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### **Bio-security risks associated with biofouling organisms in vessels arriving Colombo port**

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Biofouling in ocean going vessels is one of the main mechanisms for the inadvertent transfer of non-indigenous marine species across the globe. The present study was carried out to determine the nature and extent of biofouling organisms in vessels and coastal waters adjacent to Colombo port. Fouling organisms were sampled from vessels such as tugs, container vessels, tankers, research vessels and bulk carriers. They were identified and their bio-security risk status was determined. The occurrence of fouling organisms with the vessel characteristics; antifouling paint coatings, average vessel speed and time since last dry-dock were also evaluated.

Forty eight (48) species of known biofouling organisms were recorded. Among them, 32 species of non-indigenous species, two indigenous species, two cryptogenic species and 12 indeterminate species were recorded. Eight species were recorded which were globally known for marine invasions. They were; *Musculista senhousia*, *Balanus amphitrite*, *Elminius modestus*, *Mytilus galloprovincialis*, *Perna viridis*, *Crassostrea gigas*, *Ostrea edulis* and *Carcinus maenas*.

Poor anti-fouling paint condition of vessel hulls played a vital role in differences in species composition of fouling organisms. The anti-fouling paint conditions at niche regions (i.e. sea gratings, propeller, rudder, etc.) of all vessels sampled were in poor condition and species composition at niche region were greater than that of hull region (i.e. bow, amidship and stern). Vessel characteristic analysis indicated that time since last dry-dock was positively correlated with species composition. Therefore, good maintenance practices are required to free vessels from biofouling. The study suggests that dry-docking and sea-chest gratings had the highest levels of non-indigenous species and may pose relatively high bio-security risks. Therefore, it is imperative to carry out continuous monitoring of vessels in order to early detect any deleterious effects of biofouling and implement necessary management actions to ensure bio-security.

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