

## COMMENTS

### Rapid Removal of Otoliths from Salmonids

Schneidervin and Hubert (1986) presented a field technique for removing otoliths from salmonids and catostomids that involves removal of the gills and isthmus, cutting of the parasphenoid, and removal of the otoliths through the roof of the mouth. They suggest this method as an alternative to cutting through the skull, and that the method is useful for small fishes. Other methods, including the use of a punch (McKern and Horton 1970), have also been proposed to facilitate the removal of otoliths from salmonids in field situations.

I suggest that Schneidervin's and Hubert's method may, in many instances, be slower and less tidy for salmonids than a well-placed incision through the top of the skull. The Icelandic fish biologists, who have been taking salmonid otoliths for many years, showed me and others a simple, effective method for removing otoliths. An incision is made with a scalpel diagonally, then laterally from posterior to anterior across the top of the skull (Figure 1A), exposing the entire (or sectioned) optic lobes of the midbrain and the cerebellum. The otoliths, which are still not visible, are located below these sectioned portions of the

brain (Figure 1B). Sharp-pointed jeweler's forceps are then used to slide under each side of the brain (at point of entry, Figure 1C), and the otoliths are quickly found. On the average, it may take 20 s to make the incision and remove both otoliths from a 100-mm fish—perhaps longer for a 50-mm fish. No visual aids were needed for extraction from any fish longer than 35 mm. All work was done in the field. This method works especially well on fresh specimens. The advantages are speed and tidiness; the major disadvantage is that the otoliths are not seen and must be extracted by feel. I cannot comment on the efficacy of the Icelanders' method nor on that of Schneidervin and Hubert for large adult salmon or catostomids.

DENNIS L. SCARNECCHIA

*Department of Animal Ecology  
Iowa State University  
Ames, Iowa 50011, USA*

I have used our described technique (Schneidervin and Hubert 1986) to remove otoliths from

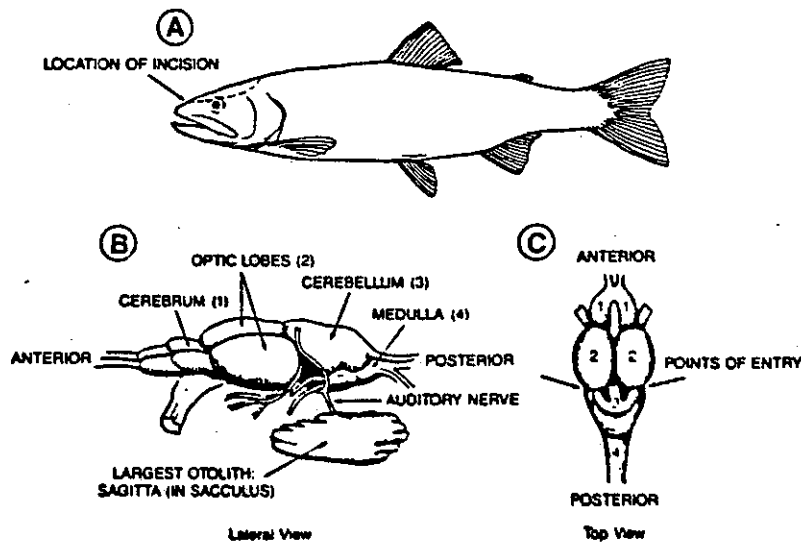


FIGURE 1.—An approach for removing otoliths from salmonids, showing (A) location of incision, (B) lateral view of approximate location of otolith in relation to portions of the brain, and (C) top view of brain and location where forceps should be inserted.

several hundred trout and the required time was similar to that described by Scarnecchia. I have had little success finding the otoliths within the brain tissue when making the incision through the top of the head, but I am willing to try anything that improves efficiency. We were pleased to see Scarnecchia's description of another method. Many of us could benefit from it.

WAYNE A. HUBERT

*University of Wyoming  
Laramie, Wyoming 82071, USA*

#### References

- McKern, J. L., and H. F. Horton. 1970. A punch to facilitate removal of salmonid otoliths. *California Fish and Game* 56:65-68.
- Schneidervin, R. W., and W. A. Hubert. 1986. A rapid technique for otolith removal from salmonids and catostomids. *North American Journal of Fisheries Management* 6:287.