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THE DISTRIBUTION AND ABUNDANCE OF FISH AND MACROBENTHIC COMMUNITIES IN RELATION TO ENVIRONMENTAL FACTORS IN KLANG STRAIT (MALAYSIA)

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ABSTRACT

Fish and macroinvertebrate distribution and abundance in the Klang Strait (Malaysia) were investigated in relation to water and bottom sediment characteristics. Thirteen water and bottom sediment parameters were measured and analysed using principal component analysis (PCA). PCA of these parameters distinguished three major habitat groupings in the Klang Strait: (1) nearshore estuaries and mudflats, characterized by very turbid, lower salinity waters and muddy substrates, (2) offshore sandy habitat centred around the northern half of Angsa Bank, and characterized by less turbid, oxygen-riched and higher salinity water, and (3) offshore very fine sand habitat located largely on the southern half of Angsa Bank, and characterized by turbid, higher salinity water.

A total of 162 species belonging to 73 families were recorded based on 22,376 specimens examined. These species comprised 119 fish and 43 macroinvertebrate species belonging to 55 and 18 families, respectively. The most common fish families in order of importance were Sciaenidae, Leiognathidae, Ariidae, Platycephalidae, Cynoglossidae, Gerridae, Mullidae, Dasyatidae, Pomadasyidae, Siganidae, Carangidae, Engraulididae, Clupeidae, Stromatidae and Polynemidae. Seventeen prawn species were recorded and the most common family was Penaeidae. Fifteen species of brachyuran crabs and two species of xiphosuran horse-shoe crabs were recorded. The most common crab families were the Portunidae and Majidae. Only three stomatopodan species belonging to the family Squillidae were recorded. Three Cephalopoda were recorded belonging to the families Octopodidae, Sepiidae and Loliginidae. Five Echinodermata species were recorded and the most common species were the sea urchin, *Salmacis*

dussumieri, an unidentified sea cucumber species and the starfish, *Luidia penangensis*. Most of the fish and macroinvertebrate species comprised of young juveniles.

Canonical Correspondence Analysis (CCA) indicates that the most important abiotic factors controlling the distribution and abundance of demersal fish were salinity, turbidity, sediment clay and organic matter, whereas for pelagic fish these factors were water depth, salinity, turbidity and sediment pH. The distribution and abundance of prawn species were however influenced by water depth, salinity, dissolved oxygen, sediment clay, fine sand and organic matter contents. Crab abundance were more strongly influenced by salinity, dissolved oxygen, sediment clay, silt and organic matter contents, and sediment pH. The abundance of the other macroinvertebrates such as cephalopods, stomatopods and echinoderms were more influenced by water depth, salinity, sediment clay and organic matter contents. Salinity was the only common factor that appeared to influence the distribution and abundance of all species in Klang Strait.

ABSTRAK

Taburan serta kelimpahan ikan dan makroinvertebrata di Selat Klang (Malaysia) dikaji beserta ciri parameter air sedimen dasar. Tiga belas parameter air serta sedimen diukur dan dianalisa menggunakan analisis komponen utama [Principal Component Analysis (PCA)]. PCA parameter tersebut membezakan 3 kumpulan habitat utama di Selat Klang: (1) kuala dan dataran lumpur persisiran, (2) habitat berpasir luar pantai yang berpusat sekeliling bahagian utara Beting Angsa dan dicirikan oleh persiaran yang kurang keruh, tinggi kandungan oksigen serta bersaliniti tinggi, dan (3) habitat berpasir sangat halus luar pantai merangkumi bahagian selatan Beting Angsa yang lebih keruh serta bersaliniti tinggi.

Sejumlah 162 spesies daripada 73 famili telah direkod berdasarkan 22,376 spesimen yang diteliti. Spesies ini terdiri dari 119 spesies ikan dan 43 spesies makroinvertebrata daripada 55 dan 18 famili setiap satunya. Famili ikan yang paling sering ditemui menurut aturan kepentingan adalah Scianidae, Leiognathidae, Ariidae, Platycephalidae, Cynoglossidae, Gerridae, Mullidae, Dasyatidae, Pomadasyidae, Siganidae, Carangidae, Engraulididae, Clupeidae, Stromatidae dan Polynemidae. Tujuh belas spesies udang direkodkan dan famili yang paling kerap ditemui adalah Penaeidae. Lima belas spesies brachyura dan dua spesies belangkas (xiphosura) telah direkodkan. Keluarga ketam yang paling utama adalah Portunidae dan Majidae. Cuma 3 spesies Stomatopoda dari famili Squillidae dicatit. Tiga Cepahalopoda direkod dari famili Octopodidae, Sepiidae dan Loliginidae. Lima spesies Echinodermata direkod dan spesies yang paling sering ditemui adalah landak laut, *Salmacis dussumieri*,

