



2024 Chironomid Assessment Report
The Winnebago System

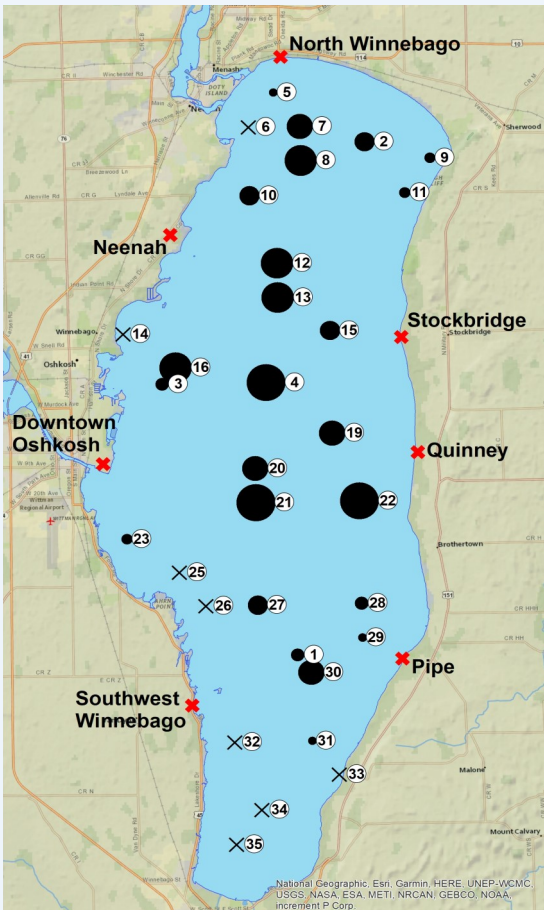


Figure 1: Map of the 2024 4th instar chironomid larvae relative abundance at the 32 sites on Lake Winnebago. Catch rates are relative to point size, with larger points indicating higher catch rates, an X indicates no chironomid caught.

Lake Winnebago Summary

- The average chironomid larvae per dredge sample for Lake Winnebago was 16.34, with the highest at site 4 with an average of 60 larvae per dredge sample (Figure 1).
- This was a large increase from last year's average of 0.89 larvae per dredge drop.
- Spatial distribution of larvae during the 2024 assessment followed the historical trend with the northern and central sites of Lake Winnebago yielding the highest average catch rates of chironomid larvae (Figure 1).
- Lake Winnebago saw the highest chironomid density from sites 4, 21, 22 and 12, respectively. (Figure 1).

Upriver Lakes Survey Summary

- The 2024 assessment yielded the second-lowest relative abundance of chironomid larvae (1.36/dredge drop) since Upriver sampling started in 2017. 2017 had the lowest relative abundance with an average of 0.58 chironomids/dredge drop (Figure 4).
- In 2024, the highest chironomid densities were in Lake Butte des Morts, followed by Lake Winnebago, and then Lake Poygan (Figure 4).
- The southern shore of Lake Butte des Morts, yielded the highest relative abundance of 4th instar chironomids (Figure 2).

DNR Contact

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Lake Information

Winnebago: 131,939 acres
Butte des Morts: 8,581 acres
Poygan: 14,024 acres
Winnebago: 4,553 acres

Introduction

Chironomids, commonly referred to as "bloodworms" in their larva stage, are critical to the diet of lake sturgeon. In 2013, a standard assessment of chironomid larvae was initiated in Lake Winnebago, followed by an assessment of the Upriver Lakes (Butte des Morts, Winnebago and Poygan) in 2017. Chironomid assessments dating back to 1961 have provided one of the longest, although not continuous, records of lentic chironomid larvae abundance.

For more information on chironomids please visit the [chironomid fact sheet](#).

Objectives

1. Assess relative abundance.
2. Assess spatial distribution of chironomid larvae within Lake Winnebago and the Upriver Lakes .

Metric Descriptions

Relative abundance describes population size and is estimated by the **number of 4th instar chironomid larvae per dredge drop**. The mean catch per dredge drop was used to calculate relative abundance for each lake.

Survey Method

- Substrate samples are collected in early August using an Eckman Dredge.
- The Eckman Dredge is dropped twice per site.
- Lake Winnebago has 32 sampling sites.
- Upriver Lakes has 34 sampling sites:
 - 12 on Lake Butte Des Morts
 - 8 on Lake Winnebago
 - 14 on Lake Poygan
- Substrate samples are filtered through a 541 -µm sieve bucket and the remaining material is analyzed in the field for 4th instar chironomid larvae.
- Samples with high amounts of detritus were preserved in 96% Ethanol for analysis in the lab.
- 4th instar chironomid larvae are tallied for each dredge sample to track for relative abundance.

