Identifying Indicator Species in Habitats Created by Coastal Structures

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Abstract

In this paper, three approachs were developed to find indicator species from the habitat created by coastal structures. These approachs consist of a model of species co-occurrence probability, a model of k-environmental factor probability and a composite model. Simultaneously, a case study was conducted in Hsinchu Fishing Port of North-western Taiwan. Based on the aforementioned models, three primary producer species, Ahnfeltiopsis flabelliformis, Chondrus ocellatus and Sarcodia montagneana, were chosen as the indicator species which had the highest co-occurrence probabilities and showed greater tolerance to more critical environment. It is imperative to understand how the three species under particular co-occurring conditions and environmental factors influence the composition of sessile assemblages in coastal water. The results indicate that for the purpose of increasing biodiversity, these models were feasible to find indicator species of artificial structures, and to help make it possible to design coastal structures based on biological considerations. This study provides an innovative approach for further advanced application in the artificial habitat of coast management.

Keyword：coastal structures; indicator species; sessile organisms; ecological restoration