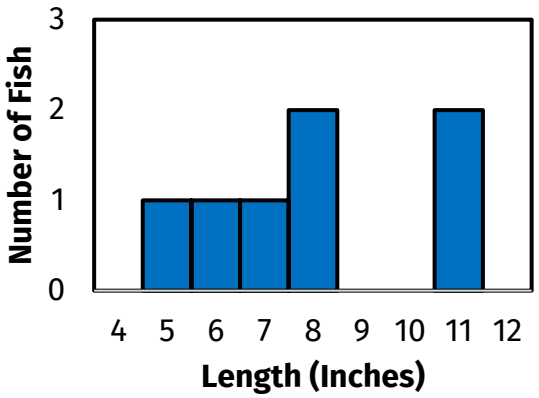
A total of 10 northern pike was sampled which resulted in a catch rate of 2.5 fish per mile. The average length of northern pike collected was 19.0 inches with sizes varying from 13.2 inches to 28.0 inches. Although 10 northern pike were sampled, this does not necessarily reflect a low or high population, as northern pike are not easily or effectively sampled with electrofishing gear and low catch rates are common.



YEAR	2015	2025
# Captured Per Mile	2.5	2.5
% Quality Size (Fish ≥ 21)	0%	20%
% Preferred Size (Fish ≥ 28)	0%	10%

BLACK CRAPPIE

A total of 7 black crappie was sampled which resulted in a catch rate of 1.7 fish per mile, higher than observed in 2015 where no black crappie were captured. The average length of black crappie collected was 8.4 inches with sizes varying from 5.4 inches to 11.7 inches. Black crappie are known to have large fluctuations in recruitment based on environmental conditions, so it is hard to understand population size with only one survey.



YEAR	2015	2025
# Captured Per Mile	0	1.7
% Quality Size (Fish ≥ 8)	-	57%
% Preferred Size (Fish ≥ 10)	-	29%

WALLEYE

Only one walleye was captured in both the 2015 and 2025 electrofishing surveys. Walleye have always been present in Decatur Lake, but in low abundances. Walleye stockings during the mid-2000s in the Green County portions of the Sugar River may have led to a slight increase of walleye captured by anglers in Decatur Lake over the last two decades, but fishery survey data to support this are lacking. Higher walleye abundances can be found in the Sugar River below the Decatur Dam downstream to the state line where there is more suitable habitat for walleye to have successful natural reproduction.

OTHER SPECIES

Silver redhorse, common carp and golden redhorse were the most common species collected in the survey. Silver, shorthead and golden redhorse are native Wisconsin species that are often confused with common carp, a non-native species. Redhorse species provide ecological benefit and play an important role in the food web while common carp can be detrimental to desired gamefish species, as well as water quality. In high abundance, common carp are known to increase turbidity, reduce aquatic vegetation and directly compete with native species for food. This reduction in water clarity, cover and food hinders the survival of juvenile gamefish species which are no longer able to effectively feed on macroinvertebrates and zooplankton. Common carp also grow much faster than and larger than many native species. The 2025 common carp catch rate of 15.7 fish per mile was higher than observed in 2015 (12.0 fish per mile). Spotfin shiners and bluntnose minnows were also found in the lake which serve as an excellent food source for gamefish species.

Summary

Decatur Lake continues to have a diverse fish community that is dominated by nongame species such as silver redhorse, common carp and golden redhorse. This is due largely in part to the riverine nature of the lake. The most common sport fish species within the lake is smallmouth bass while the most common panfish species is bluegill.

Similar to other small impoundments in southern Wisconsin, Decatur Lake suffers from heavy sediment loads due to agricultural practices within the watershed. Over time the Sugar River and Searles Creek have deposited high amounts of silt and sand into Decatur Lake resulting in shallow depths around 2 feet in the upper two-thirds of the lake which limits the amount of boat traffic. Sedimentation also reduces the amount of natural spawning habitat available for many species such as walleye which prefer to use exposed rock and gravel to spawn.

Despite having shallow depths and limited habitat diversity, Decatur Lake continues to have a robust smallmouth bass population along with a modest number of other gamefish species. Since 2015, abundances of black crappie, bluegill and largemouth bass have increased. Northern pike continue to remain stable in Decatur Lake. Smallmouth bass numbers are lower compared the previous survey, however; abundance continues to be well above average (75th percentile) compared to other similar lakes in Wisconsin.

Smallmouth bass, largemouth bass and northern pike size structure has increased over the last 10 years which has improved the quality of the fishery. Bluegill average size is slightly lower than in 2015, but more fish are reaching 7 inches or greater. The deeper channels on the east and west shore contain large, woody debris that provide habitat for desired gamefish and panfish. Thick patches of sago pondweed and long-leaf pondweed in the middle and upper portions of the lake serve as refuge for juvenile bass and panfish species.

