CHAPTER 6

BENTHIC COMMUNITY OF KUNG KRABAEN BAY

A. Macrobenthic Community Structure

1. Abundance of Macrobenthos

The benthic community of Kung Krabaen Bay was evaluated by dividing into discriminated 7 taxa, namely, Polychaeta, Oligochaeta, Crustacea, Mollusca, Echinodermata, Fish and others. The result of study was showed in Figure 6.1.

The result indicated that polychaetes was dominated in abundance in the benthic community of Kung Krabaen Bay. Mean average of polychaete composition was ranged from the lowest 31.1% in Transect E (TE) to the highest 96.5% in Transect D (TD) of total abundance. These compositions fluctuated according to the sampling period. Polychaete also dominated outside the bay with a range from 10.7% to 98.7. Major families of polychaete found in the benthic community in this area were Spionidae, Capitellidae, Lumbrineridae, Orbiniidae, Ophelidae, Magelonidae and Pilargidae.

Oligochaetes ranked second in term of abundance. It was found that high concentration appeared inside the canals and at the mouth of canals and low toward the intertidal area. The highest abundant was found at Station TBin (93.5%) in November with the mean average ranging from 0.1% to 45.6% of the total abundance. The oligochaetes showed the positive relationship with high organic sediment and low salinity in drainage canals.

Crustaceans were found low in abundance between 1.0% and 17.0% of the total abundance. Major species in this group was the amphipods, the small hermit crab (*Diogenes avarus* Heller) and penaeid shrimp juvenile. Highest composition about 17% was found at Station TE4 on intertidal flat inside the bay. Crustaceans in the drainage canals were found in the range of 2.0% - 10.7% of total abundance. The major group of crustacean was the amphipods.

Mollusks were rare in this benthic community with the highest value of 14.2% of the total abundance. Bivalve mollusks, *Anomalocardia* sp. and *Gafrarium* sp., belonging to the Veneridae were common inside the drainage canals and coastal intertidal flats. Echinoderms, fish and others were also recorded in the area.

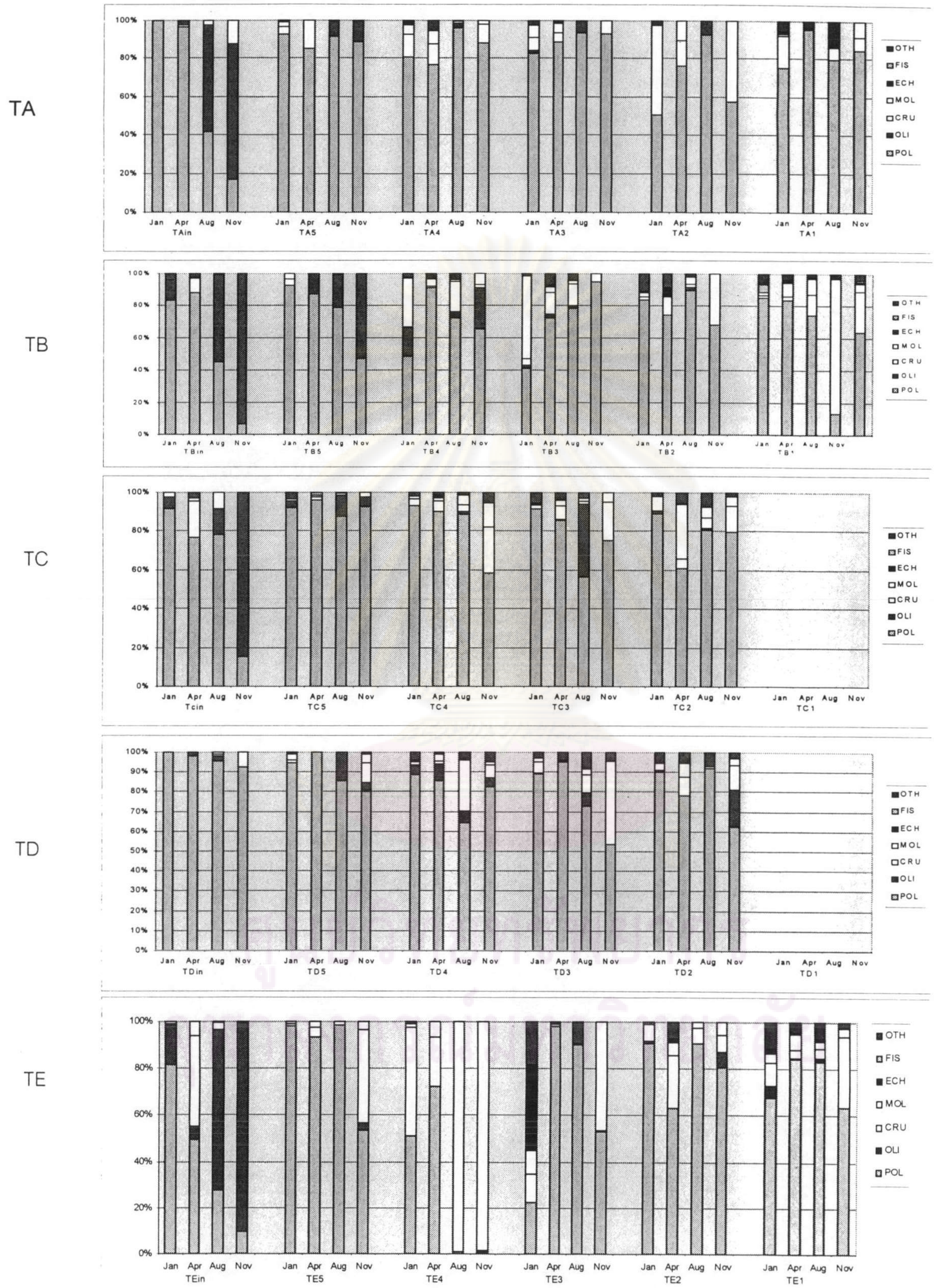

Figure 6.1 Average abundance composition of major 7 taxa in benthic community of the Kung Krabaen Bay by transects sampling during January – November 2000.

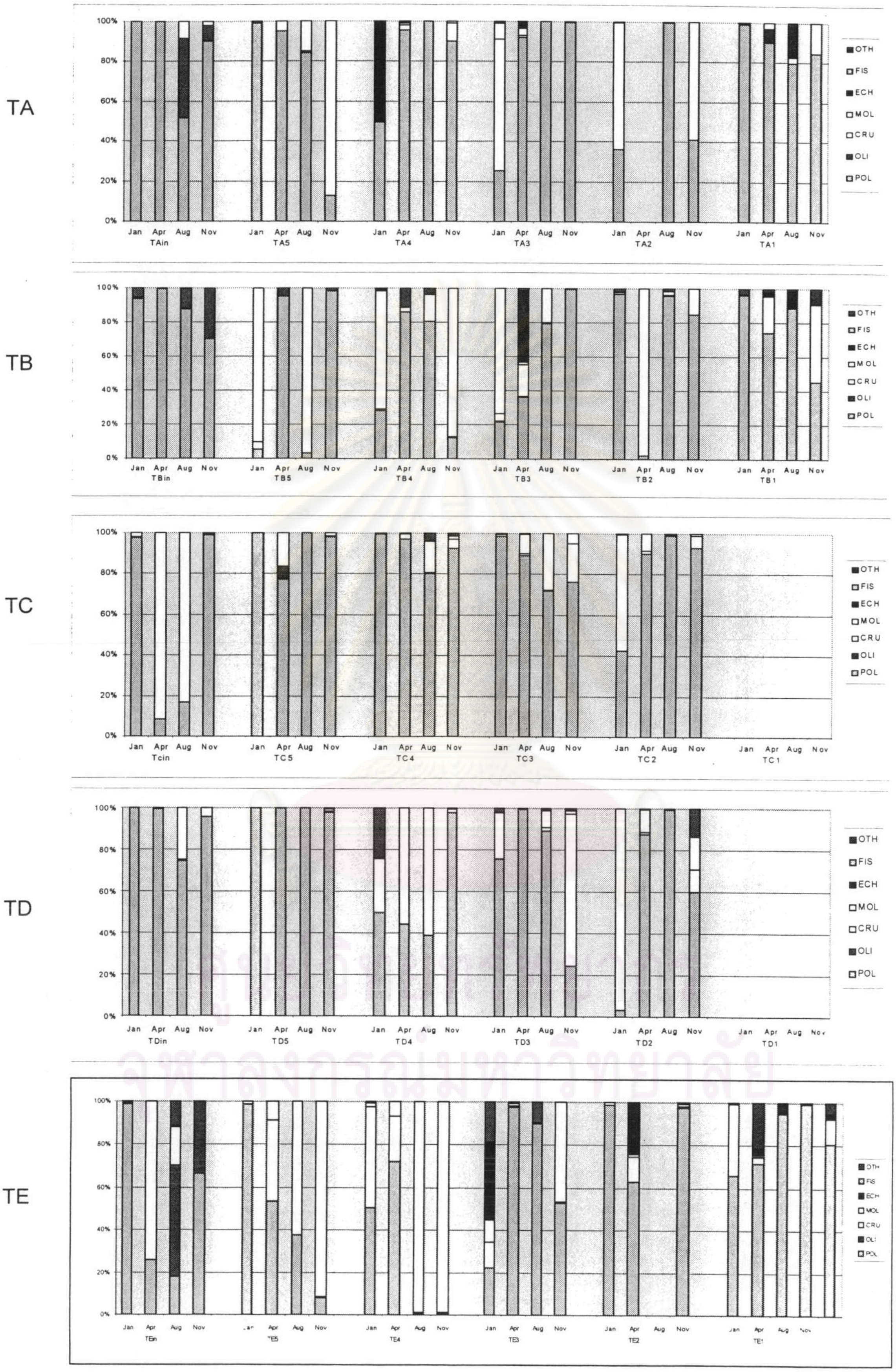

Figure 6.2 Average biomass composition (%) of major 7 taxa in benthic community of the Kung Krabaen Bay by transects sampling during January – November 2000.

2. Biomass of Macrobenthos

Wet weight was conducted to represent the biomass of macrobenthos in this study. The result showed variations in biomass of 7 major taxa groups as shown in Figure 6.2.

Polychaetes not only dominated in the benthic community in the study area but also presented the high composition in term of biomass, ranging from 31.1% to 99.7% of total wet weight inside the bay and from 22.3% to 78.6% outside the bay. In specific habitat as inside the drainage canals, only polychaetes dominated the total biomass. However if few mollusks were found at the same site, polychaete biomass then became small.

Olichaetes found in this area was also small in size and yielded small proportion in term of biomass. The oligochaetes was found related to low salinity. They were not found in the coastal area. The oligochaetes were found approximately 40.2% in total biomass inside the drainage canals.

Crustaceans biomass contributed in the range of 0.2% to 44% of totat biomass. Hermit crabs and penaeid shrimp juveniles were occasionally raised the biomass.

Mollusks contributed to high biomass even with few individuals presented. In this study, mollusks were weighed with shells and shared about 51.6% of the total biomass.

Echinoderms, fishes and others contributed lower than 10% of the total biomass. Small holothurians found at Station TB3 yielded biomass upto 14.2% of the total biomass. Fish was rare only few gobiid fish individuals were found.

B. Polychaete Assemblage

1. Diversity and Abundance of Polychaetes

<u>Number of Polychaete Family</u>

Twenty seven families of polychaetes were identified from the study area. The result showed that the lowest number of family occurred at Station In and slightly increased to the preceding stations throughout the sampling period (Figure 6.3). In January the average number of families was highest varying from 7 to 12 families at Station 2 and Station 3. The number of families ranged from 4 to 12 families in April during the summer. The number seemed to be decreasing in the rainy month in August with the average number of families ranged from 4 to 11. More polychaete families were identified. The average number of families of polychaetes outside outside the bay were 10 (ranged from 8 to 12).

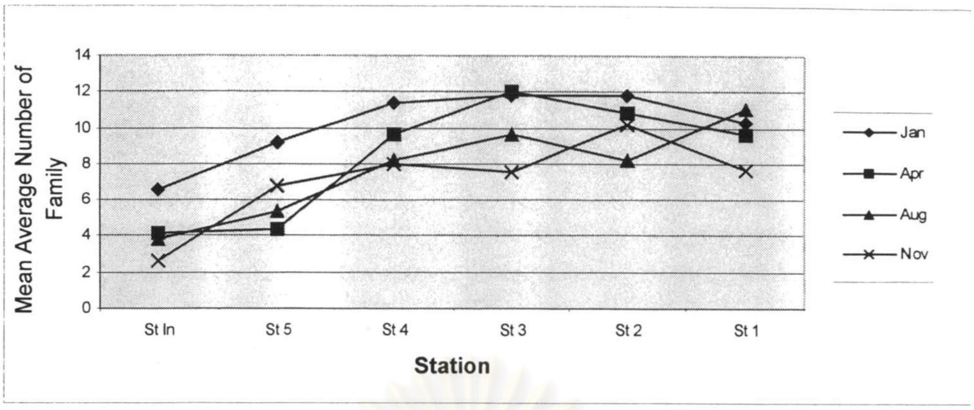

Figure 6.3 Mean average number of Polychaete family curves by stations among 4 sampling months: January, April, August and November.

Table 6.1 Mean average and average number of polychaete family in wet and dry period

		St In	St 5	St 4	St 3	St 2	St 1	Average
dry	TA	6.5	4	8	14.5	7.5	10.5	9
	TB	4	7	11	8.5	10	8	8
	TC	6	7.5	11.5	11.5	13.5	0	8
	TD	5.5	8	8	13	12.5	0	8
	TE	5	7.5	14	12	13	11.5	11
	Average	**5.4**	**6.8**	**10.5**	**11.9**	**11.3**	**10**	**9**
wet	TA	3	6.5	8	7.5	4	7	6
	TB	2.5	4	6.5	10.5	9.5	8	7
	TC	2.5	6	8.5	7.5	12	0	6
	TD	4	5.5	9	7.5	10.5	0	6
	TE	4	8.5	8.5	10	10	13	9
	Average	**3.2**	**6.1**	**8.1**	**8.6**	**9.2**	**9.3**	**6**

Diversity of Species

A total of 79 species of polychaete species belonging to 26 families found in Kung Krabaen Bay. The Family Spionidae had the highest diversity of 20 species in 9 genera. The second diversified family was Cirratulidae which was accounted for 5 genera and 5 species. The Family Capitellidae comprised of 4 genera with 5 species. Family Paraonidae, Ophelidae and Syllidae were found having 3 genera while the rest contributed to less than 3 genera (Table 6.2).

Because of inadequate documents and skillfulness on polychaete systematics, many species were only identified species. However, most species were drawn and described.

Table 6.2 Number of family and number of polychaete found in Kung Krabaen Bay, Chanthaburi Province, during January – November, 2000.

	No. of Family	No. of Genera	No of species
1	Orbiniidae	2	4
2	Paraonidae	3	5
3	Cossuridae	1	1
4	Spionidae	9	20
5	Magelonidae	1	3
6	Poecilochaetidae	1	1
7	Chaetopteridae	1	1
8	Cirratulidae	5	5
9	Capitellidae	4	5
10	Maldanidae	2	2
11	Ophelidae	3	3
12	Phyllodocidae	2	2
13	Chrysopetalidae	1	1
14	Hesionidae	1	1
15	Pilargidae	2	2
16	Syllidae	3	3
17	Nereidae	1	1
18	Glyceridae	1	1
19	Goniadidae	1	1
20	Lacydonidae	1	1
21	Nephtyidae	2	3
22	Amphinomidae	2	2
23	Lumbrineridae	2	3
24	Sternaspidae	1	1
25	Oweniidae	2	2
26	Terebellidae	2	2
27	Sabellidae	2	2
	Total	58	78

The Family Spionidae dominated the area in terms of diversity and abundance. They consisted of 20 species, namely, *Malacoceros indicus, Spio* sp.A, *Scolelepis* sp.A, *Scolelepis* sp.B, *Aonides* sp.A, *Spiophanes* cf. *japonicum, Pseudopolydora* sp.A, *Pseudopolydora* sp.B, *Pseudopolydora* sp.C, *Paraprionospio pinnata, Prionospio (Prionospio) caspersi, P. (Prionospio) membranacea, P. (Prionospio) depauperata, P. (Prionospio) cf neilsoni, P. (Prionospio) cf malayensis, P. (Minuspio) japonica, P. (Minuspio)* sp.A, *P. (Minuspio) multibranchiata, P. (Minuspio) pulchra* and *P. (Aquilaspio) sexoculata.* The *Prionospio* was major genus which obtained the highest member of all spionids (as in Table 6.3). Most species were small in size, in particular subgenus *Prionospio, Minuspio* and *Aquilaspio*, size ranged never larger than 1 cm. Larger spionids were observed in genus *Malacoceros* and certain polychaetes in genus *Prionospio.*

Family Cirratulidae ranged second in diversity of 5 species, namely, *Cirriformia* spA, *Monticellina* spA, *Cirratulus cf chrysodema*, *Chaetozone* spA and *Tharyx* spA. All species observed were rather small size and with coiled body. As for the Capitellidae, they were mostly in moderate size and easy to observe. Four species were found, namely, *Mediomastus* spA, *Notomastus* spA, *N. latericeus*, *Capitella* spA and *Capitomastus* spA.

Table 6.3 List of families and species occurred in Kung Krabaen Bay, Chathaburi Province, During January – November, 2000.

Family	Species list
Orbiniidae	*Scoloplos (Leodamus)* sp.A
	Scoloplos (Scoloplos) marsupialis
	Scoloplos (Scoloplos) sp.A
	Scoloplos (Scoloplos) sp.B
Paraonidae	*Tuaberia gracilis*
	Cirrophorus sp A
	Aricidea sp.A
	Aricidea sp.B
	Aricidea cf. *fragilis*
Cossuridae	*Cossura* sp.A
Spionidae	*Spiophanes* cf. *japonicum*
	Malacoceros indicus
	Spio spA
	Scolelepis sp.A
	Scolelepis sp.B
	Aonides sp.A
	Pseudopolydora sp.A
	Pseudopolydora sp.B
	Pseudopolydora sp.C
	Paraprionospio pinnata
	Prionospio caspersi
	P. (Prionospio) membranacea
	P. (Prionospio) depauperata
	P. (Prionospio) cf. *neilsoni*
	P. (Prionospio) cf. *malayensis*
	P. (Minuspio) japonica
	P. (Minuspio) multibranchiata
	P. (Minuspio) pulchra
	cf *P. (Minuspio)* sp.A
	P. (Aquilaspio) sexoculata
Magelonidae	*Magelona crenulifrons*
	M. kamala
	M. pygmaea
Poecilochaetidae	*Poecilochaetus* sp.A
Chaetopteridae	*Chaetopterus variopedatus*
Cirratulidae	*Cirriformia* sp.A
	Monticellina sp.A
	Cirratulus sp.A
	Chaetozone sp.A
	Tharyx sp.A
Capitellidae	*Mediomastus* sp.A
	Notomastus sp.A
	N. latericeus
	Capitella sp.A
	Capitomastus sp.A
Maldanidae	*Euclymene* sp.A
	cf *Clemenura* sp.A
Ophelidae	*Armandia* cf. *lanceolata*
	Ophelina cf. *acuminata*
	Polyophthalmus cf. *pictus*
Phyllodocidae	*Eteone* sp.A
	Genytyllis sp.A
Chrysopetalidae	*Chrysopetalum* sp.A

Table 6.3 Continue.

Family	Species list
Hesionidae	*Leocrates* sp.A
Pilargidae	*Sigambra tentaculata*
	Anchistrosyllis sp.A
Syllidae	*Dentatisyllis* sp.A
	? Prionosyllis sp.A
	Syllidae sp.A
Nereidae	*Neanthes* sp.A
Glyceridae	*Glycera* sp.A
Goniadidae	*Glycinde* spA
Lacydonidae	*Paralacydonia* sp.A
Nephtyidae	*Nephtys* sp.A
	N. cf sp.B
	Micronephthys cf *sphaerocirrus*
Amphinomidae	*Linopherus* sp.A
	Chloeia sp.A
Lumbrineridae	*Lumbrineris* sp.B
	Lumbrineris sp.C
Sternaspidae	*Sternaspis* sp.A
Oweniidae	*Owenia* sp.A
	cf *Myriochele* sp.A
Terebellidae	*Pista* spA
	Terebellides cf. *stroemi*
Sabellidae	*Euchone* sp.A
	Chone sp.A

2. Polychaete Distribution

Transect A

From these results, the major species inhabiting inside and at the mouth of the canal were distinctive spionid, *Prionospio (Minuspio) japonica and Prionospio (Prionospio) membranacea*, and followed by the capitellid, *Mediomastus* sp.A and *Capitella* sp.A, *Simgambra* cf. *tentaculata*, *Glycinde* sp.A and *Lumbrineris* sp.B with small occurrence of the nereid, *Neanthes* sp.A and the Sabellid, *Euchone* sp.A.

Species diversity and relative average abundance of polychaete for January were shown in Table 6.4. A total 39 species of 18 families were found. Station TA5 and TAin, at the mouth and inside the canal, were recorded with the most abundance species, *Prionospio (Minuspio) japonica*, were found to be contributing an average abundance of 1049 and 445 ind.m^{-2} or involving 60% and 58.3% of average abundance, respectively. The less abundant species was *Mediomastus* sp.A had the average abundance 445 and 191 ind.m^{-2} or 25.4 and 25% respectively. However, the *Capitella* sp.A could be found at Station TAin, 63.5 ind.m^{-2} or 8.3% of average abundance while the *Euchone* sp.A appeared at the same station with 31.8 ind.m^{-2} or 4.2%.

Glycinde sp.A occurred in all stations of Transect A ranging from 31.8 to 95.4 ind.m^{-2} or 4.2 to 5.8% of average abundance. The paraonid, *Tauberia gracilis*, was also widely distribution in area from 500 m offshore inside the Bay. It was found that this species contributed from 31.8 to 509 ind.m^{-2} or 1.8 to 45.7% of average abundance, with highest abundance at Station TA4. *Sigambra*cf. *tentaculata* was another species commonly occurred inside the Bay from the mouth of the canal to the bay's entrance with its average abundance ranging from 31.8 to 159 ind.m^{-2} or 1.8 to 9.6% of average abundance. For Station TA2 the *Pseudopolydora* sp.C was the most abundance about 127 ind.m^{-2} or 20% of average abundance while the *Lumbrineris* sp.B ranked second. *Scoloplos (Scoloplos)* sp.B was most abundance at Station TA1 with average abundance 413 ind.m^{-2} or 38.2%.

A total of 18 families and 29 species were recorded in April with lower diversity than January (Table 6.5). The spionid, *Prionospio (Prionospio) membranacea*, was most abundance at Station TAIn contributing 159 ind.m^{-2} or 17.2% of average abundance. This species also occurred In inside the Bay, namely, Station TA4, TA2 and TA1 with its abundance of 63.6, 63.6 and 127 ind.m^{-2} or 8.7%, 11.8% and 8% respectively. *Sigambra* cf. *tentaculata* ranked the its contribution of 127 ind.m^{-2} or 13.8%. The *Prionospio (Minuspio) japonica* was of 95.4 ind.m^{-2} or 10.3% at Station TAin but was found as the most abundance at Station TA5 with its average abundance of 95.4 ind.m^{-2} or 75%. The *Scoloplos (Scoloplos)* sp.B was found in less abundance at Station TA5. *Tauberia gracilis* was commonly found from 500 m offshore to the central part of the Bay. This species contributed the highest abundance at Station TA2 with its average abundance of 159 ind.m^{-2} or 29.4%. The capitellid, *Mediomastus* sp.A, was moderately abundance near shore but it had high average abundance at Stion TA1, 223 ind.m^{-2} (14%), TA2 127 ind.m^{-2} (23.5%) and TAin, 127 ind.m^{-2} (13.8%) while the *Notomastus* sp.A had highest abundance of 159 (21.7%) at Station TA4. The *Aricidea* sp.A and *Scoloplos (Leodamus)* sp.A were found in slightly high number at Station TA1 with their average abundance of 286 ind.m^{-2} (18%) and 254 ind.m^{-2} (16%) respectively.

As low salinity affected the spcies diversity, there were only 12 families and 23 genera found in August as in Table 6.6. The spionid, *Prionospio (Minuspio) japonica*, was found to be the most abundance species that contributed 2290 ind.m^{-2} or 71% of average abundance at Station TA4 and 1463 ind.m^{-2} or 57% at Station 5 in August. This species also distributed not only at Staion TAin (95.4 ind.m^{-2} or 75% of average abundance) inside the canal but also to Station 2 (31.8 ind.m^{-2} or 17%) which was 1500 m off shore with decreasing abundance. The capitellid, *Mediomastus* sp.A, ranked second at Station TA5, TA4 and TA1 with its average abundance 667.8 ind.m^{-2} (26%), 382 ind.m^{-2} (12%), 63.6 ind.m^{-2} (13%) and 31.8 ind.m^{-2} (10%) respectively. The next most abundance species was *Cossura* spA that contributed the highest abundance of 127 ind.m^{-2} (25%) at Station TA3.

During November, the diversity had shifted upward to 15 families and 29 species as shown in Table 6.7. The spionid, *Prionospio (Minuspio) japonica*, was the most abundance at Station TA5 and TAin, namely 3752 ind.m^{-2} (76.6% of average abundance) and 63.6 ind.m^{-2} (50%) respectively. The capitellids, *Capitella* sp.A was found to be second of 31.8 ind.m^{-2} (25%) at Station TAin while the *Mediomastus* sp.A was found at Station TA5, 731 ind.m^{-2} (14.9%). Inside the Bay, the *Lumbrineris* sp.B showed the highest abundance at Station TA3 with its average abundance of 223 ind.m^{-2} (21.2%), as well as the *Aricidea* sp.A with 63.6 ind.m^{-2} (50%).

Table 6.4 Acount of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of Transect A in January 2000.

