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Annual cycle of larval fish community in the central-north Red Sea: comparing offshore vs. coral reef waters

Stamatina Isari, Laura Casas Castano, John K. Pearman, Craig T. Michell, Xabier Irigoien

Red Sea Research Centre, Biological and Environmental Sciences and Engineering Division, King Abdullah University of Science and Technology, Thuwal, Kingdom of Saudi Arabia

Larval fish assemblages remain a big challenge in our efforts to understand recruitment and connectivity in coral reef ecosystems. Large morphological differences between the adult and larval stages, combined with ontogenetic changes encountered during the larval period and a huge diversity make the discrimination of coral reef fish species at the larval level a difficult task.

Here, we aimed at examining the annual variability of the larval fish community of the central-north Red Sea at two distinct sites: one shallower (50 m depth) surrounded by coral reefs and a nearby offshore site (>200 m). Fish larvae were sorted from samples collected by oblique tows of a 60 cm-bongo net (500 μm mesh size), once a month for a year (2013). Species identification was attempted to the lowest possible level using morphological approaches. Molecular barcoding served as a tool to verify the accuracy of the taxonomic identification, deepen discrimination below family level or even enrich the reference database of sequences for Red Sea ichthyofauna. During the warmer period of the year (June-November) the larval fish stock was comparable between sampling sites. However, during the colder months abundance values were higher in the reef site than in the offshore waters. Species composition and temporal variation of community structure differed notably between sites reflecting not only the habitat and reproductive preferences of adults but also the potential of advective processes in the area.

Keywords: fish larvae, taxonomy, DNA sequence, Red Sea, coral reefs

Contact author: Stamatina Isari
Red Sea Research Centre, Biological and Environmental Sciences and Engineering Division, King Abdullah University of Science and Technology, Thuwal, Kingdom of Saudi Arabia
stamatina.isari@kaust.edu.sa