Channel catfish are native to the Sugar River in Green and Rock County, however; channel catfish were not found in the 2025 electrofishing survey even though seven adults that ranged from 19.6 to 24.7 inches were present in the 2015 survey. Channel catfish are not consistently captured using electrofishing gear, but angler fishing reports suggest that large channel catfish are still present in Decatur Lake. Hoop nets are a much more efficient way to capture catfish species. A recent hoop net survey found a fishable population of channel catfish in the Sugar River south of Decatur Lake in Avon Bottoms Wildlife Area (Trow 2024). The report is linked here: Sugar River Hoop Net Survey 2023.

Decatur Lake will continue to be monitored on an 8-year rotation to track how the fish community changes over time. Statewide general fishing regulations for inland waters will remain in place on Decatur Lake. Supplemental walleye and panfish stockings by Decatur Lake Millrace Association will continue to be encouraged as these stockings enhance existing fishing opportunities in the lake.

Acknowledgements

Data collection for this survey was completed by DNR staff Josh Jonet and Mitchell Trow. Tim Simonson, Nathan Nye and Kyle Olivencia provided feedback and edits for this report.

If you have questions or comments about fisheries management activities on Decatur Lake, please contact:

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References

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Simonson, T. 2015. Surveys and Investigations – Inland Fisheries Surveys. Fish Management Handbook Chapter 510, Wisconsin Department of Natural Resources internal publication. Madison, Wisconsin.

Trow, M.R. 2024. Sugar River Hoop Net Survey, Rock County, Wisconsin 2023. Wisconsin Department of Natural Resources, Madison, Wisconsin. 17pp.

Tables

Table 1. Fishing regulations for Decatur Lake in Green County, Wisconsin. Catch and release fishing for bass species is open year-round. Areas below the Albany Dam, Brodhead Dam, and Decatur Dam serve as a fish refuge and are closed to fishing from the 1st Sunday in March to the 1st Saturday in May.

SPECIES	SEASON DATES	DAILY BAG LIMIT	SIZE LIMIT
Largemouth bass & smallmouth bass	1st Saturday in May to 1st Sunday in March	5	14” or larger
Rock, yellow, & white bass	Open All Year	None	None
Panfish	Open All Year	25	None
Bullheads	Open All Year	None	None
Rough fish	Open All Year	None	None
Catfish (channel, flathead)	Open All Year	10	None
Northern pike	1st Saturday in May to 1st Sunday in March	2	26” or larger
Walleye	1st Saturday in May to 1st Sunday in March	3	15” or larger

Table 2. Fish stocking records for Decatur Lake, Green County, Wisconsin.

STOCKING YEAR	SPECIES	AGE CLASS	NUMBER OF FISH STOCKED	SOURCE
2025	Walleye	Large Fingerling	400	Private
2025	Largemouth bass	Small Fingerling	100	Private
2025	Bluegill	Small Fingerling	100	Private
2025	Yellow perch	Small Fingerling	200	Private
2025	Black crappie	Small Fingerling	300	Private
1989	Largemouth bass	Fingerling	15,000	DNR stocking
1988	Largemouth bass	Fingerling	25,000	DNR stocking

Table 3. Summary of total catch, catch-per-unit effort (CPUE), length (inches) and mean length sampled during the 2025 electrofishing survey of Decatur Lake, Green County Wisconsin.

SPECIES	TOTAL CAPTURED	CPUE (FISH/MILE)	LENGTH RANGE	MEAN LENTH
Silver redhorse	76	19.0		
Common carp	63	15.7		
Golden redhorse	46	11.5		
Bluegill	42	10.5	2.0 – 8.8	5.4
Smallmouth bass	37	9.2	4.6 – 17.7	10.5
Spotfin shiner	33	8.2		
Largemouth bass	29	7.2	3.0 – 17.0	10.9
Shorthead redhorse	18	4.5		
Bluntnose minnow	17	4.2		
Rock bass	17	4.2	3.4 – 7.8	5.1
Northern pike	10	2.5	13.2 – 28.0	19.0
Fathead minnow	8	2.0		
White sucker	8	2.0		
Black crappie	7	1.7	5.4 – 11.7	8.4
Golden shiner	5	1.3		
Green sunfish	5	1.3	2.8 – 4.3	3.4
Central mudminnow	2	0.5		
Bigmouth buffalo	1	0.3		
Brook stickleback	1	0.3		
Emerald shiner	1	0.3		
Freshwater drum	1	0.3		
Pumpkinseed	1	0.3		7.0
Quillback	1	0.3		
Spottail shiner	1	0.3		
Walleye	1	0.3		21.2