Family	Species	TAin		TA5		TA4		TA3		TA2		TA1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	0	0	0	0	0	0	31.8	1.92	0	0	31.8	2.94
	Scoloplos (Scoloplos) marsupialis	0	0	0	0	0	0	0	0	31.8	5	0	0
	Scoloplos (Scoloplos) sp.B	0	0	0	0	0	0	31.8	1.92	0	0	413	38.2
Paraonidae	*Tauberia gracilis*	0	0	31.8	1.82	509	45.7	31.8	19.2	31.8	5	31.8	2.94
	Cirrophorus sp.A	0	0	0	0	0	0	31.8	1.92	0	0	0	0
	Aricidea sp.A	0	0	0	0	0	0	0	0	0	0	63.6	5.88
	Aricidea sp.B	0	0	0	0	31.8	2.86	31.8	1.92	31.8	5	0	0
Spionidae	*Scolelepis* sp.A	0	0	0	0	0	0	0	0	31.8	5	0	
	Pseudopolydora sp.B	0	0	0	0	0	0	0	0	31.8	5	0	2.94
	Pseudopolydora sp.C	0	0	0	0	0	0	63.6	3.85	127	20	31.8	0
	Prionospio (Prionospio) caspersi	0	0	0	0	0	0	0	0	63.6	10	0	0
	P. *(Prionospio) membranacea*	0	0	0	0	0	0	95.4	5.77	0	0	31.8	0
	P. (Prionospio) depauperata	0	0	0	0	0	0	95.4	5.77	0	0	63.6	2.94
	P. (Prionospio) cf. *neilsoni*	0	0	0	0	0	0	0	0	31.8	5	0	5.88
	P. (Minuspio) japonica	445	58.3	1049	60	0	0	0	0	0	0	0	0
	P. (Aquilaspio) sexoculata	0	0	1	0.06	0	0	63.6	3.85	31.8	5	0	0
Magelonidae	*Magelona crenulifrons*	0	0	0	0	0	0	0	0	0	0	31.8	0
Cirratulidae	*Monticellina* sp.A	0	0	0	0	31.8	2.86	191	11.5	0	0	0	2.94
Capitellidae	*Mediomastus* sp.A	191	25	445	25.4	31.8	2.86	63.6	3.85	0	0	31.8	0
	Notomastus sp.A	0	0	0	0	0	0	0	0	0	0	31.8	2.94
	Capitella sp.A	63.6	8.33	0	0	0	0	31.8	1.92	0	0	0	2.94
	Capitomastus sp.A	0	0	0	0	31.8	2.86	0	0	0	0	0	0
Maldanidae	*Euclymene* sp.A	0	0	0	0	0	0	31.8	1.92	0	0	0	0
	cf *Clemenura* sp.A	0	0	0	0	0	0	31.8	1.92	0	0	0	0
Ophelidae	*Ophelina acuminata*	0	0	0	0	31.8	2.86	63.6	3.85	0	0	31.8	0
Hesionidae	*Leocrates* sp.A	0	0	0	0	0	0	31.8	1.92	0	0	0	2.94
Pilargidae	*Sigambra* cf. *tentaculata*	0	0	31.8	1.82	95.4	8.57	159	9.62	31.8	5	63.6	0
Glyceridae	*Glycera* sp.A	0	0	0	0	31.8	2.86	31.8	1.92	31.8	5	31.8	5.88
Goniadidae	*Glycinde* sp.A	31.8	4.17	95.4	5.45	63.6	5.71	95.4	5.77	31.8	5	31.8	2.94
Lacyodonidae	*Paralacydonia* sp.A	0	0	0	0	0	0	31.8	1.92	0	0	0	2.94
Nephtyidae	*Nephtys* sp.A	0	0	0	0	0	0	0	0	31.8	5	31.8	0
	Nephtys sp.B	0	0	0	0	0	0	31.8	1.92	0	0	0	2.94
	Micronephthys cf *sphaerocirrus*	0	0	0	0	0	0	31.8	1.92	0	0	63.6	0

Table 6.4 Continue.

Family	Species	TAin		TA5		TA4		TA3		TA2		TA1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Amphinomidae	*Linopherus* sp.A	0	0	0	0	0	0	0	0	31.8	5	0	5.88
Lumbrineridae	*Lumbrineris* sp.B	0	0	31.8	1.82	63.6	5.71	0	0	63.6	10	31.8	0
	Lumbrineris sp.C	0	0	63.6	3.63	159	14.3	0	0	0	0	0	2.94
Sternaspidae	*Sternaspis* sp.A	0	0	0	0	0	0	31.8	1.92	0	0	31.8	0
Sabellidae	*Euchone* sp.A	31.8	4.17	0	0	31.8	2.86	0	0	0	0	0	2.94

Table 6.5 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of Transect A in Apri 2000.

Family	Species	TAin		TA5		TA4		TA3		TA2		TA1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	0	0	0	0	0	0	0	0	63.6	11.8	254	16
	Scoloplos (Scoloplos) sp.B	0	0	31.8	25	0	0	31.8	2.5	0	0	0	0
Paraonidae	*Tauberia gracilis*	0	0	0	0	31.8	4.35	254	20	159	29.4	63.6	4
	Aricidea sp.A	0	0	0	0	0	0	254	20	0	0	286	18
	Aricidea sp.B	0	0	0	0	63.6	8.7	0	0	0	0	0	0
Cossuridae	*Cossura* sp.A	31.8	3.45	0	0	95.4	13	0	0	0	0	0	0
Spionidae	*Pseudopolycora* sp.C	31.8	3.45	0	0	31.8	4.35	0	0	31.8	5.88	0	0
	Prionospio caspersi	0	0	0	0	0	0	31.8	2.5	0	0	0	0
	P. (Prionospio) membranacea	159	17.2	0	0	63.6	8.7	0	0	63.6	11.8	127	8
	P. (Prionospio) depauperata	0	0	0	0	0	0	0	0	0	0	31.8	2
	P. cf *neilseni*	0	0	0	0	0	0	0	0	0	0	63.6	4
	P. (Minuspio) japonica	95.4	10.3	95.4	75	0	0	0	0	0	0	31.8	2
	P. (Aquilaspio) sexoculata	31.8	3.45	0	0	0	0	0	0	0	0	0	0
Cirratulidae	*Chaetozone* sp.A	0	0	0	0	0	0	0	0	0	0	31.8	2
Capitellidae	*Mediomastus* sp.A	127	13.8	0	0	0	0	63.6	5	127	23.5	223	14
	Notomastus sp.A	0	0	0	0	159	21.7	0	0	0	0	31.8	2
Maldanidae	*Euclymene* sp.A	0	0	0	0	0	0	31.8	2.5	0	0	0	0
Ophelidae	*Armandia* cf. *lanceolata*	0	0	0	0	0	0	159	12.5	0	0	0	0
Pilargidae	*Sigambra* cf. *tentaculata*	127	13.8	0	0	31.8	4.35	31.8	2.5	63.6	11.8	318	20
Syllidae	cf *Prionosyllis* sp.A	63.6	6.9	0	0	0	0	0	0	0	0	0	0
Nereidae	*Neanthes* sp.A	0	0	0	0	0	0	63.6	5	0	0	31.8	2
Glyceridae	*Glycera* sp.A	0	0	0	0	0	0	0	0	0	0	31.8	2
Goniadidae	*Glycinde* sp.A	95.4	10.3	0	0	63.6	8.7	31.8	2.5	0	0	0	0
Amphinomidae	*Linopherus* sp.A	31.8	3.45	0	0	0	0	31.8	2.5	0	0	31.8	2
Lumbrineridae	*Lumbrineris* sp.B	31.8	3.45	0	0	31.8	4.35	191	15	0	0	0	0
	Lumbrineris sp.C	0	0	0	0	127	17.4	0	0	0	0	0	0
Sternaspidae	*Sternaspis* sp.A	0	0	0	0	0	0	95.4	7.5	0	0	31.8	2
Sabellidae	*Euchone* sp.A	63.6	6.9	0	0	31.8	4.35	0	0	31.8	5.88	0	0
Eunicidae	*Onuphis* sp.A	31.8	3.45	0	0	0	0	0	0	0	0	0	0

Table 6.6 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of Transect A in August 2000.

Family	Species	TAin		TA5		TA4		TA3		TA2		TA1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	31.8	25	0	0	31.8	1	0	0	0	0	0	0
Paraonidae	*Tauberia gracilis*	0	0	0	0	31.8	1	0	0	0	0	31.8	10
	Cirrophorus sp.A	0	0	31.8	1.2	0	0	0	0	0	0	0	0
	Aricidea sp.A	0	0	31.8	1.2	0	0	0	0	0	0	31.8	10
	Aricidea sp.B	0	0	0	0	95.4	2.9	0	0	31.8	17	0	0
Cossuridae	*Cossura* sp.A	0	0	0	0	63.6	2	127	25	31.8	17	31.8	10
Spionidae	*Scolelepis* sp.B	0	0	0	0	0	0	0	0	0	0	31.8	10
	Prionospio (Prionospio) membranacea	0	0	0	0	0	0	31.8	6.3	0	0	31.8	10
	P. (Prionospio) depauperata	0	0	0	0	0	0	31.86.3		0	0	31.8	10
	P. (Minuspio) japonica	95.4	75	1463	57	2290	71	95.4	19	31.8	17	0	0
Magelonidae	*Magelona crenulifrons*	0	0	0	0	31.8	1	0	0	0	0	31.8	10
	M. kamala	0	0	0	0	31.8	1	0	0	0	0	0	0
Capitellidae	*Mediomastus* sp.A	0	0	667.8	26	382	12	63.6	13	63.6	33	31.8	10
	Notomastus sp.A	0	0	0	0	0	0	31.86.3		0	0	0	0
	Capitella sp.A	0	0	31.8	1.2	0	0	0	0	0	0	0	0
Pilargidae	*Sigambra* cf. *tentaculata*	0	0	31.8	1.2	31.8	1	31.8	6.3	31.8	17	0	0
Goniadidae	*Glycinde* sp.A	0	0	0	0	63.6	2	0	0	0	0	0	0
Lumbrineridae	*Lumbrineris* sp.B	0	0	63.6	2.5	95.4	2.9	31.8	6.3	0	0	31.8	10
	Lumbrineris sp.C	0	0	127.24.9		31.8	1	31.86.3		0	0	0	0
Sternaspidae	*Sternaspis* sp.A	0	0	0	0	0	0	0	0	0	0	31.8	10
Oweniidae	cf *Myriochele* sp.A	0	0	127.2	4.9	31.8	1	0	0	0	0	0	0
Sabellidae	*Euchone* sp.A	0	0	0	0	31.8	1	0	0	0	0	0	0
	Chone sp.A	0	0	0	0	0	0	31.86.3		0	0	0	0

Table 6.7 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of Transect A in November 2000.

Family	Species	TAin		TA5		TA4		TA3		TA2		TA1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Scoloplos) marsupialis*	0	0	0	0	0	0	0	0	0	0	31.8	4
	Scoloplos (Scoloplos) sp.A	0	0	0	0	0	0	31.8	3.03	0	0	127	16
Paraonidae	*Tauberia gracilis*	0	0	0	0	63.6	9.09	31.8	3.03	0	0	0	0
	Aricidea sp.A	0	0	31.8	0.65	0	0	0	0	63.6	50	0	0
	Aricidea sp.B	0	0	0	0	95.4	13.6	95.4	9.09	0	0	0	0
	Aricidea cf. *fragilis*	0	0	0	0	0	0	0	0	0	0	31.8	4
Cossuridae	*Cossura* sp.A	0	0	0	0	0	0	31.8	3.03	0	0	0	0
Spionidae	*Malacoceros indicus*	0	0	0	0	0	0	95.4	9.09	0	0	0	0
	Prionospio (Prionospio) membranacea	0	0	0	0	0	0	127	12.1	0	0	31.8	4
	P. (Prionospio) depauperata	0	0	0	0	31.8	4.55	0	0	0	0	0	0
	P. (Prionospio) cf. *neilseni*	0	0	0	0	0	0	0	0	0	0	31.8	4
	P. (Minuspio) japonica	63.6	50	3752	76.6	63.6	9.09	0	0	31.8	25	0	0
	P. (Minuspio) pulchra	0	0	0	0	0	0	31.8	3.03	0	0	0	0
	P. (Aquilaspio) sexoculata	0	0	0	0	0	0	159	15.2	0	0	31.8	4
Capitellidae	*Mediomastus* sp.A	0	0	731	14.9	63.6	9.09	0	0	0	0	31.8	4
	Notomastus sp.A	0	0	0	0	0	0	63.6	6.06	0	0	63.6	8
	Capitella sp.A	31.8	25	127	2.6	0	0	0	0	0	0	0	0
Ophelidae	*Armandia* cf. *lanceolata*	0	0	0	0	0	0	95.4	9.09	0	0	191	24
Pilargidae	*Sigambra* cf. *tentaculata*	0	0	0	0	0	0	63.6	6.06	0	0	31.8	4
Nereidae	*Neanthes* sp.A	31.8	25	95.4	1.95	0	0	0	0	0	0	0	0
Glyceridae	*Glycera* sp.A	0	0	0	0	0	0	0	0	31.8	25	0	0
Goniadidae	*Glycinde* sp.A	0	0	31.8	0.65	0	0	0	0	0	0	63.6	8
Lacydonidae	*Paralacydonia* sp.A	0	0	0	0	31.8	4.55	0	0	0	0	0	0
Nephtyidae	*Nephtys* cf sp.B	0	0	0	0	0	0	0	0	0	0	31.8	4
Lumbrineridae	*Lumbrineris* sp.B	0	0	0	0	159	22.7	223	21.2	0	0	31.8	4
	Lumbrineris sp.C	0	0	63.6	1.3	0	0	0	0	0	0	0	0
Sternaspidae	*Sternaspis* sp.A	0	0	0	0	95.4	13.6	0	0	0	0	63.6	8
Sabellidae	*Euchone* sp.A	0	0	0	0	95.4	13.6	0	0	0	0	0	0
	Chone sp.A	0	0	63.6	1.3	0	0	0	0	0	0	0	0

Transect B

Major species in Transect B was Prionospio (Minuspio) japonica. It was found in the highest abundance at stations in the vincinity to the canal and extended its distribution to the center part of the bay during the rainy season. The second abundant species, i.e. *P. (Minuspio) japonica*, *Lumbrineris* sp.B, *Scoloplos* sp.B, *Glycinde* sp.A, *Notomastus* spA, *Capitella* sp.A and *Magelona crenulifrons*.

The result of polychaete diversity in Transect B in January was shown in Table 6.8. Total 20 families and 45 species were found in 6 stations along Transect B. Station TBin had the lowest relative abundance (700 ind. m^{-2}) with the spionid, *Prionospio (Minuspio) japonica* as the major species of 382 ind. m^{-2} or 54.5% of average abundance. Station TB5, *Armandia* cf. *lanceolata* was the most abundance species, 1495 ind. m^{-2} or 40.9% of average abundance and following by *P. (Minuspio) japonica,* 890 ind. m^{-2}or 24.3%. It was found that the stations inside the Bay were low in terms of the relative abundance but with more species than that found at the mouth of the canal. At Station TB4 the *Prionospio (Prionospio) membranacea* had the highest average abundance with 413 ind. m^{-2} or 25% average abundance and followed by *P. (Aquilaspio) sexoculata* and *Lumbrineris* sp.B contributing the same composition of 127 ind. m^{-2} or 7.7%. *P. (Prionospio) membranacea* and *Lumbrineris* sp.B were most abundance of 159 ind. m^{-2} (17.9%) and 127 ind. m^{-2} (14.3%) while *Glycera* sp.A and *Prionospio (Aquilaspio) sexoculata* sharing the same composition of 95.4 ind. m^{-2} or 10.7%. Station TB2 *Prionospio caspersi* was the major species contributing 223 ind. m^{-2} or 18.4% while the following species was the ophelid, *Podophthalmus* spA, with 159 ind. m^{-2} or 10.7% of average abundance. Other 3 species, *Scoloplos (Scoloplos) marsupialis, S.coloplos* spA and *Nephtys* sp.B were also found. *Scoloplos* sp.B and *Notomastus* sp.A were the major species at Station TB1 contributing 127 or 15.4% of average abundance. *Prionospio (Prionospio) caspersi*, *Magelona crenulifrons*, *Sigambra* cf. *tentaculata*, *Glycera* sp.A and *Glycinde* sp.A. were also recorded.

A total of 18 families and 32 species were found in April as shown in Table 6.9. The major species at TBin was the same *P. (Minuspio) japonica* as in January with 127 ind.m^{-2} or 40% of average abundance and followed by *Mediomastus* sp.A with 95.4 ind. m^{-2} or 30%. *P. (Minuspio) japonica* also found most abundance at Station TB5 with its contribution 1081 ind. m^{-2} or 79.1% of average abundance. It was found that the nereid *Neanthes* sp.A was the major species at Station TB4 and followed by *Pseudopolydora* sp.C and *Armandia* cf. *lanceolata* contributing 477 ind. m^{-2} (21.7%), 413 ind. m^{-2} (18.8%) and 254 ind. m^{-2} (11.6%) respectively. Station TB3 was dominated by *Capitella* sp.A with its average abundance of 95.4 ind. m^{-2} or 15% and followed by 6 other species , namely, *Leodamus* spA, *Prionospio (Prionospio) depauperata*, *P. (Minuspio) japonica*, *Notomastus* spA, *Armandia* cf. *lanceolata* and Syllidae sp.A. At Station TB2 the major species changed to be the *Sigambra* cf. *tentaculata* and *Scoloplos (Scoloplos)* sp.B became major species at Station TB3 with its average abundance of 95.4 ind. m^{-2} (15%) and 63.6 ind. m^{-2} (10%) respectively. For Station TB1, the major species changed to be the capitellid, *Notomastus* sp.A, contributed 382 or 26.1% of average abundance and followed by the *Armanidia* cf. *lanceolata*, 254 ind. m^{-2} or 17.4%. *S.(Scoloplos) marsupialis* and *Scoloplos* sp.B were also recorded.

A total of 18 families and 42 species were presented in the rainy month of August as shown in Table 6.10. Number of species appeared to be higher than the previous month. It was found that the Station TBin was dominated by the *P. (Minuspio) japonica* with its average abundance 668 ind. m^{-2} or 88%. This was also true at Station TB5 and TB4 with its average abundance of 986 ind. m^{-2} (67%) and 191 (18%). The capitellid, *Mediomastus* sp.A, was the common species found in all sampling stations. At Station TB4 the paraonid, *Cirrophorus* sp.A was the second order species contributing 95 ind. m^{-2} (8.8%) while this species was also found at Station TB5. Other paraonid, *Aricidea* sp.A was the major species at Station TB3 with its average abundance 254 ind. m^{-2} (18%) and followed by the *Lumbrineris* sp.B, 223 ind. m^{-2} (16%). The latter became the major species at Station TB2 together with the *Mediomastus* sp.A and *S. (Scoloplos)* sp.B. *Lumbrineris* sp.B, became the most abundance at Station TB1 and followed by *Notomastus* sp.A, *S.(Scoloplos)* sp.B and *Magelona crenulifrons*.

In November, the number of family and species decreased to be only 16 families and 26 species (6.11). The spionid, *P. (Minuspio) japonica* was the major species of Station TBin, TB5 and TB4 with its average abundance 127 ind. m^{-2} (100%), 509 ind. m^{-2} (64%) and 191 ind. m^{-2} (31.6%)

respectively. The capitellid, *Mediomastus* sp.A, shared as the second order species at Station TB5 with its average abundance 127 ind. m^{-2} (16%) and being the major species at Station TB3, 191 ind. m^{-2} (20.7%). At Station TB4, the paraonid, *Aricidea* sp.B, shared the second abundant species with 159 ind. m^{-2} or 26.3% of average abundance and followed by 3 species, namely, *P. (Prionospio) membranacea*, *Capitella* sp.A and *Glycinde* sp.A, contributing 63.6 ind. m^{-2} (10.5%). The *Notomastus* sp.A became the second abundant species at Station TB3, 159 ind. m^{-2} (17.2%) and followed by the *S. (Leodamus)* sp.A, *Magelona crenulifrons* and *Lumbrineris* sp.B, 95.4 ind. m^{-2} (10.3%). There were 3 major species of the same abundance at Station TB2, e.g. *Mediomastus* spA, *P. (Prionospio)* cf. *neilseni* and *Lumbrineris* sp.B, which contributed 63.6 ind. m^{-2} or 12.5% of average abundance. And at Station TB1 the *Lumbrineris* sp.B became the most abundance by its average abundance 95.4 ind. m^{-2} (42.9%) and followed by *Mediomastus* sp.A and *Glycinde* sp.A, 63.6 ind. m^{-2} or 28.6% of average abundance.

Table 6.8 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling Stations of Transect B in January 2000.

Family	Species	TBin		TB5		TB4		TB3		TB2		TB1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	0	0	0	0	95.4	5.77	0	0	63.6	5.26	0	0
	Scoloplos (Scoloplos) marsupialis	0	0	0	0	0	0	0	0	95.4	7.89	0	0
	Scoloplos (Scoloplos) sp.A	0	0	0	0	63.6	3.85	0	0	95.4	7.89	0	0
	Scoloplos (Scoloplos) sp.B	0	0	0	0	63.6	3.85	31.8	3.57	0	0	127	15.4
Paraonidae	*Cirrophorus* sp.A	0	0	95.4	2.61	0	0	0	0	0	0	0	0
	Aricidea sp.A	0	0	31.8	0.87	0	0	31.8	3.57	0	0	0	0
	Aricidea sp.B	0	0	0	0	63.6	3.85	63.6	7.14	0	0	0	0
Spionidae	*Scolelepis* sp.A	0	0	0	0	0	0	0	0	0	0	0	0
	Aonides sp.A	31.8	4.55	0	0	31.8	1.92	0	0	0	0	31.8	3.85
	Pseudopolydora sp.B	31.8	4.55	0	0	0	0	0	0	0	0	0	0
	Pseudopolydora spC	31.8	4.55	63.6	1.74	0	0	0	0	31.8	2.63	0	0
	Prionospio caspersi	0	0	0	0	0	0	63.6	7.14	223	18.4	63.6	7.69
	P.(Prionospio) membranacea	0	0	31.8	0.87	413	25	159	17.9	31.8	2.63	0	0
	P.(Prionospio) depauperata	0	0	0	0	31.8	1.92	0	0	0	0	31.8	3.85
	P.(Minuspio) japonica	382	54.5	890	24.3	31.8	1.92	0	0	0	0	0	0
	P.(Aquilaspio) sexoculata	31.8	4.55	127	3.48	127	7.69	95.4	10.7	0	0	0	0
Magelonidae	*Magelona crenulifrons*	0	0	0	0	0	0	0	0	31.8	2.63	63.6	7.69
Poecilochaetidae	*Poecilochaetus* sp.A	0	0	0	0	31.8	1.92	0	0	0	0	0	0
Chaetopteridae	*Chaetopterus variopedatus*	0	0	0	0	0	0	31.8	3.57	31.8	2.63	31.8	3.85
Capitellidae	*Mediomastus* sp.A	0	0	127	3.48	31.8	1.92	0	0	31.8	2.63	0	0
	Notomastus sp.A	0	0	0	0	0	0	63.6	7.14	63.6	5.26	127	15.4
	Capitella sp.A	0	0	31.8	0.87	31.8	1.92	0	0	0	0	0	0
	Capitomastus sp.A	31.8	4.55	31.8	0.87	0	0	0	0	0	0	0	0
Maldanidae	*Euclymene* sp.A	0	0	286	7.83	0	0	31.8	3.57	0	0	0	0
	Cf. *Clemenura* sp.A	0	0	191	5.22	95.4	5.77	31.8	3.57	31.8	2.63	0	0
Ophelidae	*Armandia* cf. *lanceolata*	0	0	1495	40.9	0	0	0	0	0	0	0	0
	Ophelina cf. *acuminata*	0	0	0	0	95.4	5.77	31.8	3.57	0	0	31.8	3.85
	Polyophthalmus cf. *pictus*	0	0	0	0	31.8	1.92	0	0	159	13.2	0	0
Phyllodocidae	*Eteone* sp.A	0	0	0	0	31.8	1.92	0	0	0	0	0	0
Hesionidae	*Leocrates* sp.A	0	0	0	0	31.8	1.92	0	0	0	0	0	0
Pilargidae	*Sigambra* cf. *tentaculata*	0	0	63.6	1.74	0	0	31.8	3.57	31.8	2.63	63.6	7.69
Glyceridae	*Glycera* sp.A	0	0	0	0	31.8	1.92	95.4	10.7	31.8	2.63	63.6	7.69
Goniadidae	*Glycinde* sp.A	31.8	4.55	191	5.22	63.6	3.85	0	0	31.8	2.63	63.6	7.69

Table 6.8 Continue.

Family	Species	TBin		TB5		TB4		TB3		TB2		TB1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Nephtyidae	*Nephtys* sp.A	0	0	0	0	0	0	0	0	0	0	31.8	3.85
	Nephtys sp.B	0	0	0	0	31.8	1.92	0	0	95.4	7.89	0	0
	Micronephthys cf. *sphaerocirrus*	0	0	0	0	31.8	1.92	0	0	0	0	0	0
Amphinomidae	*Linopherus* sp.A	0	0	0	0	0	0	0	0	31.8	2.63	31.8	3.85
	Chloeia sp.A	0	0	0	0	0	0	0	0	31.8	2.63	0	0
Lumbrineridae	*Lumbrineris* sp.B	31.8	4.55	0	0	127	7.69	127	14.3	0	0	31.8	3.85
Sternaspidae	*Sternaspis* sp.A	31.8	4.55	0	0	0	0	0	0	0	0	0	0
Terebellidae	*Pista* sp.A	0	0	0	0	0	0	0	0	31.8	2.63	0	0
	Terebellides cf. *stroemi*	0	0	0	0	0	0	0	0	0	0	31.8	3.85
Sabellidae	*Euchone* sp.A	31.8	4.55	0	0	31.8	1.92	0	0	0	0	0	0
	Chone sp.A	31.8	4.55	0	0	0	0	0	0	31.8	2.63	0	0

Table 6.9 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling Stations of Transect B in April 2000.

