



# WISCONSIN DEPARTMENT OF NATURAL RESOURCES

## 2023 Winnebago Water Clarity Report Lake Winnebago

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### Introduction And Objectives

Water clarity is one of the strongest predictors of lake sturgeon harvest in the Winnebago System during the spearing season. It is ultimately water clarity that determines where in the water column spearsmen suspend their decoys. During years with water clarity 12 feet or greater on Lake Winnebago, the pre-set harvest caps are often reached prior to the full 16-day season, causing shorter seasons.

Ice conditions are one of the main drivers of water clarity during the sturgeon spearing season. Shifting ice, snow-covered ice, the date the lake freezes over, and thawing and refreezing events are all factors in water clarity under the ice.

Our objectives are to assess: 1) **average water clarity** around Lake Winnebago prior to the sturgeon spearing season and 2) how average water clarity affects the total Lake Winnebago harvest of Lake Sturgeon during the Winnebago spear fishery.

### Metric Descriptions

**Average Water Clarity-** Two measurements are taken for each location: 1) when the Secchi disk disappears when lowered through the ice hold and 2) when the Secchi disk reappears when being raised from the bottom. Both measurements are averaged together.

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### Survey Method

- Water clarity is taken through the ice using a Secchi disk.
- 17 locations are tested around Lake Winnebago.
- Reading locations are dictated by both access and safety of travel conditions.
- Readings were taken the week of Feb. 6 for 2023.

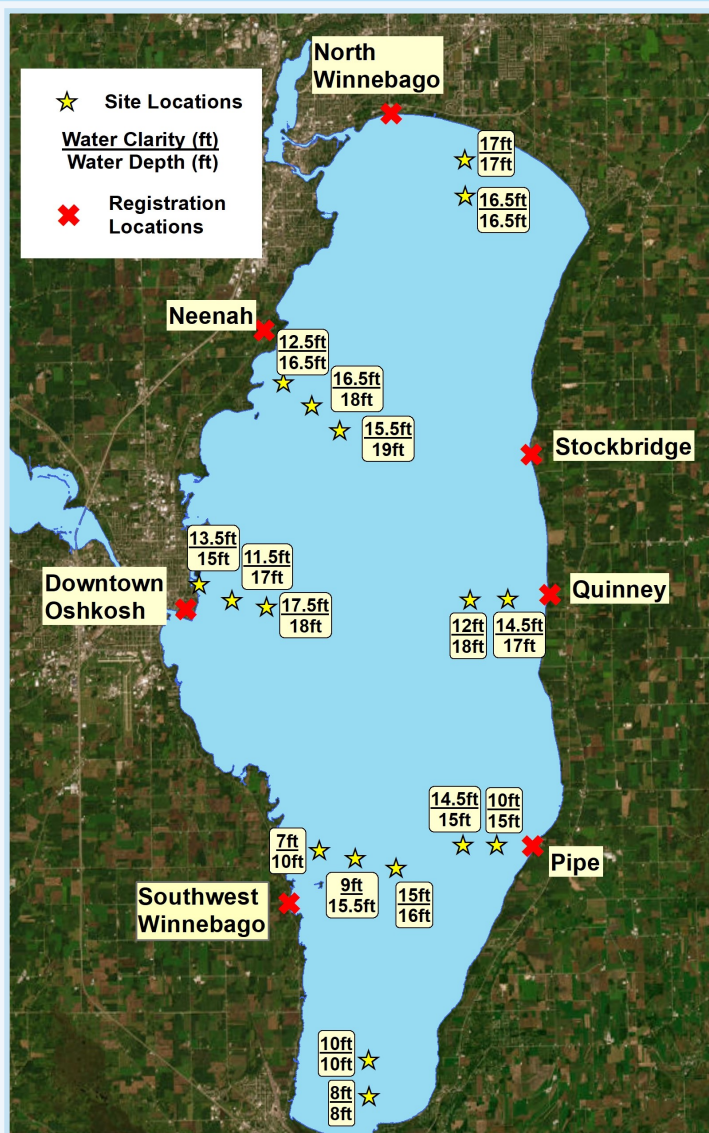


Figure 1. Water Clarity for Lake Winnebago. Stars indicate sample sites. The top value of the label is the water clarity at that site with the bottom value being the depth at that location.

### Water Clarity Summary

- The average water clarity around Lake Winnebago was 13.0 feet. Visibility was variable but was clearer in areas farther from the shoreline (Figure 1).
- While warmer weather and large rain events early in January 2023 should have caused poor water clarity, that doesn't seem to be the case, as, in general, clarity is fairly good in most locations around the lake, with water clarity being within 2 feet from the bottom.
- Water clarity readings were not conducted on the Upriver Lakes. Their shallower depths generally mean that water clarity is not as much of a factor when predicting Upriver Lake season length or success.
- In 2022, water clarity of less than 12 feet meant a full 16-day harvest season occurred. Though a significant number of lake sturgeon were still speared compared to other years in the last decade (Figure 2). With average water clarity being over 13 feet and good ice conditions, we should see a good harvest again. Though the warm weather might deteriorate ice conditions which may reduce spearing success. We also recorded low chironomid densities this year may impact sturgeon distribution and potentially spearing success rates.
- As always, check with the local fishing clubs for information on ice conditions.

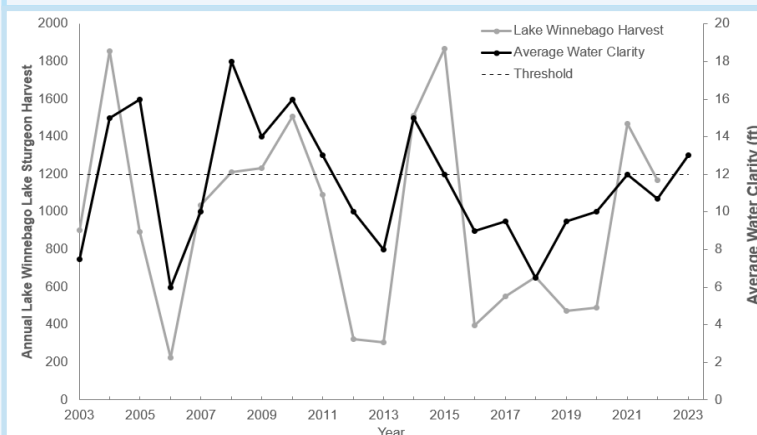


Figure 2. Lake Winnebago average water clarity (black series; right y-axis) and total annual spear harvest (grey series; left y-axis). Dashed line represents the 12-foot clarity threshold.