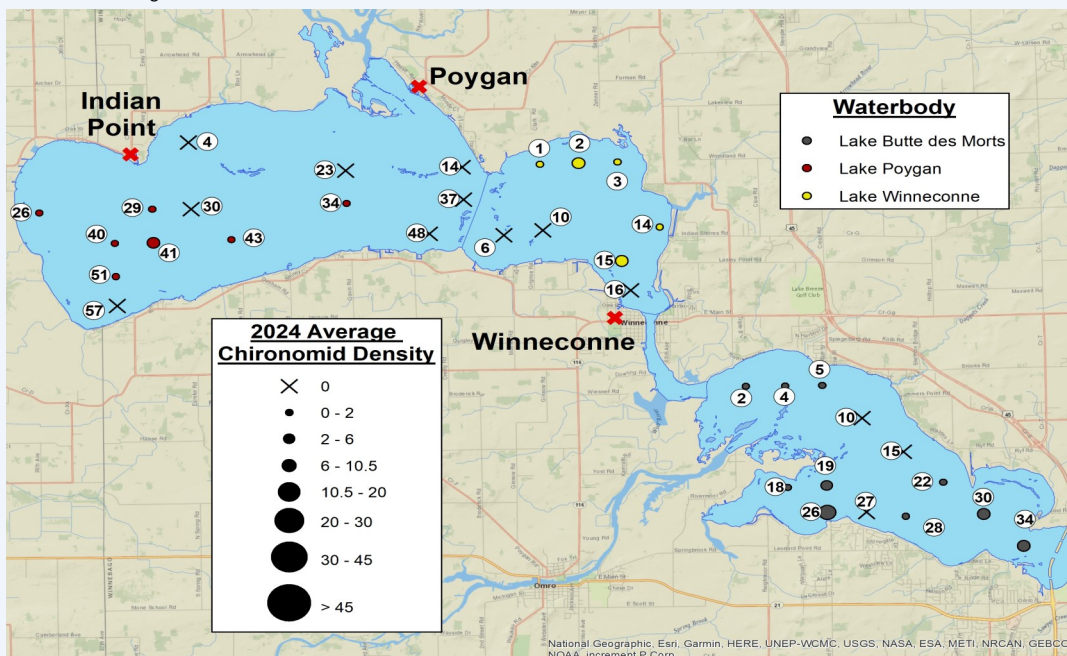


Figure 2: Map of the 2024 4th instar chironomid larvae relative abundance at the 34 sites on the Upriver Lakes on the Winnebago System. Catch rates are relative to point size, with larger points indicating higher catch rates, an X indicates no chironomid caught.



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Image 1: Fourth instar chironomid larvae in hand during the Winnebago system chironomid sampling. Photo credit: Wisconsin DNR

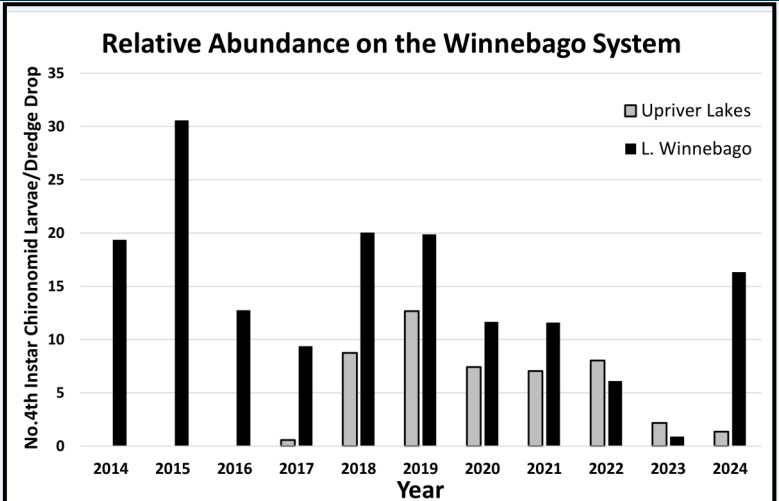


Figure 3: Graph of the average relative abundance of 4th instar chironomid larvae from the standardized locations on Lake Winnebago and Upriver Lakes from 2014-2024, Upriver Lakes were not sampled until 2017.

