

**STUDY OF MOLLUSCAN DIVERSITY IN
INTERTIDAL ZONE OF THAMBALAGAMUWA
BAY, TRINCOMALEE.**

A dissertation submitted to the
Faculty of Animal Science and Export Agriculture
Uva Wellassa University
in partial fulfillment of the requirement of
the degree of
Bachelor of Science in Aquatic Resources Technology

by

**GALKISSAGE RUUTH LAKSHANI RASANGIKA
GOONAWARDANA**

**Department of Animal Science
Faculty of Animal Science and Export Agriculture
Uva Wellassa University**

2016

ABSTRACT

Thambalagamuwa Bay is an important marine ecosystem as well as a good natural source of molluscs. Presently, the upper littoral zone of the bay is highly disturbing due to the rapid urbanization and destructive anthropogenic activities ongoing. In this backdrop, this study aimed to analyze the diversity of molluscs with response to anthropogenic disturbance, substrate pattern of the intertidal zone of the bay and rainy season. Two different regimes, undisturbed/disturbed were considered for site selection. Three sampling sites were selected for each regime considering the parameters such as the number of wastewater inlets present, the number of polythene bags and plastic bottles present in a unit area (1 square meters) and the number of buildings close to the site. The disturbed area showed ≥ 3 for each parameter while undisturbed area showed ≤ 1 . Data collection was conducted using line-transect method along with quadrat sampling (quadrat size 0.36 square meters). For each sample site, 3 lines were placed perpendicular to the shore, covering the whole sample site. The length of the line depended on the width of the intertidal region. The distance between two lines was 50 meters. In each line, six to fifteen quadrats were placed in accordance with the length of the line. Species collected were identified using identification guides. Substrate pattern was observed at each site. Shannon-Weiner index of diversity and species richness were calculated for each line placed in each site separately. Class Bivalvia and class Gastropoda were the dominants among the molluscan inhabitants of the intertidal zone of Thambalagamuwa bay. Substrate pattern was significant ($P, 0.05$) for the diversity and species richness of class Bivalvia and class Gastropoda found in the area. Anthropogenic disturbance did not show a significant effect on the diversity and species richness, but cannot be ruled out without further study. *Batillaria* sp. can be recognized as the most successful among molluscan inhabitants. The study suspected *Crassostrea madrasensis*, *Septifer bilocularia*, *Nodilittorina quadricincta* like species as indicators of anthropogenic disturbance. To ensure the fact, further study need to be conducted.

Keywords: Mollusca, Diversity, Disturbance, Thambalagamuwa bay