

## Trace metals and community carbon metabolisms in northern part of Sesoko coral reef.

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The degradation of coral reefs has been a great issue in the world coral ecosystems. Coral reefs face threats of coral bleaching, global environment changes, red soil runoff and inputs of nutrients and pesticides. Anthropogenic chemicals and trace metals could have an influence on the degradation of reef environment in Okinawa because of high population and many construction works. Trace elements of zinc and copper play an important role within organisms to sustain their lives. These metals constitute the center element of enzymes which are essential for biochemical reaction within the living body. However, these metals act as toxic elements when those concentrations are high in water. Sesoko Beach coral reef is located in northern part of Sesoko Island in Okinawa, Japan. This reef site is next to the golf course, sugarcane field and residence area, and is exposed to a construction of resort hotel, now. The reef environment is thought to be a highly affected by the chemical runoff from those sources. This study investigates concentration levels of trace metals in reef water and seasonal carbon metabolisms of reef community. Water samples were taken from several sites in the reef during slack water period every month from May to November in 2007. Trace metals were measured using a ICP-MS after desalinated and concentrated by the chelate disc cartridge. pH, DO and alkalinity were also measured to estimate the community carbon metabolisms of photosynthesis and calcification. Concentrations of Copper and Nickel ions were within a range of oceanic water levels. Zinc concentration, however, was several times higher than that of oceanic water. Zinc showed a trend to decrease from beginning to end during slack water period, indicating the uptake of zinc from water to coral reef organisms. Community carbon metabolisms showed a seasonal variability at each sites in the reef. However averaged values from May to November were significantly constant and typical levels in Okinawan coral reefs.