

Long term response of herbivorous fish to crown-of-thorns starfish outbreaks.

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Abstract

This project involves a comparative study of three crown-of-thorns impacted (Grub, Yankee, Dip) and three non-impacted (Centipede, Coil, Bowl) reefs in the Townsville section of the GBR. The specific objectives are to compare: 1. substrate characteristics; 2. density, biomass, and size-structure of selected herbivorous fish species; 3. growth rates; 4. body condition; 5. feeding ecology; 6. size at age, and 7. age at maturity of two species, between impacted and non-impacted reefs. The two species are Scarus frenatus (Pisces: Scaridae), and Acanthurus nigrofuscus (Pisces: Acanthuridae). Significant differences for both mean live coral cover (14% and 50% at impacted and non-impacted reefs respectively) and mean turf algal cover (52% and 18% at impacted and non-impacted reefs respectively) were found during June 1991 and January 1992. However, no significant differences were found for densities, biomass, feeding rates or body condition. This is largely due to very distinct between -reef and cross-shelf patterns for all variates which are confounding the impacted/non-impacted comparison. The study concludes that examining densities of these herbivorous fish is of limited value when trying to detect effects of crown-of-thorns perturbations to the reef substrate. This conclusion is supported by the conflicting results cited in the literature to date. Research will now focus on establishing growth rates, size at age, age at maturity, feeding ecology, and changes in body condition over time, in an attempt to detect a variate which will be more useful in detecting effects of COTS outbreaks.