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Large Scale Low Oxygen controlling Distribution Patterns of Early Life Stages of Fish in the Northern Benguela and Southern Angola Currents.

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A characteristic of the Benguela Current system is the extensive and almost permanent oxygen-minimum layer (OML) in c. 100 to 500 m water depth, that stretches out between at least 18 and 28 °S and may extend to 60 km from the shore. It is unknown why mixing processes of oxygen-rich Antarctic Intermediate Water (AAIW) and South Atlantic Central Water (SACW) are so weak, but the result is hypoxic conditions and the occurrence of H2S on the Namibian shelf. In this work, results from three cruises are presented indicating that the horizontal and vertical distributions of early life stages of pelagic fishes along the north Namibian and south Angolan coast are closely related to the environmental conditions, especially the distribution of dissolved oxygen. Results especially from the two late summer cruises showed similar patterns: vertical distributions of both eggs and larvae in the Angola-Benguela Front and northern Benguela upwelling region showed a sharp decline in abundance at about 60 m depth. This decline appeared to be correlated to the distribution of dissolved oxygen in the water column. It is hypothesized that low oxygen concentrations have a strong impact on the development and survival of the early life-cycle stages of the fish, and that recruitment of sardine and other pelagic species relies more on the upward extension of the oxygen-minimum layer than was previously thought.