

MAINTENANCE MECHANISMS OF SCLERACTINIAN CORAL COMMUNITIES AT KOH RAM RA, GULF OF THAILAND

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The present study focused on examining coral community structures and long term changes, coral settlement and recruitment and factors controlling coral communities, at Koh Ram Ra, Prachuap Khiri Khan Province in the Gulf of Thailand during 1997-2001. The dominant corals were *Porites lutea*, *Acropora* spp. and *Goniopora* spp. There were several growth forms of hard corals found around the island but massive corals were dominant. Number of coral species, species diversity index and evenness were the highest at the eastern of Koh Ram Ra while coral diversity was the lowest at the western side of the island. Changes of coral species compositions from each study site were obviously different. The most important factor affecting coral community changes was the severe coral bleaching phenomenon during April - August, 2001 and subsequently substrates covered by macroalgae. The most susceptibility of scleractinian corals to bleaching were *Acropora* spp., resulting in local extinction of several species at Koh Ram Ra. Sedimentation was also a significant factor controlling long term changes of coral communities. Densities of juvenile colony found on natural substrates were relatively low (< 0.03 colony/m²). Most juvenile colonies settled on rocky substrata and dead coral colonies. The majority of juvenile colonies were faviids, following by *Porites lutea* and *Pocillopora damicornis*. Small colonies of zoanthids were also frequently found in certain areas. Based on the settlement plate experiments in the field, most coral recruits were *Pocillopora damicornis* and an unknown species which was abundant after the coral bleaching event. There were much spatial and temporal variations of coral recruitment. Coral recruitment rates declined significantly after the bleaching phenomenon. Recovery of coral communities at Koh Ram Ra seemed to require a long period of time due to low rates of coral recruitment, impacts of heavy sedimentation and strong competition with macroalgae. The case study at Koh Ram Ra is a perfect example of studies on coral community changes, especially after coral bleaching events, in order to clarify maintenance mechanisms of coral communities in the Gulf of Thailand. Coral communities at Koh Ram Ra have high potential for ecotourism, fisheries and various continued researches but it is urgently required an appropriate management plan.