Relative Importance of Mangroves as Feeding Habitat for Juvenile Fish: A Comparative Study on Mangrove Habitats with Different Settings

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Abstract
The importance of mangroves as feeding grounds for fish and other macrozoob-enthos in the Indian Ocean and elsewhere has been a subject of debate. This could partly be due to the fact that studies describing this role have been conducted in mangrove systems that differed in their settings. By using stable isotope analysis of carbon and nitrogen, we investigated two different settings of mangroves along the Tanzanian coast, to establish if mangrove setting influences the extent to which this habitat is utilized as a potential feeding ground by fish. The two mangrove settings were: mangrove-lined creeks which retain water during low tides and fringing mangroves that drain completely during low tides. The δ13C signatures of most fishes from the mangrove-lined creeks were similar to those of food items from the mangrove habitat, which suggests that these fishes feed from the mangrove habitats. In contrast, the overlap in δ13C of some food items from the fringing mangroves with those from adjacent habitats, and the more enriched δ13C signatures of fishes from the fringing mangroves with respect to most typical food items from the mangrove habitat could be an indication that these fishes feed from both habitats but to a lower extent from the fringing mangroves. The results suggest that fishes feed more from the mangrove-lined creeks as compared to fringing mangroves which is probably related to differences in the degree of mangrove inundation. The more or less continuous access provided more time for fishes to stay and feed in the mangrove-lined creeks compared to fishes from the fringing mangroves, which have access to these mangroves only during high tide and have to migrate to adjacent habitats with the ebbing tide.