

Shelter Limitation, Artificial Reefs and Enhancement of the Caribbean Spiny Lobster

ROMUALD N. LIPCIUS and DAVID B. EGGLESTON

*The College of William and Mary
School of Marine Science
Virginia Institute of Marine Science
Gloucester Point
Virginia 23062 USA**
*Caribbean Marine Research Center
Lee Stocking Island
Exuma Cays, Bahamas
Correspondence address

ABSTRACT

Despite the worldwide ecological impact and commercial value of artificial reefs in marine ecosystems, it is generally unknown whether artificial reefs enhance species abundance or merely concentrate individuals. We document for the first time enhancement of a marine species by artificial reefs (*i.e.*, "casitas") within the framework of a replicated, experimental design. Abundance of Caribbean spiny lobster increased significantly over fifteen months in replicated Florida Bay seagrass systems, each augmented at separate sites with eight or sixteen large, scaled casitas, but not in control areas without casitas. A critical component of this investigation provided independent quantitative data on nocturnal foraging by spiny lobster in the seagrass beds, which confirmed enhancement. Enhancement was promoted through provision of a limiting resource (*i.e.*, shelter) in an otherwise favorable habitat. Although artificial habitats potentially serve as a powerful means to increase environmental carrying capacity and attain sustainable resource use in the marine environment, there are several potential problems associated with their tendency to aggregate marine organisms, and therefore, we urge caution in their utilization in Caribbean fisheries.