

Massive Aggregation and Migration of *Acanthaster*: Behavioral Responses to Severe Food Limitation¹

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Abstract

There are but two situations where *Acanthaster* is known to have overwhelmed the carrying capacity of a reef—the Great Barrier Reef and Guam. References in earlier scientific literature suggest that large aggregations of *Acanthaster* are not unprecedented. Thus these aggregations may be thought of as evolutionarily determined responses to natural events. Analysis of the size structure of aggregated and non-aggregated *Acanthaster* populations leads to the conclusion that aggregated populations have growth dynamics virtually the same as non-aggregated ones. Aggregated populations, then, must consist of individuals brought together in response to some peculiar feature of their local environment. Extended periods of abnormally high typhoon frequencies followed by local flurries and direct strikes was a sequence of unusual events preceding the observation of massive aggregations. This suggests that aggregation and migration may be a behavioral response to the food limitation imposed by typhoon damage to a reef's living corals.

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