

**Spatial Patterns of Three Caribbean Scleractinians:
Porites astreoides, *Montastrea annularis* and *Montastrea
cavernosa***

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Abstract

Spatial Patterns of Three Caribbean Scleractinians:

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by

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A thesis submitted in partial fulfillment
of the requirements for the degree of

MASTER OF SCIENCE

in the Department of Marine Sciences

University of Puerto Rico
Mayagüez Campus

1985

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University of Puerto Rico
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Mayaguez, Puerto Rico 00708

JUN 11 1986

ABSTRACT

The dispersion patterns and size frequency distributions of Porites astreoides Lesueur, Montastrea annularis (Ellis and Solander) and M. cavernosa (Linnaeus) were studied at three sites along the deep fore reef of Laurel Reef near La Parguera, Puerto Rico. Two 8x8 m grids of 64 contiguous 1 m² quadrats were used at each of three sites. Within each quadrat the size of each physiologically independent colony was recorded.

Size frequency distributions showed an unexpectedly high proportion (in excess of 50%) of the population of all three corals falling in the smallest size class (<100 cm²).

Dispersion pattern analysis showed several scales of significant ($p < .05$) aggregation for all three corals at all sites. Several factors are thought to be contributing in the establishment of these patterns. These include a complex mosaic of environmental conditions, selective larval recruitment, differential survival, and partial mortality leading to colony fission.

RESUMEN

Los patrones de dispersión y distribución de tamaños de Porites astreoides Lesueur, Montastrea annularis (Ellis and Solander) y Montastrea cavernosa (Linnaeus) fueron estudiados en tres localidades a lo largo del frente arrecifal profundo del arrecife Laurel en el área de La Parguera, Puerto Rico. Dos cuadrículas de 8x8 m consistentes de 64 cuadrantes contiguos de 1 m² fueron examinados en cada localidad. Dentro de cada cuadrante el tamaño de cada colonia fisiológicamente independiente fue registrado.

La distribución de tamaños mostró una inesperada proporción (mas del 50%) de la población de las tres especies en la clase de tamaño menor (<100 cm²).

Análisis de los patrones de dispersión mostraron varias escalas de agregación significativa ($p < .05$) para las tres especies en todas las localidades. Se cree que varios factores contribuyen el establecimiento de estos patrones, entre ellos un mosaico complejo de condiciones ambientales, reclutamiento selectivo de larvas, sobrevivencia diferencial y mortalidad parcial conducente a la fisión de colonias.