Checklist of Marine Epibenthic Invertebrate Species from Mersing, Johor

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Introduction

Marine invertebrates are comprised of a diverse group of animal phyla. They inhabit all types of habitats in marine ecosystem such as coral reefs, sea grass beds, rocky shores as well as soft bottom sub-tidal seafloor. The soft bottom seafloor in Johor particularly in Mersing was a productive fishing area and considered an active trawling site. The important commercial species that caught through this fishing gear were invertebrates such as Shrimps, crabs, lobsters, squids and bivalves. Although some of them have high commercial values, but some of them were just ignored and not collected as fishing product for trawlers due to low or no market value. In this paper, we aimed to present the common invertebrates fauna (commercial and non-commercial) and their taxonomic identification for this study area.

Methodology

Samples were collected using a trawl net that operated by trawling by a class A trawler boat near Tg. Penyabong, Mersing Johor. Most of the sample considered as mega size epibenthic fauna due to the mesh size of the net was 1 x 1 inch. The invertebrate specimens were sorted and the best specimen among the same species have been selected and photographed. The specimen have been identified to the species level following Chuang (1961), Lovett (1981), Lane et al. (2000), Ng et al. (2008), Norman & Lu (2000) and Okutani (2000). The classification of the taxa used in the paper was based on SMEBD (2009).
Result and Discussion

A total of 32 species of marine invertebrates from Mersing waters were identified and photographed with 1cm scale. Almost half of the total species were crustaceans including several commercial species such as crabs (*Portunus pelagicus* and *Charybdis affinis*), shrimps (*Parapenaeopsis hungerfordi*, *Parapenaeopsis sculpitis* and *Metapenaeus brevicornis*), and Lobster (*Panulirus versicolor*). These commercial crabs have the size ranged between 6-12 cm while the shrimp have a medium size of 4-10 cm. The impressive lobster or udang kara have the size about 20 cm and according the fishermen, Mersing coastal waters is a popular habitat for the lobster. There were also some small and non-commercial crabs caught during this trawling activity such as spider crabs (*Doclea*) and pebble crabs (*Leucosidae*).

The second dominant phylum was Mollusca with 9 species. The gastropod have 6 species and their size were considered small (less than 5 cm) except the *Melo melo* snail that have 15 cm in size. Most of the gastropods that been caught were sub-adult stage, whereas their morphology was not completely developed and it difficult to be identified to the species level. The other molluscs were squid (*loligo chinensis*) cuttlefish (*Sepia* sp.) and one species of tiny and thin shell bivalve (*Laterula anatina*). According to Asyirin and Ibrahim (1992), there were at least 3 common and commercially important species of squid in East Coast of Peninsular Malaysia. However, only one species *Loligo chinensis* was found during this survey.

The presence of anthozoan sea pen in the trawler nets was not uncommon. It was represented by *Pteroides* sp., which was a soft bottom sea pen. Between its “leaf-like structure” a colourful tiny porcelain crab (*Porcellanella picta*) was found. The crab has pink dots and surrounded by dark blue circle on its carapace.

Among the echinoderms, only one species of sand dollar and one species of smooth sea cucumber (locally name “bronok”) were found. Besides, a large size polychaete worm (*Aphrodita aculeata*) was also caught during the survey. The worm that famously known as sea mouse or locally known as “bulu ayam” is believed as a poisonous animal. Although they are commonly found in trawlers net, species of echinoderms, molluscs and polychaetes caught during this survey were non-edible and have no-commercial value.

The classification of the marine invertebrates collected during the survey is as follow.

**Phylum: Arthropoda**
**Subphylum: Chelicerata**
**Class: Merostomata**
**Order: Xiphosurida**
**Family: Limulidae**
**Genus: Tachypleus Leach, 1819**
**Species: Tachypleus gigas** (Müller, 1785) (Photo 1)
Phylum: Arthropoda
Subphylum: Crustacea
Class: Malacostraca
Order: Stomatopoda
Family: Squillidae
Genus: Oratosquilla Manning, 1968
Species: Oratosquilla sp. (Photo 2)

Order: Decapoda
Family: Portunidae
Genus: Portunus Weber, 1795
Species: Portunus pelagicus (Linnaeus, 1758) (Photo 3)
Portunus hastatoides Fabricius, 1798 (Photo 4)

Genus: Charybdis Cocco, 1832
Species: Charybdis affinis Dana, 1852 (Photo 5)
Charybdis feriata (Linnaeus, 1758) (Photo 6)
Charybdis truncata (Fabricius, 1798) (Photo 7)

Family: Galenidae
Genus: Galene De Haan, 1833
Species: Galene bispinosa (Herbst, 1783) (Photo 8)

Family: Matutidae De Haan, 1835
Genus: Ashtoret Galil & Clark, 1994
Species: Ashtoret lunaris (Forskål, 1775) (Photo 9)

Genus: Matuta Weber, 1795
Species: Matuta planipes Fabricius, 1798 (Photo 10)

Family: Epialtidae
Genus: Doclea Leach, 1815
Species: Doclea armata De Haan, 1839 (Photo 11)
Doclea sp. (Photo 12)

