

Habitat Suitability of Lionfish in Trinidad and Tobago from a Reef Scale Perspective

Arriving to Trinidad and Tobago in late 2010 the *Pterois volitans* (Red Lionfish) a native to the Indo-Pacific Region has raised environmental concerns to already stressed coral reefs. Since then the lionfish have been extensively documented through current management methods. These methods which mainly involved diver-based surveys highlighted differences in the population densities across various coral reefs in Trinidad and Tobago. To understand such differences we examined the spatial and temporal dynamics of the lionfish to create habitat suitability models for three reef sites (Buccoo Reef, Man-O-War Bay and Speyside) in Tobago. Thematic layers were created using the (Geographic Information System) GIS based Multi-Criteria Evaluation (MCE) for Temperature, Salinity, Dissolved Oxygen, Rugosity, pH, Total Dissolved Solids (TDS), Depth and Water Current variables. Analysis of the three models revealed little differences amongst the variables during the dry and wet seasons of Tobago. The most suitable areas for lionfish were found to be in areas of depths greater than 10 m at all reefs. Of all three reefs Man-O-War Bay was considered to be the most suitable habitat for lionfish and Buccoo Reef the least suitable. The model outputs were verified with previously collected field data as well as information from local fishers.