

Diet dynamics and feeding strategies of Hilsa kelee (Cuvier, 1829) and Valamugil b Buchanan (Bleeker, 1853) in Pangani estuary, Tanzania: Insights from stomach contents and fatty acid trophic biomarkers

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Gut content method and fatty acid (FA) biomarkers were used to investigate the diet of two marine migrant fish species (Hilsa kelee and Valamugil b Buchanan), their trophic niches and feeding strategies used for exploitation of fluctuating food resources in Pangani estuary. It was revealed that despite the high diet overlap shown by the ecological index and FA trophic niche widths between the species, the habitat partitioning in trophic resource use along the water column was noticed. The permutational multivariate analysis of variance (PERMANOVA) of the dataset revealed significant variation in diet and FA profiles for both species and estuarine zones factors ( $p = 0.001$ ). The FA trophic markers showed that H. kelee and V. b Buchanan experience different levels of herbivory, detritivory, carnivory and omnivory, reflecting opportunistic omnivorous feeding mode. The Food niche breadth index and the interpretation of Amundsen feeding strategy diagrams augmented the FA results, implying that the two species exhibit the mixed feeding strategy with intermediate situation between specialization and generalization in search for the nutritious diet. Such feeding strategy allowed the species to use different multiple energy channels confirmed to be largely derived from microalgae. Due to the high level of omnivory and trophic niche width showed by V. b Buchanan, it can be concluded that this species is likely to demonstrate a higher degree of resilience upon anthropogenic disturbances than H. kelee in Pangani estuary