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## Community structure and seasonal settlement patterns of biofouling organisms in Dikkowita Fisheries Harbour, Sri Lanka

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Sri Lanka has been a bustling naval destination since 14<sup>th</sup> century due to its strategic positioning on the maritime silk route. Ports are considered to be the entry points of non-indigenous species invasions by means of ship hull fouling and ballast water discharge. Although, Dikkowita Fisheries Harbour is the largest fisheries harbour in South Asia yet no research studies have been conducted previously on biofouling species composition. Present study was conducted in Dikkowita Fisheries Harbour which situated near Port of Colombo (PoC) from February 2018 to December 2018. Study objective was to fill the gap in need of a port biological baseline survey and assess the biofouling community structure. Panadura Fisheries Harbour was selected as a reference point due to its distance and relatively low international shipping activities compared to Dikkowita Fisheries Harbour. Study comprised of three components; environmental surveys, photo quadrant sampling and submerged structure sampling. A modified version of survey protocol developed by the Marine Biological Association of the United Kingdom was followed. The environmental surveys were conducted once in two month intervals. Photo quadrants were obtained using convenience sampling technique every month. Species abundance was quantified by measuring percentage area cover and individual count using Coral point count version 4.1 software. Hutcheson t-test pairwise comparison was conducted to compare diversity indices with reference point. Artificial structures which having four substrate types; wood, fibre reinforced plastic, metal and concrete were placed in the lower subtidal zone at a depth of 2m from the water surface. Sampling of the structures was done using photo quadrat method in two months' interval. Fouling organisms belong to 28 and 13 taxa of associated organisms were recorded from Dikkowita Harbour during the study. Hutcheson t-test indicated a low Shannon-Weiner diversity index compared to the reference point. Oysters were the dominant macro fouling organisms in terms of percentage area cover (33.39%). Three non-indigenous species: *Isognomon alatus*, *Cassostrea virginica*, *Ostrea edulis* together with three globally known invasive species; *Balanus reticulatus*, *Balanus Amphitrite*, *Celleporaria volsella*. Submerged structure sampling recorded tubeworms as the climax community in the wooden substrate, conversely no climax communities were observed on other substrate types.

**Keywords:** biofouling, port of Colombo, port biological baseline survey, non-indigenous species