DIVERSITY AND TAXONOMY CLASSIFICATION OF MOLLUSC (GASTROPOD AND BIVALVE) FROM THE SETIU WETLANDS, TERENGGANU

AADILA BT TALIB

FACULTY OF MARITIME STUDIES AND MARINE SCIENCE UNIVERSITI MALAYSIA TERENGGANU 2012 - lu: 8665

1100088872

Perpustakaan Sultanah Nur Zahirah (UM Universiti Malaysia Terengganu

LP 1 FMSM 3 2012



Diversity and taxonomy classification of mollusc (gastropod and bivalve) from the Setiu Wetlands, Terengganu / Aadila Talib.

PERPUSTAKAAN SULTANAH NUR ZAMRAH UNIVERSITIMALAYSIA TERENGGANU (UNT) 21030 KUALA TERENGGANU

Lihat sebelah

DIVERSITY AND TAXONOMY CLASSIFICATION OF MOLLUSC (GASTROPOD AND BIVALVE) FROM THE SETIU WETLANDS, TERENGGANU.

By Aadila bt Talib

Research Report submitted in partial fulfillment of the requirement for the degree of Bachelor of Science (Marine Science)

Department of Marine Science
Faculty of Maritime Studies & Marine Science
UNIVERSITI MALAYSIA TERENGGANU
2012

This project report should be cited as:

Aadila, T. 2012. Diversity and taxonomy classification of mollusc (gastropod and bivalve) from the Setiu Wetlands. Undergraduate thesis, Bachelor of Science (Marine Science), Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu, Terengganu. 93p.

No part of this project report may be reproduced by any mechanical, photographic, or electronic process, or in the form of phonographic recording, nor may it be stored in a retrieval system, transmitted, or otherwise copied for public or private use, without written permission from the author and the supervisor(s) of the project.



DEPARTMENT OF MARINE SCIENCE FACULTY OF MARITIME STUDIES AND MARINE SCIENCE UNIVERSITI MALAYSIA TERENGGANU

DECLARATION AND VERIFICATION REPORT FINAL YEAR RESEARCH PROJECT

Date: 2/6/2012

Date: 21/6/2012

It is hereby declared and verified that this research report entitled:

Diversity and Taxonomy Classification Of Mollusc (Gastropod And Bivalve) from the Setiu Wetlands, Terengganu by Aadila bt Talib, Matric No. UK 20819 have been examined and all errors identified have been corrected. This report is submitted to the Department of Marine Science as partial fulfillment towards obtaining the Degree in Bachelor of Science (Marine Science), Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

Verified by:

Principal Supervisor

Name: Dr. Zainudin bin Bachok

Official stamp:

Head of Department of Marine Science

DR. ZAINUDIN BACHOK
Timbalan Pengarah
Institut Oseanografi
Linivetsiti Malaysia Terengganu
21030 Kuala Terengganu, Terengganu.

Name: Associate Prof. Dr. Rosnan bin Yaacob

Official stamp: PROF. MADYA DR. ROSNAN BIN YAACOB

Jabatan Sains Marin Fakulti Pengajian Maritim dan Sains Marin Universiti Malaysia Terengganu 21030 Kuala Terengganu

ACKNOWLEDGEMENTS

Praise to Allah that gave me good health and allows me to finish up my final year project on time. I would like to express my thankful to my supervisor, Dr. Zainudin bin Bachok for his guidance to help me complete this project. I really appreciate his effort and patiently taught his students. I also would like to thank to all staff that involve and to University that gave me places to stay about a week every time during sampling day. Besides, i also would like to thank to Nurulafifah btYahya and Zalizahana bt Zakaria for their guidance and effort during the sampling day.

I would like to express my deepest thank to my mother and father for their pray and blesson me throughout this project and Allah ease me to finish up this project.

Besides, I would like to thank to all my friends that helped me during sampling. All experiences that I got from this final year project become the most precious experiences that can be applied for the future.

TABLE OF CONTENTS

		Page
ACK	KNOWLEGEMENTS	ii
LIST	T OF TABLES	v
LIST	r of figures	vi
LIST	T OF APPENDICES	viii
ABS	TRACT	ix
ABS	TRAK	x
CHA	APTER 1: INTRODUCTION	1
1.1 1.2	Introduction Objective	1 4
CHA	APTER 2 : LITERATURE REVIEW	
2.1 2.2 2.3	Morphology of Gastropoda Morphology of Bivalvia Molluscs (Gastropoda and Bivalvia) and ecosystem	5 9 13
CHA	APTER 3 :METHODOLOGY	
3.1 3.2 3.3	Sampling site Samples collection Laboratory analysis	14 16 17
CHA	APTER 4: RESULT	
4.1 (Gastropoda 4.1.1 Classification of Class Gastropoda 4.1.2 Subclass and Family of Gastropoda 4.1.3 Taxonomy of Gastropoda species Bivalvia 4.2.1 Classification of class Bivalvia	17 -21 28 42
4.3	4.2.2 Subclass and family of Bivalvia4.2.3 Taxonomy of Bivalvia speciesBiodiversity of Gastropoda and Bivalvia	45 54 69
CHA	APTER 5 :DISCUSSION	
5.1	Gastropoda and Bivalvia	74

CHAPTER 6 : CONCLUSION AND RECOMMENDATI	CHA	PTER	6: CONCL	USION	AND	RECOMMEND	ATION
---	-----	------	----------	-------	-----	-----------	-------

6.1 Gastropoda and Bivalvia	78
REFERENCES	79
APPENDICES	82
CURICULUM VITAE	93

LIST OF TABLES

Table		Page
4.1	The taxonomic list of Gastropoda and Bivalvia recorded	
	from the Setiu Wetlands. There were 14 families under the	64
	Gastropoda class and 12 families under the Bivalvia class	
	in September and one new species found in January 2012.	