Family	Species	TBin		TB5		TB4		TB3		TB2		TB1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	0	0	0	0	0	0	63.6	10	0	0	0	0
	Scoloplos (Scoloplos) marsupialis	0	0	0	0	0	0	0	0	0	0	159	10.9
	Scoloplos (Scoloplos) sp.B	0	0	0	0	0	0	0	0	159	17.2	159	10.9
Paraonidae	*Aricidea* sp.A	0	0	0	0	95.4	4.35	0	0	31.8	3.45	0	0
	Aricidea sp.B	0	0	0	0	0	0	31.8	5	0	0	0	0
Spionidae	*Malacoceros indicus*	0	0	0	0	63.6	2.9	0	0	0	0	0	0
	Pseudopolycora sp.C	0	0	0	0	413	18.8	31.8	5	0	0	0	0
	Prionospio (Prionospio) caspersi	0	0	0	0	0	0	0	0	0	0	31.8	2.17
	P. (Prionospio) membranacea	0	0	0	0	95.4	4.35	0	0	0	0	31.8	2.17
	P. (Prionospio) depauperata	0	0	0	0	63.6	2.9	63.6	10	31.8	3.45	95.4	6.52
	P. (Minuspio) japonica	127	40	1081	79.1	0	0	63.6	10	0	0	0	0
	P. (Minuspio) multibranchiata	0	0	31.8	2.33	0	0	0	0	0	0	0	0
	P.(Minuspio) pulchra	0	0	0	0	0	0	0	0	0	0	31.8	2.17
	P.(Aquilaspio) sexoculata	0	0	31.8	2.33	0	0	0	0	0	0	0	0
Capitellidae	*Mediomastus* sp.A	95.4	30	63.6	4.65	159	7.25	31.8	5	0	0	0	0
	Notomastus sp.A	0	0	0	0	0	0	63.6	10	286	31	382	26.1
	Capitella sp.A	0	0	0	0	127	5.8	95.4	15	0	0	0	0
Maldanidae	cf *Clemenura* sp.A	0	0	0	0	127	5.8	0	0	0	0	0	0
Ophelidae	*Armandia* cf *lanceolata*	31.8	10	31.8	2.33	254	11.6	63.6	10	0	0	254	17.4
	Polyophthalmus cf. *pictus*	0	0	0	0	0	0	31.8	5	0	0	0	0
Hesionidae	*Leocrates* sp.A	0	0	0	0	63.6	2.9	0	0	0	0	0	0
Pilargidae	*Sigambra* cf. *tentacula*	0	0	63.6	4.65	0	0	0	0	254	27.6	95.4	6.52
Syllidae	Syllidae sp.A	0	0	31.8	2.33	0	0	0	0	0	0	0	0
Nereidae	*Neanthes* sp.A	0	0	0	0	477	21.7	63.6	10	31.8	3.45	95.4	6.52
Glyceridae	*Glycera* sp.A	0	0	0	0	0	0	31.8	5	0	0	0	0
Goniadidae	*Glycinde* sp.A	31.8	10	0	0	0	0	0	0	0	0	0	0
Nephtyidae	*Nephtys* sp.A	0	0	0	0	0	0	0	0	0	0	0	0
Amphinomidae	*Linopherus* sp.A	0	0	0	0	31.8	1.45	0	0	0	0	0	0
Lumbrineridae	*Lumbrineris* sp.B	0	0	0	0	159	7.25	0	0	127	13.8	127	8.7
Sternaspidae	*Sternaspis* sp.A	0	0	31.8	2.33	0	0	0	0	0	0	0	0
Oweniidae	*Myriochele* sp.A	0	0	0	0	63.6	2.9	0	0	0	0	0	0
Sabellidae	*Euchone* sp.A	31.8	10	0	0	0	0	0	0	0	0	0	0

Table 6.10 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling Stations of Transect B in August 2000.

Family	Species	TBin		TB5		TB4		TB3		TB2		TB1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	0	0	0	0	32	2.9	0	0	32	5.6	0	0
	Scoloplos (Scoloplos)marsupialis	0	0	0	0	0	0	32	2.3	0	0	32	2.8
	Scoloplos (Scoloplos) spA	0	0	0	0	0	0	0	0	0	0	32	2.8
	Scoloplos (Scoloplos) spB	0	0	0	0	0	0	159	11	32	5.6	95	8.3
Paraonidae	*Tauberia gracilis*	0	0	0	0	64	5.9	0	0	0	0	32	2.8
	Cirrophorus spB	0	0	127	8.7	0	0	0	0	0	0	0	0
	Aricidea spA	0	0	32	2.2	0	0	254	18	0	0	0	0
	Aricidea spB	0	0	0	0	64	5.9	0	0	32	5.6	0	0
Cossuridae	*Cossura* spA	0	0	0	0	0	0	0	0	0	0	32	2.8
Spionidae	*Malacoceros indicus*	0	0	0	0	32	2.9	0	0	0	0	0	0
	Spio spA	0	0	0	0	32	2.9	0	0	32	5.6	0	0
	Spiophanes cf. *japonicum*	0	0	32	2.2	32	2.9	0	0	0	0	32	2.8
	Aonides spA	0	0	32	2.2	0	0	0	0	0	0	32	2.8
	Pseudopolycora spC	0	0	0	0	32	2.9	0	0	0	0	0	0
	Prionospio (Prionospio) caspersi	0	0	0	0	0	0	0	0	32	5.6	32	2.8
	P. (Prionospio) membranacea	0	0	0	0	32	2.9	95	6.8	0	0	32	2.8
	P. (Prionospio) cf *neilseni*	0	0	0	0	32	2.9	0	0	0	0	32	2.8
	P. (Minuspio) japonica	668	88	986	67	191	18	32	2.3	0	0	0	0
	P. (Minuspio) multibranchiata	0	0	32	2.2	32	2.9	0	0	32	5.6	0	0
	cf *P. (Minuspio)* spA	0	0	32	2.2	0	0	32	2.3	0	0	0	0
	P.(Aquilaspio) sexoculata	0	0	0	0	64	5.9	64	4.5	0	0	0	0
Magelonidae	*Magelona crenulifrons*	0	0	32	2.2	0	0	32	2.3	32	5.6	95	8.3
	M. kamala	0	0	0	0	0	0	0	0	32	5.6	32	2.8
Poecilochaetidae	*Poecilochaetus* spA	0	0	0	0	32	2.9	0	0	0	0	0	0
Capitellidae	*Mediomastus* spA	64	8.3	159	11	64	5.9	159	11	64	11	64	5.6
	Notomastus spA	0	0	0	0	32	2.9	32	2.3	64	11	95	8.3
	Capitella spA	0	0	0	0	95	8.8	0	0	0	0	0	0
Maldanidae	*Euclymene* spA	0	0	0	0	32	2.9	32	2.3	0	0	0	0
	cf *Clemenura* spA	0	0	0	0	0	0	0	0	0	0	0	0
Ophelidae	*Armandia* cf. *laceolata*	0	0	0	0	32	2.9	32	2.3	0	0	32	2.8
	Ophelina cf. *acuminata*	0	0	0	0	0	0	32	2.3	0	0	0	0
Pilargidae	*Sigambra tentacula*	0	0	0	0	64	5.9	127	9.1	32	5.6	0	0
	Anchistrosyllis spA	0	0	0	0	0	0	0	0	0	0	32	2.8

Table 6.10 Continue.

Family	Species	TBin		TB5		TB4		TB3		TB2		TB1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Syllidae	cf *Prionosyllis* spA	0	0	0	0	0	0	0	0	32	5.6	32	2.8
Glyceridae	*Glycera* spA	0	0	0	0	0	0	0	0	32	5.6	32	2.8
Goniadidae	*Glycinde* spA	0	0	0	0	32	2.9	0	0	0	0	32	2.8
Lacydonidae	*Paralacydonia* spA	0	0	0	0	0	0	0	0	0	0	32	2.8
Nephtyidae	*Micronephthys* cf *sphaerocirrus*	0	0	0	0	0	0	0	0	0	0	32	2.8
Lumbrineridae	*Lumbrineris* spB	0	0	0	0	32	2.9	223	16	64	11	223	19
Sternaspidae	*Sternaspis scutata*	0	0	0	0	0	0	32	2.3	0	0	32	2.8
Oweniidae	cf *Myriochele* spA	0	0	0	0	0	0	0	0	32	5.6	0	0
Sabellidae	*Euchone* spA	32	4.2	0	0	32	2.9	32	2.3	0	0	0	0

Table 6.11 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling Stations of Transect B in November 2000.

Family	Species	TBin		TB5		TB4		TB3		TB2		TB1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	0	0	0	0	0	0	95.4	10.3	0	0	0	0
Paraonidae	*Aricidea* sp.A	0	0	0	0	0	0	0	0	31.8	6.25	0	0
	Aricidea sp.B	0	0	0	0	159	26.3	63.6	6.9	0	0	0	0
	Aricidea cf. *fragilis*	0	0	0	0	0	0	0	0	31.8	6.25	0	0
Cossuridae	*Cossura* sp.A	0	0	0	0	0	0	0	0	31.8	6.25	0	0
Spionidae	*Prionospio (Prionospio) membranacea*	0	0	31.8	4	63.6	10.5	63.6	6.9	0	0	0	0
	P. (Prionospio) cf. *neilseni*	0	0	0	0	0	0	0	0	63.6	12.5	0	0
	P. (Minuspio) japonica	127	100	509	64	191	31.6	0	0	0	0	0	0
	P. (Minuspio) multibranchiata	0	0	63.6	8	0	0	0	0	0	0	0	0
	P. (Aquilaspio) sexoculata	0	0	0	0	0	0	31.8	3.45	0	0	0	0
Magelonidae	*Magelona crenulifrons*	0	0	0	0	0	0	95.4	10.3	31.8	6.25	0	0
	M. kamala	0	0	0	0	0	0	0	0	31.8	6.25	0	0
Capitellidae	*Mediomastus* sp.A	0	0	127	16	0	0	191	20.7	63.6	12.5	63.6	28.6
	Notomastus sp.A	0	0	0	0	0	0	159	17.2	0	0	0	0
	Capitella sp.A	0	0	0	0	63.6	10.5	0	0	0	0	0	0
Maldanidae	*Euclymene* sp.A	0	0	0	0	31.8	5.26	0	0	0	0	0	0
Phyllodocidae	*Eteone* sp.A	0	0	0	0	0	0	31.8	3.45	0	0	0	0
Pilargidae	*Sigambra* cf. *tentaculata*	0	0	31.8	4	0	0	63.6	6.9	0	0	0	0
	Anchistargis sp.A	0	0	0	0	0	0	31.8	3.45	0	0	0	0
Nereidae	*Neanthes* spA	0	0	31.8	4	0	0	0	0	0	0	0	0
Glyceridae	*Glycera* sp.A	0	0	0	0	0	0	0	0	31.8	6.25	0	0
Goniadidae	*Glycinde* spA	0	0	0	0	63.6	10.5	0	0	31.8	6.25	63.6	28.6
Lumbrineridae	*Lumbrineris* sp.B	0	0	0	0	31.8	5.26	95.4	10.3	63.6	12.5	95.4	42.9
Sternaspidae	*Sternaspis* sp.A	0	0	0	0	0	0	0	0	31.8	6.25	0	0
Eunicidae	*Onuphis* sp.A	0	0	0	0	0	0	0	0	31.8	6.25	0	0

Transect C

The major species of this transect were *Prionospio (Minuspio) japonica* and followed by *Mediomastus* sp.A, *Glycinde* sp.A and *Armandia* cf. *laceorata* in the drainage canal. The bay were dominated by *Mediomastus* sp.A, *Lumbrineris* sp.B, *Scoloplos (Leodamus)* sp.A, *Mediomastus* sp.A and *Prionospio (Prionospio) membranacea*.

Table 6.12 showed relative abundance and species list of Transect C January of the study area. A total of 22 families and 53 species were listed from Transect C in January. It was found that Station TCin had the highest relative abundance (2417 ind.m^{-2}) while Station TC4 the lowest (1654 ind.m^{-2}). The major species recorded at Station TCin was the spionid, *P.(Minuspio) japonica*, which had the average abundance 1908 ind.m^{-2}or 79% and the second species was *Armandia* cf. *lanceolata* and *Glycinde* sp.A shared the same composition of 159 ind.m^{-2} (6.6%). At Station TC5, the major species was the orbinid, *S. (Leodamus)* sp.A, contributed 509 ind.m^{-2}or 30% of average abundance and followed by *S. (Scoloplos)* sp.B, 191 ind.m^{-2} or 11%. *P. (Aquilaspio) sexoculata*, *Euclymene* sp.A and *Glycera* sp.A were also recorded. Station TC4 the major species was *P. (Prionospio) membranacea* obtained the highest average abundance of 477 ind.m^{-2} and followed by *Lumbrineris* sp.B, 254 ind.m^{-2}or 15.4%. or 28.4%. *Sigambra*cf.*tentacula* contributed 636 ind.m^{-2} or 26.7% as the major species at Station TC3 while the second species wase *S. (Scoloplos)* sp.A, 254 ind.m^{-2} or 10.7%. *Sigambra* cf. *tentaculata* was most abundance at Station TC2 with its average abundance of 349.8 ind.m^{-2}or 18%, following by *Megalona crenulifrons*, 190.8 ind.m^{-2} (9.8%), and 2 species of the same size, *Armandia* cf. *lanceolata* and *Micronephthys* cf. *sphaerocirrus*,.

The relative abundance and species diversity in April for Transect C were shown in Table 6.13. It was found that in April the number of family and species were reduced to 20 families and 32 species. Station TCin was dominated by the spionids, *P. (Minuspio) japanica* with its average abundance 509 ind.m^{-2} or 66.7% and followed by *P. (Prionospio) membranacea* and *Capitella* sp.A. The major species at Station TC5 was the spionid, *P. (Minuspio) japonica* with its average abundance of 509 ind.m^{-2} or 69.6%. *P. (Aquilaspio) sexoculata* and *Capitella* sp.A were also found. It was found that the ophelid, *Armandia* cf. *lanceolata* was the most abundance at Station TC4 with its average abundance of 604 ind.m^{-2}or 30.6% and followed by the capitellid, *Mediomastus* sp.A, *Lumbrineris* sp.B and the spionid, *P. (Prionospio) membranacea.* The nereid, *Neanthes* sp.A became the major species at Station TC3 which contributed 223 ind.m^{-2}or 21.2% and following by *Sigambra*cf. *tentaculata* and *Armandia* cf. *lanceolata*. *Lumbrineris* sp.B was presented as a major species at Station TC2 contributing an average abundance of 318 ind.m^{-2}or 22.2%. *Mediomastus* sp.A, *Neanthes* spA and *Euchone* sp.A were also found.

The number of family and species In the rainy season of August reduced to 17 family and 35 species. The result of study was shown in Table 6.14. Station TCin and TC5 were rather low in number of species and abundance. At Station TCin inside the canal, the spionid, *P. (Minuspio) japonica*, was the most common with average abundance of 191 ind.m^{-2} or 35% followed by *P. (Minuspio) multibrachiata*, *Capitella* sp.A and *Euclymene* sp.A. The same spionid ,*P. (Minuspio) japonica* also found most abundance at Station TC5, 700 ind.m^{-2}or 46%. The orbinid, *S. (Leodamus)* sp.A and the capitellid, *Mediomastus* sp.A, were commmon offshore had the same contribution of 159 ind.m^{-2} or 18%. The most abundance species were the orbinid, *S. (Scoloplos)* sp.B, 159 (16%) and *Sigambra* cf. *tentacula*, 127 (13%),

The number of species and family became significantly low in November, especially stations inside the canal, Station TCin, and TC5. Total 16 families and 27 species were found in this month as shown in Table 6.15. Station Tcin recorded only one species, the spionid *P. (Minuspio) japonica* with its average abundance of 31.8 ind.m^{-2}or 100%. For Station TC5 the lumbrinid, *Lumbrineris* sp.B, was found to be the most abundant of 318 ind.m^{-2} or 26.3% and followed by *Aricidea* sp.A, *Mediomastus* sp.A, and *P. (Prionospio) caspersi*. The same species, *Lumbrineris* sp.B, was also the major species at Stations TC3 and TC2 at the average abundance of 223 ind.m^{-2} (30.4%) and 382 ind.m^{-2} (26.1%) respectively. *P. (Prionospio) membranacea* occurred as the dominant species to Station TC4, 318 ind.m^{-2} (32.3%) but was found less abundance at StationTC3 followed by *Lumbrineris* sp.B.

Table 6.12 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling Stations of Transect C in January 2000.

Family	Species	TCin		TC5		TC4		TC3		TC2	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	0	0	509	30	127	7.69	127	5.33	0	0
	S.(Scoloplos) marsupialis	0	0	0	0	63.6	3.85	0	0	31.8	1.6
	S.(Scoloplos) sp.A	0	0	0	0	31.8	1.92	254	10.7	31.8	1.6
	S. (Scoloplos) sp.B	0	0	191	11	31.8	1.92	127	5.33	95.4	4.9
Paraonidae	*Tauberia gracilis*	0	0	0	0	0	0	0	0	31.8	1.6
	Aricidea sp.B	0	0	63.6	3.7	31.8	1.92	0	0	95.4	4.9
Spionidae	*Spiophanes* cf. *japonicum*	0	0	0	0	0	0	31.8	1.33	0	0
	Malacoceros indicus	0	0	0	0	31.8	1.92	0	0	0	0
	Caraziella sp.A	0	0	31.8	1.9	0	0	0	0	0	0
	Spio spA	0	0	0	0	31.8	1.92	0	0	0	0
	Scolelepis sp.A	0	0	0	0	0	0	31.8	1.33	0	0
	Scolelepis sp.B	0	0	0	0	31.8	1.92	0	0	0	0
	Aonides sp.A	0	0	31.8	1.9	31.8	1.92	0	0	0	0
	Pseudopolydora sp.A	0	0	63.6	3.7	0	0	0	0	0	0
	Pseudopolydora sp.B	0	0	31.8	1.9	0	0	0	0	0	0
	Paraprionospio pinnata	0	0	63.6	3.7	0	0	0	0	0	0
	Prionospio (Prionospio) caspersi	0	0	0	0	31.8	1.92	63.6	2.67	31.8	1.6
	P. (Prionospio) membranacea	0	0	0	0	477	28.8	31.8	1.33	31.8	1.6
	P. (Prionospio) depauperata	0	0	0	0	0	0	31.8	1.33	95.4	4.9
	P. (Prionospio) cf. *neilseni*	0	0	0	0	0	0	31.8	1.33	31.8	1.6
	P. (Prionospio) cf. *malayensis*	0	0	0	0	0	0	0	0	63.6	3.3
	P. (Minuspio) japonica	1908	79	0	0	0	0	0	0	0	0
	P. (Aquilaspio) sexoculata	0	0	127	7.4	0	0	31.8	1.33	31.8	1.6
Magelonidae	*Magelona crenulifrons*	0	0	0	0	63.6	3.85	127	5.33	190.8	9.8
	M. kamala	0	0	0	0	0	0	31.8	1.33	31.8	1.6
	M. pygmaea	0	0	0	0	0	0	0	0	31.8	1.6
Poecilochaetidae	*Poecilochaetus* sp.A	0	0	63.6	3.7	0	0	0	0	0	0
Chaetopteridae	*Chaetopterus variopedatus*	0	0	0	0	31.8	1.92	0	0	0	0
Cirratulidae	*Cirriformia* sp.A	0	0	0	0	0	0	0	0	0	0
Capitellidae	*Mediomastus* sp.A	0	0	63.6	3.7	0	0	0	0	95.4	4.9
	Notomastus sp.A	31.8	1.3	0	0	95.4	5.77	191	8	31.8	1.6
	Capitella sp.A	0	0	63.6	3.7	0	0	0	0	0	0
	Capitomastus sp.A	63.6	2.6	0	0	0	0	0	0	0	0

Table 6.12 Continue.

Family	Species	TCin		TC5		TC4		TC3		TC2	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Maldanidae	*Euclymene* spA	0	0	127	7.4	31.8	1.92	0	0	0	0
	cf *Clemenura* spA	0	0	63.6	3.7	0	0	0	0	0	0
Ophelidae	*Armandia* cf. *lanceolata*	159	6.6	0	0	0	0	63.6	2.67	127.2	6.6
	Ophelina cf. *acuminata*	0	0	0	0	0	0	95.4	4	0	0
Phyllodocidae	*Eteone* spA	0	0	0	0	31.8	1.92	0	0	31.8	1.6
Hesionidae	*Leocrates* spA	0	0	0	0	0	0	31.8	1.33	31.8	1.6
Pilargidae	*Sigambra tentacula*	31.8	1.3	31.8	1.9	63.6	3.85	636	26.7	349.8	18
Glyceridae	*Glycera* spA	0	0	127	7.4	63.6	3.85	0	0	0	0
Goniadidae	*Glycinde* spA	159	6.6	0	0	0	0	0	0	31.8	1.6
Lacydonidae	*Paralacydonia* spA	0	0	0	0	0	0	31.8	1.33	0	0
Nephtyidae	*Nephtys* spA	0	0	31.8	1.9	31.8	1.92	31.8	1.33	95.4	4.9
	N. cf polybranchia	0	0	0	0	31.8	1.92	31.8	1.33	0	0
	Micronephthys cf *sphaerocirrus*	0	0	31.8	1.9	0	0	95.4	4	127.2	6.6
Amphinomidae	cf *Eurythoe* spA	0	0	0	0	0	0	31.8	1.33	31.8	1.6
	Chloeia spA	0	0	0	0	0	0	31.8	1.33	0	0
Lumbrineridae	*Lumbrineris* spB	31.8	1.3	0	0	254	15.4	95.4	4	95.4	4.9
Sternaspidae	*Sternaspis scutata*	0	0	0	0	0	0	31.8	1.33	63.6	3.3
Terebellidae	*Terebellides* cf *stroemi*	0	0	0	0	0	0	31.8	1.33	0	0
Sabellidae	*Euchone* spA	31.8	1.3	0	0	0	0	0	0	0	0
	Chone spA	0	0	0	0	31.8	1.92	31.8	1.33	0	0

Table 6.13 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of Transect C in April 2000.

Family	Species	TCin		TC5		TC4		TC3		TC2	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Scoloplos) marsupialis*	0	0	0	0	0	0	63.6	6.06	0	0
	S. (Scoloplos) sp.B	0	0	0	0	159	8.06	95.4	9.09	318	22.2
Paraonidae	*Tauberia gracilis*	0	0	0	0	0	0	0	0	63.6	4.44
	Aricidea sp.A	0	0	0	0	63.6	3.23	0	0	0	0
	Aricidea sp.B	0	0	0	0	0	0	31.8	3.03	0	0
Spionidae	*Pseudopolycora* sp.C	31.8	4.17	0	0	0	0	0	0	0	0
	Prionospio caspersi	0	0	0	0	0	0	0	0	63.6	4.44
	P. (Prionospio) membranacea	0	0	0	0	223	11.3	0	0	31.8	2.22
	P. (Prionospio) cf. *malayensis*	0	0	0	0	0	0	0	0	31.8	2.22
	P. (Minuspio) japonica	509	66.7	509	69.6	0	0	0	0	31.8	2.22
	P. (Minuspio) multibranchiata	127	16.7	0	0	0	0	0	0	0	0
	P. (Aquilaspio) sexoculata	0	0	159	21.7	0	0	0	0	0	0
Magelonidae	*Magelona crenulifrons*	0	0	0	0	0	0	0	0	63.6	4.44
Capitellidae	*Mediomastus* sp.A	0	0	0	0	382	19.4	95.4	9.09	127	8.89
	Notomastus sp.A	0	0	0	0	0	0	0	0	31.8	2.22
	Capitella sp.A	63.6	8.33	63.6	8.7	0	0	31.8	3.03	0	0
Ophelidae	*Armandia* cf. *lanceolata*	31.8	4.17	0	0	604	30.6	127	12.1	191	13.3
Hesionidae	*Leocratides* sp.A	0	0	0	0	31.8	1.61	0	0	31.8	2.22
Pilargidae	*Sigambra* cf. *tentaculata*	0	0	0	0	0	0	159	15.2	95.4	6.67
Nereidae	*Neanthes* sp.A	0	0	0	0	0	0	223	21.2	127	8.89
Glyceridae	*Glycera* sp.A	0	0	0	0	0	0	0	0	31.8	2.22
Goniadidae	*Glycinde* sp.A	0	0	0	0	127	6.45	0	0	0	0
Lacydonidae	*Paralacydonia* sp.A	0	0	0	0	0	0	31.8	3.03	0	0
Nephtyidae	*Nephtys* sp.B	0	0	0	0	0	0	31.8	3.03	0	0
	Micronephthys cf. *sphaerocirrus*	0	0	0	0	0	0	31.8	3.03	31.8	2.22
Amphinomidae	*Linopherus* sp.A	0	0	0	0	31.8	1.61	0	0	0	0
Lumbrineridae	*Lumbrineris* sp.B	0	0	0	0	254	12.9	63.6	6.06	63.6	4.44
Sternaspidae	*Sternaspis* sp.A	0	0	0	0	31.8	1.61	0	0	0	0
Oweniidae	cf *Myriochele* spA	0	0	0	0	63.6	3.23	0	0	0	0
Sabellidae	*Euchone* sp.A	0	0	0	0	0	0	0	0	95.4	6.67

Table 6.14 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of Transect C in August 2000.

