RESEARCH ARTICLE

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TEMPORAL PATTERNS IN DISTRIBUTIONS OF TROPICAL FISH LARVAE ON THE NORTH WEST SHELF OF AUSTRALIA

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Abstract

Information on the temporal distributions of tropical fish larvae is scarce. Early stage larval fishes were sampled using towed bongo plankton nets at sites on the southern North West Shelf of Australia (21Â°49â€²S, 114Â°14â€²E), between October and February of 1997/98 and 1998/99. The first summer was characterised by El NiÃ±oâ€“Southern Oscillation-driven upwelling and high primary productivity, whereas in the second summer water temperatures were warmer and primary production was lower. Benthic percoid shorefishes dominated surface assemblages in both summers and this pattern may be typical of tropical

shelf environments.The abundance and diversity of larval fishes were lowest in October and increased from November through to February. Assemblages displayed weak cross-shelf patterns, with a few taxa being more abundant at inshore sites (e.g. monacanthids), whereas others were more abundant offshore (e.g. scombrids). Although the composition of assemblages remained relatively consistent, many taxa (e.g. pomacentrids and carangids) showed differences in abundance between summers. Multivariate analyses found no relationships between abundance patterns of larval fishes and biophysical variables, such as temperature, salinity, and zooplankton biomass. Thus, seasonal changes in abundance may reflect differences in the spawning activities of adult fishes and/or larval survival.

Extra keywords: assemblages, cross-shelf, El NiÃ±oâ€“Southern Oscillation (ENSO), ichthyoplankton, interannual, larval fishes, seasonal.

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