

Recommendations

The type of microstructural analysis which is to be undertaken should be reviewed before deciding upon a laboratory protocol. An important consideration is the quantity and quality of preparations needed for an investigation. Important questions to consider are 1) What potential information is available in the otolith's microstructure? 2) What equipment and skills are needed in microstructure analysis? 3) What precision and error are associated with analysis? and, 4) What current technical constraints exist? Before investing time and effort in the craft of preparing otolith sections, it would be wise to anticipate the analysis of otolith microstructure.

Many techniques have been applied to a wide variety of fishes (Appendix I), and technical precedence should be considered. Although the polishing techniques described here can be applied to most fishes, using other authors' techniques can allow better comparison of microstructural analyses. For instance, if an investigation on a salmonid is planned, Neilson and Geen's papers (Neilson and Geen 1981, 1982, 1985, 1986) should certainly be reviewed. Since methodology is often incompletely reported in publications, considerable time and expense can be saved by consulting with investigators who have had previous experience with a particular species. We would like to see further consultation and collaboration in otolith studies, which would contribute to the standardizing of the technical aspects of otolith preparation and analysis.