

**PHYTOPLANKTON ASSEMBLAGES IN CONTRASTING SEASONS IN THE
AREA OF BANATE BAY, ILOILO, PHILIPPINES**

ROSE ANN T. ALVAREZ

**An Undergraduate Special Problem Presented
to the Department of Biological Sciences
College of Arts and Sciences
University of the Philippines Visayas**

**In Partial Fulfillment of the Requirements
for the Degree of
Bachelor of Science (Biology)**

JUNE 2019

ABSTRACT

Banate Bay in Iloilo is one of the major food and occupation contributors in the Panay Island because of its rich biodiversity. This study investigated the phytoplankton assemblage and their diversity with respect to the contrasting seasons namely; December 2012 and June 2013 on the pre-selected nine (9) stations of the Coastal Ecosystem Conservation and Adaptive Management (CECAM) Project. Physicochemical parameters such as salinity, turbidity, DO, and pH did not display seasonality but total suspended solids (TSS) did, with increased values resulting from run-off from the surrounding watershed and rivers. Principal Component Analysis divided the stations during the two months into groups. Station B3 during June 2013 possessed low salinity level, low turbidity level, low pH level and a very high DO level. While the other stations during June 2013 and all the stations during December 2012 possessed higher salinity levels, higher turbidity levels, higher pH levels and lower DO levels. While the PC2 of PCA divided the stations according to the TSS levels and the temperature. All stations during December 2012 showed characteristics of higher TSS levels and lower temperatures while stations during June 2013 were observed to have low TSS levels and higher temperatures. A total of 86 genera falling under six families were identified from the samples, namely: bacillariophyceae (49 genera), dinophyceae (24 genera), cyanophyceae (6 genera), silicoflagellate (4 genera), chlorophyceae (1 genus), euglenophyceae (1 genus) and Miscellaneous (2 genera). In December 2012, a total of 84 genera were identified and 86 genera in June 2013. The top 10 genera with the highest mean densities were *Bacteriastrium*, *Chaetoceros*, *Eutintinnus*, *Guinardia*, *Leptocylindricus*, *Lioloma*, *Protoperidinium*, *Thallasiothrix* and *Trichodesmium*. Pearson's correlation analysis revealed that water temperature and TSS were the most significant parameters influencing the distribution and seasonal shift in phytoplankton families and genera such as Bacillariophyceae, Others (composed of Euglenophyceae, Chlorophyceae, *Myrionecta*, and *Globigerina*), *Protoperidinium*, and *Guinardia*. pH and DO had minor influence on phytoplankton distribution. Shannon- Wiener diversity index as a pollution index suggested that the study area was incipiently polluted at stations B1, B2, and B3 and marginally polluted at Stations B4, B5, GN1, GN2, GS1, and GS2. Despite potential effects of various human activities, the water quality and phytoplankton assemblage of this area has not reached an alarming situation. The current study provides valuable baseline data.