Family	Species	TCin		TC5		TC4		TC3		TC2	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	0	0	0	0	159	18	95	14	0	0
	S. (Scoloplos) marsupialis	0	0	32	2.1	0	0	32	4.8	0	0
	S. (Scoloplos) sp.A	0	0	32	2.1	0	0	0	0	64	6.5
	S. (Scoloplos) sp.B	0	0	0	0	0	0	0	0	159	16
Paraonidae	*Aricidea* sp.B	0	0	64	4.2	32	3.6	32	4.8	64	6.5
Spionidae	*Spio* sp.A	0	0	0	0	32	3.6	32	4.8	0	0
	Spiophanes cf. *japonicum*	0	0	32	2.1	0	0	0	0	0	0
	Scolelepis sp.B	0	0	0	0	0	0	32	4.8	0	0
	Pseudopolycora sp.C	32	5.9	0	0	0	0	0	0	0	0
	Prionospio (Prionospio) caspersi	0	0	0	0	0	0	0	0	32	3.2
	P. (Prionospio) membranacea	0	0	32	2.1	95	11	32	4.8	32	3.2
	P. (Prionospio) cf *neilseni*	0	0	0	0	0	0	0	0	32	3.2
	P. (Minuspio) japonica	191	35	700	46	32	3.6	0	0	0	0
	P. (Minuspio) multibranchiata	95	18	64	4.2	32	3.6	0	0	0	0
	P. (Minuspio) pulchra	0	0	0	0	0	0	32	4.8	0	0
	cf *P. (Minuspio)* sp.A	0	0	0	0	32	3.6	32	4.8	0	0
	P.(Aquilaspio) sexoculata	0	0	0	0	32	3.6	32	4.8	0	0
Magelonidae	*Magelona crenulifrons*	0	0	64	4.2	0	0	0	0	64	6.5
	M. kamala	0	0	0	0	0	0	0	0	32	3.2
Poecilochaetidae	*Poecilochaetus* sp.A	0	0	0	0	32	3.6	0	0	0	0
Capitellidae	*Mediomastus* sp.A	32	5.9	95	6.3	159	18	159	24	64	6.5
	Notomastus sp.A	0	0	32	2.1	0	0	32	4.8	64	6.5
	Capitella sp.A	64	12	0	0	0	0	0	0	0	0
Maldanidae	*Euclymene* sp.A	64	12	159	10	0	0	0	0	0	0
Ophelidae	*Armandia* cf. *lanceolata*	32	5.9	64	4.2	0	0	0	0	0	0
Hesionidae	*Leocrates* sp.A	0	0	32	2.1	0	0	0	0	32	3.2
Pilargidae	*Sigambra*cf. *tentaculata*	0	0	0	0	95	11	64	9.5	127	13
Glyceridae	*Glycera* sp.A	0	0	0	0	0	0	0	0	32	3.2
Goniadidae	*Glycinde* sp.A	0	0	0	0	32	3.6	0	0	32	3.2
Nephtyidae	*Nephtys* sp.B	0	0	64	4.2	32	3.6	0	0	32	3.2
Lumbrineridae	*Lumbrineris* sp.B	0	0	64	4.2	32	3.6	32	4.8	95	9.7
Sternaspidae	*Sternaspis* sp.B	32	5.9	0	0	0	0	0	0	32	3.2
Oweniidae	*Owenia* sp.A	0	0	0	0	32	3.6	0	0	0	0
Sabellidae	*Euchone* spA	0	0	0	0	0	0	32	4.8	0	0
	Chone spA	0	0	0	0	32	3.6	0	0	0	0
		541	100	1526	100	890	100	668	100	986	100

Transect D

The spionid, *Prionospio (Minuspio) japonica* was the most abundant species in and at the mouth of drainage canal and followed by *Mediomastus* sp.A while the bay were dominated by *Scoloplos (Scoloplos) marsupialis*, *S. (Scoloplos)* sp.B, *Medimastus* sp.A, *Lumbrineris* sp.B and *Sigambra* cf. *tentaculata*.

Total 21 families and 47 species of polychaetes were presented along this transect in January as in table 6.16. The result of this study showed that the relative abundance of Station TDin was the lowest with the major species of *Glycinde* sp.A, 95.4 ind.m^{-2} or 30% of average abundance. The following species namely, *Nephtys* spA, *Sternaspis scutata, P. (Minuspio) japonica, P. (Aquilaspio) sexoculata, Chone* sp.A *and Armandia* cf. *lanceolata. Armandia* was most abundance at Station TD5 of 509 ind.m^{-2} or 27.1% and followed by *Euchone* sp.A, *Glycinde* sp.A *and Mediomastus* sp.A. For stations inside the Bay, the spionid, *P. (Minuspio) multibranchiata* appeared to be the major species of Station TD4 contributing 318 ind.m^{-2} or 27.8% of average abundance. *S. (Leodamus)* sp.A *and Lumbrineris* sp.B were also found. The *Scoloplos* sp.B became the most abundance at Station TD3 with only 127 ind.m^{-2} or 11.5% of average abundance while the vincinity station, Station TD2, *S. (Leodamus)* sp.A was most common.

The number of family and species diversity in April was declined from January. A total of 19 families and 31 species found along the Transect D, as shown in Table 6.17. It was found that the Station TDin and TD5 had the lowest relative abundance. The major species found at Station TDin was *P. (Minuspio) japonica* with its average abundance of 413 ind.m^{-2} or 86.7% while the following species were *P. (Aquilaspio) sexoculata* and *Glycinde* sp.A. Station TD5 was dominated by *Aricidea* sp.A, 127 ind.m^{-2} or 26.7% and *Mediomastus* sp.A, 95.4 ind.m^{-2} or 20%. The latter species became most abundance at Station TD4 by 318 ind.m^{-2} or 38.5%, followed by *Lumbrineris* sp.B and *P. (Prionospio) membranacea.* For stations at the central part of the bay, the major species was *S. (Scoloplos) marsupialis*, 541 ind.m^{-2} or 20.2% at Station TD3 and *Tauberia gracilis* , 413 ind.m^{-2} or 20.3% at Station TD1.

During the rainy month of August, the spionid, *P. (Minuspio) japonica* was still most abundance at Station Tdin 700 ind.m^{-2} or 62.9% (Table 6.18). *Lumbrineris* sp.B and *Lumbrineris* sp.C were most abundant at Station TD5. For stations inside the bay, the capitellid, *Mediomastus* sp.A occurred as major species at Station TD4. This capitellid was also common at Station TD3 together with the *P. (Prionospio) membranacea.* At Station TD2, *Lumbrineris* sp.B became the most abundance, 127 ind.m^{-2} (13%).

The number of family recorded in November increased to 18 families but number of species diminished to 26 species. Table 6.19 presented the result of relative abundance and species list along Transect TD in November. It was found that most stations recorded low relative abundance below 1000 ind.m^{-2}. The most abundance species at Station TDin and TD5 was the spionid, *P. (Minuspio) japonica* with its contribution of 191 ind.m^{-2} (50%) and 509 ind.m^{-2} (64%) respectively. The capitellid, *Mediomastus* sp.A ranked second at Station TDin followed by the *Capitella* sp.A. Station TD3 comprised of *Notomastus* sp.A as the most abundance species The major species at was Station TD2, the *P. (Prionospio) membranacea* and *P. (Minuspio) japonica*.

Table 6.15 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of Transect C in November 2000.

Family	Species	TCin		TC5		TC4		TC3		TC2	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	0	0	31.8	2.63	0	0	0	0	0	0
	S. (Scoloplos) marsupialis	0	0	0	0	0	0	0	0	31.8	2.17
Paraonidae	*Aricidea* sp.A	0	0	223	18.4	0	0	0	0	31.8	2.17
	Aricidea sp.B	0	0	0	0	95.4	9.68	0	0	0	0
Spionidae	*Pseudopolycora* sp.C	0	0	0	0	0	0	31.8	4.35	0	0
	Paraprionospio pinnata	0	0	31.8	2.63	31.8	3.23	0	0	0	0
	Prionospio (Prionospio) caspersi	0	0	159	13.2	0	0	0	0	0	0
	P. (Prionospio) membranacea	0	0	0	0	318	32.3	95.4	13	0	0
	P. (Minuspio) japonica	31.8	100	0	0	0	0	0	0	31.8	2.17
	P. (Aquilaspio) sexoculata	0	0	0	0	63.6	6.45	0	0	0	0
Magelonidae	*Magelona crenulifrons*	0	0	0	0	0	0	95.4	13	223	15.2
	M. kamala	0	0	0	0	0	0	31.8	4.35	0	0
	M. pygmaea	0	0	0	0	0	0	31.8	4.35	0	0
Cirratulidae	*Cirratulus* sp.A	0	0	0	0	0	0	31.8	4.35	0	0
	Chaetozone sp.A	0	0	0	0	0	0	0	0	0	0
Capitellidae	*Mediomastus* sp.A	0	0	223	18.4	159	16.1	31.8	4.35	159	10.9
	Notomastus sp.A	0	0	0	0	63.6	6.45	0	0	0	0
Ophelidae	*Armandia* cf. *lanceolata*	0	0	0	0	31.8	3.23	0	0	127	8.7
Phyllodocidae	*Eteone* sp.A	0	0	0	0	0	0	31.8	4.35	0	0
Pilargidae	*Sigambra* cf *tentaculata*	0	0	127	10.5	31.8	3.23	0	0	191	13
Nereidae	*Neanthes* sp.A	0	0	0	0	0	0	63.6	8.7	95.4	6.52
Goniadidae	*Glycinde* sp.A	0	0	0	0	31.8	3.23	0	0	95.4	6.52
Nephtyidae	*Nephtys* sp.B	0	0	63.6	5.26	31.8	3.23	0	0	31.8	2.17
Amphinomidae	*Chloeia* sp.A	0	0	0	0	0	0	63.6	8.7	0	0
Lumbrineridae	*Lumbrineris* sp.B	0	0	318	26.3	127	12.9	223	30.4	382	26.1
Sternaspidae	*Sternaspis* sp.A	0	0	31.8	2.63	0	0	0	0	31.8	2.17
Eunicidae	cf *Polyodontes* sp.A	0	0	0	0	0	0	0	0	31.8	2.17

Table 6.16 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of Transect D in January 2000.

Family	Species	TDin		TD5		TD4		TD3		TD2	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	0	0	0	0	159	13.9	31.8	1.64	127	9.76
	S. (Scoloplos) marsupialis	0	0	0	0	0	0	63.6	3.28	0	0
	S. (Scoloplos) sp.A	0	0	0	0	0	0	31.8	1.64	0	0
	S. (Scoloplos) sp.B	0	0	0	0	0	0	223	11.5	95.4	7.32
Paraonidae	*Aricidea* sp.B	0	0	0	0	0	0	31.8	1.64	0	0
Cossuridae	*Cossura* sp.A	0	0	0	0	0	0	0	0	0	0
Spionidae	*Malacoceros indicus*	0	0	0	0	0	0	31.8	1.64	31.8	2.44
	Caraziella sp.A	0	0	0	0	0	0	0	0	63.6	4.88
	Aonides sp.A	0	0	0	0	31.8	2.78	0	0	0	0
	Pseudopolydora sp.B	0	0	0	0	0	0	0	0	63.6	4.88
	Pseudopolydora sp.C	0	0	0	0	63.6	5.56	31.8	1.64	31.8	2.44
	Prionospio (Prionospio) caspersi	0	0	0	0	0	0	31.8	1.64	95.4	7.32
	P.(Prionospio) membranacea	0	0	31.8	1.69	95.4	8.33	95.4	4.92	0	0
	P.(Prionospio) depauperata	0	0	63.6	3.39	0	0	63.6	3.28	0	0
	P. (Prionospio) cf. *neilseni*	0	0	0	0	0	0	31.8	1.64	31.8	2.44
	P. (Minuspio) japonica	31.8	10	95.4	5.08	0	0	31.8	1.64	0	0
	P. (Minuspio) multibranchiata	0	0	0	0	318	27.8	0	0	0	0
	P. (Aquilaspio) sexoculata	31.8	10	63.6	3.39	0	0	127	6.56	0	0
Magelonidae	*Magelona kamala*	0	0	0	0	0	0	0	0	31.8	2.44
Chaetopteridae	*Chaetopterus variopedatus*	0	0	0	0	0	0	0	0	31.8	2.44
Capitellidae	*Mediomastus* sp.A	0	0	191	10.2	31.8	2.78	159	8.2	31.8	2.44
	Notomastus sp.A	0	0	0	0	0	0	63.6	3.28	63.6	4.88
	Capitella sp.A	0	0	127	6.78	0	0	0	0	0	0
	Capitomastus sp.A	0	0	0	0	31.8	2.78	0	0	0	0
Maldanidae	*Euclymene* sp.A	0	0	0	0	0	0	31.8	1.64	31.8	2.44
Ophelidae	*Armandia* cf. *lanceolata*	63.6	20	509	27.1	0	0	31.8	1.64	31.8	2.44
	Ophelina cf. *acuminata*	0	0	0	0	0	0	31.8	1.64	0	0
	Polyophthalmus cf. *pictus*	0	0	0	0	0	0	31.8	1.64	0	0
Hesionidae	*Leocrates* sp.A	0	0	0	0	0	0	31.8	1.64	0	0
Pilargidae	*Sigambra* cf. *tentaculata*	0	0	127	6.78	31.8	2.78	63.6	3.28	63.6	4.88

Table 6.16 Continue.

Family	Species	TDin		TD5		TD4		TD3		TD2	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Syllidae	*Dentatisyllis* sp.A	0	0	0	0	0	0	223	11.5	0	0
	cf *Prionosyllis* sp.A	0	0	0	0	0	0	63.6	3.28	0	0
Glyceridae	*Glycera* sp.A	0	0	0	0	0	0	31.8	1.64	63.6	4.88
Goniadidae	*Glycinde* sp.A	95.4	30	191	10.2	95.4	8.33	31.8	1.64	0	0
Lacydonidae	*Paralacydonia* sp.A	0	0	0	0	0	0	31.8	1.64	0	0
Nephtyidae	*Nephtys* sp.A	31.8	10	31.8	1.69	0	0	0	0	0	0
	Nephtys sp.B	0	0	0	0	0	0	31.8	1.64	63.6	4.88
	Micronephthys cf. *sphaerocirrus*	0	0	31.8	1.69	63.6	5.56	31.8	1.64	63.6	4.88
Amphinomidae	*Linopherus* sp.A	0	0	0	0	95.4	8.33	31.8	1.64	0	0
	Chloeia sp.A	0	0	0	0	0	0	0	0	0	0
Lumbrineridae	*Lumbrineris* sp.B	0	0	63.6	3.39	127	11.1	63.6	3.28	95.4	7.32
Sternaspidae	*Sternaspis* sp.A	31.8	10	31.8	1.69	0	0	0	0	0	0
Terebellidae	*Pista* sp.A	0	0	0	0	0	0	31.8	1.64	31.8	2.44
	Terebellides cf. *stroemi*	0	0	0	0	0	0	0	0	31.8	2.44
Sabellidae	*Euchone* sp.A	0	0	286	15.3	0	0	95.4	4.92	0	0
	Chone sp.A	31.8	10	31.8	1.69	0	0	0	0	31.8	2.44

Table 6.17 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of Transect D in April 2000.

Family	Species	TDin		TD5		TD4		TD3		TD2	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	0	0	63.6	13.3	0	0	0	0	0	0
	S. (Scoloplos) marsupialis	0	0	0	0	0	0	541	20.2	0	0
	S. (Scoloplos) sp.B	0	0	31.8	6.67	63.6	7.69	413	15.5	350	17.2
Paraonidae	*Tauberia gracilis*	0	0	0	0	0	0	0	0	413	20.3
	Aricidea sp.A	0	0	127	26.7	31.8	3.85	159	5.95	95.4	4.69
Cossuridae	*Cossura* sp.A	0	0	0	0	0	0	0	0	31.8	1.56
Spionidae	*Spio* sp.A	0	0	0	0	31.8	3.85	0	0	0	0
	Prionospio (Prionospio) caspersi	0	0	0	0	0	0	159	5.95	223	10.9
	P. (Prionospio) membranacea	0	0	0	0	127	15.4	0	0	0	0
	P. (Prionospio) depauperata	0	0	0	0	0	0	0	0	63.6	3.13
	P. (Prionospio) cf *malayensis*	0	0	0	0	0	0	0	0	31.8	1.56
	P. (Minuspio) japonica	413	86.7	31.8	6.67	0	0	0	0	0	0
	P. (Minuspio) multibranchiata	0	0	31.8	6.67	0	0	0	0	0	0
	P. (Aquilaspio) sexoculata	31.8	6.67	31.8	6.67	0	0	0	0	0	0
Magelonidae	*Magelona crenulifrons*	0	0	0	0	0	0	95.4	3.57	254	12.5
Poecilochaetidae	*Poecilochaetus* sp.A	0	0	0	0	0	0	0	0	31.8	1.56
Cirratulidae	*Chaetozone* sp.A	0	0	0	0	0	0	0	0	31.8	1.56
Capitellidae	*Mediomastus* sp.A	0	0	95.4	20	318	38.5	223	8.33	63.6	3.13
	Notomastus sp.A	0	0	0	0	0	0	127	4.76	0	0
	Capitella sp.A	0	0	0	0	0	0	31.8	1.19	0	0
Ophelidae	*Armandia* cf. *lanceolata*	0	0	0	0	0	0	159	5.95	159	7.81
Chrysopetalidae	*Chrysopetalum* sp.A	0	0	0	0	0	0	31.8	1.19	0	0
Pilargidae	*Sigambra* cf. *tentaculata*	0	0	31.8	6.67	63.6	7.69	286	10.7	191	9.38
Nereidae	*Neanthes* sp.A	0	0	0	0	0	0	63.6	2.38	0	0
Glyceridae	*Glycera* sp.A	0	0	0	0	0	0	31.8	1.19	0	0
Goniadidae	*Glycinde* sp.A	31.8	6.67	0	0	0	0	0	0	63.6	3.13
Nephtyidae	*Nephtys* sp.B	0	0	0	0	0	0	31.8	1.19	0	0
Amphinomidae	*Linopherus* sp.A	0	0	0	0	0	0	31.8	1.19	0	0
Lumbrineridae	*Lumbrineris* sp.B	0	0	0	0	191	23.1	254	9.52	31.8	1.56
Oweniidae	cf *Myriochele* sp.A	0	0	0	0	0	0	31.8	1.19	0	0
Sabellidae	*Euchone* sp.A	0	0	31.8	6.67	0	0	0	0	0	0

Table 6.18 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of Transect D in August 2000.

Family	Species	TDin		TD5		TD4		TD3		TD2	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	0	0	0	0	127.2	10	95.4	8.3	31.8	3.1
	S. (Scoloplos) marsupialis	0	0	0	0	31.8	2.6	0	0	0	0
	S. (Scoloplos) sp.A	0	0	0	0	0	0	0	0	95.4	9.4
	S. (Scoloplos) sp.B	0	0	0	0	95.4	7.7	0	0	31.8	3.1
Paraonidae	*Tauberia gracilis*	0	0	31.8	8.33	0	0	0	0	0	0
	Cirrophorus sp.A	0	0	0	0	31.8	2.6	0	0	0	0
	Aricidea sp.A	0	0	31.8	8.33	0	0	0	0	0	0
	Aricidea sp.B	0	0	0	0	127.2	10	0	0	31.8	3.1
	Aricidea cf. *fragilis*	0	0	0	0	0	0	95.4	8.3	0	0
Cossuridae	*Cossura* sp.A	0	0	0	0	31.8	2.6	0	0	0	0
Spionidae	*Scolelepis* sp.B	0	0	0	0	31.8	2.6	0	0	0	0
	Pseudopolycora sp.C	31.8	2.86	0	0	0	0	31.8	2.8	0	0
	Prionospio (Prionospio) caspersi	0	0	0	0	0	0	0	0	31.8	3.1
	P. (Prionospio) membranacea	0	0	0	0	127.2	10	159	14	31.8	3.1
	P. (Prionospio) cf. *neilseni*	0	0	0	0	0	0	0	0	31.8	3.1
	P. (Minuspio) japonica	700	62.9	0	0	31.8	2.6	31.8	2.8	31.8	3.1
	P. (Minuspio) multibranchiata	0	0	31.8	8.33	0	0	0	0	0	0
	P. (Minuspio) pulchra	0	0	0	0	0	0	31.8	2.8	0	0
	P. (Aquilaspio) sexoculata	0	0	0	0	63.6	5.1	63.6	5.6	0	0
	cf *P. (Minuspio)* sp.A	0	0	0	0	0	0	31.8	2.8	0	0
Magelonidae	*Magelona crenulifrons*	0	0	0	0	0	0	0	0	95.4	9.4
	M. kamala	0	0	0	0	31.8	2.6	0	0	31.8	3.1
Poecilochaetidae	*Poecilochaetus* sp.A	0	0	0	0	0	0	31.8	2.8	0	0
Capitellidae	*Mediomastus* sp.A	0	0	31.8	8.33	190.8	15	159	14	63.6	6.3
	Notomastus sp.A	0	0	0	0	63.6	5.1	0	0	95.4	9.4
	N. latericeus	0	0	0	0	0	0	0	0	31.8	3.1
	Capitella sp.A	0	0	31.8	8.33	0	0	31.8	2.8	0	0
Maldanidae	*Euclymene* sp.A	0	0	0	0	31.8	2.6	63.6	5.6	31.8	3.1
Pilargidae	*Sigambracf. tentaculata*	63.6	5.71	31.8	8.33	95.4	7.7	95.4	8.3	95.4	9.4
Glyceridae	*Glycera* sp.A	31.8	2.86	0	0	31.8	2.6	31.8	2.8	0	0
Goniadidae	*Glycinde* sp.A	31.8	2.86	31.8	8.33	0	0	31.8	2.8	31.8	3.1
Lacydonidae	*Paralacydonia* sp.A	0	0	0	0	0	0	0	0	31.8	3.1

Table 6.18 Continue.

Family	Species	TDin		TD5		TD4		TD3		TD2	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Nephtyidae	*Nephtys* sp.B	0	0	0	0	0	0	31.8	2.8	0	0
Lumbrineridae	*Lumbrineris* sp.B	31.8	2.86	63.6	16.7	63.6	5.1	95.4	8.3	127	13
	Lumbrineris sp.C	0	0	63.6	16.7	0	0	0	0	0	0
Sternaspidae	*Sternaspis* sp.A	223	20	31.8	8.33	0	0	0	0	31.8	3.1
Sabellidae	*Euchone* sp.A	0	0	0	0	31.8	2.6	31.8	2.8	31.8	3.1

Table 6.19 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of Transect D in November 2000.

Family	Species	TDin		TD5		TD4		TD3		TD2	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	0	0	0	0	223	26.9	0	0	0	0
Paraonidae	*Cirrophorus* sp.A	0	0	0	0	0	0	0	0	31.8	2.63
	Aricidea sp.B	0	0	31.8	4	31.8	3.85	0	0	63.6	5.26
Spionidae	*Malacoceros indicus*	0	0	0	0	0	0	0	0	31.8	2.63
	P. (Prionospio) membranacea	0	0	0	0	0	0	0	0	191	15.8
	P. (Prionospio) depauperata	0	0	0	0	63.6	7.69	0	0	0	0
	P. (Minuspio) japonica	191	50	509	64	0	0	0	0	159	13.2
	P. (Minuspio) multibranchiata	0	0	0	0	0	0	0	0	31.8	2.63
	P. (Aquilaspio) sexoculata	0	0	0	0	0	0	0	0	127	10.5
Magelonidae	*Magelona crenulifrons*	0	0	0	0	31.8	3.85	0	0	31.8	2.63
Cirratulidae	*Chaetozone* sp.A	0	0	0	0	0	0	0	0	63.6	5.26
Capitellidae	*Mediomastus* sp.A	127	33.3	31.8	4	223	26.9	0	0	95.4	7.89
	Notomastus sp.A	31.8	8.33	0	0	0	0	95.4	37.5	0	0
	Capitella sp.A	0	0	191	24	0	0	0	0	0	0
Maldanidae	*Euclymene* sp.A	0	0	0	0	63.6	7.69	0	0	0	0
Ophelidae	*Armandia* cf. *lanceolata*	0	0	0	0	0	0	0	0	127	10.5
Pilargidae	*Sigambra* cf. *tentaculata*	0	0	0	0	0	0	63.6	25	95.4	7.89
Nereidae	*Neanthes* sp.A	0	0	0	0	31.8	3.85	0	0	0	0
Glyceridae	*Glycera* sp.A	0	0	0	0	0	0	31.8	12.5	0	0
Goniadidae	*Glycinde* sp.A	31.8	8.33	31.8	4	31.8	3.85	0	0	63.6	5.26
Amphinomidae	*Chloeia* sp.A	0	0	0	0	31.8	3.85	0	0	0	0
Lumbrineridae	*Lumbrineris* sp.B	0	0	0	0	95.4	11.5	31.8	12.5	31.8	2.63
Sternaspidae	*Sternaspis* sp.A	0	0	0	0	0	0	0	0	31.8	2.63
Terebellidae	*Pista* sp.A	0	0	0	0	0	0	0	0	31.8	2.63
Sabellidae	*Chone* sp.A	0	0	0	0	0	0	31.8	12.5	0	0

Transect E

The major species was *Prionospio (Minuspio) japonica* that was dominant in the drainage canal and followed by *Armandia* cf. *lanceolata* and *Mediomastus* sp.A. In the bay, *Mediomastus* sp.A, *Capitella* sp.A, *S. (Scoloplos) marsupialis*, *P. (Prionospio) membranacea* and *Lumbrineris* sp.B were commonly found.

The results of relative abundance and species diversity of polychaetes for Transect E were presented by Table 6.20. From Table 6.20 the relative abundance in January was low inside the Bay but higher inside the canal. Total number of families and species were found of 21 and 48 respectively. The major species at Station TEin and TE5 was the spionid, *P. (Minuspio) japonica,* contributing 1685 ind.m^{-2}or 61.6% and 668 ind.m^{-2}or 41.2% of average abundance, respectively. The ophelid, *Armandia* cf. *lanceolata*, appeared to be the second abundant species in these 2 stations. For stations further inside the Bay, the paraonid, *Tauberia gracilis* exhibited the most abundant species at Station TE4 and TE3. *Lumbrineris* sp.C was found to be less abundant species at Station TE4 and TE3. At Station TE2 and TE1, the spionid, *P. (Prionospio) membranacea*, dominated with its average abundance of 127 ind.m^{-2} (10%) and 191 ind.m^{-2} (14%) respectively. *Lumbrineris* sp.B was also high at Station TE2.

