

An evaluation of the effect of structural properties of construction materials on the brush parks fishery in the Negombo Lagoon, Sri Lanka.

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Abstract

Negombo lagoon (3,164 ha) in the western coastal belt of Sri Lanka supports many species of fish and crustaceans which are important sources of livelihoods for the people around the estuary. Brush parks are a kind of traditional form of fishing method which are installed in shallow areas of the estuary using dense masses of mangrove twigs. In the present study, the effect of structural properties on sustainability and economics of periphyton based brush park fisheries production was evaluated. The duration between installation and harvesting of brush parks ranged from 3 to 89 days and nearly 28 % brush parks were harvested within 29-35 days after installation. Majority of brush parks (36.6%) had 51-75 mangrove twigs and diameter of brush parks varied between 2-12 m. The twig density, expressed as twig dry weight per unit volume of brush parks ranged from 0.02 to 21.03 kg m⁻³ with the average twig density (\pm SD) of 2.01 \pm 3.09 kg m⁻³ and 76.1% of brush parks had twig density less than 2 kg m⁻³. The mean monthly yield and catch value of fish and crustacean species were recorded 0.43 \pm 0.69 kg m⁻² month⁻¹ and Rs.1913 \pm 1476 respectively. Significant negative relationship ($F = 36.95$; $P < 0.001$) exhibited between yield and period between installation and harvesting. The relationship between catch value and twig density also showed significant ($F = 13.09$; $P < 0.001$) inverse relationship. The mean yield (0.48 kg m⁻² month⁻¹ and 0.47 kg m⁻² month⁻¹) of brush parks during the inter monsoon period (March-April and October-November) were significantly higher ($P < 0.001$) than the yield (0.36 kg m⁻² month⁻¹ and 0.44 kg m⁻² month⁻¹) recorded during the monsoon period (May-September and December-February). The yield and its catch value of brush parks were related to the period since installation and twig density. Present findings suggest that to achieve maximum brush park yield, the optimal period since installation was about 30 days and the optimal twig density was about 2 kg m⁻³.

Keywords: brush parks, traditional fisheries, mangroves, costal fisheries