CHAPTER FIVE

CONCLUSION

Water temperature in the Klang Strait fluctuates only slightly; differences between the surface and bottom temperatures rarely exceed 1°C. The mean salinity of offshore waters is quite uniform (32 ppt), but wide fluctuations in salinity occur at or near the river mouths (30.2 ppt). Generally, water turbidity varies widely in Klang Strait, particularly at the mouth of rivers and over mudflats, which is attributable to the high amount of sediments carried down by rivers.

The bottom sediment types in Klang Strait range from the finest clay to the coarsest sand. Clay and silt sediments generally decrease towards offshore waters (From 18.7, 86% to 0.99, 11% respectively), while the sand component increases off shore (From 1% to 18%). Sediment organic matter content which is high near shore decreases in the off shore direction. Organic matter was recorded in the range of 2.08 to 11.1 percent.

The study area in Klang Strait can broadly be divided into three habitat types based on principal component analysis of their physico-chemical characteristics. The first type of habitat, located near shore near estuaries or in coastal mudflats, is characterised by relatively lower and fluctuating salinity (mean less than 32 ppt), high percentages of clay, silt, high organic content and high turbidity. The second habitat type is located largely offshore in the northern half of Angsa Bank. It is characterised by clearer water, generally with relatively higher dissolved oxygen (> 5.65 mg/l) and salinity (mean not less than 32 ppt), and bottom sediments containing relatively higher

amounts of medium to coarse sand substrates. The third habitat type is found in the southern half of Angsa Bank and just north of the deltaic islands of Pulau Klang and Pulau Ketam. It is characterised by comparatively higher amounts of very fine to fine sand substrates, and relatively turbid but saline waters (mean not less than 32 ppt).

It is concluded that riverine discharge is an important factor affecting the sediment distribution and water characteristics of Klang Strait.

A total of 162 faunal species belonging to 73 families were recorded in the Klang Strait. These species comprised 119 fish (74%) and 43 (26%) macroinvertebrate species belonging to 55 and 18 families respectively. The most abundant families of fishes in order of importance were Sciaenidae, Leiognathidae, Ariidae, Engraulididae, Clupeidae, Stromatidae, Carangidae, Polynemidae and Dasyatidae.

Seventeen prawn species were recorded in Klang Strait during the study. The prawns community in Klang Strait is dominated by the Penaeidae; the following most abundant species in order of importance were *Parapenaeopsis sculptilis, Parapenaeopsis maxillipedo, Penaeus merguiensis, Metapenaeus affinis, Metapenaeus brevicornis, Metapenaeus lysianassa, Parapenaeopsis coromandelica, Parapenaeopsis hardwickii* and *Solenocera subnuda.*

Three Cephalopoda species recorded in Klang Strait during this study were *Octopus* sp., *Sepia esculenta* and *Loligo edulis.* They belonged to the families Octopodidae, Sepiidae and Loliginidae respectively.

A total of 15 species of brachyuran crabs and two xiphosuran horse-shoes crabs belonging to 6 families were recorded in Klang Strait. The mostly common species were *Charybdis variegata, Neodorippe callida and Doclea canalifera.*

Only three species of stomatopodan shrimps, *Oratosquilla perpensa, Oratosquilla interrupta* and *Harpiosquilla harpax,* all belonging to the family Squillidae, were recorded in Klang Strait.

The most common echinoderm species were the sea urchin *Salmacis dussumieri,* sea cucumber, Malpodinae (unidentified species A), and starfish *Luidia penangensis.*

Most of the fish and invertebrate species, despite their high abundance had low biomass values, indicating that many were small juveniles using the Klang Strait as their feeding or/and feeding ground. The distribution of fish and macroinvertebrates varied depending on the species. Distribution appears to be dependent on their tolerance and preference for particular water and/or sediment characteristics.

The present study has provided good evidence to prove the hypothesis that indeed the distribution and abundance of fish and macroinvertebrates in Klang Strait are influenced by their physico-chemical environment. While water parameters affect both pelagic and demersal fishes, sediment parameters are more important for the latter as well as benthic macroinvertebrates, which are in immediate contact with the sea bottom.

The distribution and abundance of demersal fish in Klang Strait depend on salinity, turbidity, sediment clay, silt and organic matter contents, while pelagic fish appears to be more influenced by water depth, salinity, turbidity and sediment pH. Prawn distribution and abundance appears to be more affected by water depth, dissolved oxygen, salinity, and the clay, fine sand and organic matter contents of bottom sediments. On the other hand, dissolved oxygen, salinity, sediment pH, silt and organic matter contents were significant factors affecting the distribution and abundance of brachyuran crabs and horse-shoe crabs. The distribution and abundance of cephalopods, stomatopods and echinoderms were associated with water depth, salinity, sediment clay and organic matter contents.

Salinity was the only common factor (among thirteen variables) or water parameter that appeared to influence the abundance of all species in Klang Strait.