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“Inversification” of Estuaries and the Loss of their Role as Nursery Areas in West Africa

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Abstract

Drying out or “Inversification” of estuaries and the loss of their role as nursery area is a consequence of decreasing precipitation in West Africa, this will be showed through an example from Senegal, the Sine-Saloum Delta.

There is a widely-held paradigm that tropical estuaries are critical for sustaining production in coastal fisheries through their role as essential nursery areas for important exploited species. Since early life stages are a particularly vulnerable phase, it is hypothesised that in order to maximise survival, marine fish larvae are transported and juveniles migrate into estuaries to make use of the high food abundance, refuge against predators, and shelter from physical disturbances. There is also evidence that some freshwater species use estuaries as breeding and nursery places. The Sine Saloum Delta in Senegal is a mangrove estuarine system impacted by climate change and bad management practices. The combined effects of reduced freshwater inputs, intense evaporation and a low gradient in the lower estuary, have resulted in a high overall salinity and an inversion of the salinity gradient. This results in a so-called inverse estuary with salinity usually greater than that of seawater in the upper part of the system. As part of the trilateral (Germany-France-West African Coastal States) cooperation project AWA, the potential of the Sine Saloum system as a recruitment and nursery area for locally exploited coastal fishes is being investigated by looking at the relationships between the environmental conditions, fish larvae and reproduction potential of important species.

Keywords: Breeding and nursery areas, decreasing precipitation, estuaries, fisheries, Senegal, Sine-Saloum Delta, West Africa