The total number of families and species decreased in April to 20 and 41 respectively. The low relative abundance could be observed at Station TEin but higher at area inside the Bay (Table 6.21). The major species occurred at Station TEin was *Scoloplos (Leodamus)* sp.A, contributing 223 ind.m^{-2}or 46.7% of its average abundance and followed by *Minuspio japonica* and *P. (Minuspio) multibranchiata.* However, the *P. (Minuspio) japonica* was most abundance at Station TE5 with its average abundance 318 ind.m^{-2} or 43.5%. The major species shifted to be the *Lumbrineris* sp.C and *Mediomastus* sp.A for Station TE4. *Mediomastus* sp.A At the central area of the Bay, the major species composition was not distinctly high average abun also common at Station TE3. *S. (Scoloplos) marsupialis* were common at the central part of the bay.

The total number of species was increased to 44 species in August but the number of family was diminishing to 20 families. However, the low relative abundance and species diversity occurred at Station TEin and TE5 (Table 6.22). The major abundance species for Station TEin was *Capitella* sp.A with its average abundance 286 ind.m^{-2} or 53% and followed by the *P. (Minuspio) japonica*. *Mediomastus* sp.A dominated at Station TE5 while the *P. (Minuspio) japonica* became the second most abundant species. *Sternaspis* sp.A exhibited as the major species to Station TE4 and TE2 by its average abundance 254 ind.m^{-2} (24%) and 382 ind.m^{-2} (20%). *Tauberia gracilis* and *Lumbrineris* spB were also recorded. *P. (Prionospio) membranacea* played the dominant role at Station TE1 followed by *Magelona crenulifrons.*

The number of family and species observed in November declined to 17 families and 38 species. The lowest relative abundance occurred at Station TEin (Table 6.23) . As previous result, the Station TEin dominated by the spionid, *P. (Minuspio) japonica* with its average abundance 191 ind.m^{-2} (66.7%) and followed by the sabellid, *Euchone* sp.A. At Station TE5 the major species was shifted to the species *Armandia* cf. *lanceolata* which shared of 350 ind.m^{-2} or 25% and less common species was *Notomastus* spA. *Tauberia gracilis* dominated Station TE4 while *Sternaspis* sp.A was the major species to Station TE3 and TE2.

Table 6.20 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of Transect E in January 2000.

Family	Species	TEin		TE5		TE4		TE3		TE2		TE1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	0	0	0	0	0	0	0	0	63.6	5	95.4	6.98
	S. (Scoloplos) marsupialis	0	0	0	0	0	0	0	0	31.8	2.5	0	0
	S. (Scoloplos) sp.A	0	0	0	0	0	0	0	0	63.6	5	31.8	2.33
	S. (Scoloplos) sp.B	0	0	0	0	0	0	0	0	95.4	7.5	0	0
Paraonidae	*Tauberia gracilis*	0	0	0	0	541	18.3	254	17	63.6	5	0	0
	Cirrophorus sp.A	0	0	0	0	31.8	1.08	63.6	4.26	0	0	0	0
	Aricidea sp.A	0	0	0	0	95.4	3.23	0	0	0	0	0	0
	Aricidea sp.B	0	0	0	0	0	0	31.8	2.13	95.4	7.5	31.8	2.33
Spionidae	*Spiophanes* sp.A	0	0	0	0	0	0	0	0	0	0	31.8	2.33
	Malacoceros indicus	0	0	0	0	31.8	1.08	31.8	2.13	0	0	0	0
	Aonides sp.A	0	0	0	0	0	0	0	0	0	0	63.6	4.65
	Pseudopolydora sp.B	0	0	0	0	127	4.3	0	0	0	0	0	0
	Pseudopolydora sp.C	63.6	2.33	0	0	31.8	1.08	0	0	0	0	0	0
	Prionospio (Prionospio) caspersi	0	0	0	0	0	0	0	0	31.8	2.5	31.8	2.33
	P. (Prionospio) membranacea	0	0	0	0	223	7.53	127	8.51	127	10	191	14
	P. (Prionospio) depauperata	0	0	0	0	31.8	1.08	0	0	31.8	2.5	127	9.3
	P. (Prionospio) cf. *neilseni*	0	0	0	0	0	0	0	0	31.8	2.5	0	0
	P. (Minuspio) japonica	1685	61.6	668	41.2	63.6	2.15	31.8	2.13	0	0	0	0
	P. (Minuspio) pulchra	0	0	0	0	0	0	31.8	2.13	31.8	2.5	0	0
	P. (Aquilaspio) sexoculata	127	4.65	95.4	5.88	95.4	3.23	63.6	4.26	63.6	5	0	0
Magelonidae	*Magelona crenulifrons*	0	0	0	0	0	0	0	0	31.8	2.5	31.8	2.33
Poecilochaetidae	*Poecilochaetus* sp.A	0	0	0	0	0	0	0	0	31.8	2.5	0	0
Cirratulidae	*Cirriformia* sp.A	0	0	0	0	159	5.38	0	0	0	0	95.4	6.98
Capitellidae	*Mediomastus* sp.A	191	6.98	127	7.84	63.6	2.15	63.6	4.26	63.6	5	95.4	6.98
	Notomastus sp.A	0	0	0	0	0	0	0	0	0	0	31.8	2.33
	N. latericeus	0	0	0	0	0	0	0	0	0	0	31.8	2.33
	Capitella sp.A	63.6	2.33	127	7.84	0	0	31.8	2.13	0	0	0	0
	Capitomastus sp.A	0	0	31.8	1.96	0	0	0	0	0	0	0	0
Maldanidae	*Euclymene* sp.A	0	0	0	0	31.8	1.08	0	0	0	0	0	0
	cf *Clymenura* sp.A	0	0	0	0	63.6	2.15	31.8	2.13	31.8	2.5	0	0

Table 6.20 Continue.

Family	Species	TEin		TE5		TE4		TE3		TE2		TE1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Ophelidae	*Armandia* cf. *lanceolata*	286	10.5	223	13.7	159	5.38	0	0	0	0	0	0
	Ophelina cf. *acuminuta*	0	0	0	0	0	0	31.8	2.13	0	0	31.8	2.33
Hesionidae	*Leocrates* sp.A	0	0	0	0	31.8	1.08	0	0	0	0	31.8	2.33
Pilargidae	*Sigambra* cf. *tentaculata*	0	0	0	0	191	6.45	63.6	4.26	63.6	5	31.8	2.33
Syllidae	Syllidae sp.A	0	0	0	0	95.4	3.23	0	0	31.8	2.5	0	0
Glyceridae	*Glycera* sp.A	0	0	63.6	3.92	0	0	0	0	31.8	2.5	0	0
Goniadidae	*Glycinde* sp.A	127	4.65	159	9.8	159	5.38	223	14.9	31.8	2.5	63.6	4.65
Lacydonidae	*Paralacydonia* sp.A	0	0	0	0	31.8	1.08	0	0	0	0	0	0
Nephtyidae	*Nephtys* sp.A	0	0	0	0	0	0	0	0	31.8	2.5	31.8	2.33
	Micronephthys cf. *sphaerocirrus*	0	0	0	0	0	0	0	0	31.8	2.5	63.6	4.65
Amphinomidae	*Linopherus* sp.A	0	0	0	0	0	0	0	0	31.8	2.5	95.4	6.98
Lumbrineridae	*Lumbrineris* sp.B	31.8	1.16	0	0	95.4	3.23	63.6	4.26	127	10	31.8	2.33
	Lumbrineris sp.C	0	0	31.8	1.96	382	12.9	159	10.6	0	0	0	0
Sternaspidae	*Sternaspis* sp.A	0	0	63.6	3.92	31.8	1.08	63.6	4.26	0	0	31.8	2.33
Terebellidae	*Terebellides* cf. *stroemi*	0	0	0	0	0	0	0	0	0	0	31.8	2.33
Sabellidae	*Euchone* sp.A	127	4.65	31.8	1.96	31.8	1.08	95.4	6.38	0	0	0	0
	Chone sp.A	31.8	1.16	0	0	159	5.38	31.8	2.13	0	0	0	0

Table 6.21 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of Transect E in April 2000.

Family	Species	TEin		TE5		TE4		TE3		TE2		TE1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	223	46.7	0	0	0	0	159	5.56	191	5.36	127	5.26
	S. (Scoloplos) marsupialis	0	0	0	0	0	0	31.8	1.11	986	27.7	0	0
	S. (Scoloplos) sp.B	0	0	0	0	0	0	159	5.56	0	0	95.4	3.95
Paraonidae	*Tauberia gracilis*	0	0	31.8	4.35	95.4	2.97	0	0	31.8	0.89	350	14.5
	Cirrophorus sp.A	0	0	0	0	63.6	1.98	0	0	0	0	0	0
	Aricidea sp.A	0	0	0	0	0	0	127	4.44	0	0	31.8	1.32
	Aricidea sp.B	0	0	0	0	0	0	0	0	0	0	95.4	3.95
	Aricidea cf. *fragilis*	0	0	0	0	0	0	0	0	0	0	31.8	1.32
Cossuridae	*Cossura* sp.A	0	0	31.8	4.35	191	5.94	0	0	0	0	445	18.4
Spionidae	*Malacoceros indicus*	0	0	0	0	0	0	95.4	3.33	0	0	0	0
	Spio sp.A	0	0	0	0	0	0	31.8	1.11	0	0	0	0
	Aonides sp.A	0	0	0	0	0	0	0	0	0	0	31.8	1.32
	Pseudopolycora sp.C	0	0	0	0	31.8	0.99	382	13.3	95.4	2.68	0	0
	Prionospio (Prionospio) caspersi	0	0	0	0	0	0	0	0	0	0	63.6	2.63
	P. (Prionospio) membranacea	0	0	0	0	127	3.96	127	4.44	0	0	0	0
	P. (Prionospio) depauperata	0	0	0	0	0	0	0	0	127	3.57	223	9.21
	P. (Prionospio) cf *malayensis*	0	0	0	0	0	0	0	0	31.8	0.89	0	0
	P. (Minuspio) japonica	127	26.7	318	43.5	31.8	0.99	0	0	0	0	0	0
	P. (Minuspio) multibranchiata	127	26.7	0	0	31.8	0.99	63.6	2.22	0	0	63.6	2.63
	P. (Minuspio) pulchra	0	0	0	0	0	0	0	0	0	0	63.6	2.63
	P. (Aquilaspio) sexoculata	0	0	63.6	8.7	31.8	0.99	159	5.56	0	0	63.6	2.63
Magelonidae	*Magelona crenulifrons*	0	0	0	0	0	0	31.8	1.11	31.8	0.89	286	11.8
Poecilochaetidae	*Poecilochaetus* spA	0	0	0	0	0	0	31.8	1.11	0	0	0	0
Cirratulidae	*Chaetozone* sp.A	0	0	0	0	127	3.96	0	0	223	6.25	0	0
	Cirriformia spA	0	0	0	0	286	8.91	0	0	63.6	1.79	0	0
Capitellidae	*Mediomastus* sp.A	0	0	63.6	8.7	477	14.9	795	27.8	0	0	0	0
	Notomastus spA	0	0	31.8	4.35	0	0	31.8	1.11	95.4	2.68	31.8	1.32
	Capitella sp.A	0	0	0	0	0	0	0	0	668	18.8	31.8	1.32
Ophelidae	*Armandia* cf. *lanceolata*	0	0	0	0	159	4.95	0	0	191	5.36	0	0
Hesionidae	*Leocrates* sp.A	0	0	0	0	127	3.96	0	0	0	0	0	0

Table 6.21 Continue.

Family	Species	TEin		TE5		TE4		TE3		TE2		TE1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Pilargidae	*Sigambra*cf. *tentaculata*	0	0	31.8	4.35	63.6	1.98	31.8	1.11	191	5.36	63.6	2.63
Nereidae	*Neanthea* sp.A	0	0	0	0	31.8	0.99	127	4.44	477	13.4	0	0
Glyceridae	*Glycera* sp.A	0	0	0	0	127	3.96	127	4.44	95.4	2.68	0	0
Goniadidae	*Glycinde* sp.A	0	0	31.8	4.35	382	11.9	0	0	0	0	0	0
Amphinomidae	*Linopherus* sp.A	0	0	0	0	0	0	63.6	2.22	0	0	0	0
Lumbrineridae	*Lumbrineris* sp.B	0	0	31.8	4.35	127	3.96	286	10	0	0	0	0
	Lumbrineris sp.C	0	0	31.8	4.35	477	14.9	0	0	0	0	95.4	3.95
Sternaspidae	*Sternaspis* sp.A	0	0	0	0	191	5.94	0	0	0	0	191	7.89
Oweniidae	*Owenia* sp.A	0	0	0	0	0	0	0	0	63.6	1.79	0	0
Sabellidae	*Euchone* sp.A	0	0	63.6	8.7	31.8	0.99	0	0	0	0	0	0

Table 6.22 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of Transect E in August 2000.

Family	Species	TEin		TE5		TE4		TE3		TE2		TE1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	64	12	0	0	0	0	0	0	0	0	0	0
	S. (Scoloplos) marsupialis	0	0	0	0	0	0	31.8	0.8	63.6	3.4	31.8	1.5
	S. (Scoloplos) sp.A	0	0	0	0	0	0	0	0	0	0	127	5.9
	S. (Scoloplos) sp.B	0	0	0	0	0	0	63.6	1.6	0	0	159	7.4
Paraonidae	*Tauberia gracilis*	0	0	0	0	191	18	636	16	191	10	0	0
	Cirrophorus sp.A	0	0	0	0	32	3	63.6	1.6	0	0	31.8	1.5
	Aricidea sp.A	0	0	0	0	0	0	0	0	31.8	1.7	63.6	2.9
	Aricidea sp.B	0	0	0	0	0	0	95.4	2.3	0	0	0	0
Cossuridae	*Cossura* sp.A	0	0	0	0	0	0	63.6	1.6	31.8	1.7	0	0
Spionidae	*Malacoceros indicus*	0	0	0	0	64	6.1	0	0	0	0	31.8	1.5
	Spiophanes cf. *japonicum*	0	0	0	0	0	0	31.8	0.8	0	0	0	0
	Scolelepis sp.B	0	0	0	0	0	0	31.8	0.8	0	0	0	0
	Pseudopolycora sp.C	0	0	0	0	0	0	31.8	0.8	0	0	0	0
	P. (Prionospio) caspersi	0	0	0	0	0	0	31.8	0.8	0	0	31.8	1.5
	P. (Prionospio) membranacea	0	0	0	0	95	9.1	382	9.3	191	10	286	13
	P. (Prionospio) depauperata	0	0	0	0	0	0	31.8	0.8	0	0	63.6	2.9
	P. (Minuspio) japonica	95	18	95	16	32	3	0	0	0	0	0	0
	P. (Minuspio) pulchra	0	0	0	0	0	0	31.8	0.8	0	0	0	0
	P.(Aquilaspio) sexoculata	0	0	0	0	0	0	191	4.7	0	0	0	0
Magelonidae	*Magelona crenulifrons*	0	0	0	0	0	0	63.6	1.6	127	6.8	191	8.8
	M. pygmaea	0	0	0	0	0	0	31.8	0.8	0	0	0	0
Poecilochaetidae	*Poecilochaetus* sp.A	0	0	0	0	0	0	31.8	0.8	63.6	3.4	63.6	2.9
	Monticellina sp.A	0	0	0	0	0	0	31.8	0.8	0	0	0	0
	Chaetozone sp.A	0	0	0	0	0	0	0	0	0	0	31.8	1.5
Capitellidae	*Mediomastus* sp.A	32	5.9	286	47	32	3	63.6	1.6	159	8.5	95.4	4.4
	Notomastus sp.A	0	0	0	0	0	0	31.8	0.8	63.6	3.4	95.4	4.4
	N. latericeus	0	0	0	0	0	0	0	0	0	0	31.8	1.5
	Capitella sp.A	286	53	0	0	0	0	0	0	0	0	0	0
Maldanidae	*Euclymene* sp.A	0	0	64	11	0	0	31.8	0.8	0	0	31.8	1.5
Ophelidae	*Armandia* cf. *lanceolata*	0	0	0	0	0	0	0	0	0	0	31.8	1.5

Table 6.22 Continue.

Family	Species	TEin		TE5		TE4		TE3		TE2		TE1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Chrysopetalidae	*Chrysopetalum* sp.A	0	0	0	0	0	0	0	0	0	0	31.8	1.5
Pilargidae	*Sigambra* cf. *tentaculata*	0	0	32	5.3	0	0	127	3.1	0	0	63.6	2.9
Glyceridae	*Glycera* spA	0	0	0	0	32	3	31.8	0.8	31.8	1.7	95.4	4.4
Goniadidae	*Glycinde* spA	0	0	0	0	64	6.1	63.6	1.6	31.8	1.7	63.6	2.9
Lacydonidae	*Paralacydonia* spA	0	0	0	0	0	0	0	0	0	0	31.8	1.5
Nephtyidae	*Nephtys* cf *polybranchia*	0	0	0	0	0	0	63.6	1.6	63.6	3.4	31.8	1.5
Lumbrineridae	*Lumbrineris* spB	0	0	32	5.3	191	18	636	16	254	14	223	10
	Lumbrineris spC	0	0	32	5.3	0	0	0	0	31.8	1.7	0	0
Sternaspidae	*Sternaspis scutata*	32	5.9	0	0	254	24	604	15	382	20	31.8	1.5
Oweniidae	*Owenia* spA	0	0	0	0	0	0	31.8	0.8	0	0	31.8	1.5
	cf *Myriochele* spA	32	5.9	64	11	32	3	318	7.8	63.6	3.4	63.6	2.9
Sabellidae	*Euchone* spA	0	0	0	0	32	3	223	5.4	63.6	3.4	31.8	1.5
	Chone spA	0	0	0	0	0	0	0	0	31.8	1.7	31.8	1.5

Table 6.23 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of Transect E in November 2000.

Family	Species	TEin		TE5		TE4		TE3		TE2		TE1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	0	0	31.8	2.27	0	0	0	0	0	0	0	0
	S. (Scoloplos) sp.B	0	0	0	0	0	0	0	0	0	0	31.8	1.81818
Paraonidae	*Tauberia gracilis*	0	0	31.8	2.27	1304	36	318	12	159	5.49	95.4	5.45455
	Cirrophorus sp.A	0	0	0	0	827	22.8	127	4.82	0	0	0	0
	Aricidea sp.A	0	0	0	0	63.6	1.75	0	0	0	0	31.8	1.81818
	Aricidea sp.B	0	0	0	0	0	0	0	0	0	0	63.6	3.63636
	Aricidea cf. *fragilis*	0	0	31.8	2.27	0	0	0	0	0	0	0	0
Cossuridae	*Cossura* sp.A	0	0	0	0	0	0	0	0	0	0	0	0
Spionidae	*Scolelepis* sp.A	0	0	0	0	0	0	0	0	0	0	31.8	1.81818
	Pseudopolycora sp.C	0	0	0	0	31.8	0.88	0	0	0	0	0	0
	Prionospio (Prionospio) membranacea	0	0	95.4	6.82	95.4	2.63	95.4	3.61	668	23.1	254	14.5455
	P. (Prionospio) depauperata	0	0	0	0	31.8	0.88	0	0	0	0	0	0
	P. (Minuspio) japonica	191	66.7	0	0	223	6.14	318	12	0	0	0	0
	P. (Minuspio) multibranchiata	0	0	31.8	2.27	0	0	0	0	0	0	0	0
	M. pulchra	0	0	95.4	6.82	0	0	0	0	0	0	0	0
	Aquilaspio sexoculata	0	0	0	0	31.8	0.88	127	4.82	0	0	95.4	5.45455
Cirratulidae	*Cirriformia* sp.A	0	0	0	0	31.8	0.88	31.8	1.2	0	0	0	0
	Tharyx sp.A	0	0	0	0	0	0	95.4	3.61	0	0	0	0
	Chaetozone sp.A	0	0	0	0	95.4	2.63	0	0	0	0	0	0
Capitellidae	*Mediomastus* sp.A	0	0	0	0	127	3.51	159	6.02	63.6	2.2	0	0
	Notomastus sp.A	0	0	254	18.2	0	0	0	0	0	0	191	10.9091
	N. latericeus	0	0	0	0	0	0	0	0	0	0	31.8	1.81818
Maldanidae	*Euclymene* sp.A	0	0	31.8	2.27	0	0	0	0	0	0	0	0
Ophelidae	*Armandia* cf. *lanceolata*	0	0	350	25	0	0	0	0	63.6	2.2	63.6	3.63636
Pilargidae	*Sigambra* cf. *tentaculata*	0	0	95.4	6.82	95.4	2.63	0	0	191	6.59	95.4	5.45455
	Anchistrosyllis sp.A	0	0	0	0	0	0	0	0	0	0	31.8	1.81818
Nereidae	*Neanthes* sp.A	0	0	0	0	0	0	0	0	31.8	1.1	223	12.7273
Glyceridae	*Glycera* sp.A	0	0	63.6	4.55	0	0	0	0	0	0	0	0
Goniadidae	*Glycinde* sp.A	0	0	31.8	2.27	0	0	95.4	3.61	0	0	0	0
Lacydonidae	*Paralacydonia* sp.A	0	0	63.6	4.55	0	0	0	0	0	0	0	0

Table 6.23 Continue.

Family	Species	TEin		TE5		TE4		TE3		TE2		TE1	
		Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%	Abun.	%
Lumbrineridae	*Lumbrineris* sp.B	0	0	159	11.4	63.6	1.75	127	4.82	63.6	2.2	445	25.4545
	Lumbrineris sp.C	0	0	0	0	191	5.26	159	6.02	0	0	0	0
Sternaspidae	*Sternaspis* sp.A	0	0	0	0	318	8.77	954	36.1	1558	53.8	0	0
Oweniidae	*Myriochele* sp.A	0	0	0	0	0	0	0	0	0	0	31.8	1.81818
Sabellidae	*Euchone* sp.A	95.4	33.3	0	0	95.4	2.63	31.8	1.2	63.6	2.2	0	0
	Chone sp.A	0	0	31.8	2.27	0	0	0	0	0	0	0	0

Coastal Area Outside the Bay

The polychaete diversity outside the Bay was shown in Table 6.24 –6.27. The common species could be found in this area were *Tauberia gracilis*, *Lumbrineris* sp.B, *Glycinde* sp.A, *Armandia* cf. *lanceolata*, *Sternapis* sp.A *and S. (Scoloplos)* sp.B. There was no distinct species occurred in this area.

It was found that the total of 19 families and 40 species were accounted for in January (Table 6.24). The relative abundance of control stations were much lower than those found at control stations inside the bay. For Staton C2 the species *Paraprionospio pinnata* was the major species contributing 63.6 ind.m^{-2}or 11.8% while the Station C3 dominated by *P. (Minuspio) pulchra*, 191.8 ind.m^{-2} (15.8%), following by the *Tauberia gracilis*, 127.2 ind.m^{-2} (10.5%) (Table 6.24).

The total number of family and species were reduced in April. *Sternaspis* sp.A was the dominant species with 223 ind.m^{-2} (13.2%) and followed by *Magelona crenulifrons* and *S. (Scoloplos)* sp.B at Station C1. *Armandia* cf, *lanceolata* was dominated at Station C2 with its average 159 ind.m^{-2} and *Ninoe* sp.A was major species for Station C3 (Table 6.25).

The number of species was found to decline in August. *Magelona crenulifrons* became the dominant species at Station C1 and C3 with low average abundance of 95.4 and 31.8 ind.m^{-2}. *Lumbrineris* sp.B contributed high abundant at Station C1 and C2. *Magelona crenulifrons, Tauberia gracilis, Cirrophorus* sp.A, *Mediomastus* sp.A and *Sigambra* cf. *tentaculata* were recorded at Station C3.

Sternaspis sp.A was the dominant species in November of average 127 ind.m^{-2} or 21.1%. and followed by *Armandia* cf. *lanceolata* and *Magelona crenulifrons*. *Glycinde* sp.A was common at Station C2 and followed by the *Armandia* cf. *lanceolata*. The latter species also abundant at Station C3.

Table 6.24 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of control stations in January 2000.

Family	Species	C1		C2		C3	
		Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	31.8	8.33	31.8	5.88	31.8	2.63
Paraonidae	*Tauberia gracilis*	31.8	8.33	31.8	5.88	127.2	10.5
	Aricidea sp.A	0	0	31.8	5.88	0	0
	Aricidea sp.B	0	0	0	0	31.8	2.63
Spionidae	*Spio* sp.A	31.8	8.33	0	0	0	0
	Aonides sp.A	0	0	0	0	0	0
	Pseudopolydora sp.C	31.8	8.33	0	0	0	0
	Paraprionospio pinnata	31.8	8.33	63.6	11.8	31.8	2.63
	Prionospio (Prionospio) caspersi	31.8	8.33	0	0	0	0
	P. (Prionospio) membranacea	0	0	31.8	5.88	0	0
	P. (Prionospio) depauperata	0	0	0	0	0	0
	P. (Prionospio) cf *neiseni*	0	0	0	0	31.8	2.63
	P. (Prionospio) malayensis	0	0	0	0	63.6	5.26
	P. (Minuspio) japonica	0	0	0	0	0	0
	P. (Minuspio) pulchra	0	0	0	0	190.8	15.8
	P. (Aquilaspio) sexoculata	0	0	31.8	5.88	95.4	7.89
Magelonidae	*Magelona pygmaea*	31.8	8.33	0	0	0	0
Poecilochaetidae	*Poecilochaetus* sp.A	0	0	0	0	31.8	2.63
Capitellidae	*Mediomastus* sp.A	0	0	0	0	63.6	5.26
	Notomastus sp.A	0	0	31.8	5.88	159	13.2
	N. latericeus	0	0	0	0	31.8	2.63
	Capitella sp.A	0	0	0	0	0	0
Maldanidae	*Euclymene* sp.A	0	0	0	0	63.6	5.26
	cf *Clymenura* sp.A	0	0	0	0	0	0
Ophelidae	*Ophelina* cf. *acuminata*	0	0	31.8	5.88	0	0
Phyllodocidae	*Eteone* sp.A	0	0	31.8	5.88	31.8	2.63
Hesionidae	*Leocratides* sp.A	0	0	0	0	31.8	2.63
Pilargidae	*Sigambra* cf. *tentaculata*	31.8	8.33	31.8	5.88	63.6	5.26
Glyceridae	*Glycera* sp.A	0	0	31.8	5.88	31.8	2.63
Goniadidae	*Glycinde* sp.A	31.8	8.33	0	0	31.8	2.63
Lacydonidae	*Paralacydonia* sp.A	0	0	31.8	5.88	0	0
Nephtyidae	*Nephtys* sp.A	31.8	8.33	0	0	0	0
	Nephtys sp.B	0	0	0	0	0	0
	Micronephthys cf. *sphaerocirrus*	0	0	31.8	5.88	31.8	2.63
Amphinomidae	*Chloeia* sp.A	31.8	8.33	0	0	0	0
Lumbrineridae	*Lumbrineris* sp.B	31.8	8.33	31.8	5.88	0	0
	Lumbrineris sp.C	0	0	0	0	0	0
Sternaspidae	*Sternaspis* sp.A	0	0	31.8	5.88	31.8	2.63
Sabellidae	*Euchone* sp.A	0	0	0	0	0	0
	Chone sp.A	0	0	31.8	5.88	0	0

Table 6.25 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of control stations in April 2000.