TABLE OF CONTENTS

	Page
ACNOWLEDGEMENTS	ii
ABSTRACT	iv
ABSTRAK	vi
TABLE OF CONTENTS	viii
LIST OF TABLES	xiii
LIST OF FIGURES	xvi
LIST OF APPENDICES	xxii
1. **CHAPTER ONE: GENERAL INTRODUCTION**	1
1.1 ANIMAL DISTRIBUTION AND ABUNDANCE	1
1.1.1 Fish	5
1.1.2 Macrobenthos	13
1.2 RAINFALL	21
1.3 CURRENTS AND TIDES	22
1.4 WATER PARAMETERS	23
1.4.1 Temperature	23
1.4.2 Salinity	25
1.4.3 Turbidity	27
1.4.4 Dissolved Oxygen	28
1.4.5 pH	30
1.4.6 Depth	31
1.5 BOTTOM AND SEDIMENT CHARACTERISTICS	32
1.5.1 Sediment Texture and Characteristics	32
1.5.2 Organic Matter Content	33

1.5.3 Fishing Impact 35

1.6 IMPORTANCE OF THE STUDY 35

1.7 AIMS OF STUDY 37

2. **CHAPTER TWO: MATERIALS AND METHODS** 38

2.1 FIELD SAMPLES 38

2.1.1 Study Area and Sampling Stations 38

2.1.2 Rainfall and Hydrology 39

2.1.3 Collection Of Fish and Macrobenthos 41

2.1.4 Water Parameters 42

2.1.5 Sediment Collection 42

2.2 LABORATORY ANALYSIS 43

2.2.1 Sediment Analysis 43

2.2.2 Sorting and Identification Of Fish and Macroinvertebrates 44

2.3 DATA ANALYSIS 45

2.3.1 Multivariate Analysis 45

2.3.1.1 Sediments and Water Parameters 47

2.3.1.2 Fish and Macroinvertebrate Distribution 47

2.3.1.3 Cluster Analysis 49

2.3.1.4 Community Structure 50

2.3.1.5 Fish and Macroinvertebrate Species Abundance in Relation to Abiotic Variables 51

3. **CHAPTER THREE: RESULTS** 52

3.1 RAINFALL AND HYDROLOGY 52

3.2 WATER PARAMETERS 52

3.2.1 Temperature 52

3.2.2 Salinity 54

3.2.3 Turbidity 54

3.2.4 Dissolved Oxygen 54

3.2.5 pH 55

3.2.6 Depth 55

3.3 BOTTOM AND SEDIMENT CHARACTERISTICS 55

3.3.1 Comparison Between Coulter Particle Sizing Method and Hydrometer Method 55

3.3.2 Sediment Texture and Characteristics 60

3.3.3 Sediment Parameters 61

3.4 MULTIVARIATE ANALYSIS 66

3.4.1 Sediment and Water Parameters 66

3.5 DISTRIBUTION AND ABUNDANCE OF FISH AND MACROBENTHOS 70

3.5.1 Fish 70

3.5.1.1 Demersal Fish 72

3.5.1.1.1 Sciaenidae 82

3.5.1.1.2 Leiognathidae 87

3.5.1.1.3 Ariidae 90

3.5.1.1.4 Dasyatidae 94

3.5.1.1.5 Cynoglossidae 96

3.5.1.1.6 Gerridae 96

3.5.1.1.7 Mullidae 99

3.5.1.1.8 Platycephalidae 99

3.5.1.1.9 Pomadasyidae 103

3.5.1.1.10 Siganidae 103

3.5.1.1.11 Ambassidae 106

3.5.1.1.12 Dorosomidae 106

3.5.1.1.13 Sillaginidae 109

3.5.1.1.14 Trichuridae 109

3.5.1.1.15 Trygonidae 109

3.5.1.1.16 Trypanchenidae 113

3.5.1.2 Pelagic fish 113

3.5.1.2.1 Carangidae 123

3.5.1.2.2 Engraulididae 127

3.5.1.2.3 Clupeidae 130

3.5.1.2.4 Stromatidae 133

3.5.1.2.5 Polynemidae 133

3.5.2 Macroinvertebrates 138

3.5.2.1 Prawns 138

3.5.2.2 Crabs (including Xiphosuran – horse shoe crab) 146

3.5.2.3 Stomatopoda 150

3.5.2.4 Cephalopoda 155

3.5.2.5 Echinodermata 158

3.6 SPECIES DIVERSITY AND SIMILARITY 161

3.7 RELATIONSHIP BETWEEN ABUNDANCE OF SPECIES AND ENVIRONMINTAL FACTORS 163

3.7.1 Demersal fish 167

3.7.2 Pelagic fish 171

3.7.3 Prawns 175

3.7.4 Crabs 178

3.7.5 Cephalopoda, Stomatopoda, and Echinodermata Species 182

4. CHAPTER FOUR: DISCUSSION 186

4.1 WATER PARAMETERS OF KLANG STRAIT 186

4.2 SEDIMENT TYPE AND DISTRIBUTION IN KLANG STRAIT 186

4.3 ANIMAL DISTRIBUTION AND ABUNDANCE 188

4.4 RELATIONSHIP BETWEEN ABIOTIC FACTORS AND ANIMAL DISTRIBUTION IN KLANG STRAIT 191

5. CHAPTER FIVE: CONCLUSIONS 197

6. REFERENCES 201

7. APPENDICES 223

LIST OF TABLES

		Page
Table 1:	The mean and standard deviation of the abiotic factors of the water parameters of all stations during the study period.	56
Table 2:	A comparative assessment of sediment texture by the Coulter counter method and Hydrometer method (Bouyoncos, 1951).	59
