

Metadata for Multibeam Sonar Project White Bear Lake MN – June 14 – June 24, 2021

Two Divers – Mark Hove and Naomi Blinick. A 20 m transect line was deployed. A 1m² grid was placed on each side of the transect line. The grid was subdivided into ¼ m² sections. This was the unit of data collection. So for each transect there were 160 units of data (20 m x 2 sides x 4 ¼ m² sections).

Recorded distribution of zebra mussels – C-continuous, P-patchy, S-scattered, N-none.

C (Continuous) - live or dead Zebra Mussels occurred across the section, or, ≤3 cm between any two live or dead specimens

P (Patchy) - live or dead Zebra Mussels occurred in clumps or patches in the section, or, there were 1 or more groups of ≥10 live or dead Zebra Mussels where groups were spaced ≥8 cm from one another. Note if there were only ≈10 Zebra Mussels scattered widely across the section, it was labeled as S(cattered).

S (Scattered) - live or dead Zebra Mussels scattered widely across the quadrat where there was usually ≤5 animals/clump and often ≥20 cm between individuals or small groups

Recorded percentage cover of live and dead zebra mussels. If zebra mussels were not on the sediment but were on macrophytes they were recorded as LV (live mussels on vegetation).
Recorded percentage cover by macrophytes.

Recorded percentage coverage of different types of sediment (silt, sand/silt mix, sand, gravel, cobble and other – other was generally large rocks or boulders).

Date	Transect #	Latitude	Longitude	Transect Notes
June 15, 2021	0615A	45°03.589	92°57.867	
June 15, 2021	0615B	45°03.776	92°57.869	
June 16, 2021	0616A	45°03.421	92°58.000	Accidentally started at quadrat 2 instead of zero so ended at 20 with only 19 quadrats. When entering data start at 3 and went to quad 21 (quad 3-21 instead of 1-19). Mark Hove had mainly sand, Naomi Blinick had silty sand. Hove – there is some filamentous algae on ~all macrophytes on this transect. Blinick – there were dead zebra mussels under sand.
June 16, 2021	0616B	45°03.738	92°57.819	Blinick – “I’m struggling with 0 versus 10%”

June 16, 2021	0616C	45°03.409	92°57.975	
June 17, 2021	0617A	45°05.589	92°59.130	Transect line was skewed from buoy line. At orange tag #10 transect line was 357 cm to the left of the buoy line. Hove – algae all over macrophytes – hard to see- sweeping algae away to see. Bluegill nests in many quads. Blinick – had more rocks on her side (left).
June 17, 2021	0617B	45°05.612	92°59.080	Hove – Some algae on macrophytes but not covering substrate. Blinick – Hove’s side is denser. Sand is very coarse across the whole site.
June 17, 2021	0617C	45°05.697	92°59.463	Sonar scan done on June 17, diving done on June 18. Transect line was skewed from buoy line. At orange tag #10 transect line was 76 cm to the left of the buoy line. Blinick said site was duffy.
June 18, 2021	0618A	45°05.411	92°58.877	Some shortening of line between transect line and trash can at end. About 3.6 m from 10m mark to trash can. Blinick – 1-2” over all except zebras, rooted algae not recorded since not macrophytes. Hove – copepods at thermocline.
June 18, 2021	0618B			Sonar scan only – no diving - silty
June 18, 2021	0618C	45°05.679	92°59.514	Quadrat 3 on left side had filamentous algae.
June 21, 2021	0621A	45°04.863	92°58.360	Filamentous algae everywhere. Lots of easily suspended algae on bottom.
June 21, 2021	0621B	45°04.835	92°58.408	Fair amount of fluffy algae in most quads.
June 21, 2021	0621C			ROV video, no scuba, silty
June 22, 2021	0622A	45°04.546	92°57.803	Transect line was skewed from buoy line. At orange tag #10 transect line was 20-30 cm to the right of the buoy line and the end of the transect line was only about 1 m from the anchor. Some scattered filamentous algae. Some buried gravel/cobble under the sand.

June 22, 2021	0622B	45°04.588	92°57.853	Very slight bend in the line at the start of the line connecting the anchor to the transect line. Lots of vegetation and lots of live zebra mussels on the macrophytes in quads 1-10 on the right side this site, but few on the substrate.
June 22, 2021	0622C	45°04.351	92°59.323	Surprisingly sparse. Right side had more vegetation than left side.
June 23, 2021	0623A	45°04.873	92°59.173	Right side is less complex than left side. Some live zebra mussels are settled on dead shells. Some quadrats have coarser sand than others.
June 23, 2021	0623B	45°05.463	92°58.922	Site is rockier than transect will suggest. There are lots of rocks on either side of where the quadrats were placed. Big fish. Rocks are bigger and denser to the right of the right quadrats. ½" of silt covering the sand. Filamentous algae covering most everything around the transect. Deep site – stopped at 1 hr 15 min.
June 23, 2021	0623C	45°04.948	92°58.577	Finished half of quadrats on 6/23 and finished on 6/24. Some fluffy algae in most quadrats.
June 24, 2021	0624A	45°04.838	92°59.157	Few zebra mussels in the "LV" category. Left side of transect has more zebra mussels than right side.