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Occurrence of Some Decapods in Sittway Environs, Rakhine State

Khin Aye Lwin[1], Sandar Win[2] and San San Thwin[3]

Abstract

The occurrence of some decapods at Yay-chan-pyin village and Kywe-dae village in Sittway Township, Rakhine State was recorded from June 2009 to December 2012. A total of 24 species belonging to seven genera, four families, and one order were recorded in two study sites. Four families of decapods including Palaemonidae, Palinuridae, Penaeidae and Segestidae were recorded. The highest number of species and percent (14 species, 58%) was recorded for the Family Panaeidae. Family Segestidae was found to have the least number of species and percent (one species, 4%).

Keywords: decapods, shrimp, lobster, prawn, sittway

Introduction

Sittway Township lies at the mouth of Ka-la-dan River and Mayu River, and on western bank of Ka-la-dan River. It has a wealth of mangrove forest area, freshwater streams, lakes, ponds, swamps, canals, and rivers. Yay-chan-pyin and Kywe-dae mangrove area in Sittway Township are the important fishing ground for economic importance for the local people. Mangrove areas are served as spawning, nursery, and feeding ground for some decapods. Prawns, shrimps and lobsters of various size are consumed as fresh, dried or shrimp paste by the Myanmar people.

The prawns, shrimps, spiny lobsters, and crabs are plentiful in nature and the local people of the Sittway Township engage in producing dried prawns, shrimps, and shrimp paste. Most of the coastal inhabitants engage in prawn, shrimp, and lobster farming where are more popular and become a good earning for export market. Prawns, shrimps and spiny lobsters of various sizes are consumed fresh, dried and shrimp paste by the Myanmar people. The by-products are also available for animal feeds.

Decapods are higher forms of crustaceans in which one of the most important characters is constancy in number of body segments. The body

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consists of three sections: head, thorax, and abdomen. In most species the segments of the head and thorax are fused.

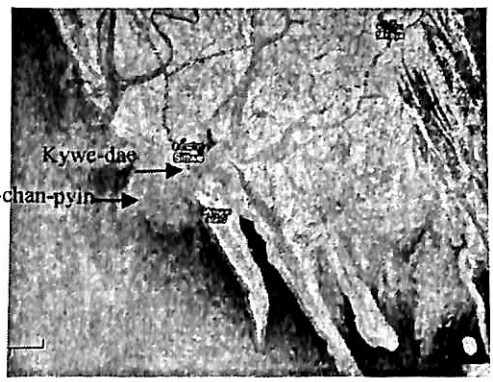
The entire body of a decapod consists of 21 segments, the head, thorax, and abdomen comprising 6, 8, and 7 segments respectively.Through the fusion of the head and thoracic sections the cephalothorax is formed which is covered laterally and dorsally with a common covering, the carapace. (Holthius,1980)

Decapods crustaceans mainly prawns, shrimps, and spiny lobsters are of great importance for marine fisheries in Sittway environs. Spiny lobsters are very valuable commercial fishery products. Their delicious meat is much sought after and their cured and mounted exoskeletons are valued for decorations and tourist souvenirs. Shrimps and prawns are scavengers but some are predators. They are important source of food for human being and others. Myanmar supports many natural habitats and species communities in Indo-Pacific Province. Decapods play an important role in the mangrove ecosystem. The present research will be of great help to some extent and give background knowledge for further investigation of decapods in the study area. The present research tends to classify the occurrence of decapods in Sittway environs.

Materials and Methods

Study area and Study period

Yay-chan-pyin mangrove area, Kywe-dae mangrove area located in Sittway Township of Rakhine State between latitudes 20° 6' N and 20°16'N and longitudes 92°50'E and 92°55' E was chosen as study area and study period lasted from June 2009 to December 2012. (Fig. 1).



Source: Google Map

Fig.1. Locations of the sampling sites (Yay-chan-pyin and Kywe-dae)

Specimen collection and identification

The species were collected monthly from both chosen study sites using the bag nets, shore seines, various types of boat seines and drag nets during day time. Specimens were collected small scale aided by local fishermen and large scale from a Private Co. Ltd in Yay-chan-pyin and Kywe-dae villages.

The small specimens were preserved in five percent formalin and large specimens in ten percent formalin.

Identification was followed after Brucovskii (1985), De. Bruin *et al.* (1994) and Holthuis (1980).

Table 1 .Species composition of decapods in Sittway environs

Family	Genus	species
Palaemonidae	2	4
Palinuridae	1	5
Penaeidae	3	14
Sergestidae	1	1
	7	**24**

Results

Species occurrence of order Decapoda

A total of 24 species belonging to seven genera, four families and one order were recorded in study sites. The recorded decapods included under four families such as Palaemonidae, Palinuridae,Penaeidae and Segestidae. The highest number of species and percent (14 species, 58%) was recorded for the Family Panaeidae. Family Segestidae was found to have the least number of species and percent (one species,4%)(Table .1 ,2 and Fig.2 A,B and Plate 1,2,3,4,5).

