F3 1 3 1 7

FIGURE OF SCHOOL FOR TESTINGON

THE STOREST OF SCHOOL FOR TESTINGON TO THE STOREST OF SCHOOL FOR THE SCHOOL





Survey of macrobenthic and fish communities in Pulau Karah, Terengganu / Feisal Yazid.



PERPUSTAKAAN

KOLEJ UNIVERSITI SAINS & TEKNOLOGI MALAYSIA

2103	O KUALA TERENGG	ANU
1	1000345	75

Lihat sebelah

HAK MILIK PERPUSTAKAAN KUSTEM

SURVEY OF MACROBENTHIC AND FISH COMMUNITIES IN PULAU KARAH, TERENGGANU

By

Feisal bin Yazid

Research Report submitted in partial fulfillment of the requirements for the Degree of Bachelor of Science (Marine Science)

Department of Marine Science
Faculty of Science and Technology
UNIVERSITY COLLEGE OF SCIENCE AND TECHNOLOGY MALAYSIA
(KUSTEM)
2005

21200011

This thesis should be cited as:

Bin Yazid, F. (2005). Survey of Macrobenthic and Fish Communities in Pulau Karah, Terengganu. Undergraduate thesis, Bachelor of Science (Marine Science), Department of Marine Science, Faculty of Science and Technology, University College of Science and Technology Malaysia (KUSTEM), Terengganu. 57p.

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 supervisors of the project.

Jabatan Sains Samudera

BORANG PENGESAHAN DAN KELULUSAN LAPORAN PROJEK TAHUN AKHIR

Nama Pelajar:

Feisal bin Yazid

No. Matrik:

UK 7616

Nama Penyelia:

Dr. Siti Aishah Abdullah @ Christine A. Orosco

Tajuk projek:

Survey of Macrobenthic and Fish Communities in Pulau Karah,

Terengganu.

Dengan ini disahkan bahawa saya telah menyemak laporan projek ini,

- i. Semua pembetulan yang disarankan oleh pemeriksa-pemeriksa telah dibuat; dan
- ii. Laporan ini telah mengikut format yang diberikan dalam buku Garis Panduan Projek Penyelidikan Tahun Akhir, Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia 2003.

(Tandatangan Penyelia)

DR. SITI AISHAH ABDULLAH @ CHRISTINE A. OROSCO

Pensyarah Jabatan Sains Samudera Fakulti Sains dan Teknologi Malaysia (KUSTEM) 21030 Kuala Terengganu.

(Nama/Cop Penyelia)

"With due respect and honor,
this thesis is dedicated to my father himself,
Mr. Yazid Jais A.M.N, B.C.K for his 49th birthday;
and to my beloved mother, Madam Hayati Osman."

ACKNOWLEDGEMENT

ALHAMDULILLAH

Thank god for giving me strength and patient in the process for making this thesis the very best. Highest appreciation to Dr. Siti Aishah Abdullah @ Christine A. Orosco for giving me the chance to run my final year project under her guidance and supervision. Many thanks to my diving instructor Mr. Anuar Abdullah, newly certified PADI instructor Mr. Adrin Abdul Razak, Mr. Baharim Mustafa, Willison K.Y., Ritchie Alester Lee and other diver colleagues whom share their experience, knowledge, and skills in reef monitoring as well as diving. To Mamat, a boatman from Pulau Redang, thanks for your cooperation and willingness for bringing me back and forth to Pulau Karah. This appreciation also specially goes to Miss Normah Said for her support and companionship during the rise and fall. Thanks to my classmates and peers for the 3 wonderful years. To both of my parents, Mr. Yazid Jais A.M.N., B.C.K. and Madam Hayati Osman; thank you for the bringing up, love, and support. I am not what I am today if it is not because of you both. To my siblings; Kakak, Ariel, Iwan, Yaya and Shah, God bless you all.

LISTOF FIGURES

FIGURE	TITLE	PAGE
3.1	Location of Pulau Karah Island in relation to Pulau Bidong.	15
3.2	The map of Pulau Karah. The red arrow is where the sampling sites are located. Station 1 (05° 35.814 N, 103° 03.978 E) is the arrow on the right while Station 2 (05° 35.787 N, 103° 03.956 E) is the arrow on the left.	16
3.3	The works of transect line deployment.	17
3.4	A diver collecting data using the Roving Diver Technique.	18
3.5	The video taping method which adapted in this survey.	18
4.1	Percentage of fish species sighted in Station 1.	24
4.2	Percentage of fish species sighted in Station 2.	24
4.3	Overall percentage of occurance for each species.	25
4.4	Schooling of Chromis ternatensis.	26
4.5	Colonies of <i>Stoichactis sp.</i> and the inhabitants of sea anemones, <i>Amphiprion</i> sp.	26
4.6	Branching type corals, <i>Acropora formosa</i> underlying the transect line.	34
4.7	Montipora sp. accompanied with branching Acropora sp.	35
4.8	Overall percent cover of benthic life forms composition.	37
4.9	Percent cover of major benthic life forms in Station 1.	37
4.10	Percent cover of major benthic life forms in Station 2.	38
4.11	The total percent cover of live coral and dead coral at both sampling stations.	38
4.12	Common sea anemones, Radianthus sp.	39