Table 3:	The mean reading of all sediment classes and parameters per station during the study period (There were no data collected for stations 3 and 7 because of unsuitable conditions such as the depth and boat traffic).	62
Table 4:	Eigenvalues and factor loadings of the first three principal components obtained from PCA analysis of environmental variables measured at 13 stations in Klang Strait.	68
Table 5:	Summary of the PCA analysis results.	71
Table 6:	Checklist of fish and macroinvertebrate species in Klang Strait (1996-1998).	73
Table 7:	Total number of species, number of families and number of individuals examined per major taxon by station (Klang Strait).	77
Table 8:	The mean abundance (ind/ha) per major taxonomical group at the stations during the study period.	78
Table 9:	The mean biomass (kg/ha) per major taxonomical group at the stations during the study period.	79
Table 10:	The mean abundance (ind/ha) of demersal fish species at the stations during the study period.	115
Table 11:	The mean biomass (kg/ha) of demersal fish species at the stations during the study period.	118
Table 12:	The common families of demersal and pelagic fish according to their abundance.	121
Table 13:	The mean abundance (ind/ha) of pelagic fish species at the stations during the study period.	136
Table 14:	The mean biomass (kg/ha) of pelagic fish species at the stations during the study period.	137
Table 15:	The mean abundance (ind/ha) of prawns species at the stations during the study period.	144

Table 16:	**The mean biomass (kg/ha) of prawns species at the stations during the study period.**	**145**
Table 17:	**The mean abundance (ind/ha) of crabs and horse shoe crab species at the stations during the study period.**	**151**
Table 18:	**The mean biomass (kg/ha) of crabs and horse shoe crab species at the stations during the study period.**	**152**
Table 19:	**The mean abundance (ind/ha) of Stomatopoda species at the stations during the study period.**	**153**
Table 20:	**The mean biomass (kg/ha) of Stomatopoda species at the stations during the study period.**	**153**
Table 21:	**The mean abundance (ind/ha) of Cephalopoda species at the stations during the study period.**	**156**
Table 22:	**The mean biomass (kg/ha) of Cephalopoda species at the stations during the study period.**	**156**
Table 23:	**The mean abundance (ind/ha) of Echinodermata species at the stations during the study period.**	**159**
Table 24:	**The mean biomass (kg/ha) of Echinodermata species at the stations during the study period.**	**159**
Table 25:	**Ecological indices related to diversity of fish and macroinvertebrates at stations in Klang Strait.**	**166**
Table 26:	**Results of the canonical correspondence analysis showing the relationship between dermersal fish species abundance with only the statistically significance environmental variables in Klang Strait.**	**169**
Table 27:	**Results of the canonical correspondence analysis showing the relationship between pelagic fish species abundance with only the statistically significance environmental variables in Klang Strait.**	**173**
Table 28:	**Results of the canonical correspondence analysis showing the relationship between prawns species abundance with only the statistically significance environmental variables in Klang Strait.**	**176**
Table 29:	**Results of the canonical correspondence analysis showing the relationship between crabs species abundance with only the statistically significance environmental variables in Klang Strait.**	**180**