Family	Species	C1		C2		C3	
		Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	0	0	63.6	6.06	0	0
	S. (Scoloplos) marsupialis	63.6	3.77	0	0	0	0
	S. (Scoloplos) sp.B	191	11.3	0	0	0	0
Paraonidae	*Tauberia gracilis*	0	0	31.8	3.03	0	0
	Cirrophorus sp.A	0	0	0	0	0	0
	Aricidea sp.A	0	0	63.6	6.06	31.8	7.14
	Aricidea sp.B	63.6	3.77	0	0	0	0
Cossuridae	*Cossura* sp.A	31.8	1.89	0	0	0	0
Spionidae	*Malacoceros indicus*	0	0	0	0	0	0
	Spio sp.A	0	0	31.8	3.03	0	0
	Paraprionospio pinnata	95.4	5.66	31.8	3.03	0	0
	Prionospio (Prionospio) caspersi	127	7.55	0	0	0	0
	P. (Prionospio) membranacea	0	0	0	0	95.4	21.4
	P. (Prionospio) depauperata	127	7.55	63.6	6.06	0	0
	P. (Minuspio) japonica	0	0	0	0	0	0
	P. (Minuspio) multibranchiata	0	0	31.8	3.03	0	0
	P. (Aquilaspio) sexoculata	31.8	1.89	0	0	63.6	14.3
Magelonidae	*Magelona crenulifrons*	191	11.3	95.4	9.09	0	0
	M. kamala	63.6	3.77	0	0	0	0
Poecilochaetidae	*Poecilochaetus* sp.A	31.8	1.89	31.8	3.03	0	0
Cirratulidae	*Chaetozone* sp.A	0	0	0	0	0	0
Capitellidae	*Mediomastus* sp.A	31.8	1.89	0	0	0	0
	Notomastus sp.A	0	0	63.6	6.06	0	0
Ophelidae	*Armandia* cf. *lanceolata*	31.8	1.89	159	15.2	0	0
Pilargidae	*Sigambra* cf. *tentaculata*	31.8	1.89	63.6	6.06	31.8	7.14
Nereidae	*Neanthes* sp.A	31.8	1.89	0	0	0	0
Glyceridae	*Glycera* sp.A	31.8	1.89	0	0	31.8	7.14
Goniadidae	*Glycinde* sp.A	63.6	3.77	31.8	3.03	0	0
Nephtyidae	*Nephtys* sp.B	95.4	5.66	63.6	6.06	0	0
Lumbrineridae	*Lumbrineris* sp.B	127	7.55	127	12.1	0	0
	Ninoe sp.A	0	0	31.8	3.03	159	35.7
Sternaspidae	*Sternaspis* sp.A	223	13.2	63.6	6.06	0	0
Oweniidae	*Myriochele* sp.A	0	0	0	0	0	0
Sabellidae	*Euchone* sp.A	0	0	0	0	31.8	7.14

Table 6.26 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of control stations in August 2000.

Family	Species	C1		C2		C3	
		Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*Scoloplos (Leodamus)* sp.A	0	0	31.8	3.1	0	0
	S. (Scoloplos) sp.B	31.8	5.26	31.8	3.1	0	0
Paraonidae	*Tauberia gracilis*	0	0	63.6	6.3	31.8	20
	Cirrophorus sp.A	31.8	5.26	0	0	31.8	20
	Aricidea sp.A	0	0	31.8	3.1	0	0
	Aricidea sp.B	31.8	5.26	0	0	0	0
	Aricidea cf. *fragilis*	31.8	5.26	0	0	0	0
Cossuridae	*Cossura* sp.A	0	0	0	0	0	0
Spionidae	*Malacoceros indicus*	0	0	31.8	3.1	0	0
	Pseudopolycora sp.C	0	0	0	0	0	0
	Prionospio (Prionospio) membranacea	0	0	0	0	0	0
	P. (Minuspio) japonica	31.8	5.26	0	0	0	0
	P. (Minuspio) multibranchiata	0	0	0	0	0	0
	P. (Minuspio) pulchra	0	0	0	0	0	0
	P. (Aquilaspio) sexoculata	0	0	0	0	0	0
	cf *P. (Minuspio)* sp.A	0	0	31.8	3.1	0	0
Magelonidae	*Magelona crenulifrons*	95.4	15.8	31.8	3.1	31.8	20
	M. kamala	31.8	5.26	31.8	3.1	0	0
Cirratulidae	*Monticellina* sp.A	0	0	0	0	0	0
Capitellidae	*Mediomastus* sp.A	31.8	5.26	127	13	31.8	20
	Notomastus sp.A	31.8	5.26	31.8	3.1	0	0
	Capitella sp.A	0	0	0	0	0	0
Maldanidae	*Euclymene* sp.A	0	0	63.6	6.3	0	0
Ophelidae	*Armandia* sp.A	0	0	31.8	3.1	0	0
Hesionidae	*Leocrates* sp.A	0	0	0	0	0	0
Pilargidae	*Sigambra* cf. *tentaculata*	31.8	5.26	63.6	6.3	31.8	20
	Anchistrosyllis sp.A	0	0	31.8	3.1	0	0
Glyceridae	*Glycera* sp.A	0	0	31.8	3.1	0	0
Goniadidae	*Glycinde* sp.A	63.6	10.5	95.4	9.4	0	0
Lacydonidae	*Paralacydonia* sp.A	0	0	31.8	3.1	0	0
Lumbrineridae	*Lumbrineris* sp.B	63.6	10.5	127	13	0	0
	Lumbrineris sp.C	0	0	0	0	0	0
	Ninoe sp.A	31.8	5.26	0	0	0	0
Sternaspidae	*Sternaspis* sp.A	0	0	0	0	0	0
Oweniidae	*Owenia* sp.A	31.8	5.26	31.8	3.1	0	0
	Myriochele sp.A	31.8	5.26	63.6	6.3	0	0
Sabellidae	*Euchone* sp.A	0	0	0	0	0	0
	Chone sp.A	0	0	0	0	0	0

Table 6.27 Account of polychaete species found in the Kung Krabaen Bay and theirs average abundance (ind.m^{-2}) and percentile (%) among sampling stations of control stations in November 2000.

Family	Species	C1		C2		C3	
		Abun.	%	Abun.	%	Abun.	%
Orbiniidae	*S. (Scoloplos)* sp.B	31.8	5.26	0	0	0	0
Paraonidae	*Tauberia gracilis*	31.8	5.26	0	0	0	0
	Cirrophorus sp.A	0	0	0	0	0	0
	Aricidea sp.A	0	0	0	0	0	0
Spionidae	*Spio* sp.A	0	0	0	0	0	0
	Pseudopolycora sp.C	0	0	31.8	3.7	0	0
	Paraprionospio pinnata	0	0	0	0	0	0
	Prionospio (Prionospio) membranacea	0	0	0	0	0	0
	P. (Minuspio) japonica	63.6	10.5	0	0	63.6	3.92
Magelonidae	*Magelona crenulifrons*	95.4	15.8	31.8	3.7	0	0
Cirratulidae	*Chaetozone* sp.A	0	0	0	0	0	0
Capitellidae	*Mediomastus* sp.A	0	0	0	0	0	0
	Notomastus sp.A	0	0	63.6	7.41	0	0
	Capitella sp.A	0	0	0	0	0	0
Ophelidae	*Armandia* sp.A	95.4	15.8	159	18.5	541	33.3
Phyllodocidae	*Eteone* sp.A	0	0	0	0	31.8	1.96
Pilargidae	*Sigambra tentaculata*	0	0	95.4	11.1	318	19.6
Nereidae	*Neanthes* sp.A	0	0	63.6	7.41	63.6	3.92
Glyceridae	*Glycera* sp.A	0	0	0	0	286	17.6
Goniadidae	*Glycinde* sp..A	63.6	10.5	223	25.9	0	0
Nephtyidae	*Nephtys* cf. *polybranchia*	0	0	31.8	3.7	31.8	1.96
Amphinomidae	*Linopherus* sp.A	0	0	0	0	63.6	3.92
Lumbrineridae	*Lumbrineris* sp.B	31.8	5.26	127	14.8	223	13.7
Sternaspidae	*Sternaspis* sp.A	127	21.1	0	0	0	0
Oweniidae	*Myriochele* sp.A	31.8	5.26	0	0	0	0
Sabellidae	*Euchone* sp.A	0	0	0	0	0	0
	Chone sp.A	31.8	5.26	31.8	3.7	0	0

3. Dominant Species of Polychaete

Dominant species of polychaetes in each sampling month as calculated as average abundance were shown in Table 6.28. The result showed the *P. (Minuspio) japonica*and *Mediomastus* sp.A were the top abundant species in the Kung Krabaen Bay throughout the sampling period. *Armandia* cf. *lanceolata* was ranked second and third dominant species in January and April. Low abundant of this species were in ril and November and finally disappeared in August. *Mediomastus* spA and *Lumbrineris* spB,

Table 6.28 Average abundance (ind/core) of top ten dominance species in Kung Krabaen Bay during January – November 2000.

Period	Top Ten of Dominant Species in the bay	Avg. abun. (ind/m^2)	Top Ten of Dominant Species in coastal area	Avg. abun. (ind/ m^2)
January	*P. (Minuspio) japonica*	261.2	*Tauberia gracilis*	63.6
	Armandia cf laceolata	112.4	*P. (Minuspio) pulchra*	63.6
	Sigambra cf. *tentaculata*	82.9	*Notomastus* sp.A	63.6
	P. (Prionospio) membranacea	78.4	*Sigambra* cf. *tentaculata*	42.4
	Mediomastus sp.A	76.1	*Paraprionospio pinnata*	42.4
	Glycinde sp.A	75.0	*P. (Aquilaspio) sexoculata*	42.4
	Paraonis gracilis	64.7	*Scoloplos (Leodamus)* sp.A	31.8
	Lumbrineris sp.B	56.8	*Sternaspis* sp.A	21.2
	Scoloplos (Scoloplos) sp.B	54.5	*P. (Prionospio)* sp.A	21.2
	Scoloplos (Leodamus) sp.A	52.2	*Micronephthys* cf. *sphaerocirrus*	21.2
	Total avg abundance	1575.3	Total avg abundance	710.2
April	*Mediomastus* sp.A	126.1	*Sternaspis* sp.A	95.4
	P. (Minuspio) japonica	123.8	*Magelona crenulifrons*	95.4
	Armandia cf laceolata	86.3	*Lumbrineris* sp.B	84.8
	Sigambra cf. *tentaculata*	78.4	*P. (Prionospio) depauperata*	63.6
	Scoloplos (Scoloplos) sp.B	73.8	*Scoloplos (Scoloplos)* sp.B	63.6
	Lumbrineris sp.B	69.3	*Ninoe* sp.A	63.6
	Neanthes sp.A	64.7	*Armandia* cf. *laceolata*	63.6
	S. (Scoloplos) marsupialis	63.6	*Nephtys* sp.B	53
	Aricidea sp.A	56.8	*Sigambra* cf. *tentaculata*	42.4
	Tauberia gracilis	53.4	*Prionospio (Prionospio) caspersi*	42.4
	Total avg abundance	1350.4	Total avg abundance	1038./8
August	*P. (Minuspio) japonica*	278.3	*Mediomastus* sp.A	63.6
	Mediomastus sp.A	121.5	*Magelona crenulifrons*	53
	Lumbrineris sp.B	93.1	*Lumbrineris* sp.B	53
	Sternaspis sp.A	62.5	*Glycinde* sp.A	53
	P. (Prionospio) membranacea	60.2	*Sigambra* cf. *tentaculata*	42.4
	Sigambra cf. *tentaculata*	44.3	*Tuaberia gracilis*	31.8
	Tauberia gracilis	43.2	*Myriochele* sp.A	31.8
	Aricidea sp.A	39.8	*Aricidea* sp.A	31.8
	Magelona crenulifrons	30.7	*Cirrophorus* sp.A	21.2
	Scoloplos (Scoloplos) sp.B	28.4	*Owenia* sp.A	21.2
	Total avg abundance	1049	Total avg abundance	593.6

Table 6.28 Continue.

Period	Top Ten of Dominant Species In the bay	Avg. abun. (ind/ m^2)	Top Ten of Dominant Species In coastal area	Avg. abun. (ind/ m^2)
November	*P. (Minuspio) japonica*	228.3	*Armandia* cf. *laceolata*	265.0
	Sternaspis sp.A	111.3	*Sigambra* cf. *tentaculata*	137.8
	Lumbrineris sp.B	98.8	*Lumbrineris* sp.B	127.2
	Mediomastus sp.A	95.4	*Glycinde* sp.A	95.4
	P. (Prionospio) membranacea	76.1	*Glycera* sp.A	95.4
	Tauberia gracilis	71.6	*Sternaspis* sp.A	42.4
	Sigambra sp.A	42.0	*P. (Minuspio) japonica*	42.4
	Aricidea sp.A	40.9	*Neanthes* sp.A	42.4
	Armandia cf. *laceolata*	37.5	*Magelona crenulifrons*	42.4
	Cirriphorus sp.A	35.2	*Notomastus* sp.A	21.2
	Total avg abundance	1117.5	Total avg abundance	1038.8

Tauberia gracilis, Sternaspis scutata, Sigambra tentaculat, and *P. (Minuspio) membranacea* were also common. These common species were charactized as the deposit-feeders in their feeding behavior. The dominant species in the coastal area in January were at the same proportion, namely *Tauberia gracilis, P. (Minuspio) pulchra* and *Notomastus* sp.A The species appeared in April were different species, i.e. *Sternaspis* sp.A, *Magelona crenulifrons* and *Lumbrineris* sp.B while in August the dominant species were changed to be *Mediomastus* sp.A, *Magelona crenulifrons* and *Lumbrineris* sp.B as well as dominant species change in November as shown in Table 6.28.

Table 6.29 presented average abundance (ind/core) and dominant species occurred inside the canal, at mouth of canal, and 500 – 2000 m off canal. Showing the changes in species along the gradients. *P. (Minuspi) japonica* dominated the polychaete assemblage structure inside and at mouth of canals throughout the sampling period. This species appeared a high abundance at 500 m from canal in August. This was in relation to the low salinity in the mixing area between freshwater runoff and seawater in the bay. *Mediomastus* spA as well as *Armandia* cf *lanceolata,* and *P.(Minuspio) multibranchiata* were common inside canals and at mouth of canals. *Glycinde* sp.A, *Sternaspis* sp.A, *S. (Leodamus)* sp.A, *Lumbrineris* sp.B and *Euchone* sp.A were rare.

The polychaete assemblage in the distance of 500 m from canals formed the different group. *P. (Prionospio) membranacea, Mediomastus* spA and *Tauberia gracilis* were dominant in this area. *Armandia* cf. *lanceolata, Cirrophorus* spA and *Lumbrineris* sp.B were also recorded. *Mediomastus* sp.A, *Sternaspis* sp.A, *Sigambra* cf. *tentaculata*, and *Lumbrineris* sp.B were dominant species at 1000 m boundary. The major species in the coastal area (Table 6.28) were recorded as similar species found in the bay. There was not much different among the polychaete community in the bay and the coastal area. The similar dominant species were, for example, *Tauberia gracilis, Lumbrineris* sp.B, *Mediomastus* sp.A, *Sigambra* cf. *tentaculata, Sternaspis* sp.A.

Table 6.29 Average abundance (ind/core) of 3 sequence of dominance species from sampling sites inside canal, at mouth of canal, 500 m, 1000 m, 1500 m and 2000 m.

	Inside canal		Mouth of canal		500 m from canal	
	Species	Ind/core	Species	Ind/core	Species	Ind/core
January	*P.(Minuspio) japonica*	28	*P.(Minuspio) japonica*	17	*P. (Prionospio) membranacea*	7.6
	Armandia cf. *lanceolata*	3.2	*Armandia* cf. *lanceolata*	14	*Tauberia gracilis*	6.6
	Glycinde sp.A	2.8	*Mediomastus* sp.A	6	*Lumbrineris* sp.B	4.2
April	*P. (Minuspio) japonica*	8	*P. (Minuspio) japonica*	12.8	*Mediomastus* sp.A	8.4
	P. (Minuspio) multibranchiata	1.6	*P. (Aquilaspio) sexoculata*	1.8	*Armandiacf. lanceolata*	6.4
	Scoloplos (Leodamus) sp.A	1.4	*Mediomastus* sp.A	1.4	*Lumbrineris* sp.B	4.8
August	*P. (Minuspio) japonica*	11	*P. (Minuspio) japonica*	20.4	*P.(Minuspio) japonica*	16.2
	Capitella sp.A	2.2	*Mediomastus* sp.A	7.8	*Mediomastus* sp.A	5.2
	Sternaspis sp.A	1.8	*Euclymene* sp.A	1.4	*Lumbrineris* sp.B	2.6
November	*P. (Minuspio) japonica*	3.8	*P. (Minuspio) japonica*	30	*Tauberia gracilis*	8.6
	Mediomastus sp.A	0.8	*Mediomastus* sp.A	7	*Cirrophorus* sp.A	5.2
	Euchone sp.A	0.6	*Lumbrineris* sp.B	3	*Mediomastus* sp.A	3.6

	1000 m		1500 m		2000 m	
	Species	Ind/core	Species	Ind/core	Species	Ind/core
January	*Sigambra* cf. *tentaculata*	6	*Sigambra* cf. *tentaculata*	3.4	*S.(Scoloplos)* sp.B	5.7
	Tauberia gracilis	3.6	*P.(Prionospio) caspersi*	2.8	*P.(Prionospio) membranacea*	2.3
	P.(Prionospio) membranacea	3.2	*Lumbrineris* sp.B	2.4	*P.(Prionospio) depauperata*	2.3
April	*Mediomastus* sp.A	7.6	*S.(Scoloplos) marsupislis*	6.2	*Sigambra tentaculata*	5.0
	P.(Prionospio) membranacea	5	*S.(Scoloplos)* sp.B	5.2	*Cossura* sp.A	4.7
	Tauberia gracillis	4.4	*Sigambra* cf. *tentaculata*	5	*Notomastus* sp.A	4.7
August	*Lumbrineris* sp.A	6.4	*Lumbrineris* sp.B	3.4	*Lumbrineris* sp.B	5.0
	P.(Prionospio) membranacea	4.4	*Sternaspis* sp.A	2.8	*P.(Prionospio) membranacea*	3.7
	Tauberia gracilis	4	*Mediomastus* sp.A	2.6	*Magelona crenulifrons*	3.3
November	*Sternaspis* sp.A	6	*Sternaspis* sp.A	10.4	*Lumbrineris* sp.B	6.0
	Lumbrineris sp.B	4.4	*P.(Prionospio) membranacea*	5.4	*P.(Prionospio) membranacea*	3.0
	P.(Prionspio) membranacea	2.4	*Lumbrineris* sp.B	3.4	*Notomastus* sp.A	2.7

4. Diversity Indices of Polychaetes

Diversity , evenness and richness indices were calculated in stations. The results showed the lowest values of those 3 index at the station inside drainage canals in all sampling months as shown in Figure 6.4. The indices increased toward the bay.

Lowest diversity were found at station inside the canals of 1.22, 1.28, 1.11 and 0.61 in January, April, August and November respectively . The index value in the rainy season were lower than in the dry season. The evenness value increased at the central of the bay. Richness value showed that low diversity occurred in drainage canals but slightly increased toward the bay.

It was obviously showed that the polychaete diversity inside drainage was lower than those found at station inside the bay. The control station outside the bay also showed high diversity.

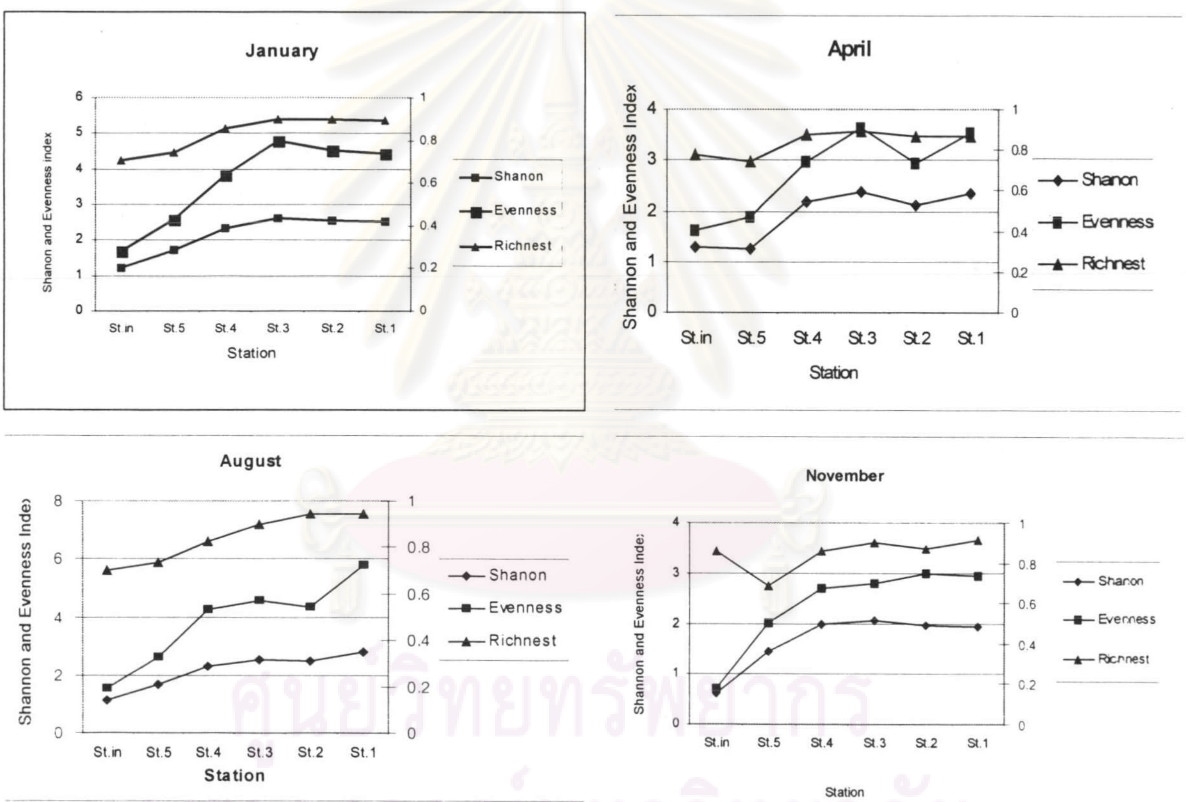

Figure 6.4 Diversity indices of polychaetes in Kung Krabaen Bay, Chanthaburi Province during January – November, 2000.

5. Polychaete Assemblage Structure

The cluster analysis was employed to analyze the structure of polychaete assemblages separating in dry (January and April) and wet (August and November) season.

Dry season

There were two groups of polychaete communities in Kung Krabaen Bay separated by 36% similarity threshold as shown in Figure 6.5.

Group 1 consisted of 9 stations of average similarity 50.54%. Most stations were located inside and at the mouth of the drainage canals. Sediment type of the canal was mud to fine sand, excepted stations TAin and TBin medium sand. Organic content and the hydrogen sulfide in the drainage canals were higher than the bay. In rainy season the salinity was low to 2 psu in the natural canals at TA and TB while the rest received approximate 10-15 psu.

The dominant polychaete species of this group was the spionid, *P. (Minuspio) japonica* and followed by *Glycinde* sp.A (16.00%), *P. (Aquilaspio) sexoculata* (10.08%), *Mediomastus* sp.A (7.37%), *Armandia* cf. *lanceolata* (7.19%) and *Euchone* sp.A (5.71%). More than fifty percent were the detritus-feeders, i.e. *P.(Minuspio) japonic, P.(Aquilaspio) sexoculata, Mediomastus* sp.A, and *Armandia cf. lanceolata* while the *Euchone* sp.A was suspension feeder and *Glycinde* sp.A predator as in Table 6.30.

Group 2 consisted of 22 stations of average similarity 48.03%. All stations of this group located in the bay and coastal area. Sediment type was fine sand to mud inside the bay and very fine sand (or mud by observation) on substratum outside the bay. The bottom oxygen ranging from 5.34 $\pm$ 0.523 to 6.36 $\pm$ 0.03, salinity from 24.5 $\pm$ 1.73 to 31.7 $\pm$ 0.08, temperature from 30.13 $\pm$ 0.15 to 32.17 $\pm$ 1.99, pH from 7.5 $\pm$ 0.19 to 8.15 $\pm$ 0.1, H_2S from 0.09 $\pm$ 0.08 to 0.36 $\pm$ 0.15 and organic content from 0.520 $\pm$ 0.270 to 2.707 $\pm$ 1.005.

The dominant species of group 2 was *Lumbrineris* sp.B about 7.74% of average total abundance and followed by *Sigambra* cf. *tentaculata* (7.25%), *P.(Prionospio) membranacea* (5.54%), *Glycera* sp.A (5.52%), *Mediomastus* sp.A (5.34%) and *S. (Leodamus)* sp.A (5.22%) (Table 6.30).

It was appeared that the capitellid, *Mediomastus* sp.A, was common in group 1 and 2.

