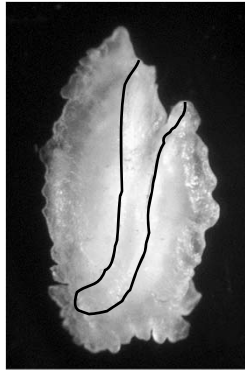
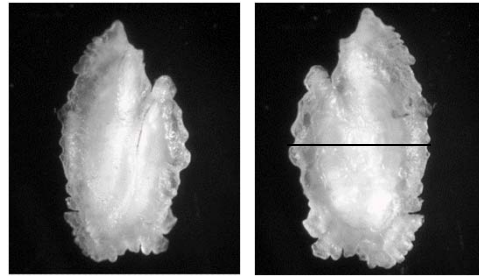


Scup Otolith Cutting and Reading Protocol

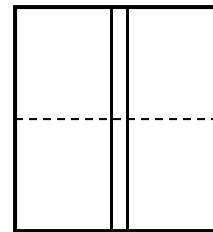


1. Determine which otolith is the right otolith by looking at the succal groove on the inner face. The tail of the groove of will curl to the left when the head is anterior (and to the right on the left otolith). You can also look at the orientation of the notch at top of otolith.



2. Mark nucleus with a pencil by holding the otolith up to a light. The nucleus will be a dark dot seen through the outer face. Draw a line through this area.

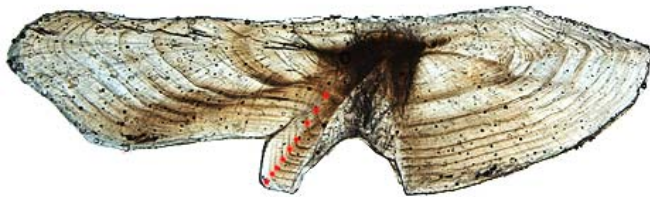
3. Mount otolith on an otolith cutting sheet with the outer face outward (succal groove facing sheet) and the line you have drawn through the nucleus on one of the double lines in the middle.



Example of an otolith cutting sheet, with correct orientation. Place otolith on sheet so that the line you drew through the nucleus on one of the two center lines.

4. Cut using 3" Buehler Diamond Wafering Blades. Take a thick section through the center of the otolith. Cut the section so that the nucleus is at one side of the section (ie. Do not put nucleus in center of section).

Mount this section (nucleus side down) on a microscope slide using a thin layer of crystal bond. Wet sand the section using 400 to 1200 grit sand paper to an appropriate thickness so that the annuli can be easily read. Once the section is sanded, it can then be covered with a layer of crystal bond. A good section will have a crisp triangle as seen in pictures below. Be aware that the otoliths are very fragile. If possible, more than one section should be cut.



Age 9 otolith section (above)

5. Otoliths are read by counting each annulus, or dark ring. Scup can be difficult to read as if the cut is not exactly on the nucleus, some annuli may not be seen. Scup spawning and annuli deposition occur in the spring.

6. All otoliths should be read by 3 independent readers. The mode of the 3 reader is evaluated by a senior reader to establish the final age assignment.