Table 30: Results of the canonical correspondence analysis showing the relationship between cephalopoda, stomatopoda and echinodermata species abundance with only the statistically significance environmental variables in Klang Strait. 183

Table 31: Summary of the canonical correspondence analysis results showing the relationship between the common taxon groups species abundance with only the statistically significance environmental variables in Klang Strait. 196

LIST OF FIGURES

		Page
Fig.1	Map of study area.	40
Fig.2	Monthly rainfall at stations along the coast of Selangor from port Klang to Kuala Selangor (1996 – 1998).	53
Fig.3	The mean and standard deviation of water temperature per station during the study period.	57
Fig.4	The mean and standard deviation of salinity per station during the study period.	57
Fig.5	The mean and standard deviation of turbidity per station during the study period.	57
Fig.6	The mean and standard deviation of dissolved oxygen per station during the study period.	58
Fig.7	The mean and standard deviation of water pH per station during the study period.	58
Fig.8	The mean and standard deviation of depth per station during the study period.	58
Fig.9	The distribution of clay content in bottom sediments of Klang Strait (1996-1998).	63
Fig.10	The distribution of silt content in bottom sediments of Klang Strait (1996-1998).	64
Fig.11	The distribution of sand content in bottom sediments of Klang Strait (1996-1998).	65
Fig.12	The mean and standard deviation of sediment pH per station during the study period.	66
Fig.13	The mean and standard deviation of sediment temperature per station during the study period.	66
Fig.14	The mean percentages and standard deviation of the organic matter in the sediment during the study preiod.	66
Fig.15	The distribution of organic matter percentage in Klang Strait during the study period.	67
Fig.16	Factor loading of sediment and water parameters measured at 13 stations, for first, second and third factors (principal components).	69

Fig.17	Spatial distribution of sampling stations with respect of sediment and water characteristics as measured by first, second and third factors principal components.	69
Fig.18a	Density distribution of all fish species in Klang Strait.	80
Fig.18b	Biomass distribution of all fish species in Klang Strait.	80
Fig.19a	Density distribution of demersal fish species in Klang Strait.	81
Fig.19b	Biomass distribution of demersal fish species in Klang Strait.	81
Fig.20a	Density distribution of Sciaenidae species in Klang Strait.	83
Fig.20b	Biomass distribution of Sciaenidae species in Klang Strait.	83
Fig.21a	Summary of the cluster analysis results for the Sciaenidae species in Klang Strait with emphasis on the distribution of the Sciaenidae species among the stations group. The symbols in the two-way table summary represent the percentages of a species group across station groups; thus the percentages for a species group (row) sum to 100%. See Table 6 for species code.	85
Fig.21b	Summary of the cluster analysis results for the Sciaenidae species in Klang Strait with emphasis on the distribution of the Sciaenidae species among the stations group. The symbols in the two-way table summary represent the percentages of a species group across station groups; thus the percentages for a species group (column) sum to 100%. See Table 6 for species code.	86
Fig.22a	Density distribution of Leiognathidae species in Klang Strait.	88
Fig.22b	Biomass distribution of Leiognathidae species in Klang Strait.	88
Fig.23	Summary of the cluster analysis results for the Leiognathidae species in Klang Strait., with emphasis on the distribution of the Leiognathidae species among the stations group. (A) The symbols in the two-way table summary represent the percentages of a species group across station groups; thus the percentages for a species group (row) sum to 100%. (B) symbols in the two-way table summary represent the percentages of a species group across station groups; thus the percentages for a species group (column) sum to 100%. See Table 6 for species code.	89
Fig.24a	Density distribution of Ariidae species in Klang Strait.	91
Fig.24b	Biomass distribution of Ariidae species in Klang Strait.	91
Fig.25	Summary of the cluster analysis results for the Ariidae species in Klang Strait., with emphasis on the distribution of the Ariidae species among the stations group. (A) The symbols in the two-way table summary	92

represent the percentages of a species group across station groups; thus the percentages for a species group (row) sum to 100%. (B) symbols in the two-way table summary represent the percentages of a species group across station groups; thus the percentages for a species group (column) sum to 100%. See Table 6 for species code.