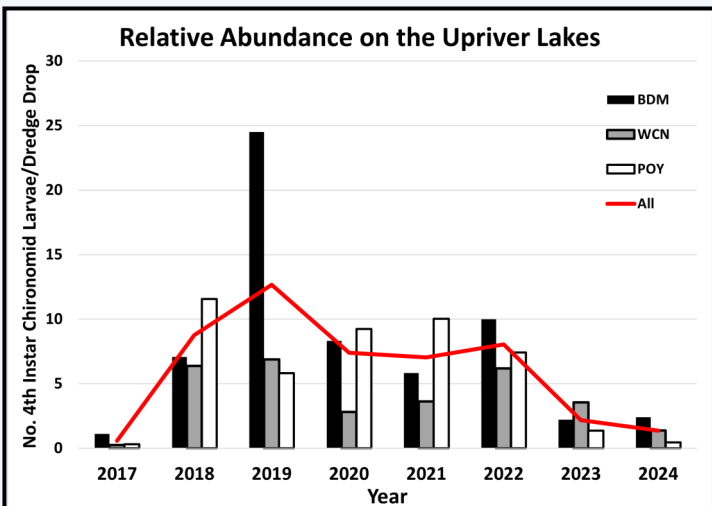


Figure 4: Graph of the relative abundance of 4th instar chironomid larvae from the 34 standardized locations on the Winnebago system Upriver Lakes from 2017-2024.

Species Assessment Summary

- The 2024 assessment observed the highest relative abundance of chironomids on Lake Winnebago since 2019 (Figure 3).
- Although the Upriver Lakes' relative abundance was down the past two years, many samples were observed with third instar chironomid larvae. These are not counted as part of the survey.
- Larval growth is dependent on mud temperature. Mud temperature in August typically ranges from 73-77°F.
- A majority of third instar larvae sampled on the Upriver Lakes was on Lake Butte Des Morts, where the mud temperature on average was 70°F, 4 degrees less than the average mud temperatures on Lake Winnebago during sampling.
- Chironomids also have a boom and bust population cycle, where upward and downward trends in our long term data set are observed on the Winnebago System (Figure 3 and 4).

Gizzard Shad And Chironomids

- When chironomid abundance is low one of the better alternative food sources for lake sturgeon is gizzard shad.
- The Lake Winnebago gizzard shad population is monitored annually with a trawling survey to assess population trends.
- The 2024 Young of year (YOY) gizzard shad catch on Lake Winnebago was once again very low with 0.3 fish/trawl (Figure 5).
- Gizzard shad, like chironomids, have shown boom and bust year classes on Lake Winnebago and it's been since 2016 that we have had a high YOY catch.
- YOY Gizzard shad were reported by the public in high abundance near the shorelines on the system in areas too shallow to trawl, which may indicate higher abundance than reported on the trawl. However, even if their populations are a bit higher than reflected on the trawl, it is likely still to be a very low gizzard shad year again.

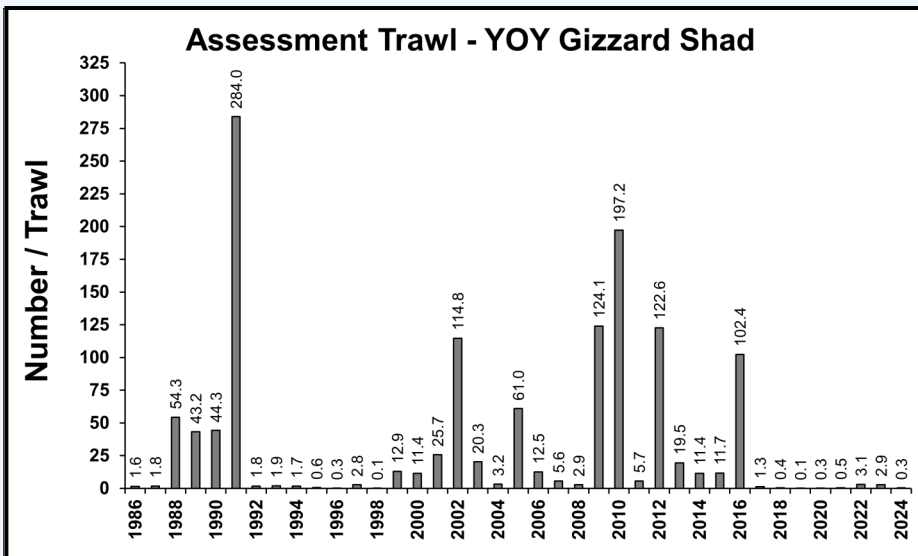


Figure 5: Graph of the average number of young of year (YOY) gizzard shad per trawl on Lake Winnebago from August-October from 1986-2024.