Oceanography-2013
OMICS Group Conferences
Accelerating Scientific Discovery
International Conference on
Oceanography
August 21-23, 2013 Orlando-Florida, USA

The Butterfly fish (chaetodontidae) conditions in Ratatotok Peninsula reef, South-East Minahasa, North Sulawesi province, Indonesia (a monitoring study: 1993-2012)

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Abstract

Coral reef can be easily found along the coastline of the Ratatotok Peninsula which integrated in South-East Minahasa, North Sulawesi, Indonesia. For years this area was intensively used by villagers as fishing ground. In this area, a gold mining company PTNMR was operated in 1996 – 2004 and put it's tailing in the seabed of Buyat Bay. Since 1993 to 2012, an intensive monitoring establish by PT Newmont Minahasa Raya (PTNMR) to monitor closely the condition of butterfly fishes in the coastal areas of Ratatotok and Buyat bay, South-East Minahasa region, North Sulawesi, Indonesia. The objective of this study was to describe the butterfly fishes condition before, during, and after PTNMR operation. Butterfly fish can be use as an indicator of the health of coral reef. A Fish Visual Census method was applied for gathering butterfly fish data a long 100 m permanent transect established in four locations at the depth of 3 m and 10 m. All data were collected each year. There were several changes occurred during the monitoring period both on the number of genera and species of butterfly fishes on each study sites. The presences of butterfly fish were varied during the whole monitoring years. There are several factor were identified during this study that could be connected to the fluctuation of butterfly fish conditions. Unsustainable fishing practices (bomb fishing, cyaniding, anchoring, bottom gillnet), Crown of Thorn Starfish attacked, and coral disease were major factors that caused the changes in butterfly fish numbers.