

Population structure of selected sciaenid species along the fishing grounds of Goa revealed

This article ‘Population structure and reproductive biology of selected sciaenid species along the fishing grounds of Goa, west coast of India’ attempts to illustrate the population structure based on nature of spawning and recruitment among the two different species forming bulk of the sciaenids (locally called as Dhodyale) exploited from the trawl net. The study was carried out along the potential fishing grounds off Goa, with mixed sand-silt type interspersed with submerged rocky patches and the ample were collected on-board single-day commercial shrimp trawler along the fishing grounds of Goa to 30m depth with a total sampling effort of 181 hours incorporating 100 trawl hauls. The family Sciaenidae contributing to around 10% of the total demersal fish production of Goa consisted of 07 genera and 15 species, which contributed 2.97% of the total trawl catch and 10.33% of the teleostean fauna, respectively in terms of their abundance. Among these, *Johnius borneensis* and *Otolithes ruber* formed bulk of the catch.

Females of *J. borneensis* and *O. ruber* along with the juveniles / immature females of both the species were found abundantly during the months of October – December and February to May suggesting a prolonged / perennial spawning activity. The continuous and abundant occurrence of mature (gravid) and spent females of *J. borneensis* suggest that the majority of their spawning process takes place in near shore coastal waters with peak spawning from November – April. On the other hand, the mature (gravid) and spent females of *O. ruber* occurred rarely (November – December, February and April) suggesting occasional spawning activity in the near-shore coastal waters. This suggested *J. borneensis* to be a perennial spawner and was evidenced by continuous occurrence of its gravid and spent females and their juveniles. On the other hand, the rare occurrences of gravid females of *O. ruber* suggest that the species spawns away from the coast. *O. ruber* in spite of being a multiple spawner and having higher fecundity compared to *J. borneensis*, was observed to have low abundance as this species spawns away from the coastal waters. In contrast, *J. borneensis* spawns in productive coastal waters which also serve as good nurseries; leading to high survival rate responsible for its increased abundance compared to *O. ruber*.

An analysis of sciaenid landings along the Goa coast displayed an overall decreasing trend, attributed to the combined effect of elevated exploitation and resultant by-catch generation and coastal anoxia. In recent years, high demand for fish and consequent intensification in fishing efforts for elevated yields/ catch along with the by-catch have made the sciaenid fishery of Goa highly vulnerable to sustained fishing pressure.

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