

ABSTRACT

**An Evaluation of the Role of the Prop-Root Habitat of the
Red Mangrove (*Rhizophora Mangle* Linnaeus) as a
Nursery for Fish in Jamaica.**

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The collection of bionomic and biometric data on various species of fish along with other parameters of population dynamics such as the relative abundance and the life-history phase of these fin-fish was employed in the evaluation of the significance of various physical and biological functions of the prop-root habitat of the mangroves of the Bogue Islands Lagoon on the north coast of Jamaica, to these species of fish.

Analysis of variance (ANOVA) showed that in terms of numerical abundance 34 species of ichthyofauna and 19 species of ichthyoplankton differed significantly (F ratio; $p < 0.05$) across the chosen sampling stations. For the ichthyofauna, Pearson's Correlation Coefficient "r" ($\alpha = 0.05$) was effected on those thirty-four species with four different station parameters, dissolved oxygen (D.O.), salinity, prop-root habitat volume and the relative density of prop-roots. Results showed only weak relationships between the

different parameters and various species of fish. Spearman's Correlation Analysis, " r_s " ($p < 0.05$) also effected on the numerical abundance of the same thirty four fish species with two ranked station parameters, turbidity and the degree of epibiotal overgrowth on the prop-roots, showed that only two species of fish were correlated with each of these parameters. There were similar results for the ichthyoplankton catch using Pearson's Correlation Coefficient " r " ($\alpha = 0.05$) and Spearman's Correlation Analysis, " r_s " ($p < 0.05$).

Two characteristics, prop-root habitat volume (habitat dimensionality) and the density of prop roots were determined to be useful criteria in the assessment of other mangrove areas as nursery habitats. It was postulated that the nursery value of the red mangrove prop-root habitat could also be quantified by assigning Habitat Suitability Indices (HSI) and the level of diversification of the fish assemblages within the prop-root habitat was assessed through the "niche diversification hypothesis" and the ratio of species to family (S/F) index.