Figures

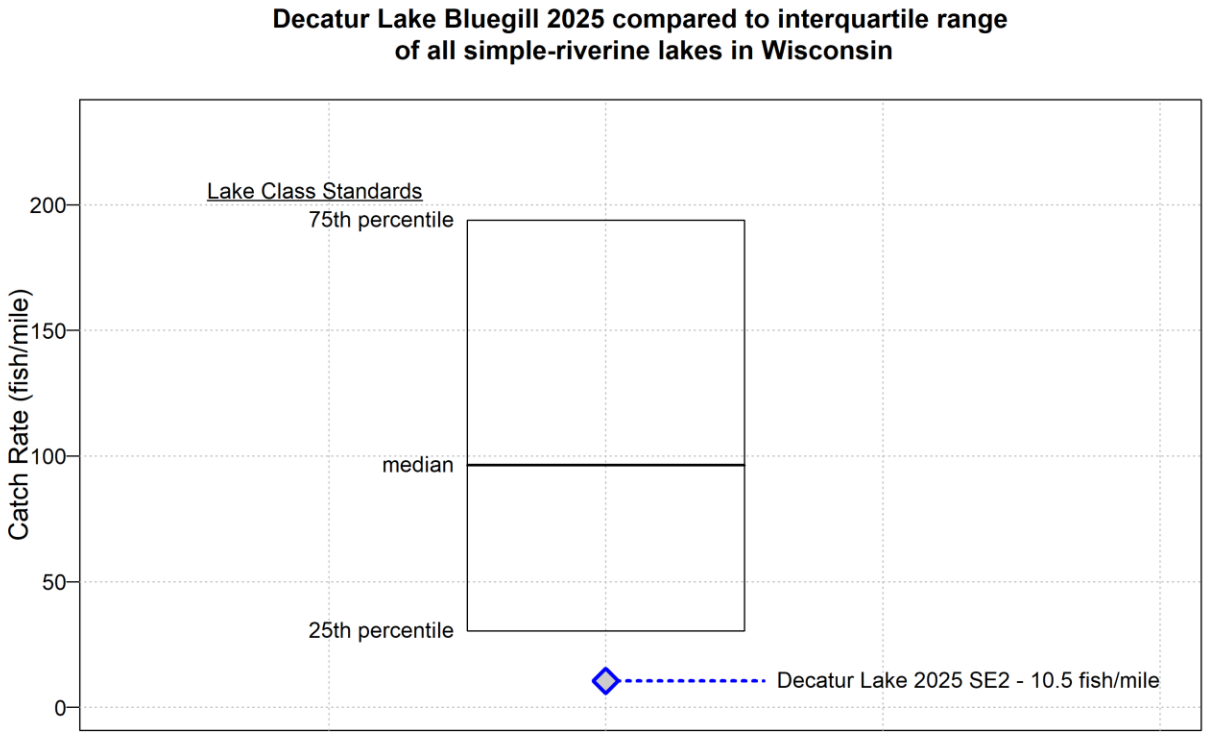

Figure 2. Lake class comparison for bluegill catch rate found during 2025 electrofishing survey of Decatur Lake, Green County, Wisconsin.

