ABSTRACT

Two fringing coral reefs located at Polhena and Weligama subjected to this investigation in order to detect the possible impacts caused by natural and anthropogenic processes. Weligama reef lagoon (WRL) is located within a bay and Polhena reef lagoon (PRL) is directly facing the sea. Biophysical monitoring and socio-economic investigations were carried out to detect physicochemical parameters of the reef and water, and cover of sessile benthic community with special reference to reef building corals and anthropogenic activities.

Most dominant coral genera recorded for PRL was *Pocillopora* sp. and *Podobaccia crustacea*. Dominant coral species at Weligama reef site was *Acropora*. Remarkably high percentage of live corals and algae at Weligama and recovery of corals (*Acropora*) could be attributed to its geographic location and hydrographic characters *viz.* significantly higher depth, which results in less influence by waves, and the recovery of corals also could be due to less disturbances by anthropogenic activities. Higher percentage of dead corals and coral rubble and absence of recovering corals at Polhena could be due to anthropogenic activities. High DO value at Weligama could be due to wave action and high Salinity and significantly high Turbidity at Polhena could be due to its shallowness and also due to discharges from Nilwala River. Studies on recruitment of corals and the effect of environmental parameters on the recruitment reveals that rainfall and variation of turbidity for Polhena have negative effect on recruitment of coral species *Pocillopora damicornicus*. Increment of discharge of the Nilwala River could be the reason for this. This could also be a reason for the considerably large sea grass cover at Polhena. In Weligama, larger sea grass cover could be due to accumulation of silt and organic matter within the bay area due to its hydrographic status.

Results on adverse anthropogenic activities show that the tourists (mainly local) who come to PRL to swim and for sea bathing cause a major impact to coral recovery by harming the corals that have newly recruited and also to those which, have already regenerated. Ornamental fish capture is in operation at PRL and WRL and between two sites, WRL recorded higher number of collectors. At PRL the damage to the reef by use of destructive gear is high. Boat anchoring in the deepest lagoon area has damaged the WRL since long period of time this and this also may have had an effect on the vegetative propagation of *Acropora*. Large number of crude oil patches observed at boat landing sites discarded from the boats. Coral mining at Walgama north and Thalaramba observed high and seasoning of coconut husks for coir production nearby PRL was still in operation.

Law enforcement and reef resource management is weak for both PRL and WRL. A proper management plan and action on conservation should be implemented in order to rescue these sites.