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Abundance of reef fish and the condition of Paraviwella reef, Tangalle, Sri Lanka

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Coral reefs have suffered from arange of impacts from local anthropogenic influence to global climate change. In recent years these impacts have led to changes in coral community structures from coral reefs dominated by living corals to dominance by fleshy algae (which is called phase-shift). These changes affect the overall trophic structure of reefs. Monitoring is essential to identify these changes and where necessary the possible responses within Sri Lanka. The present study was conducted at Paraviwella reef, Tangalle (Location GPS: $6^0$01'17.09"N, $80^0$48'01.21"E) from 12th of February to 31st of May 2014 (The mean water depth was 54 ± 17 cm; the mean temperature was 29 ± 0.3 ^{0}C). The objective of the study was to find the present status and composition of sessile benthic life forms such as corals and fleshy algae with relation to reef fish abundance. The main methods for the assessment of benthic composition (i.e., Line Intercept Transects for percentage cover, n=3, 20 m each) and abundance of dominant reef fish (visual fish counts along belt transects to determine percentage abundance, n=3, 25 m each) were conducted according to Australian Institute of Marine Sciences procedures. Coral and algae interaction (CAI) was also studied, selecting fleshy algae *Caulerpa recemosa* (CRE) growing with dominant coral *Pocillopora damicornis* colonies (PCL). A total of 24 PCL colonies along three transects were selected for CAI and measured (to the nearest centimeter). Measurements includedtotal length of the PCL colony (TL_{PCL}); total length of the living coral colony (TLL_{PCL}); length of algae (TL_{CRE}) and the intermediate intercepts between live coral and algae growth (i.e., intercept with dead and partially dead coral on coral surface). These measurements of lengths in selected corals were used to estimate CAI. Length of algae and coral was divided by the total coral colony length and converted to as a percentage (Algae % = [TL_{CRE} /TL_{PCL}]*100, Coral %= [TLL_{PCL} /TL_{PCL}]*100). The results show that benthic composition was dominated by living coral (57.58 ± 11.77%) and fleshy algae (22.25 ± 15.46%). Percentage cover of non–living components such as coral rubble, sand and rock were recorded as 20.17 ± 8.52%. *Pocillopora damicornis* and *Caulerpa recemosa* were the dominant sessile benthic life forms represented at the reef site. Reef fish abundance percentages showed that fish belonging to four major families (94 ± 2%) were dominant for Paraviwella reef. These families were represented by 36 fish species (surgeon fish, 5 species – *Acanthuridae,* [41 ± 14%], damsel fish, 5 species - *Pomacentridae* [27 ± 2%], wrasse, 12 species – *Labridae* [18 ± 7%] butterflyfish, 4 species – *Chaetodontidae* [8 ± 5%] and others representing 10 species [5 ± 1%). Among the fish species, ahigher percentage was represented by herbivores (46 ± 7%) and carnivores (40 ± 10%). Lower percentages were represented by omnivorous and planktivorus fish (3 ± 1% and 9 ± 1% respectively). These results suggest that coral algae interaction is active at Paraviwella and if this trend continues it is likely that algae will take over the space

available to coral,but presently this is controlled by reef fish grazing. This is a working hypothesis from this study, which needs to be subjected to further research.

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