Fig.26a Density distribution of Dasyatidae species in Klang Strait. 95

Fig.26b Biomass distribution of Dasyatidae species in Klang Strait. 95

Fig.27a Density distribution of Cynoglossidae species in Klang Strait. 97

Fig.27b Biomass distribution of Cynoglossidae species in Klang Strait. 97

Fig.28a Density distribution of Gerridae species in Klang Strait. 98

Fig.28b Biomass distribution of Gerridae species in Klang Strait. 98

Fig.29a Density distribution of Mullidae species in Klang Strait. 100

Fig.29b Biomass distribution of Mullidae species in Klang Strait. 100

Fig.30a Density distribution of Platycephalidae species in Klang Strait. 101

Fig.30b Biomass distribution of Platycephalidae species in Klang Strait. 101

Fig.31a Density distribution of Pomadasyidae species in Klang Strait. 104

Fig.31b Biomass distribution of Pomadasyidae species in Klang Strait. 104

Fig.32a Density distribution of Siganidae species in Klang Strait. 105

Fig.32b Biomass distribution of Siganidae species in Klang Strait. 105

Fig.33a Density distribution of Ambassidae species in Klang Strait. 107

Fig.33b Biomass distribution of Ambassidae species in Klang Strait. 107

Fig.34a Density distribution of Dorosomidae species in Klang Strait. 108

Fig.34b Biomass distribution of Dorosomidae species in Klang Strait. 108

Fig.35a Density distribution of Sillaginidae species in Klang Strait. 110

Fig.35b Biomass distribution of Sillaginidae species in Klang Strait. 110

Fig.36a Density distribution of Trichuridae species in Klang Strait. 111

Fig.36b Biomass distribution of Trichuridae species in Klang Strait. 111

Fig.37a	Density distribution of Teraponidae species in Klang Strait.	112
Fig.37b	Biomass distribution of Teraponidae species in Klang Strait.	112
Fig.38a	Density distribution of Trypauchenidae species in Klang Strait.	114
Fig.38b	Biomass distribution of Trypauchenidae species in Klang Strait.	114
Fig.39a	Density distribution of Pelagic fish species in Klang Strait.	122
Fig.39b	Biomass distribution of Pelagic fish species in Klang Strait.	122
Fig.40a	Density distribution of Carangidae species in Klang Strait.	125
Fig.40b	Biomass distribution of Carangidae species in Klang Strait.	125
Fig.41	Summary of the cluster analysis results for the Carangidae species in Klang Strait., with emphasis on the distribution of the Carangidae species among the stations group. (A) The symbols in the two-way table summary represent the percentages of a species group across station groups; thus the percentages for a species group (row) sum to 100%. (B) symbols in the two-way table summary represent the percentages of a species group across station groups; thus the percentages for a species group (column) sum to 100%. See Table 6 for species code.	126
Fig.42a	Density distribution of Engraulididae species in Klang Strait.	128
Fig.42b	Biomass distribution of Engraulididae species in Klang Strait.	128
Fig.43	Summary of the cluster analysis results for the Engraulididae species in Klang Strait., with emphasis on the distribution of the Engraulididae species among the stations group. (A) The symbols in the two-way table summary represent the percentages of a species group across station groups; thus the percentages for a species group (row) sum to 100%. (B) symbols in the two-way table summary represent the percentages of a species group across station groups; thus the percentages for a species group (column) sum to 100%. See Table 6 for species code.	129
Fig.44a	Density distribution of Clupeidae species in Klang Strait.	131
Fig.44b	Biomass distribution of Clupeidae species in Klang Strait.	131
Fig.45	Summary of the cluster analysis results for the Clupeidae species in Klang Strait., with emphasis on the distribution of the Clupeidae species among the stations group. (A) The symbols in the two-way table summary represent the percentages of a species group across station groups; thus the percentages for a species group (row) sum to 100%. (B) symbols in the two-way table summary represent the percentages of a species group across station groups; thus the percentages for a species group (column) sum to 100%. See Table 6 for species code.	132

