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Master Thesis Defense

Entitled

*A STUDY OF ENVIRONMENTAL FACTORS AFFECTING CORAL SPECIES GROWTH IN WESTERN
REGION AND ARABIAN GULF*

By

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Abstract

This study aims to investigate possible effects of certain environmental factors particularly, high summer water temperature and increase of water salinity on the growth rate of endemic dominant coral species at the west coasts of the United Arab Emirates. The study investigated the dissolved trace elements concentrations and it's relation to coral diseases. The methodological investigations have been conducted in a defined two sites at Baraka and Al Saadiyat area. In Barakah Three (3) quadrates of 1.0 m³ have monitored the growth of *Porites harrisoni*. by both photographically as well as by direct measurements of the targeted coral colonies in each frame. That include colonies sizes, coral health, surrounding water temperature and water salinity, and in Saadiyat area, it investigates the coral growth rate of *Acropora downingi* from winter to summer. The obtained results have shown that, there was different growth in the selected colonies branches between winter and spring-summer seasons. In general, the growth rates in Saadiyat *Acropora* colonies was small in winter season, compared to the spring-summer season growth. The most notable growth has seen in colony #1 with an 18mm growth in spring-summer season compared to only 2 mm during the winter season of the same branch. The results have also shown that possible stressors, such as the measured high sulfur concentrations as well as other anthropogenic activities, especially in Barakah area could be responsible about the existing documented coral diseases as well as the loss of *Acropora* colonies in that site. This study has suggested certain recommendations based on the obtained results in order to maintain sustainably the living coral communities along the UAE coastal area. These recommendations can be also adopted by other governmental and /or non-governmental agencies responsible about sustainability of marine life in Gulf countries.

Keywords: Coral Reefs, Arabian Gulf, Coral Diseases, Coral Health, Water Temperature, Water Salinity.