Understanding recent variations in the zero year-class entries of Indian oil sardine and its impact on the fisheries of Kerala

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The Indian oil sardine (IOS) fishery along the Kerala coast from 2021 to 2024 was assessed using an eco-region approach, revealing a significant increase in recruitment in 2024 compared to previous years, and at varying scales. The ecosystem productivity indicators showed a stronger influence on recruitment dynamics than the biological indicator of spawning stock biomass. The relative contributions of micro-, pico-, and nano-plankton functional groups indicated linkages with the physio-biological dynamics of IOS and need further research. The present study highlights region-specific environment variability, especially during the pre-spawning and pre-recruitment periods, that needs to be adequately integrated into stock assessments and dynamic management frameworks. Development of species-specific, eco-physiological indicators for timely fisheries governance interventions to sustain the fishery of IOS under changing oceanographic conditions and supporting the development of short-term forecast models is recommended.

Keywords: Eco-regions, primary productivity, sardine, small pelagic, spawning stock biomass.

THE Indian oil sardine (IOS) *Sardinella*