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Orange roughy stock assessment (2024-2025) (SIOFA ORY-2024-01)

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Abstract	<p>This report presents the 2024-2025 stock assessment of orange roughy (<i>Hoplostethus atlanticus</i>) within the Southern Indian Ocean Fisheries Agreement (SIOFA) region, focusing on the Walter Shoal Ridge (WSR), the Long Walter's Shoal Ridge and the South-West Indian Ocean Ridge. Orange roughy is a long-lived, deep-sea species with slow growth and low productivity, making it highly susceptible to overfishing. The assessment integrates updated fisheries data, biological parameters, and acoustic biomass estimates to evaluate stock status. Bayesian age- and sex-based models were applied to estimate population dynamics, incorporating new age-frequency distributions and standardized catch per unit effort (CPUE) data. Results indicate that while biomass remains above conservation thresholds, past overexploitation and uncertainties in natural mortality estimates necessitate cautious management. Key findings highlight regional variations in growth patterns, length-weight relationships, and maturity rates, reinforcing the need for spatially explicit stock assessments. Sensitivity analyses were conducted to explore the effects of natural mortality and acoustic survey catchability priors on biomass estimates. Projections under various fishing scenarios suggest sustainable harvest levels aligned with long-term conservation objectives.</p>

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