Abstract No: 145 ***Earth and Environmental Sciences***

MICROPLASTIC POLLUTION IN DONDRA LAGOON, SOUTHERN COAST OF SRI LANKA: INFLUENCE ON HABITAT AND FEEDING MODES OF SELECTED FISH SPECIES

H.M.N.N. Bandara[1*], H.S.D.R. De Silva[1], H.D. Wijayathilaka[1], K.A.S. Kodikara[2] and P.M.C.S. De Silva[1]

[1]Department of Zoology, Faculty of Science, University of Ruhuna, Matara, Sri Lanka.
[2]Department of Botany, Faculty of Science, University of Ruhuna, Matara, Sri Lanka.
[*]narmadanadeeshani1@gmail.com

Microplastic pollution is a leading environmental concern across the globe. Microplastics resemble plastic particles that are less than 5 mm in diameter, and primary and secondary forms pose potential impacts on biodiversity within a wide spectrum. Several studies in Sri Lanka have identified microplastic pollution in coastal ecosystems. Dondra Lagoon is a highly impacted site on the Southern coast of Sri Lanka. This study aimed to investigate the impact of microplastic pollution on this particular ecosystem. Surface water samples and bottom sediment samples were collected from thirty sampling sites within the lagoon, along with 37 fish samples for analysis. Microplastic contamination was evident in surface water and sediment samples. Moreover, microplastics were identified in selected fish, as this exposure could be closely associated with their habitats and feeding modes. Notable variation of lagoon hydrology was identified during the rainy season. Although the lagoon opening remained blocked by sand bars during the study period (July 2022), a high variation of microplastic contamination within the study area was not observed. The mean ± SEM microplastic contents ranged between 7.11 ± 1.53 and 9.83 ± 2.56 items per litre in water and between 56.25 ± 12.6 and 116.67 ± 44.9 items per kilogram in dry sediments. The highest mean ± SEM microplastic accumulation (531 ± 155 items per kilogram of body weight) was identified in *Caranx sexfasciatus* species, while the species *Heteropneustes fossilis* showed the lowest accumulation (11.07 ± 5.66 items per kilogram of body weight). The majority of the identified microplastic particles were fibres and fragments. Microplastic particles were identified in blue, green, red, white and black colours, along with some transparent fibres. A notably high impact of microplastic pollution within this ecosystem was identified, and the sources of the microplastics could be linked with fishing practices, households, and improper waste disposal around the lagoon. Hence, implementing better management strategies is of utmost importance for mitigating microplastic pollution in this ecosystem.

Financial assistance from the FSPI-Sedric project is acknowledged.

Keywords: Feeding mode, Habitat, Lagoon, Microplastic, Pollution