FIGURE	TITLE	PAGE
4.13	Tabulate coral, Acropora hycanthus which grows in tiered form.	39
4.14	A boulder coral with the height up to 6 meters found on the reef of Station 2	40
4.15	Small boulders, Goniospora sp.	40
4.16	Small branches of hydroids, Lytocarpus sp.	41
4.17	Spirobranchus gigantus on boulder corals, Porites lobata.	41
4.18	Tridacna sp.	42
4.19	Pycnodonta myotis.	42
4.20	Plerogya sp.	43
4.21	Fungia sp.	43
4.22	A Blue Sponge colony sharing its spot with small branches of hydroids on the surface of <i>Monastrea sp.</i> coral.	44

LIST OF TABLES

TABLE	TITLE	PAGE
3.1	The logarithmic abundances of dominant fish species described by Pattengill-semmens (1999).	19
3.2	The categories and codes for life forms (English et al. 1994).	20
4.1	Fish found in this study, according to their taxonomic groups.	29
4.2	Fish species found in Station 1.	30
4.3	Fish species found in Station 2.	31
4.4	Major types of life forms occurred in study area.	33
4.5	Types of major benthic life forms in Station 1.	33
4.7	Types of major benthic life forms in Station 2.	33

LIST OF APPENDICES

APPENDIX	TITLE	PAGE
1 ,	The summary of data for the fish communities by total, and according to sampling stations.	53
2	The summary of data for the microbenthic life form, and according to sampling stations.	55
3	The quality category for coral reef, described by Manthachitra (1994).	56

TABLE OF CONTENTS

AC	KNO	OWLEDGEMENT	ii
LIS	T OF	F FIGURES	iii
LIS	T OF	F TABLES	v
LIS	ST OF	F APPENDICES	vi
TA	BLE	OF CONTENTS	vii
AB	STR	ACT	ix
AB	STR	AK	x
		RODUCTION ERATURE REVIEW	1
	2.1	Benthic Organisms	4
		2.1.1 Corals	5
	2.2	Marine Fishes	6
		2.2.1 Common Reef Fishes	9
	2.3	Line Intercept Transect	11
	2.4	Coral Reef Fish Visual Census	12
		2.4.1 Roving Diver Technique	13
		2.4.2 Video Method	13
3.0	ME	THODS AND MATERIALS	
	3.1	Study Area	14
	3.2	Sampling Design	17
	3.3	Sampling Procedures	18

	3.4	Data Analysis	22
4.0 RESULTS			
	4.1	Fish Communities	23
	4.2	Macrobenthic Communities	32
5.0 DISCUSSION			
	5.1	Fish Community	45
	5.2	Macrobenthic communities	46
6.0	6.0 CONCLUSION		47
LI	LITERATURE CITED		48
APPENDICES		53	
CU	CURRICULUM VITAE		57

ABSTRACT

A survey of macrobenthic and fish communities in Pulau Karah (5° 38.8 'N, 103° 04'E) was carried out at 2 stations on the Eastern side of Pulau Karah. The macrobenthic composition was studied using the Line Intercept Transect method, while fish assemblage was surveyed using the Roving Diver Technique. From these two methods, percentage of major benthic life forms and various species of fish were recorded to show the general composition and distribution of macrobenthic life forms and fish species on the reefs of Pulau Karah. The overall live coral for the 2 sampling stations is 94.19%. This indicates that the coral reef on the Eastern side of Pulau Karah is in a very good health, and deriving from this information, the reefs around Pulau Karah can be said to be in good conditions. The 2 major type of life forms found in this survey were the branching type coral, Acropora formosa (41.87%) as the most abundant, and the foliose type coral, Montipora sp. (36.98%). The reefs in Station 2 support a rich fish assemblage; with more numbers of species (20 species) if compared to Station 1 (16 species) although the numbers of individuals were lower in Station 2. The most abundant fish species was Chromis ternatensis (61.92%) with the highest percentage was recorded in Station 1 (63.52%). Five other species which frequently sighted were *Pomacentrus moluccensis* (7.78%), Lutjanus vitta (6.57%), Pomacentrus brachialis (5.47%), Abudefduf septemfasciatus (5.23%), and Amphiprion ocellaris (4.26%).