Zebra Mussel Veliger Monitoring Procedure

RMB Environmental Laboratories, Inc.

Sampling Equipment

- Boat
- Anchor
- 50-cm diameter, 63-micron mesh plankton net, 5:1 length:diameter ratio
- Rope on net with the meter increments marked
- Plastic sample bottles (*supplied by lab*)
- Alcohol for sample preservation, 91% Isopropyl alcohol (rubbing alcohol from drug store)
- Lake Maps (*supplied by lab*)
- Sharpie marker

Sampling Procedures

This protocol is for early detection in lakes that are believed to be uninfested with zebra mussels. For this type of sampling, the specific sample volume is not as important. In addition, the laboratory processing will be geared toward a presence/absence result rather than individual counts. Should zebra mussel veligers be found in a lake that was previously uninfested, sampling would then become quantitative and location specific to try and pinpoint the infestation for possible early treatment.

Sample Frequency

Two to three samples should be collected from a particular lake on one to three dates **between June 1 and July 15**. The samples from these two to three locations will be composited into one bottle. When compositing samples from different spots in the lake, you lose the ability to pinpoint the locations of zebra mussels, but you increase your chance at finding new infestations while minimizing the sample processing cost (i.e. 3 samples composited into one bottle only cost the price of one sample to process at the lab rather than 3 bottles). Ideally, samples should be collected when the water is between 66-76°F. These conditions give the best chance at early detection of zebra mussels.

Sample Location

On each sampling date, veliger samples should be collected from two to three different locations in a lake. The sites should be in different bays or basins or at several of the more heavily used lake sites. One site could be in front of a lake's outlet where the water funnels and flows out and another of the sites could be in the middle of the lake. The three sampling sites should be in water deep enough to sample, so locations over 15 feet deep is a good rule of thumb. Additional samples can be taken in bigger bodies of water where there may be multiple fingers, bays, or multiple boat launches. Mark on a lake map where samples were collected and optionally collect GIS coordinates. These same sites should be used for each of the sample periods – if not, then submit a revised map with subsequent samples.

Sample Collection

Using the standard plankton net (63-micron mesh) collect two tows from each site. Lower the net at least 10 feet (or deeper if your site is deeper) into the water at the pre-selected site. Pull the net up vertically. Care should be taken to pull the net up slowly enough so that no pressure wave is created on the surface of the water. Be sure to rinse the net from the outside of the net so that all of the material washes into the plankton collection cup. Record sampling information on the zebra mussel data collection form.

- Care must be given that the net does not hit the lake bottom. When this happens, the sample is of muddy water, which is very difficult or impossible to analyze. If you hit the lake bottom, rinse out the sampling equipment and try shorter tows or go to a different area of the lake that will provide enough depth for a good tow.
- For shallow lakes where it is impracticable to do a vertical tow, collect a horizontal sample at mid-depth.

Condense the size of the sample by filtering out as much water as possible in the field. This helps reduce the amount of alcohol that needs to be added and aids in the analyses as well. All samples should be composited into one plastic bottle for the lake. Preserve the sample using 91% Isopropyl alcohol (rubbing alcohol from the drug store). Make sure you have at least a 3:1 ratio of alcohol to water. Transport or ship the sample bottle(s) to the laboratory for analysis. Because the sample is preserved with alcohol, there is no specific holding time for the sample.

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