



Bone Lake, October 2023

Aquatic Invasive Species Search in Bone Lake, Washington County, Minnesota

Zebra Mussel Found: July 20, 2023
Second Search Date: October 12, 2023

Prepared for:
Comfort Lake Forest Lake
Watershed District



Prepared by:
Steve McComas,
Jo Stuckert,
Connor McComas
Blue Water Science,
St. Paul, MN

December 4, 2023

Aquatic Invasive Species Search in Bone Lake, Washington County, Minnesota

July 20, 2023 Zebra Mussel Discovery: A single zebra mussel was first observed at the public access in Bone Lake and the public access area was treated with Earthtec copper sulfate in 2019. AIS searches at the public water access continued from 2020 through 2023. On July 20, 2023, a single zebra mussel attached to a naiad plant was found by Blue Water Science on the east side of Bone Lake.

During a July 20, 2023 full lake point intercept survey, samples of naiads from 3 sites were placed in a bag and were brought back to the lab for identification. A single zebra mussel was found attached to the naiads. The 5 mm zebra mussel was likely from this year and indicates a reproducing population is probably established in Bone Lake.

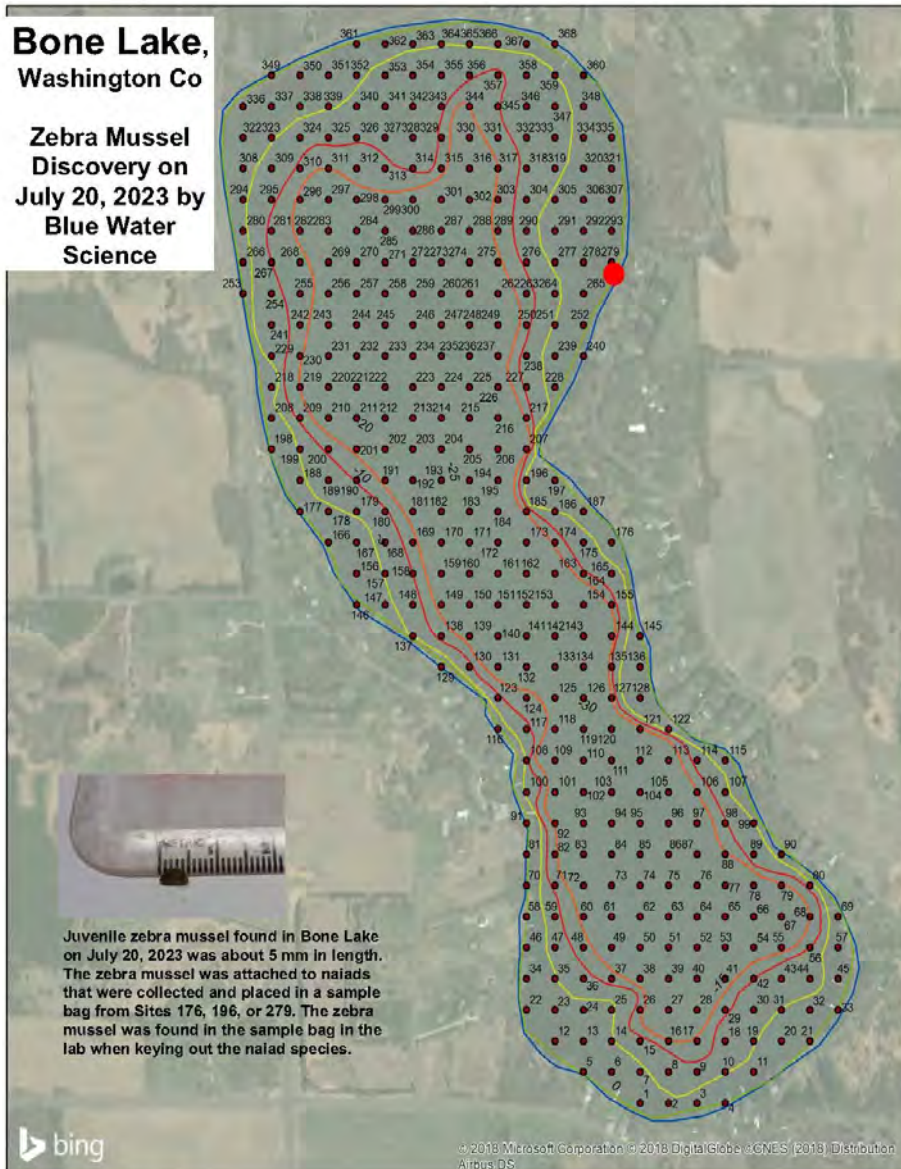


Figure 1. Location of the zebra mussel on July 20, 2023.

