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Approach to ageing and growth back-calculation based on the otolith of the southern boarfish *Pseudopentaceros richardsoni* (Smith, 1844) from the south-west Indian Ocean seamounts

L.J. López-Abellán, M.T.G. Santamaría and J.F. González

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Abstract

Age and growth of southern boarfish *Pseudopentaceros richardsoni* (Smith 1844) from south-west Indian Ocean seamounts were studied based on whole otolith readings using a non-linear back-calculation method and geometric mean regression to resolve the problem of the lack of young fish in the catches owing to age segregated habitat use by this species. Ages of the fish under study ranged from between 5 and 14 years (45.7–72.5 cm total length). Changes in relative growth of annuli were most probably related to aspects of the life history, such as migration to settle on seamounts. Age distribution was related to depth. The von Bertalanffy growth parameters for all individuals were $L_{\infty} = 65.1$ cm; $K = 0.27$ year⁻¹ and $t_0 = -0.34$ years, obtained by mean length-age from back-calculated lengths. These data are needed to assist in the wise management of this potential fishery and the back-calculation approach shows promise for other species where juvenile fish are difficult to obtain. It is also clear that more information about the southern boarfish biology is needed to establish bases for a responsible fishery development off the seamounts of the Southern Indian Ocean and other deep-sea regions.
