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MEPS 306:257-268(2006) - Abstract

Structure, food and shade attract juvenile coral reef fish to mangrove and seagrass habitats: a field experiment

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ABSTRACT: Mangroves and seagrass beds are considered nurseries for juvenile fish, but little experimental evidence exists to elucidate which factors make them attractive habitats. A multifactorial field experiment on the use of these habitats by juvenile reef fish and their behaviour was performed during daytime with experimental units (EUs: $1 \times 1 \times 0.8$ m), each representing a unique combination of the factors structure, shade, and food, using artificial seagrass leaves (AS) and artificial mangrove roots (AM). Diurnally active herbivores were most abundant in EUs containing food, and grazed on algae growing on the structures, but were not attracted to structures in the absence of food. The most abundant diurnally active zoobenthivores (*Eucinostomus* spp.) were present in highest numbers in any EU with food, where they fed on zoobenthos or rested on the bottom. The nocturnally active zoobenthivore/zooplanktivore *Ocyurus chrysurus* and the diurnally active piscivore *Sphyraena barracuda* were primarily attracted to structure, in which they rested and were not observed to feed. *Haemulon flavolineatum* was mainly attracted to AS, *Lutjanus mahogoni* was attracted to AS or shade, whereas *L. apodus*, *O. chrysurus* and *S. barracuda* were found in AM as well as in AS. The data suggest that during daytime, herbivores and diurnally active zoobenthivores are probably attracted to mangroves and seagrass beds primarily by food, and nocturnally active zoobenthivores by structure (in interaction with shade) that offers shelter from predation. *S. barracuda* is also attracted primarily to structure, but the larger individuals probably use this for ambush predation rather than for protection. In conclusion, our experiment clarifies that presence of structure, food and shade significantly contribute to the attractiveness of mangroves and seagrass beds to juvenile reef fish.

KEY WORDS: [Artificial mangrove roots](#) · [Artificial seagrass](#) · [Coral reef fish](#) · [Shelter habitat](#) · [Feeding habitat](#) · [Habitat utilisation](#) · [Behaviour](#) · [Caribbean](#)

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