Family: Leucosiidae
Genus: Myra Leach, 1817
Species: Myra fugax (Fabricius, 1798) (Photo 13)

Genus: Philyra
Species: Philyra globus (Fabricius, 1775) (Photo 14)
Family: Penaeidae
   Genus: Metapenaeus Wood-Mason, 1891
      Species: Metapenaeus brevicornis (H. Milne Edwards, 1837) (Photo 15)
   Genus: Parapeneaeopsis Alcock, 1901
      Species: Parapeneaeopsis hungerfordi Alcock, 1905 (Photo 16)
            Parapeneaeopsis sculprilis (Heller, 1862) (Photo 17)

Family: Palinuridae
   Genus: Palinurus Weber, 1795
      Species: Palinurus versicolor Latreille, 1804 (Photo 18)

Family: Porcellanidae
   Genus: Porcellanella Stimpson 1858
      Species: Porcellanella picta Stimpson 1858 (Photo 19)

Phylum: Mollusca
   Class: Gastropoda
      Order: Littorinimorpha
         Family: Naticidae
            Genus: Tanea Marwick, 1931
               Species: Tanea lineata (Röding, 1798) (Photo 26)

Family: Cassidae
   Genus: Semicassis
      Species: Semicassis bisulcata (Schubert & Wagner 1829) (Photo 27)

Order: Neogastropoda
   Family: Costellariidae
      Genus: Vexillum Röding, 1798
         Species: Vexillum sp. (Photo 28)

Family: Muricidae
   Genus: Murex Linnaeus, 1758
      Species: Murex trapa Röding, 1798 (Photo 29)

Family: Terebridae
   Genus: Terebra Bruguière, 1789
      Species: Terebra sp. (Photo 30)

Family: Volutidae
   Genus: Melo Broderip in Sowerby I 1826
      Species: Melo melo (Lightfoot, 1786) (Photo 31)
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Class: Bivalvia
    Order: Anomalodesmata
    Family: Laternulidae
        Genus: Laternula Bolten, 1798
        Species: Laternula anatina (Linné, 1758) (Photo 20)

Class: Cephalopoda
    Order: Myopsida
        Family: Loliginidae
            Genus: Loligo Lamarck, 1798
            Species: Loligo chinensis Gray, 1849 (Photo 21)
    Order: Sepiida
        Family: Sepiidae
            Genus: Sepia Linnaeus, 1758
            Species: Sepia sp. (Photo 22)

Phylum: Echinodermata
    Class: Holothuroidea
        Order: Molpadiida
            Family: Molpadiidae
                Genus: Molpadia (Cuvier, 1817)
                Species: Molpadia sp. (Photo 23)

Class: Echiinoidea
    Order: Clypeasteroida
        Family: Laganidae
            Genus: Laganum
            Species: Laganum fudsiyama Döderlein, 1885 (Photo 24)

Phylum: Annelida
    Class: Holothuroidea
        Order: Polychaeta
            Family: Aphroditidae
                Genus: Aphroditia Linnaeus, 1758
                Species: Aphroditia aculeata Linnaeus, 1758 (Photo 25)

Phylum: Cnidaria
    Class: Anthozoa
        Order: Pennatulacea
            Family: Pteroeididae
                Genus: Pteroides
                Species: Pteroides sp. (Photo 32)
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References


Lovett, D. L. 1981. A guide to the shrimps, prawns, lobsters, and crabs of Malaysia and Singapore. Faculty of Fisheries and Marine Science, Universiti Pertanian Malaysia, Malaysia, 156 pp.


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PHOTO 1: Trachpleus gigas

PHOTO 2: Oratosquilla sp.

PHOTO 3: Palinurus versicolor

PHOTO 4: Metapenaeus brevicornis

PHOTO 5: Parapenaeopsis sculptilis

PHOTO 6: Parapenaeopsis hungerfordi

PHOTO 7: Portunus pelagicus

PHOTO 8: Portunus hastatoides
PHOTO 9. *Charybdis affinis*

PHOTO 10. *Charybdis truncata*

PHOTO 11. *Charybdis feriatus*

PHOTO 12. *Galene bispinosa*

PHOTO 13. *Ashtoret lunaris*

PHOTO 14. *Matuta planipes*

PHOTO 15. *Doclea armata*

PHOTO 16. *Doclea sp.*
PHOTO 17. *Myra fugax*

PHOTO 18. *Philyra globulosa*

PHOTO 19. *Porcellanella picta*

PHOTO 20. *Laternula anatia*

PHOTO 21. *Loligo chinensis*

PHOTO 22. *Sepia* sp.

PHOTO 23. *Molpadia* sp.

PHOTO 24. *Laganum fudsiyama*
PHOTO 25. *Aphrodita aculeata*

PHOTO 26. *Tanea lineata*

PHOTO 27. *Semicassis bisulcata*

PHOTO 28. *Vexillum* sp.

PHOTO 29. *Murex trapa.*

PHOTO 30. *Terebra* sp.

PHOTO 31. *Melo melo*

PHOTO 32. *Pteroides* sp.