

Getting “The Eye” for Detection

Focus on the Rocky Mountain Ridged Mussel (*Gonidea angulata*)

Specific Instream Detection Tips

Gonidea angulata is found in many different substrate types and positioned in various ways. Below is a series of photos showing different ways that *Gonidea angulata* has been observed in Okanagan Lake. These photos are intended to assist you in getting “the eye” for conducting mussel surveys.



Figure 1. *Gonidea angulata* live and shell specimens found in large cobble/boulders. There are various levels of burrowing visible in this photo.



Figure 2. *Gonidea angulata* observed within Eurasian milfoil bed in Okanagan Lake. Vegetated areas are difficult to survey but should not be excluded from surveys. This mussel is almost completely subsurface with the exception of the exposed siphon.



Figure 3. Conglutinates from *Gonidea angulata*. The white, rice-shaped objects in the photo are conglutinates (packages of glochidia), found in Okanagan Lake. This is another indicator of mussel presence.

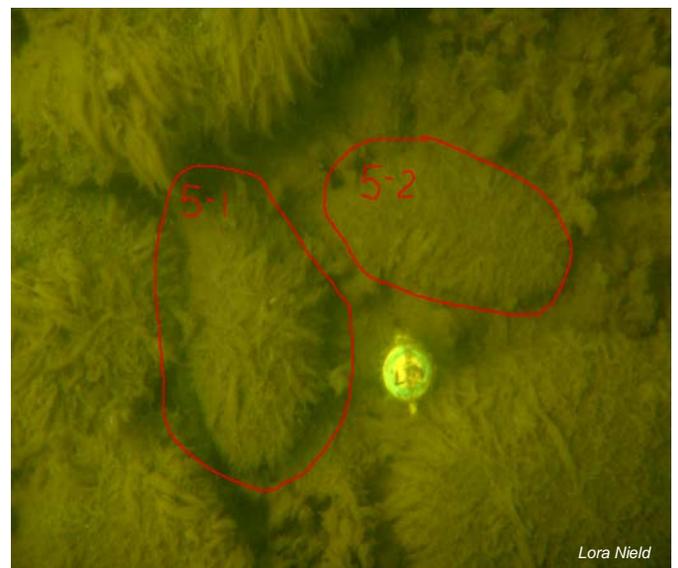


Figure 4. *Gonidea angulata* lying on lakebed and covered in algae. Mussels lying on the lakebed can resemble rocks and are the most challenging to detect or observe. In this case, the shape of shell and tactile surveys are appropriate detection methods. Note: foot-shaped shell.

Getting “The Eye” for Detection (continued)



Figure 5. *Gonidea angulata* partially protruding out of soft substrate. Soft substrates are the easiest to survey, but not all mussels protrude from the substrate as much as this (see Figures 6 and 7).



Figures 6 (top) and 7. *Gonidea angulata* in soft substrate and only showing a siphon. Subsurface mussels can be extremely challenging to detect. In these cases, it appeared as a black line 1-2 cm long looking very similar to many small sticks on the lakebed. In high-risk activities, excavation may be required (see *Guidance for Freshwater Mussel Detection and Relocation in the Okanagan* <http://www.env.gov.bc.ca/okanagan/esd/bmp.html>).



Figures 8 (top) and 9. *Gonidea angulata* with foot exposed. In these photos, the mussels are laying on the lakebed and resemble rocks. However, in this case the foot is partially exposed at the shell opening. The white colour of the foot indicates that a live mussel is present.



Figure 10. *Anodonta* typical positioning on a lakebed, in contrast to its typical positioning in soft substrate as shown in Figures 5, 6 and 7.

ACKNOWLEDGEMENTS

Getting “The Eye” for Detection Mussel Fact Sheet was developed by Lora Nield (FLNR), Lea Gelling (CDC), Jenny Heron and Greg Wilson (MOE) and Wendy Pope (FLNR). Photos were provided by UBCO and FLNR.