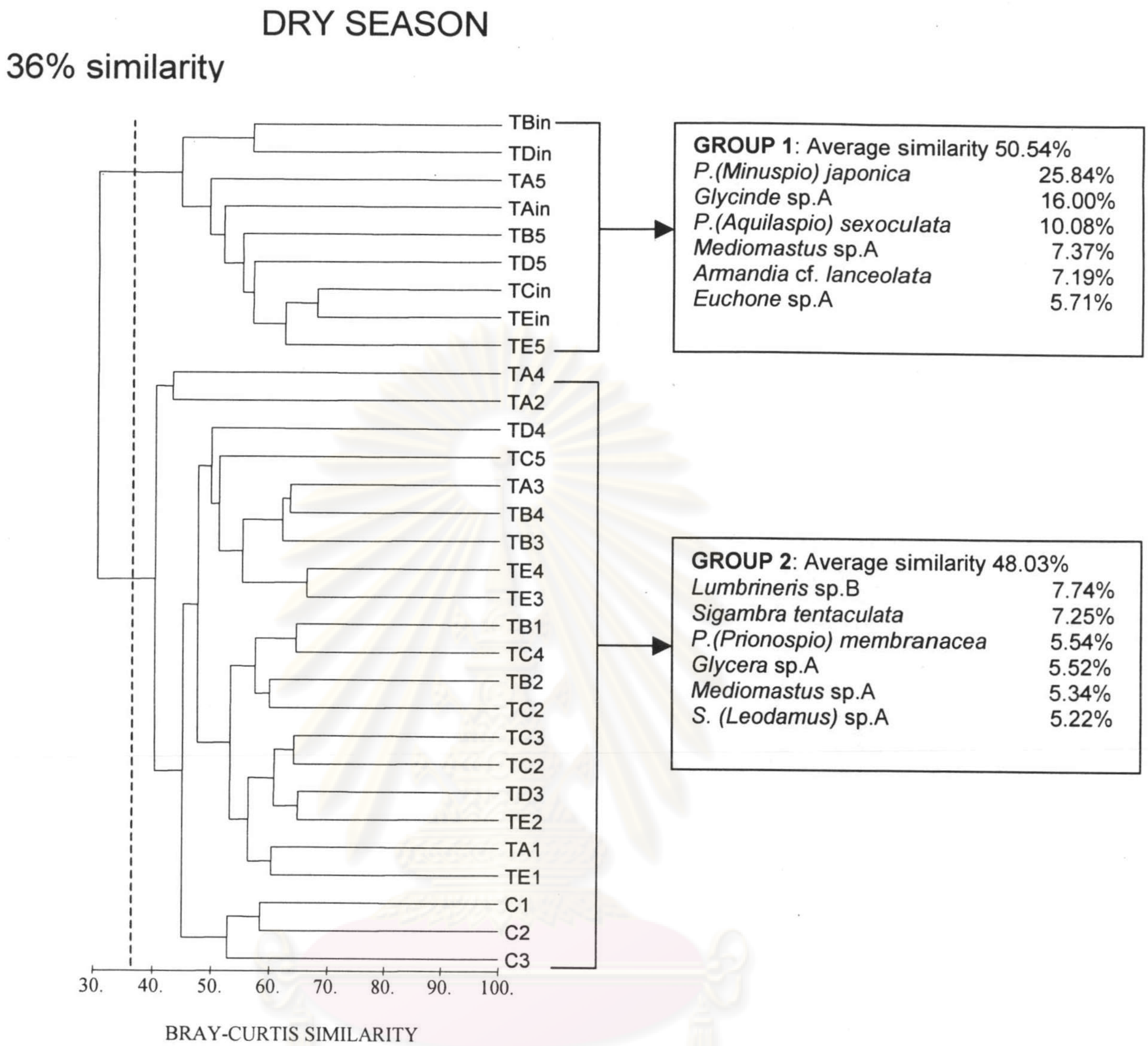

Figure 6.5 Polychaete assemblage structure of Kung Krabaen Bay in dry season.

Table 6.30 Sampling sites, dominant species contribution and environmental parameters of group 1 and 2 from cluster analysis of Kung Krabaen Bay, Chanthaburi Province, in dry season.

Sites	Dominant Species	Environmental Parameters
Drainage canal: Stations: TAin, TBin, TCin, TDin, TEin, TA5, TB5, TD5 and TE5	*P.(Minuspio) japonic* 25.84% *Glycinde* sp.A 16.00% *P.(Aquilaspio) sexoculata* 10.08% *Mediomastus* sp.A 7.37% *Armandia* cf. *lanceolata* 7.19% *Euchone* sp.A 5.71%	Sediment type: fine sand to very fine sand, excepted stations TAin and TBin medium sand. H_2S: 0.423 mg/g Salinity: ranging from 30-32 psu pH: ranging from 7.5 to 8.15. Organic content: in the drainage canals was 3.686 $\pm$ 0.951% and 2.707 $\pm$ 1.005% at canal's mouth.
The bay and coastal area: Stations: TA4, TA3, TA2, TA1, TB4, TB3, TB2, TB1, TC5, TC4, TC3, TC2, TC1, TD4, TD3, TD2, TD1, TE4, TE3, TE2, TE1, C1, C2 and C3.	*Lumbrineris* sp.B 7.74% *Sigambra tentaculata* 7.25% *P.(Prionospio) membranacea*5.54% *Glycera* sp.A 5.52% *Mediomastus* sp.A 5.34% *S. (Leodamus)* sp.A 5.22%	Sediment type: fine sand Bottom dissolved oxygen: ranging from 5.34 $\pm$ 0.523 to 6.36 $\pm$ 0.03, Salinity from 24.5 $\pm$ 1.73 to 31.7 $\pm$ 0.08, Temperature: from 30.13 $\pm$ 0.15 to 32.17 $\pm$ 1.99, PH: from 7.5 $\pm$ 0.19 to 8.15 $\pm$ 0.1, H_2S from 0.09 $\pm$ 0.08 to 0.36 $\pm$ 0.15 Organic content: from 0.520 $\pm$ 0.270 to 2.707 $\pm$ 1.005.

Wet season

There were 3 groups of polychaete communities in Kung Krabaen Bay during wet season at 36% similarity threshold as shown in Figure 6.6.

Group 1 consisted of individual station TE2 which located at southern part of Kung Krabaen Bay. This station was notable that it located about 100m from the demonstrative fish cages culture under KKBRDSC and some private fish cages. The environmental characteristics was recorded that the sediment type was fine sand with high mud composition, bottom oxygen was about 6.78 mg/l, salinity 26.0 psu, temperature 29.5°C, pH 7.88, H_2S 0.115 mg/g, and organic content 2.512 %. H_2S and organic content were slightly higher than the vicinity stations due to the enhancement of organic loaded from fish caging in this area. Dominant polychaete was *S. (Scoloplos) marsupialis* contributing 15.89% of average total abundance and followed by the ranked species of *Capitella* sp.A (9.84%), *Neanthes* sp.A (7.03%), *Sigambra* cf *tentaculata* (5.62%), *Lumbrineris* sp.B (5.62%), *Glycera* sp.A (5.62%) and *P. (Prionospio) membranacea* (4.92%) (Table 6.31).

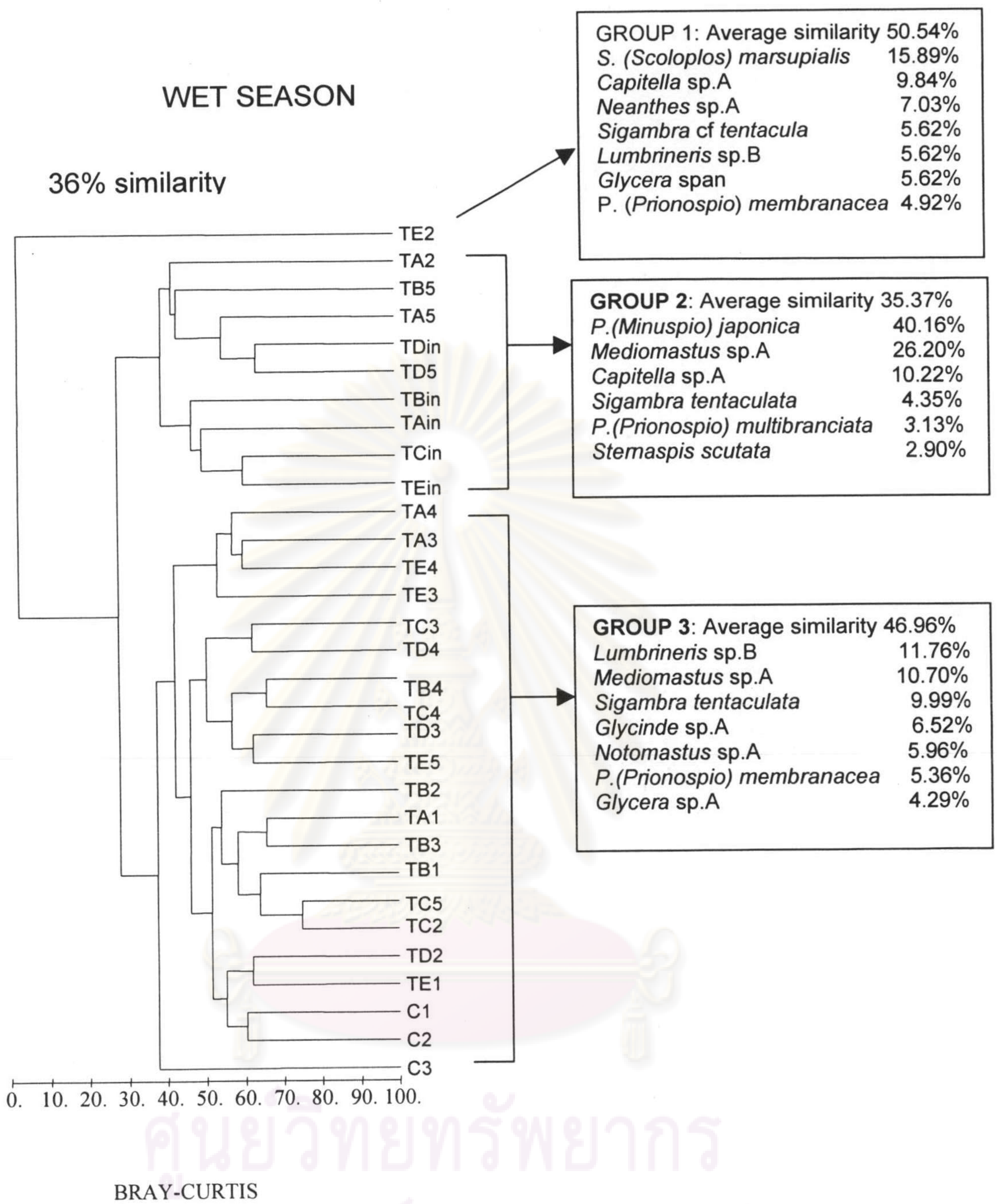

Figure 6.6 Polychaete assemblage structure of Kung Krabaen Bay in wet season.

Table 6.31 Sampling sites, dominant species contribution and environmental parameters of group 1 and 2 from cluster analysis of Kung Krabaen Bay, Chanthaburi Province, in wet season.

Sites	Dominant Species	Environmental Parameters
Group 1: Stations:TE2	*Scoloplos (Scoloplos) marsupialis* 15.89% *Capitella* sp.A 9.84% *Neanthes* sp.A 7.03% *Sigambra* cf *tentacula* 5.62% *Lumbrineris* sp.B 5.62% *Glycera* span 5.62% P. (*Prionospio*) *membranacea* 4.92%	Sediment type: fine sand with high mud composition Bottom dissolved oxygen: about 6.78 mg/l Salinity: 26.0 psu Temperature 29.5°C PH: 7.88 H_2S: 0.115 mg/g Organic content: 2.512 %
Group 2: The drainage canal area: Stations: TA2, TA5, TAin, TB5, TBin, TD5, TDin, TCin and TEin	*P.(Minuspio) japonica* 40.16% *Mediomastus* sp.A 26.20% *Capitella* sp.A 10.22% *Sigambra tentaculata* 4.35% *P.(Prionospio) multibranciata* 3.13% *Sternaspis scutata* 2.90%	Sediment type: fine sand with high mud composition, Bottom issolved oxygen: was about 6.78 mg/l, Salinity: approximate 26.0 psu, Temperature: 29.5°C, PH: 7.88, H_2S: 0.115 mg/g, organic content 2.512 %.
Group 3: The bay and coastal area Stations: TA4, TA3, TA2, TA1, TB4, TB3, TB2, TB1, TC4, TC3, TC2, TD4, TD3, TD2, TE4, TE3, TE2, TE1, C1, C2 and C3	*Lumbrineris* sp.B 11.76% *Mediomastus* sp.A 10.70% *Sigambra tentaculata* 9.99% *Glycinde* sp.A 6.52% *Notomastus* sp.A 5.96% *P.(Prionospio) membranacea* 5.36% *Glycera* sp.A 4.29%	Sediment type: fine sand to muddy sand Bottom dissolved oxygen: from 6.99 $\pm$ 0.62 to 7.8 $\pm$ 0.35 mg/l Salinity: ranging from 21.4 $\pm$ 3.9 psu to 28.5 $\pm$ 0.0 psu Temperature: pH: from 7.89 $\pm$ 0.14 to 7.93 $\pm$ 0.12 H_2S: from 0.08 $\pm$ 0.04 to 0.27 $\pm$ 0.16 Organic content:: ranging from 1.185$\pm$ 0.949 % to 2.868$\pm$1.104 %

Group 2 consisted of 9 stations with an average similarity 35.37%. These stations lied inside and at the mouth of the drainage canals, except station TA2 (Table 6.31). Station TA2 located on the north part of Kung Krabaen Bay which lied close to the fishing port of the village. It was notable that the environment of this station influenced by organic waste loaded from this fishing port and nearby villages. Sediment types in this boundary was fine sand inside canals of TD and TE, very fine sand in TC while sediment type inside TA and TB were medium sand. Bottom oxygen was about 6.38 $\pm$ 0.53 mg/l. Salinity was low to 2 psu during rainy month of August and slightly upward in November with average salinity about 20.0 $\pm$ 3.9 psu inside the drainage canals. pH in drainage canals was average 7.86 $\pm$ 0.09 and 7.93 $\pm$ 0.12 at the mouth of canals. H_2S was higher inside the canals of average 0.42 $\pm$ 0.11 mg/g and 0.27 $\pm$ 0.16 mg/g at the mouth than the sites inside the bay. It was considerable that these concentration in wet were about 1-2 times lower than in dry season at the same sites. Organic content of the sites inside and at the mouth of canals in wet season had comparatively small higher content than in dry season.

The major species of this group was *P.(Minuspio) japonica* (40.16%) and followed by the ranked species of *Mediomastus* sp.A (26.20%), *Capitella* sp.A (10.22%), *Sigambra* cf. *tentaculata* (4.35%), *P.(Prionospio) multibranciata* (3.13%) and *Sternaspis* sp.A (2.90%) (Table 6.31).

Group 3 consists of 21 stations of mostly lied inside Kung Krabaen Bay with average similarity 46.96%. including 2 stations of TC5 and TE5 at the mouth of canals. Sediment type was consistent fine sand in this season and was not significant different from dry season, excepted the station outside the bay became coarser grain, from very fine sand or mud to fine sand grain. Bottom oxygen in this season had a bit higher than in dry season. Salinity appeared of lower salinity, ranging from 21.4 $\pm$ 3.9 psu in front of canals to 28.5 $\pm$ 0.0 psu in the bay and the coastal area. Temperature in wet season was slightly lower than in dry season as well as in pH values. H_2S concentrations in term of AVS showed higher value in dry season for coastal sites had higher values than in wet season while inside the bay appeared lower values in wet season. Organic content inside the bay had a bit higher content than in dry season with average content ranging from1.185 $\pm$ 0.949 % in control station outside the bay to 2.868 $\pm$ 1.104 % at shoreline boundary.

Dominant species of group 3 was led by *Lumbrineris* sp.B (11.76%) and followed by the ranked species of *Mediomastus* sp.A (10.70%), *Sigambra* cf. *tentaculata* (9.99%), *Glycinde* sp.A (6.52%), *Notomastus* sp.A (5.96%), *P.(Prionospio) membranacea* (5.36%) and *Glycera* sp.A (4.29%). It was considerable that the capitellid *Mediomastus* sp.A occurred as second ranked species in this bay community and also in canal community.

C. Relationship of Polychaetes and Environmental Parameters

Relationships between abundant polychaete species and environmental parameters, namely, organic content, hydrogen sulfide (AVS) content, dissolved oxygen, median grain size, salinity, pH, were tested using statistical correlation. Results were shown in Table 6.32.

The *P. (Minuspio) japonica* performed an opportunistic species to high organic enriched sediment in drainage canals. They showed an association with high organic content and hygrogen sulfide gas, as shown positive correlation, +0.371 and +0.368 respectively (Table 6.32). Not only this spionid polychaete but also the *Capitella* spA and *Glycinde* spA had low positive responsed to high hydrogen sulfide content that both species sometimes found in the drainage canals. Two capitellids, *Mediomastus* spA and *Capitella* spA, the common species in intertidal flat of this area performed low relation to high organic enriched sediment , +0.148 and –0.04 respectively but the former species showed low negative correlation to hydrogen sulfide (-0.05) whereas the latter species low positive correlation (+0.029). Some abundant species to intertidal flat inside the bay, *Sigambra* cf. *tentaculata*, the nereid *Neanthes* spA, *Scoloplos (Leodamus)* spA, and the lumbrinerid *Lumbrineris* sp.A indicated a low negative relation to high hydrogen sulfide and high organic enriched sediment while *Sternaspis* sp.A and *Tauberia gracilis* negative responsed to hydrogen sulfide but low positive relation to organic enrichment.

The increasing contents of hydrogen sulfide gas and organic matter in sediment caused a reduction to number of polychaete species and families. From Table 6.32, the decreasing number of polychaete species performed a negative relation (-0.7) to hydrogensulfide adduction as well as a negative relation (-0.38) to the number of families. The hydrogensulfide gas is toxic to organisms. The increasing content in could ignored benthic organisms to live in such sediment and resulted of low abundance or number of species and families from its habitats. In former contexts, high hydrogensulfide content appeared in drainage canals of Kung Krabaen Bay and on some sampling sites inside the bay. The formation of hydrogensulfide gas in sediment was expected relationship of organic content initialized due to decomposition process by bacteria in deeper sediment layer, particular high mud composition as settling in the same drainage canals. The organic content in sediment was higher in drainage canals than the vicinity areas in the bay. The appearance from this study showed low species diversity in drainage canals but with high abundance of opportunistic species, *Prionospio (Minuspio) japonica.*

Table 6.32 Correlation tests of environmental parameters, number of species, number of families and abundant polychaete species of Kung Krabaen Bay.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Hydrogensulfide (AVS)	1																			
2	pH	-0.12	1																		
3	Salinity	0.02	-0.42	1																	
4	Dissolved Oxygeno	-0.27	0.106	-0.04	1																
5	Organic content	0.32	-0.26	-0.13	-0.2	1															
6	Median grain-size	0.013	-0.08	-0.23	-0.22	0.245	1														
7	No. species	-0.37	0.094	0.02	0.146	-0.33	-0.25	1													
8	No. family	-0.38	0.012	0.243	0.137	-0.41	-0.3	0.807	1												
9	*P.(Minuspio) japonica*	0.368	-0.07	-0.2	-0.1	0.371	0.082	-0.23	-0.24	1											
10	*Mediomastus* sp.A	-0.05	-0.14	-0.15	-0.12	0.148	0.03	0.053	0.1	0.456	1										
11	*Armandia* cf. *lanciolata*	-0.03	-0.07	0.144	-0.05	-0.03	5E-04	0.063	0.155	0.091	0.051	1									
12	*Capitella* sp.A	0.029	-0.01	-0.08	-0.03	-0.04	-0.05	-0.07	-0.03	0.253	-0.03	0.114	1								
13	*Lumbrineris* sp.B	-0.24	-0.02	0.073	0.148	-0.15	-0.18	0.378	0.411	-0.22	0.12	0.059	-0.18	1							
14	*P.(Prionospio) membranacea*	-0.16	-0.15	0.1	0.013	-0.05	0.04	0.425	0.377	-0.19	0.052	8E-04	-0.12	0.391	1						
15	*Glycinde* sp.A	0.052	-0.28	0.125	-0.01	0.144	-0.03	0.269	0.331	0.091	0.127	0.336	-0.03	0.066	0.16	1					
16	*Tuaberia gracilis*	-0.11	-0.02	0.093	-0.11	0.081	0.016	0.221	0.213	-0.09	-0.03	-0.05	-0.07	0.198	0.212	0.198	1				
17	*Sigambra* cf.*tentaculata*	-0.21	-0.03	0.163	0.023	-0.19	-0.12	0.379	0.41	-0.17	-0.01	0.155	-0.01	0.272	0.141	0.045	0.17	1			
18	*Neanthes* s.A	-0.08	-0.05	0.13	-0.08	-0.19	-0.08	0.055	0.213	-0.04	0.086	0.165	0.438	0.166	0.013	-0.11	-0.05	0.133	1		
19	*S.(Leodamus)* sp.A	-0.15	-0.08	0.058	0.008	-0.22	-0.16	0.229	0.228	-0.16	0.035	-0.11	0.144	-0.07	0.035	-0.18	-0.07	0.036	0.088	1	
20	*Sternaspis scutata*	-0.04	-0.07	0.06	0.036	0.148	-0.06	0.139	0.134	-0.07	-0.01	-0.04	-0.06	0.205	0.523	0.061	0.375	0.134	-0.04	-0.08	1

Among environmental parameters pH and dissolved oxygen concentration showed negative relation to hydrogen sulfide content, -0.12 and –0.27 respectively. This indicated the increasing hydrogen sulfide in sediment could cause an decreasing of pH value (acidic property) to sediment and affected to diminish the dissolved oxygen content at sediment surface. High organic content in sediment performed a positive correlation (+0.32) to the increasing hydrogen sulfide and also could affected pH reduction causing more acidic property to sediment as well as impacted the deficiency on dissolved oxygen. However, the results of this study in previous chapters concluded no stress conditions occurrence in macro-habitat for this area but for micro-habitats related benthic organisms would be discussed.

Many species preferred to fine grain-size, i.e. very fine sand and mud sediment of this area. The low negative correlation indicated many species associated with very fine particle that responsed the deposit-feeding behaviors, such as *Capitella* sp A, *S.(Scoloplos)* spB, *Sternaspis* sp.A.

During rainy season the salinity of water in the drainage canals and the bay were diluted by freshwater runoff passing these drainage canals to the bay. Low salinity, as measured 2 psu in the nature canals and around 10-15 psu in man-made canals, occurred and caused low species diversity in the canals. Many polychaete species used to flavored ordinary seawater or small change were almost disappeared excluding the spionid, *P. (Minuspio) japonica* and two capitellids, *Mediomastus* spA and *Capitella* spA as well as oligochaetes could tolerate low salinity. These species showed negative correlation, -0.2, -0.15 and –0.08 respectively, to low salinity environment while many species inhabited on moderate low salinity about 10-15 psu. *Armandia* cf. *lanceolata* was another species tolerating low salinity but negative correlation to hydrogen sulfide, pH and also organic content.

D. Indicator Species of Organic Enrichment in Kung Krabaen Bay

Dominant polychaete species in the study area performed a positive reponse to the increasing of organic matter in the Kung Krabaen Bay environment, *P.(Minuspio) japonica, Mediomastus* sp.A, *Glycinde* sp.A, *Tauberia gracilis* and *Sternaspis* sp.A, *P. (Minuspio) japonica* showed a higher correlation value (0.371) than others. This species also responded to the increasing of hydrogen sulfide with the correlation value of 0.368 while the capitelid, *Capitella* sp.A and *Mediomastus* sp.A with the value 0.029 and -0.05 respectively.

P.(Minuspio) japanica performed a tolerant species in high organic matter and environment as an opportunistic species as shown in Figure 6.10. The species showed positive relation to the increasing of organic matter in sediment. Peak of abundance appeared in correlation to organic content around 5% and tended decreasing with more increasing organic content (Figure 6.7). McArthur (1960) cited by Pearson and Rosenberg (1978) described the term of 'opportunists' for those species whose reproductive and growth characteristics fit them to take immediate advantage of a sudden environmental change providing them with a favorable unexploited niche. These species can rapidly respond to open or unexploited habitats. Grassle and Grassle (1974) referred to definition for opportunists given by Wilson and Bossert (1971) that an opportunist (r-strategist) as a species 'adapted for life in a short-lived unpredictable habitat' by relying on a high r to make use of ephemeral resources. In a new habitat such a species would: 1. Discover the habitat quickly, 2. Reproduce rapidly to use up the resources before other, competing, species could exploit the habitat, and 3. Disperse in search of other new habitats as the existing one began to grow unfavorable. According to the definition given the *P.(Minuspio) japonica* was in agreed with that definition.

