

Present status of marine alien invasive species (MAIS) in selected fishery harbours of the Southern and Western coasts of Sri Lanka: risks and potential management actions

M.M. Subasinghe,¹ P.B.T.P. Kumara,¹ L.L.R.B. de Silva,^{1,2} and A.J.M. Gunasekara¹

¹*Marine Environment Protection Authority, Ministry of Mahaweli Development and Environment, Sri Lanka*

²*Department of Oceanography and Marine Geology, University of Ruhuna, Matara*

The introduction of non-native species due to fishery activities such as multiday fishing and fishing gear, and by-catch are poorly studied, compared to ballast water discharged from trans oceanic shipping. Sri Lanka has 22 major fishery harbours, and most of them receive multi-day boats from different oceanic regions. Harbours located in the Southern and Western coasts cater to multi-day fishing boats roaming widely within and beyond the EEZ of Sri Lanka, and to the periphery of the Indian Ocean. These boats are ideal candidates to bring MAIS. Dickovita, Beruwala, and Hikkaduwa fishery harbors were selected to study the present status and possible risks to native species through MAIS. Fouling organisms on hard substrates, including multi-day boats from these harbours, were collected from March to May 2016. Potential pathways and vectors were also analyzed to determine the risk from fishing boats and gear. A total of 15 molluscan, 1 barnacle, and 4 algae species (Dickovita), 17 molluscan, 4 barnacle, and 7 algae species (Beruwala) and 8 molluscan, 1 barnacle, and 5 algae species (Hikkaduwa) were recorded. Among these there were 5 non indigenous *Balanus* species, 4 bivalve species and 1 cryptogenic *Balanus* species. Five globally known invasive species, American cupped oyster (*Crassostrea virginica*), Australian acorn barnacles (*Eliminus modestus*), *Saccostrea cucullata*, Goose neck barnacles (*Lepas anatifera*), and common periwinkle (*Littorina littorea*) were also recorded. The most common and probable pathway for the globally known invasive species was hull fouling of multi-day fishing vessels. The only available management action for such species is manual removal. However, other countries have used biocides and the introduction of bio-control agents for removal of marine invaders. Although known as invasive species, *Crassostrea virginica* and *Saccostrea cucullata* are considered as mariculture species of high potential for Sri Lanka.

Key words: Marine invasive species, fouling organisms, molluscan, barnacle, algae.