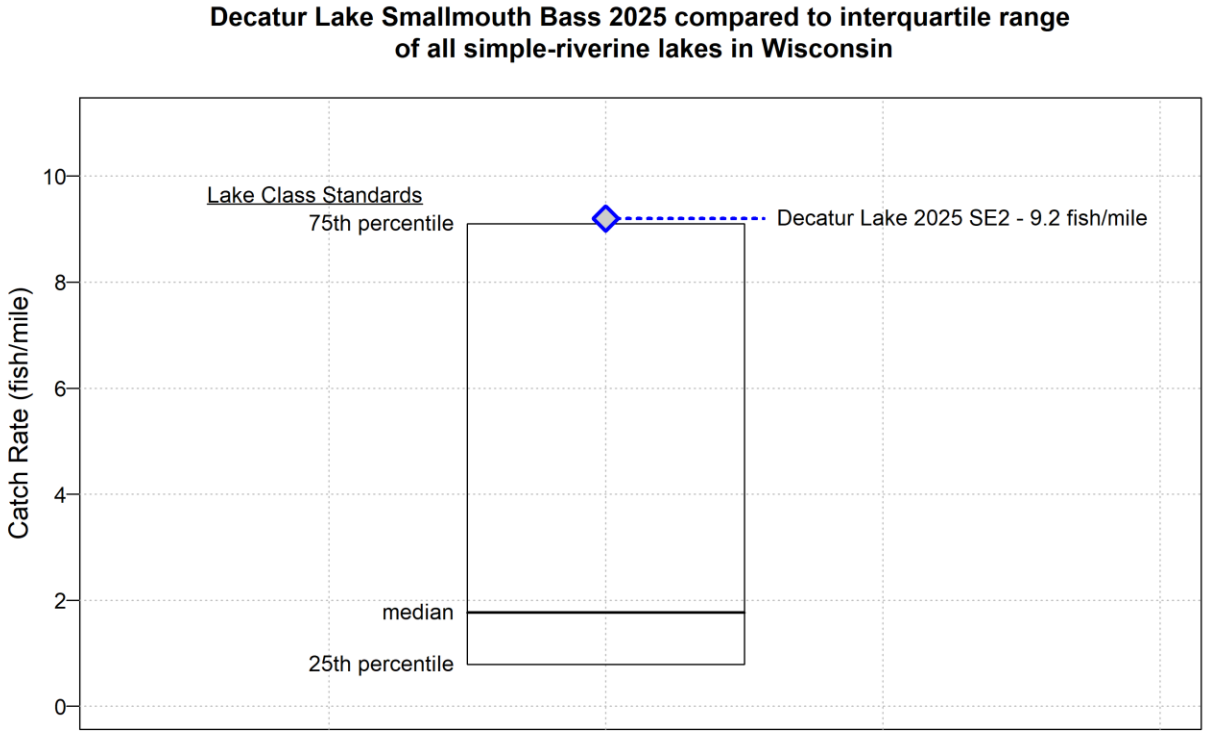

Figure 3. Lake class comparison for smallmouth bass catch rate found during 2025 electrofishing survey of Decatur Lake, Green County, Wisconsin.

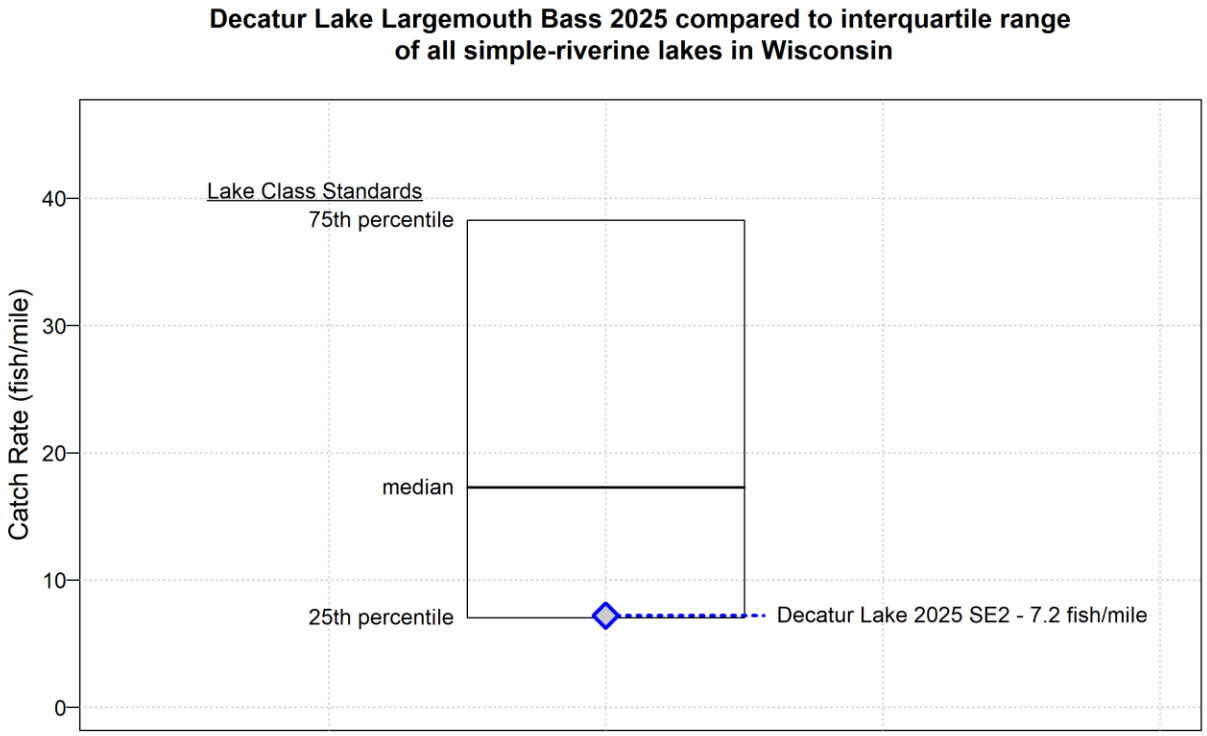

Figure 4. Lake class comparison for largemouth bass catch rate found during 2025 electrofishing survey of Decatur Lake, Green County, Wisconsin.