Otolith Preparation

Otolith Preparation Systems

Image courtesy of U.S. Dept of Commerce NOAA / Pacific Marine Environmental Laboratory

Sectioning and Polishing Systems for Otolith Aging and Microchemistry

A new preparation system has been developed for the precise cutting and semi-automatic polishing of individually mounted otoliths. The South Bay Technology, Inc. Otololith Preparation System is a series of equipment and consumable supplies that can be tailored to the specific needs of the researcher. A complete system would provide embedding materials as well as precision cutting and polishing machines, micrometer controlled polishing fixtures and specially selected abrasive materials.

The goal of otolith preparation is to prepare a thin section through an otolith that will expose the core and all increments. Polished sections should occur in a consistent anatomical plane and contain all the increments within the otolith's microstructure. While smaller otoliths can often be examined without additional preparation, polishing will usually improve resolution for any size otolith.

The South Bay Technology Otolith Preparation System can be configured for processing single otoliths or for simultaneous processing of multiple otoliths. By combining high precision processing with integrated equipment and consumables, otolith preparation time and quality can be significantly improved.

Features:

- Single or double sided polishing techniques to optimize microstructural resolution.
- Automated polishing techniques designed to duplicate the control usually only seen in manual methods.
- Otolith can be oriented to ensure a flat surface that is parallel to the desired section plane (i.e.sagittal, frontal or transverse)
- Precise thickness controls minimize the possibility of polishing through the primordium.
- Surface finish quality suitable for electron micro probe analysis.
- Simultaneous preparation of multiple otoliths provides the volume required for routine aging.
- Transparent mounting media and holders allow in situ monitoring of specimen transparency using transmitted light.

References:
"Manual for Otolith Removal and Preparation for Microstructural Examination" by Secor, Dean and Laban published by the Electric Power Research Institute and the Belle W. Baruch Institute for Marine Biology and Coastal Research.

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