CORAL CALCIFICATION IN THE SOUTHERN PART OF VIETNAM, STUDIED WITH A NEW METHOD

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ABSTRACT: Ocean and coastal acidification has been recognized as one of emerging concerns due to the challenges for marine ecosystems. However, very few researches have been done on this issue in Vietnam. This study aims to (1) present an overview of acidification situation (spatial and temporal variation) at coral reefs, and (2) initially assess the possible influence on calcification and growth rate of coral. High accuracy methods were used to determine acidification related parameters, and a new method, which lets coral grow naturally, was tried and developed for coral calcification and growth rate estimation. The result showed that the highest pH mean value was 8.1223 ± 0.0944 (Phu Quy islands area), and the highest aragonite saturation state (Ω) mean value was 4.02 ± 0.38 (Binh Thuan skerries) among offshore reefs. For coastal reef, the highest values of pH and Ω were 8.1298 ± 0.0539 and 3.35 ± 0.27 at Nha Trang bay area. On the other hand, all Ω values at offshore Southern reefs were lower than 3, which level would make coral and other calcareous organisms stressed. Temporal changes of pH and Ω values did not show a significant trend during Feb 2019–May 2020, although the study site was in a strong upwelling area. Growth rate in length of coral in this research did not seem to have a clear trend and neither relative to the pH and Ω conditions. However, this study gave some suggestions for method improvement via practical experiments.

Keywords: Ocean and coastal acidification, aragonite saturation state (Ω), pH value, calcification, coral growth rate

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