

**A GUIDE TO THE FISH OTOLITHS FROM WATERS OFF THE AUSTRALIAN ANTARCTIC
TERRITORY, HEARD AND MACQUARIE ISLANDS**

Williams, R. & McEldowney, A. 1990. *ANARE Research Notes* 75: 1-173. Kingston: Australian Antarctic Division. 71 black-and-white photographs. ISBN 0 642 15492 9/ ISSN 0729-6533.

A decade or so ago, marine ornithologists studying the diets of southern seabirds battled to make sense of well-digested regurgitations of seemingly unidentifiable mush, saying "if its pinkish it must be crustacean, if its white its probably fish". No more. A series of guides and manuals has been published in the last few years which allows the identification of hard parts (squid beaks, crustacean exoskeletons and fish otoliths) found among the mush.

Following on Tom Hecht's 1987 guide to the otoliths of southern fishes (*South African Journal of Antarctic Research* 17:1-87) comes the present work. Sagittal otoliths from 76 fish species of 15 families are illustrated by good-quality black and white photographs, in contrast to Hecht's drawings. Most species get their own plate and the majority are illustrated by several otoliths (up to four) from fish of different sizes. Standard lengths of the fish whose otoliths are illustrated are given, so that change in otolith shape with increasing size can be seen.

The accompanying text (opposite the plates, as in a field guide) gives details of distribution within the

region covered as well as elsewhere in the Southern Ocean. Brief habitat details (especially depth distribution) will be of interest to marine ornithologists who are currently puzzling over how surface-feeding albatrosses can capture meso- and even bathy-pelagic fish. Information, suitably referenced, is given on known predators, including those from outside the Australian area of interest.

Most important, however, are the conversion factors which turn otolith dimensions into estimated standard lengths and masses. These equations come with r values and sample sizes. The size range of fish in the otolith sample and the length of the largest otolith recorded are also given.

I note that the otoliths were gold plated before being photographed by scanning electromicroscopy. "Gold plated" can now with good reason be used to define the current state of the art of describing the diets of southern seabirds. For this, we may thank ichthyologists such as the authors of the Australian otolith guide reviewed here. A final plaudit to the Australian Antarctic Division which distributes its *ANARE Research Notes* series free of charge. Well done Aussies!

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