Summary of the 2023 search: Two searchers from Blue Water Science surveyed the boat access and surrounding areas in Bone Lake on October 12, 2023 searching for occurrences of invasive species, primarily zebra mussels or starry stonewort.

No starry stonewort and no additional zebra mussels were observed on the October 12, 2023. Representative photos and observations shown below.

Table 1. Site data for the two aquatic invasive species searches on October 12, 2023.

	Number of Searchers	Starry Stonewort (SSW)	Zebra Mussels (ZM)	Bottom Conditions
October 12, 2023				
1. Public Access and surrounding area	2	No SSW found	No ZM observed	Sandy, rocks rare, some branches. Moderate plant growth.
2. Inlet area		No SSW found	No ZM observed	Sandy, rocks rare, some branches. Moderate plant growth.
3. NW shore area	2	No SSW found	No ZM observed	Sandy, rocks rare, some branches. Moderate plant growth.

Photos from the July 20, 2023 Point Intercept Survey and October 12, 2023 AIS Search



Figure 2. A single zebra mussel was found during the July 20, 2023 point intercept survey (top photos). Plants were still actively growing in Bone Lake in October but no zebra mussels were found (bottom pictures).

Starry Stonewort Information Sheet

INVASIVE **Starry stonewort**
Nitellopsis obtusa

KEYS TO ID

- Long, smooth branchlets are attached in whorls of 5 - 8
- Small, star-shaped bulbils form on clear threads at base of plant and may be found above or below the sediment surface
- Small, orange spheres called antheridia may be visible, these are male reproductive structures
- Typical branchlets are long; can be up to twelve inches
- Can form dense mats in water




LOOKS SIMILAR TO

- Native *Chara* (native)
- Native *Nitella* (native)
- Sago pondweed (native)
- Water stargrass (native)

WHERE TO LOOK

- In shallow, still water and near access

CURRENTLY FOUND

Actual size of bulbils
Below: orange antheridia



Figure 3a. [left] Starry stonewort identification page from the University of Minnesota Aquatic Invasive Species Research Center (MAISRC).

NATIVE **Muskgrasses**
Chara spp.

KEYS TO ID

- Stems are typically rough and crunchy
- Thin branchlets form whorls around thin stems
- May produce bulbils, but not star-shaped
- May have musky odor




LOOKS SIMILAR TO

- Starry stonewort (invasive)
- Native *Nitella* (native)
- Sago pondweed (native)
- Water stargrass (native)
- Minnesota has nine *Chara* species

WHERE TO LOOK

- Fully submerged
- Along lake bottoms forming patches called meadows

CURRENTLY FOUND

Rough stems; whorled branchlets

Figure 3b. *Chara* identification page from the MAISRC.

Starry stonewort looks a lot like some growth forms of chara and nitella (Figure 3). Starry stonewort was not observed in Bone Lake in 2023.

Initial searches for Starry Stonewort focus on public access points as a priority, nearly all new SSW infestations are found at boat launch locations.

Rapid Response Plan for Starry Stonewort

Starry stonewort was not found in Bone Lake on the October 12, 2023 search. However a single zebra mussel was found on July 20, 2023. A rapid response plan for starry stonewort, shown in Table 2, has a number of preventative steps as well as actions to be considered after a potential new AIS sighting.

Table 2. Tasks and assignments for an early detection and rapid response program for Bone Lake, Minnesota.

	Bone Lake Association	CLFLWD	Washington County	MnDNR	Others	Treatment Contractor	BWS
1. Early Detection							
1.1. Create website information.	X						
1.2. Designate contact person.	X						
1.3. Conduct training session for volunteer searchers.	Late summer	Late summer					Late summer
1.4. Conduct monthly targeted searches (late summer).	X						X
1.5. Press release if SSW is found.	X			X			
2. Rapid Response Assessment							
2.1. Conduct an initial exploratory search after the first report of a starry stonewort observation.				X			X
2.2. Organize and train lake resident searchers for a full search effort.	X						X
2.3. Conduct an expanded targeted search with diving (if needed).	X	X		X			X
3. Rapid Response Action							
3.1. Meet to determine treatment options.	X		X	X	X	X	X
3.2. Close public access, if necessary.	X		X	X	X		
3.3. Treat area with copper sulfate.						X	
3.4. Evaluate treatment.				X			X
3.5. Report all findings and results.	X			X			X