Fig.46a	Density distribution of Stromatidae species in Klang Strait.	134
Fig.46b	Biomass distribution of Stromatidae species in Klang Strait.	134
Fig.47a	Density distribution of Polynemidae species in Klang Strait.	135
Fig.47b	Biomass distribution of Polynemidae species in Klang Strait.	135
Fig.48a	Density distribution of Prawns species in Klang Strait.	140
Fig.48b	Biomass distribution of Prawns species in Klang Strait.	140
Fig.49a	Summary of the cluster analysis results for the Prawns species in Klang Strait., with emphasis on the distribution of the Prawns species among the stations group. The symbols in the two-way table summary represent the percentages of a species group across station groups; thus the percentages for a species group (row) sum to 100%. See Table 6 for species code.	141
Fig.49b	Summary of the cluster analysis results for the Prawns species in Klang Strait., with emphasis on the distribution of the Prawns species among the stations group. The symbols in the two-way table summary represent the percentages of a species group across station groups; thus the percentages for a species group (column) sum to 100%. See Table 6 for species code.	142
Fig.50a	Density distribution of Crab species in Klang Strait.	147
Fig.50b	Biomass distribution of Crab species in Klang Strait.	147
Fig.51a	Summary of the cluster analysis results for the Crabs and horse-shoe crab species in Klang Strait., with emphasis on the distribution of the Crabs and horse-shoe crab species among the stations group. The symbols in the two-way table summary represent the percentages of a species group across station groups; thus the percentages for a species group (row) sum to 100%. See Table 6 for species code.	148
Fig.51b	Summary of the cluster analysis results for the Crabs and horse-shoe crab species in Klang Strait., with emphasis on the distribution of the Crabs and horse-shoe crab species among the stations group. The symbols in the two-way table summary represent the percentages of a species group across station groups; thus the percentages for a species group (column) sum to 100%. See Table 6 for species code.	149
Fig.52a	Density distribution of Stomatopoda species in Klang Strait.	154
Fig.52b	Biomass distribution of Stomatopoda species in Klang Strait.	154
Fig.53a	Density distribution of Cephalopoda species in Klang Strait.	157

Fig.53b	Biomass distribution of Cephalopoda species in Klang Strait.	157
Fig.54a	Density distribution of Echinodermata species in Klang Strait.	160
Fig.54b	Biomass distribution of Echinodermata species in Klang Strait.	160
Fig.55	Summary of the cluster analysis results for the Echinodermata species in Klang Strait., with emphasis on the distribution of the Echinodermata species among the stations group. (A) The symbols in the two-way table summary represent the percentages of a species group across station groups; thus the percentages for a species group (row) sum to 100%. (B) symbols in the two-way table summary represent the percentages of a species group across station groups; thus the percentages for a species group (column) sum to 100%. See Table 6 for species code.	162
Fig.56	Cluster analysis of sampling stations grouped according to similarity of all species distributions and abundance.	164
Fig.57	Cluster analysis of sampling stations grouped according to similarity of Demersal fish species distributions and abundance.	164
Fig.58	Cluster analysis of sampling stations grouped according to similarity of only Pelagic fish species distributions and abundance.	165
Fig.59	CCA ordination bioplot showing the statistically significant environmental variables (arrows) and demersal fish family. See Table 6 for species code.	170
Fig.60	CCA ordination bioplot showing the statistically significant environmental variables (arrows) and pelagic fish family. See Table 6 for species code.	174
Fig.61	CCA ordination bioplot showing the statistically significant environmental variables (arrows) and Prawns species circles. See Table 6 for species code.	177
Fig.62	CCA ordination bioplot showing the statistically significant environmental variables (arrows) and Crab species. See Table 6 for species code.	181
Fig.63	CCA ordination bioplot showing the statistically significant environmental variables (arrows) and the Cephalopoda, Stomatopoda and Echinodermata species. See Table 6 for species code.	184

LIST OF APPENDICES

		Page
Appendix 1.	Trawl stations information.	223
Appendix 2.	Trawl survey cruises.	224
Appendix 3.	Trawl information, field form.	225
Appendix 4.	Field form.	226
Appendix 5.	Water parameters were recorded at each station in Klang Straits during the study period.	227
Appendix 6.	The percentages of sediment classes were recorded at each station in Klang Straits during the study period.	229
Appendix 7.	The sediment parameters were recorded during the study period in Klang Straits.	231
Appendix 8.	Distribution of the all species caught during the study period in Klang Straits.	233