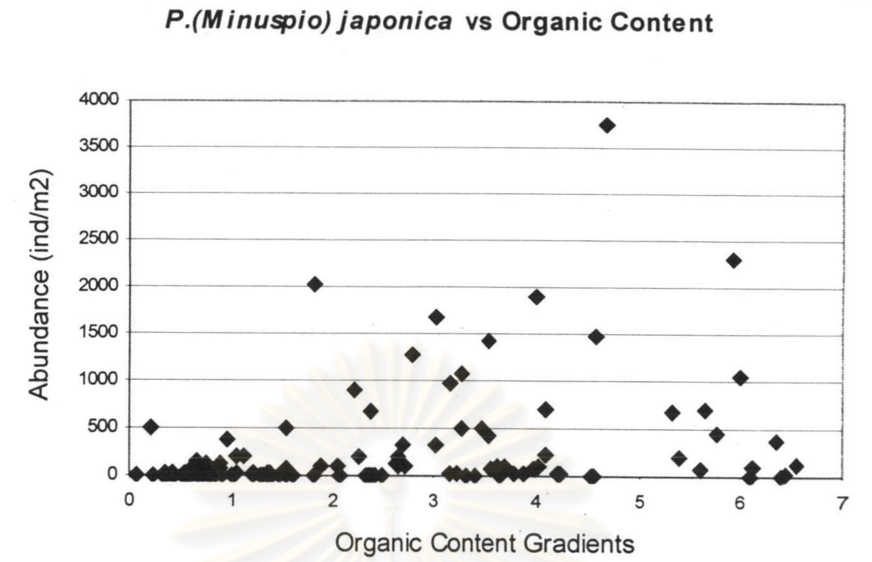

Figure 6.7 Abundance and organic content plots showing the positive relationship of *P.(Minuspio) japonica* to increasing organic content gradient

Gassle and Gassle (1974) summarized the criteria of opportunists that opportunists would initial response to disturbed condition, ability to increase rapidly, large population size, early maturation, and high mortality. They reported the opportunist polychaete in Wild Habour those were ranked in order of decreasing degree opportinism as: 1. *Capitella capitata,* 2. *Polydora ligni,* 3. *Syllides verrilli,* 4. *Microphthalmus aberrans,* 5. *Strepblospio benedicti,* 6. *Mediomastus ambiseta.* Pearson and Rosenberg (1978) listed polychaete species occupying apparently comparable positions in the successional sequence in different geographical areas. In the species list those species related pollution which close species to Kung Krabaen Bay species were *Capitella capitata, Notomastus* sp., *Scolelepis fuliginosa, Neanthes caudata, N. pelagica, N. arenaceodentata, N. succinea, Mediomastus ambiseta, M. californiensis, Capitomastus minimus, Eteone longa, E. picta, E. heteropoda, E. alba, E. dilatae, Cirriformia tentaculata, C. luxuriosa, Prionospio cirrifera. P.malmgreni, P. heterobranchia, Paraprionospio pinnata, Scoloplos armiger, S. acutus, S. robusta, S. fragilis, Glycinde picta, G. solitaria, Nephtys incisa, N. hombergi, Lumbrineris latreilli, L. fragilis, L. hibernica, L. impatiens, L. minima, L. erecta* and *L.. index.*

Shin and Kor (1999) reported the *P. (Minuspio) japonica* was one of the minor species found in polluted bays in Korea. They reported the capitellid, *Heteromastus fimilis* was indicator species to highly polluted environment. In the present study only the capitellid, *Mediomastus* sp.A was common on intertidal and flavourable to high organic content in sediment as shown in Figure 6.8. This species tended an indicator for high organic environment as well as *P.(Minuspio) japonica.*

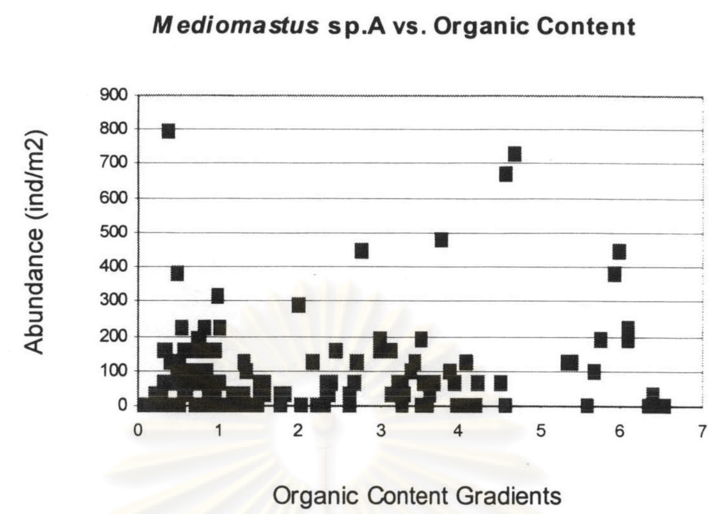

Figure 6.8 Abundance and organic content plots showing the relationship of *Mediomastus* sp.A to increasing organic content gradient

Within polychaete assemblage, the test showed a positive correlation between *P. (Minuspio) japonica* and *Mediomastus* spA. One species often found associated with the other. There was an evident that this two species were associated at drainage canals' mouth as well as the *Sternaspis* cf. *scutata* occurred in association with the spionid, *P. (Prionospio) membranacea* and the paraonid, *Tauberia gracilis* and between *Glycinde* spA and *Armandia* cf. *lanceolata.*

E. **Evaluation of Organic Enriched Benthic Communities**

The use of SAB relation curves suggested by Pearson and Rosenberg (1978) for evaluating the organic enriched environment was well fitted to this study. Figure 6.9 showed the SAB curves relationship of Kung Krabaen Bay benthic community.

The SAB curves relationships showed aboundary of two different benthic community for the area 500-700 m boundary far from the organic point source (shrimp farms and the drainage canals) during two period. This occurrence was in agreeing with the high organic content from this study appeared in the drainage canal and also high at the mouth of canals and sometimes at station 500 m from the canals. The ecotone point (E) was slightly different between dry and wet season.

The dominant polychaete species in 700 m boundary were *P. (Prionospio) membranacea,*

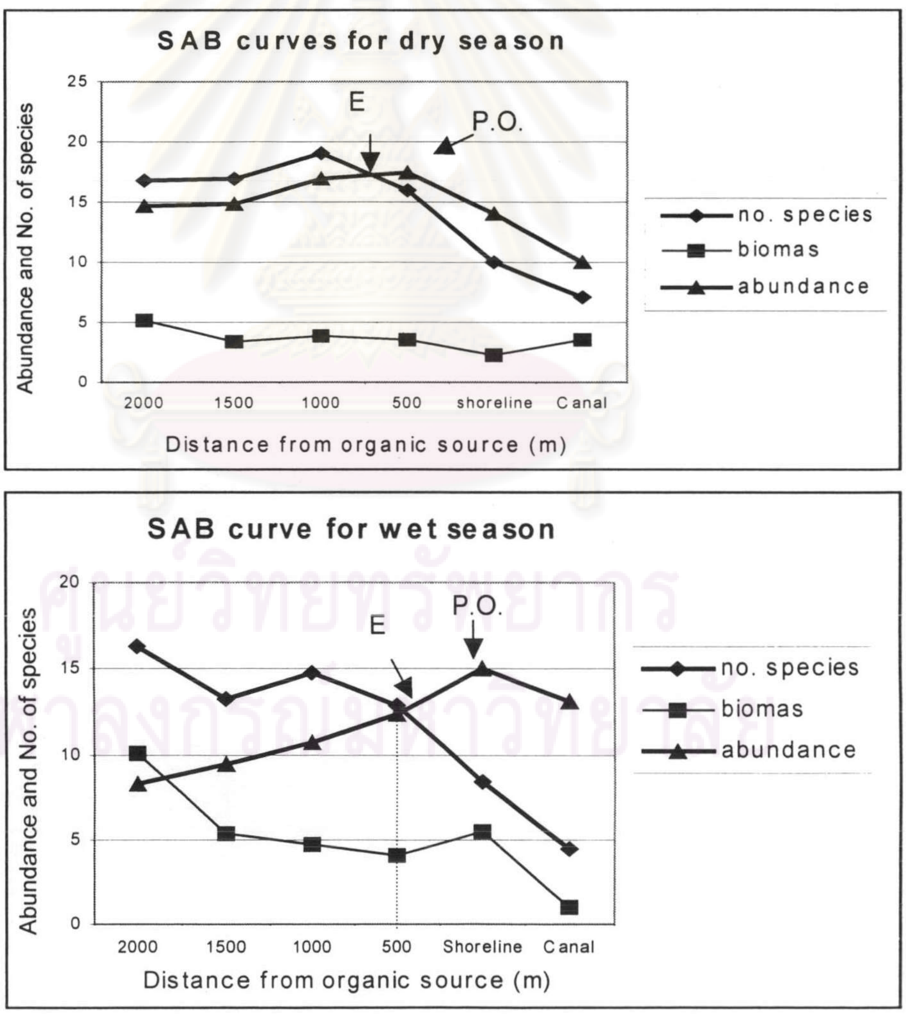

Figure 6.9 SAB curves relationship evaluating the organic enrichment from organic source at inner canals. Peak of opportunist (O.P.) occurred at the mouth of canals and the ecotone point (E) divided the benthic communities into 2 sub-communities at 700 m boundary in dry period and at 500 m boundary from organic source in wet period .

The dominant polychaete species in 700 m boundary were *P. (Prionospio) membranacea, Mediomastus* sp.A, *Tauberia gracilis*, *Lumbrineris* sp.B, and Armandiacf. Lanceolat. The P. *(Minuspio) japonica* was found dominance and followed by *Mediomastus* sp.A, *Lumbrineris* sp.B, *Tauberia gracilis* and *Cirrophorus* sp.A. It was noted that the *P.(Minuspio) japonica* occurred as dominant species in the drainage canals and also in 500 m boundary in wet season. The *Mediomastus* sp.A, *Tauberia gracilis* and *Lumbrineris* sp.B were common in the bay area during dry and wet season. They performed as shared species between the two different communities at the ecotone points in Kung Krabaen Bay. It was considerably that salinity factor might affect the distribution of some species that were sensitive to low salinity during wet season, the average salinity at 500-700 m boundaries ranging between 10 and 15 psu.

Warwick (1986) presented abundance and biomass curves (ABC curves) in detecting the pollution. Figure 6.10 showed the results of abundance and biomass curves (ABC curves) of Kung Krabaen Bay separated into 3 sites, namely the drainage canals, the entire bay and the coastal area outside the bay, in comparison of dry and wet season. The result showed that during the dry season the bay exhibited the moderately polluted condition while the coastal area and the drainage canals were in normal condition while in the wet season, the curves indicated the normal condition in the drainage, the bay and the coastal area. These occurrence was well agreed with the nutrients recyclinged inside the bay system as discussed in Chapter 4 that net dissolved nitrogen and phosphorus appeared in the bay system during the dry season while in wet season these net nutrients were absorbed and transported to the coastal area. However this result could not be expected that Kung Krabaen Bay was polluted. It was expected that this moderate pollution occurred in short period of time due to the exchange time (retention time) of water were short in dry and wet season (less than 1 day in dry season and approximate 1 day in wet season as resulted in Chapter 4). This benthic study was conducted in the year 2000 that after the seawater irrigation had ready been installed. The relationship between nutrients recycles and the benthic results was made after the installation of seawater irrigation system. The result in nutrients budgets studied in Chapter 4 showed that the seawater irrigation system was effective to reduce the nutrient cycling in the system. The ABC curved method might be unexpected to measure the polluted condition of Kung Krabaen Bay due to some points. For example, the tropical benthic fauna were typical small size and high diversity of species comparing to temperate areas.

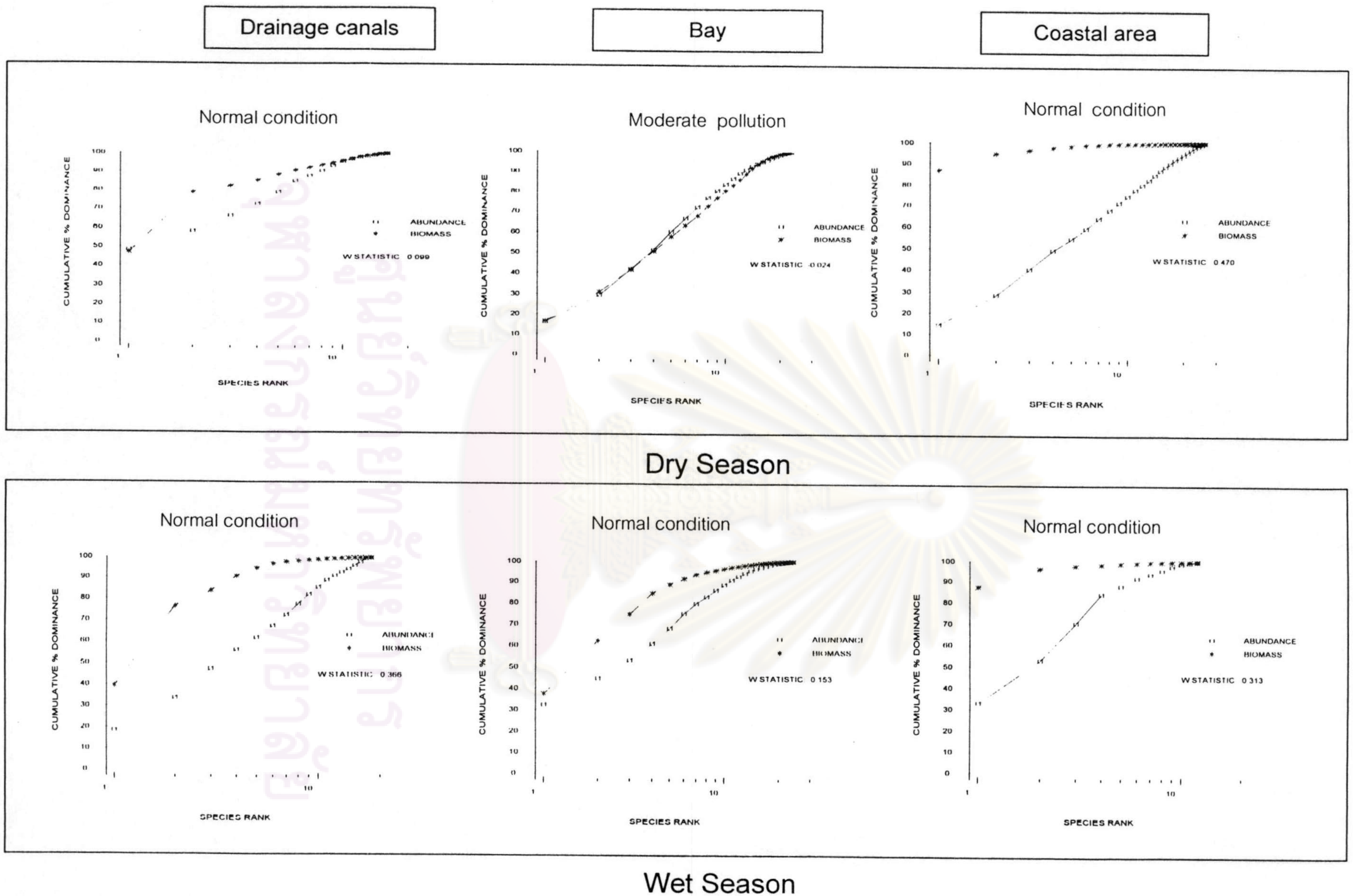

Figure 6.10 Showing the levels of pollution in Kung Krabaen Bay during dry and wet season by ABC-plots followed Warwick (1986)

F. Discussions and Conclusions

1. Status of Macrobenthic Fauna of Kung Krabaen Bay

Total 27 famiies, 58 genera and 78 species of polychaete are found from the study area. Of these the family Spionidae is the biggest family consisting of 20 species. There is a recognition of spatial and temperal change occurred. The spatial species diversity gradients is drawn from low species diversity and evenness index in the drainage canal to high species diversity and evenness index on the sea bottom inside the bay. Seasonal variation affected to low species diversity in the canal and nearby area. There contained several similar clustering groups and each group showed variety of dominant species inside the bay, excepting the canal and the mouth of canal frequently dominated by the spionid, *Prionospio (Minuspio) japonica*. The result showed no difference of abundance and species diversity between transected sampling lines and the control stations inside the bay. The polychaete assemblage often forms of a dominant group inside and outside the bay with dominant species, namely *Glycinde* sp.A, *Prionospio (Minuspio) multibranchiata, P.(Prionospio) caspersi, Scoloplos (Leodamua)* sp.A, *Sigambra tentaculata, Capitella* sp.A, *Magelona crenulifrons, Cossura* sp.A, *Lumbrineris* sp.B, *Mediomastus* sp.A, *Ninoe* sp.A, *Tauberia gracilis, Notomastus* sp.A, *Sternaspis scutata,* and *Aricidea* sp.A. Shannon-Wiener diversity index is found in gradient distribution from a low average values of 0.61 –1.40 for area inside the canal and about 1.00-1.96 for area at the mouth of canals to higher about 1.95-2.86 on area inside the bay. As well as the evenness index contributes a low value from inside the canals to higher on area inside the bay. For offshore area outside the bay, control stations, the diversity index vary between 1.11 and 2.76. The result reveals that the Kung Krabaen Bay has diversified species and abundance of polychaete which most species are respected in relation to the deposit-feeding guilds (Fauchald & Jumars, 1979).

Structure of macrobenthic community of this bay is described on the major dominant groups of faunas. Polycheate is obviously distributed as the major group of benthic community in this area likely as many parts of Thai's water (Sanguansin & Paphavasit, 1982; Hylleberg, *et al.*, 1985b; Bamroongsak & Bussarawit, 1987). Crustaceans and Mollusks slightly fluctuated at low abundant compositions as well as the rest groups, i.e. Fishes, Echinoderms and other invertebrates. Mean average of total abundance and biomass of macrobenthic infauna from sampling stations inside this bay contributed 1619 ind/m^2 and 17.655 g/m^2 while the sampling stations outside the bay (control stations) were 1478 ind/m^2 and 9.432 g/m^2. The situation of macrobenthic infauna between two sites, inside and outside the bay, indicates that the site inside the bay appears a higher richness of abundance and biomass than the other. Comparative studies are made to those from the offshore surveying in the Andaman Sea coast of Thailand by Bamroongsak & Bussarawit (1997) and the eastern coast of the Gulf of Thailand Sanguansin (1989) that total abundance in the Andaman Sea was recorded about 889 ind/m^2 of average abundance and a biomass 20.617 g/m^2 and from the eastern coast of the Gulf of Thailand was recorded 89.33 ind/m^2 for abundance and 22.577 g/m^2 for biomass. The present study reveals that the Kung Krabaen Bay , both inside and outside sites, distinctly contributes the higher abundance than those vicinity waters but the lower biomass. This occurrence can be considered that those comparative waters gained a large weight of the mollusk, echinoderms and some crustaceans while this study found a few number those animal groups.

The present study shows that along the annual year sampling the polychaete contributes a high mean average abundance of 1230 ind/m^2 or 74.2% and a mean average biomass of 4.166 g/m^2 or 81.1%. Moreover the results also indicates that this polychaete group obtained inside the bay has a higher composition in abundance with slighly lower the biomass than the area outside the bay, about 814 ind/m^2 of mean average abundance and 4.612 g/m^2 of mean average biomass. It is considerable to conclude that the benthic polychaete inside the bay is significantly rich of benthic faunas comparing to the area outside the bay.

The occurrence is reconfirmed after comparing the result of macrobenthic sampling in the eastern coast of the Gulf of Thailand, from Samae San Strait to Trat Province's coast by Sanguansin (1989). He carried out the sampling at station off the Kung Krabaen Bay (Station 22) with grab sampler. He found that polychaetes performed the major group of macrobenthic fauna in this water with contribution of 52.06 ind/m^2 on average density or 58.31% and 2.729 g/m^2 or 12.09% on average biomass . His finding indicates a lower abundance appearing on offshore bottom outside the bay than the inside one. On the other hand, the biomass for the sea bottom offshore outside the bay gained a higher wet weight than the inside one.

The polychaete assemblage inside the Kung Krabaen Bay shows a spatial gradient of abundance and biomass of which the rich inside the bay and slightly decreasing to coastal area and offshore respectively. The rich faunal status of the polychaetes is not only found in the Bay being higher than sea bottom off the Bay but also obviously more abundance and biomass than the Andaman Sea coast of Thailand. Chatananthawej & Bussarawit (1987) had conducted the quantitative survey of the macrobenthic fauna along the west coast of Thailand in the Andaman Sea during 1982-1983. They reported the polychaetes contributed an average abundance of 475 ind/m^2 or 53.4% and an average biomass of 3.479 g/m^2 or 16.9%. An exception on the higher biomass in the Andaman Sea can be suggested of the heavy biomass of Mollusks and Echinoderms.

The status of the macrobenthic infauna of the Kung Krabaen Bay is criticized of high organic enrichment (Figure 6.12). Pearson & Rosenberg (1978) suggested the composite of number of species, abundance , and biomass or SAB relationship curves along an spatial organic enrichment gradient that may be generally applicable to study a spatial change at all areas subject to organic enrichment. Explanation was given that the poor community abundance at highly enriched organic content encountered rise dramatically. The increase is caused by extremely abundant populations of one or two opportunistic species. This community, rich in individuals, has a narrow distribution and the numbers fall equally rapidly down to the ecotone point as distance from the source of organic material is increased. Following the ecotone point abundance declines to the steady state level usually found under normal condition. Meanwhile a maximum in the number of species is reached after the ecotone point, before a decline to the lower species numbers usual in the unperturbed environment.

From Figure 6.12, the result from this study indicates that the ecotone point (E) in dry season (January and April) appears at distance 700 m boundary from shoreline whereas in wet season (August and November) the ecotone shifts to at distance 500 m boundary from shoreline. This interpretes 2 different areas of organic enriched environment that the area covering canal, the mouth of canal and 500-700 m from shoreline is recognized of high organic enrichment areas with low diversified species whereas the offshore area from 500 m from shoreline inside the bay is regarded to the transition zone having low organic enrichment with high number of species (Pearson & Rosenberg, 1978). The inner boundary creates of low speicies diversity with a high abundance of opportunitic species dominated by *P. (Minuspio) japonica* where obtaines limiting physically environmental change whereas the outside boundary exposes to wind and wave actions during the change in monsoon seasons and directly affected to change in faunal sucession (Hylleberg & Nateewathana, 1984).

Level of environmental stress disturbance by organic pollution can directly affect to a change in species diversity (Pearson & Rosenberg, 1978; Gray, 1981; Raman & Ganapati, 1978) which may cause adaptive strategies to the pollution (Gray,1981). The best adaptive strategy the species inhabiting in under high disturbance is a high *r* –selected species, by having a rapid reproductive rate and turn-over time, reaching maturity rapidly, and being relatively short-lived. On the other hand, under normal conditions without pollution stress the *K*-selected species replaces, with slow reproduction, slow to reach maturity and long-lived. Such environment has brought to the dominant of pollution indicator species (Pearson & Rosenberg, 1978; Gray, 1981; Kikuchi, 1991).

The result in appling Warwick (1986) ABC plots technique shows that Kung Krabaen Bay is in moderately polluted in dry season while normal condition in wet season. This situation is confirmed by the appearance of net sink dissolved nitrogen and phosphorus fluxes during dry season while net sources appeared in wet season.

2. Organic enriched indicator Species in Kung Krabaen Bay

It is believed that the present status of the Kung Krabaen Bay is enriched of organic materials, assumed that causing from shrimp culture origin as results in Chapter 3 and 4 and referring to Tookwinas, *et al*, and 1993Boonsong, 1997. The finding in this study is indicated the high organic enrichment established in the drainage canals and the site around 500-700 m from the shoreline inside the Bay. The similar clulstering group of sampling stations is presented that stations locating in the canals and at the mouth of canals are representive of high organic material contents. The most similar species of polychaete occurring here is the spionid, *Prionospio (Minuspio) japonica* and following by the capitellid, *Mediomastus* spA that is frequently found in these sites . They are recommended as the opportunistic species.

Polychaete joins a major group of macrobenthic infauna to Thai's waters. They are popular in use of environmental disturbance, particular wide ranged of organic pollutions. Many researchs published species dominated to the polluted areas in many parts of the world as reviewed by Pearson & Rosenberg (1978), Gray (1981), for example. Indicator species is widely difference depending on localities. Raman & Ganapati (1978) reported the *Capitella capitata* dominance in polluted area in Bisakhapatnam Harbor, India. Tsutsumi (1995) reported the polychaete, *Capitella* sp1 dominated the bottom in the cove caused by fish net pen culture in South Japan. Kikuchi (1991) found the spionid, *Paraprionospio* spA, *Prionospio cirrifera* and *Capitella* sp dominance on heavily polluted shallow mouth in Osaka Bay, and particular species *Paraprionospio* spA dominance on heavily polluted in Tokyo Bay. Shin & Koh (1999) found *Heteromastus filiformis, Tharyx pacifica* and *Lumbrineris longifor* dominated as opportunistic species in all five bays affected of local industrialization in Korea. Pearson & Rosenberg (1978) reviewed the facilitated informations on this field of studies.

Spatial and temporal changes in species diversity gradients can be reconized in the Kung Krabaen Bay. Low species diversity due to organic enrichment influence is observed at site of canal and neretic shore within 500 m boundaries of which inhabiting of few species. Inside the Bay, there are high species diversities and slightly equitability (or evenness) of allotment of individuals among the species where Peet (1974) (cited in Krebs, 1978) suggested a concept of heteogeneity, more species and the species equally abundant. Change of seasons can influent fluctuation to species diversities and abundance. In rainy season, freshwater runoff decreased water salinity to low at 2 ppt. Only few species affected can tolerate low sality and the species *P. japonica* can exist with furthur distribution into the Bay.

It is expressed that the water quality in the canal and the bay is in good condition in consideration to physical and chemical parameters. Here during sampling period it was never appeared a severe stress disturbance even the effect of heavily nutrients loaded from shrimp culture (Boonsong, 1997). The result from nutrient budgets study obviously showed low impact because the functional dynamic processes of seawater in the bay system dominating to change of water mass during tidal range. It is suggested that the eutrophic condition, however, was reported from the past to the present (Tookwinas, et al., 1993; Boonsong, 1997; Songsangjinda, et al., 2000) but merely impacted water quality in the canal. Songsangjinda, et al., (2000) agreed with the shrimp farm effluent affected the nitrogen budget and ecosystem in the Kung Krabaen Bay by the mean of accelerating the nitrogen uptake in water column and sedimentation to the benthic sediment of the Bay. These nitrogen concentration in water column and sediment can be generated by de-nitrification process by microbial bacteria and resuspended.

It is resulted that Kung Krabaen Bay was slightly influence of the organic enrichment and the bay was reported as in normal condition, excepting during dry season moderate polluted but not in the drainage canals. The *P. (Minuspio) japonica* was respected to the high organic sediment rather than organic pollution. This species can tolerate of low salinity in the drainage canals during wet season and also flavored of high organic sediment. However it is assumed that the *P. (Minuspio) japonica* is the indicator of organic enriched environment in Kung Krabaen Bay.