

A STUDY ON THE PRIMARY PRODUCTIVITY OF SOME
MACROBENTHIC ALGAE IN A TROPICAL SHALLOW WATER AREA
AT BUYONG BEACH, MARIBAGO, MACTAN ISLAND,
CEBU, PHILIPPINES

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University of San Carlos
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In Partial Fulfillment
of the Requirements for the Degree
Master of Science in Biology

by
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APPROVAL SHEET

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ABSTRACT

The primary productivity of macrobenthic plants at Buyong Beach, Maribago, Mactan Island is determined by using the Carbon-14 method, diurnal oxygen curve and biomass determination.

These methods were applied in succession using sample plants belonging to the divisions Chlorophyta, Rhodophyta, Phaeophyta and Spermatophyta.

The production values obtained through the application of the Carbon-14 technique are relatively low, but their trends are consistent with those of the values obtained through the other two methods used, which indicated that Chlorophyta has the highest rate of primary production followed by Rhodophyta, Phaeophyta, and Spermatophyta, which has the highest biomass percentage per unit area compared to the others.

Information on primary productivity of macrobenthic plants serves as a guide on what to do and what to expect once a particular place is converted into a fish pond, mariculture garden or seaweed farm. In this particular study, findings in primary productivity of macrobenthic plants at Buyong Beach, Maribago, Mactan Island indicate that the study area could serve well as a seaweed farm or a mariculture garden.

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INTRODUCTION

The primary productivity through photosynthesis in the sea has been subjected to a number of investigations. However, majority of these studies were done on the estimates of phytoplankton productivity, and only a few comprehensive works on macrophytes and macroalgae were made.

The total production volume of benthic algae in the world's ocean is only 0.5×10^9 tons as compared to phytoplankton's total production of 350×10^9 tons (Krey, 1973). However, compared area for area, macrobenthic algae have higher production rates than the phytoplankton (Blinks, 1955). This is further supported by a number of investigations on benthic algae which affirmed that the benthic community plays an important if not the dominant role in the organic production of the coastal region (Rhyther, 1963). Such a situation is especially true in the Philippines, where the coastline is characterized by coral reefs, and offers extended areas of hard-bottom substratum required for intensive benthic algae substrate. On these coastal reefs within the euphotic zone, the main producers of organic substances are the benthic