

A concise review of Antarctic fish research in South Africa

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As one of the original signatories of the Antarctic Treaty and of CCAMLR, South Africa has been an active participant in Antarctic research for over two decades. Ichthyology as a discipline, however, did not exist in the South African National Antarctic Programme until recently. In the past, fishes had been collected irregularly as part of other research programmes (Andriashev 1971; De Villiers 1976). The only study devoted to fish was conducted by Blankley (1982) on the diet of three Marion Island inshore species.

In the early '80s, certain events (i.e. national involvement in the BIOMASS programme and SCAR Symposium on Antarctic Biology in Wilderness, 1983) led to the development of organised Antarctic fish research in South Africa. Two projects on Southern Ocean fishes were proposed to the South African Scientific Committee on Antarctic Research (SASCAR) in 1983. Both won international support and were initiated in 1984. The first project, a morphological study of the otoliths of Antarctic fishes, was undertaken by the Department of Ichthyology and Fisheries Science of Rhodes University, Grahamstown. The study benefitted from otoliths collected during FIBEX and SIBEX expeditions, as well as earlier collections which were made available to South African scientists. The end product, *A guide to the otoliths of Southern Ocean fishes* (Hecht 1987), provided ichthyologists, fisheries biologists and marine biologists with an excellent tool for identifying the remains of fishes commonly eaten by Antarctic marine predators, mostly birds and seals. The second project, undertaken by the JLB Smith Institute of Ichthyology, Grahamstown, involved a comprehensive review of the present knowledge of Antarctic fishes. The project lasted for six years, culminating in the publication of *Fishes of the Southern Ocean* (Gon & Heemstra 1990). Thirty two scientists from 11 countries contributed to this book, reviewing topics

such as the history of Antarctic fish research, the origin and evolution of Antarctic fishes, their physiological ecology, and exploitation and conservation of fish resources. The extensive taxonomic section provides keys for the identification of all families, genera and species; a critical review of the classification of commercially important notothenioid families; excellent species illustrations, detailed distribution maps and synopses of the biology of 272 species and subspecies. Several specific, short-term projects attending to problems encountered during the main book project resulted in a number of scientific papers (Hecht & Cooper 1986; Gon 1987a, b; Gon 1988; Gon & Heemstra 1987; Gon & Klages 1988; Eakin 1988; Stein & Thompkins 1989).

Unlike my previous opinion (Gon 1989), I presently believe that the geographical position of South Africa in relation to Antarctica is rather disadvantageous for South African Antarctic biological research, including ichthyology. On the one hand, the proximity of Argentina and Chile to the Antarctic Peninsula allows for frequent visits at the relatively low cost of overnight crossing of the Drake Passage. On the other hand, for the Northern Hemisphere nations the only economic way to operate research vessels in the Southern Ocean is in long-term cruises, making use of refuelling and restocking facilities in southern South America. In the case of South Africa, the 10-day trip from Cape Town to SANAE is long and costly, especially in the current state of the South African economy. It therefore forces South African scientists to make do with a few weeks of research at a fixed period of the year and effectively rules out any long-term seasonal observations.

In addition, South African fish research in the Southern Ocean is still suffering from the lack of a research ship that can be used for trawling. However, this will soon be rectified as the *SA Agulhas* is due for a major refit during which new trawling facilities are to be installed.

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