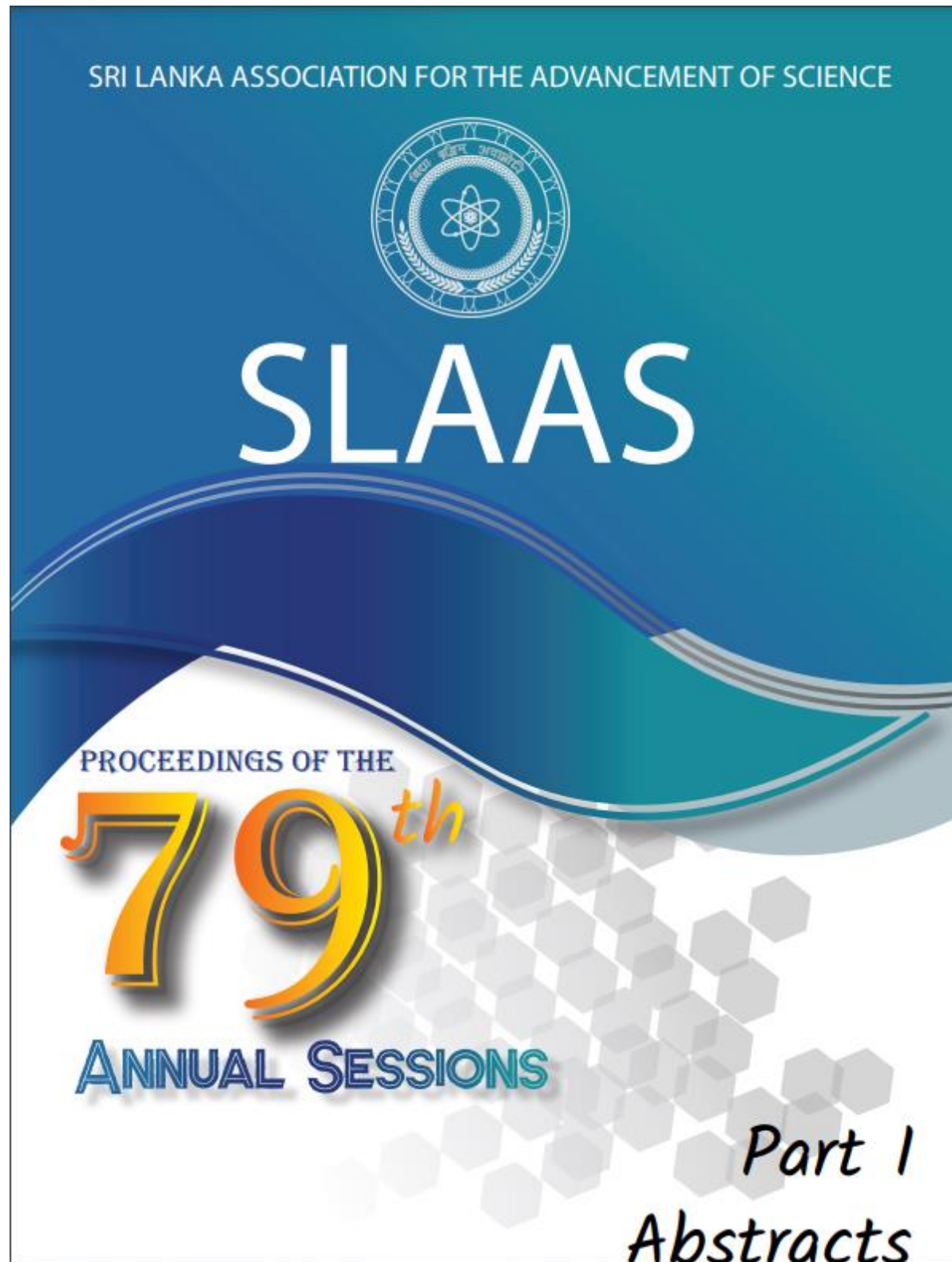


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**Part I: Abstracts**



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### Variation of water quality and brush park fish diversity: A study in Negombo Estuary

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In the Negombo estuary, the brush park fishery is confined to two small zones along its Eastern Katunayake side and the Western Dungalpitiya side, with approximately 50 brush parks each. In this research, we investigated what factors, whether seasonal or water-quality related, contributed to the brush park fishery being confined into these two zones. Three (03) randomly selected brush parks were sampled from each zone during the rainy season (November to December 2022), and the fishes in each brush park were identified to the maximum possible taxonomic category and enumerated separately. Further, the water quality parameters within those selected brush parks were measured using standard field and laboratory procedures. This procedure was repeated for another set of 03 brush parks in each zone during the dry season (February to April 2023). The fish diversity in each brush park was calculated using the Shannon-Weiver ( $H'$ ) and Pielou's evenness ( $J'$ ) indices. Fish abundance data and water quality data between the two zones and between the two seasons were analysed parametrically and nonparametrically as appropriate. Altogether, 18 taxa belonging to 16 finfish and shellfish families were recorded. Of the water quality parameters measured, the salinity, electrical conductivity, dissolved phosphates, and Ch-a increased significantly at both zones during the dry season. These water quality changes induced many marine species, including *Siganus* sp. and *Acanthopagous berda* to migrate into the two zones, resulting in *Siganus* sp. contributing about 42% and *Acanthopagous berda* contributing about 33% of the fish catch at Dungalpitiya and Katunayake, respectively. When the salinity, in particular, dropped near zero in both zones during the rainy season, these marine species migrated back. The same salinity drop induced the freshwater *Macrobrachium rosenbergii* to migrate into the two zones in large numbers during the rainy season, contributing about 61% and 30% of the fish catch at Katunayake and Dungalpitiya, respectively. It was apparent that *M. rosenbergii* dominates the brush park fish catch during the rainy season, while the marine *Siganus* sp. and *A. berda* dominate it during the dry season. The brush park fish diversity was higher in both zones during the dry season than in the wet season. For example, the SR, N,  $H'$ , and  $J'$  at Katunayake during the dry season were 15, 425, 1.651, and 0.6098, while 7, 87, 0.5189, and 1.01 during the wet season. Results also suggest that the seasonal and zonal changes of salinity, dissolved phosphates, and Ch-a govern the brush park fish diversity in the Negombo estuary.

**Keywords:** Brush park, *Macrobrachium*, Negombo estuary, seasonal, water quality

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