LIST OF FIGURES

Table		Page
2.1.1	Gastropoda classification according to Pechenik (2000).	6
2.1.2	Structure of Gastropoda and its external morphology	7
2.2.1	Classification of Bivavia according to Ruppert et.al.,(2004)	10
2.2.2	Structure of Bivalve and its external morphology	11
3.1	Location of station 1,2 and 3 from Beting Lintang to the	
	river mouth or estuary. Station 1 was at the lagoon while station	14
	2 and 3 at the Tebing Tinggi Island and Telaga Tujuh Island.	
	There are also mangrove ecosystem in station 2.	
3.2	location of station 4,5,6,7 and 8 is near the river mouth or	
	estuary. Station 4 was at the Che Him Island while station 6	15
	and 7 at the lagoon. The station 7 was located at Tok Haji	
	Island and the station 5 was at the mudflat area.	
3.3	Location of station 9, 10 and 11 from river mouth or	
	estuary to the Penarik. Station 9, 10 and 11 was along the	15
	Setiu River and located in the mudflat area.	
4.1	There were four Subclasses and 10 order of Gastropoda	18
	from the Setiu Wetlands.	

4.2	Number of Gastropoda species for month of July,	
	September, November and January 2012. There are four additional	19
	species were found in September and one additional species in	
	January 2012.	
4.3	Species composition of Gastropoda found at the Setiu Wetlands	20
4.4	Number of Bivalvia species for month of July, September,	
	November and January 2012. There are two new species were	43
	found for every month of July, September, November and Jan	
	2012.	
4.5	Species composition of Bivalvia species from the Setiu Wetlands.	44

LIST OF APENDICES

Appendix		Page	
1	The coordinates of study area from station 1 until station 11	73	
2	Number of individual species of Gastropoda	74	
3	Number of individual species of Bivalvia	80	
4	Glossary of technical items	84	

ABSTRACT

A study on diversity and taxonomy classification of molluscs (gastropods and bivalves) from the Setiu Wetlands was conducted in Julai, September, November and December 2012. The study was done in order to determine the biodiversity of bivalve and gastropod communities at the Setiu Wetland as well as to classify those molluscs into their taxonomy group. Sampling was conducted from Northern to Southern areas of Setiu Wetlands. There were 3 stations at the Beting Lintang, 5 stations near the river mouth (Gong Batu) and 3 stations at the Penarik. The samples were collected using Ponar grab or manually. The samples were divided into two parts which are Gastropoda class and Bivalvia class. These samples were sieved and divided into its different sizes and shape for identification before preserved it in 10% formalin. Overall, there were 10 orders, 12 families, 16 genus and 30 species of gastropods while for bivalves there were 7 orders, 14 families, 17 genus and 20 species were found in the Setiu Wetlands. In July, 19 species of gastropods and 11 species of bivalves were found. 23 species of gastropods and 13 species of bivalves were found in the month of September. In November and January, 22 and 21 species of gastropods and 15 species of bivalves were found in the Setiu Wetlands. A study on diversity index, distribution and sediment analysis of mollusc (gastropod and bivalve) can be done for further research in which contribute to the new information about the species of bivalve and gastropod in Setiu Wetlands.

Kepelbagaian dan Pengkelasan Taksonomi Molluska (Gastropoda dan Bivalvia) di Paya Setiu

ABSTRAK

Satu kajian ke atas kepelbagaian dan pengkelasan taksonomi Molluska (Gastropoda dan Bivalvia) di Tanah Lembap Setiu pada bulan Julai, September, November and Disember 2012. Kajian ini dijalankan untuk menentukan biodiversiti komuniti siput dan kerang di Paya Setiu dan juga untuk mengklasifikasikan siput dan kerang mengikut kumpulan taksonomi. Terdapat 3 stesen di Beting Lintang, 5 stesen di muara sungai dan 3 stesen lagi di Penarik. Kajian ini juga dijalankan dari kawasan utara ke selatan Paya Setiu. Sebelum ini, terdapat beberapa masalah untuk mengenalpasti spesis siput dan kerang tetapi dengan merujuk lebih banyak buku dan jurnal maka masalah ini dapat diatasi. Sampel telah dikumpulkan dengan menggunakan Ponar atau secara manual. Sampel tersebut dibahagikan kepada 2 bahagian iaitu kelas Gastropoda dan kelas Bivalvia. Sampel ini di tapis dan dibahagikan kepada saiz dan bentuk yang berlainan untuk proses pengenalpastian sebelum diawet dengan menggunakan formalin sebanyak 10 %. Secara keseluruhannya, terdapat 10 order, 12 famili, 16 genus and 30 spesis gastropod sementara bivalve terdapat 7 order, 14 famili, 17 genus and 20 spesis telah ditemui di Tanah Lembap Setiu. Pada bulan Julai, 19 spesis gastropod dan 11 spesis of bivalve telah ditemui. 23 spesis gastropod dan 13 spesis of bivalve telah ditemui pada bulan September. Pada bulan November dan Januari, 22 dan 21 spesis gastropod dan 15 spesis bivalve telah ditemui di Tanah Lembap Setiu. Kajian tentang indeks kepelbagaian, taburan dan analisis sedimen siput dan kerang boleh dilakukan untuk kajian selanjutnya yang mana dapat menghasilkan maklumat baru tentang spesis siput dan kerang.