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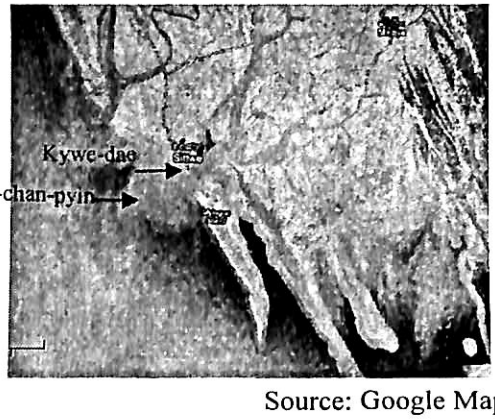

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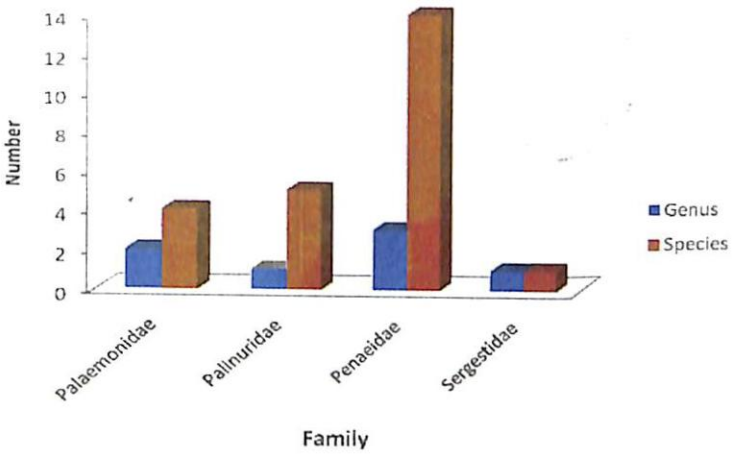
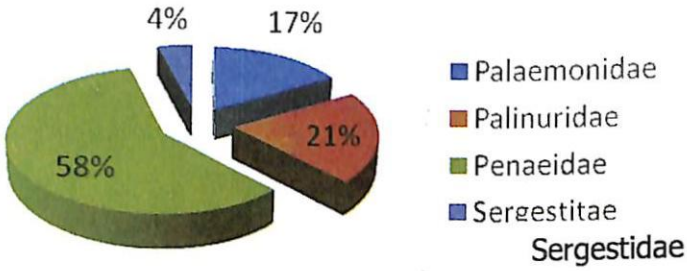
Table 2. Species composition of decapods in Sittway environs

Family	Genus	No	Species	Common name
1.Palaemonidae	1.*Macrobrachium*	1	*Macrobrachium malcolmsonii*	Monsoon river prawn
		2	*M. rosenbergeii*	Giant river prawn
		3	*M. rude*	Hairy river prawn
	2.*Palaemon* (*Exopalaemon*)	4	*Palaemon styliferus*	Roshma prawn
2.Palinuridae	3.*Panulirus*	5	*Panulirus homarus*	Scalloped spiny lobster
		6	*P. longipes*	Long legged spiny lobster
		7	*P. ornatus*	Ornate spiny lobster
		8	*P. polyphagus*	Mud spiny lobster
		9	*P. versicolor*	Painted spiny lobster
3.Penaeidae	4.*Metapenaeus*	10	*Metapenaeus affinis*	Jinga shrimp
		11	*M. brevicornis*	Spear shrimp
		12	*M. dobsoni*	Kadal shrimp
		13	*M. ensis*	Greasy back shrimp
		14	*M. lysianassa*	Bird shrimp
		15	*M. tenuipes*	Stork shrimp
	5.*Parapenaeopsis*	16	*Parapenaeopsis hardwickii*	Spear shrimp
		17	*P. sculptilis*	Rainbow shrimp
		18	*P. stylifera*	Kiddi shrimp
	6.*Penaeus*	19	*Penaeus indicus*	Indian white shrimp
		20	*P. japonicus*	Kuruma prawn
		21	*P. merguiensis*	Banana prawn
		22	*P. monodon*	Giant tiger prawn
		23	*P. semisulcatusde*	Giant tiger prawn
4.Sergestidae	7.*Acetes*	24	*Acetes indicus*	Jawla (Marathi)



(A)Species composition by Family

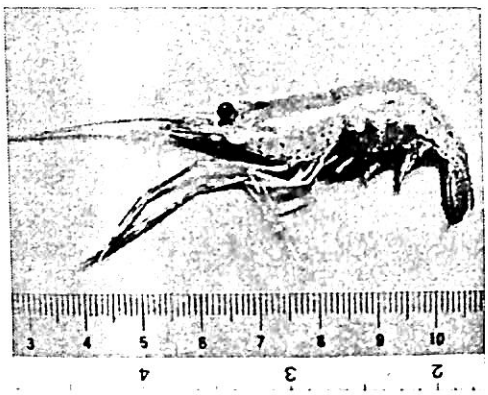


(B) Species composition by percentage

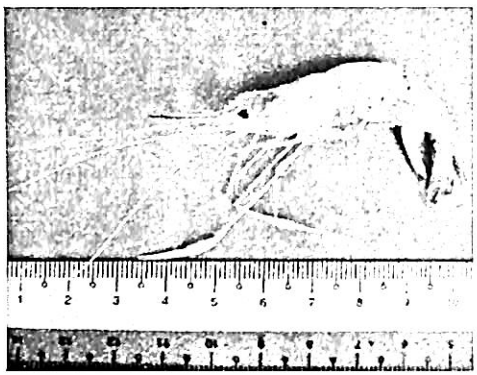
Fig.2.Species composition of decapods in Sittway Environs

A. *Macrobrachium malcolmsonii*

B. *Macrobrachium rosenbergii*

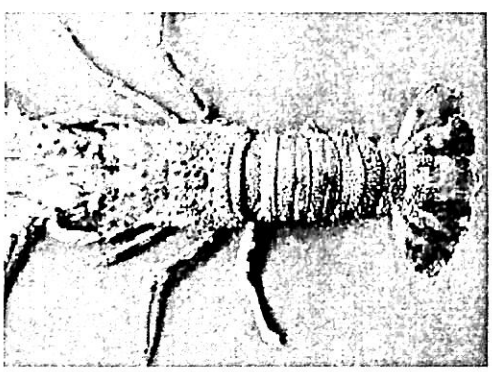


C. *Macrobrachium rude*

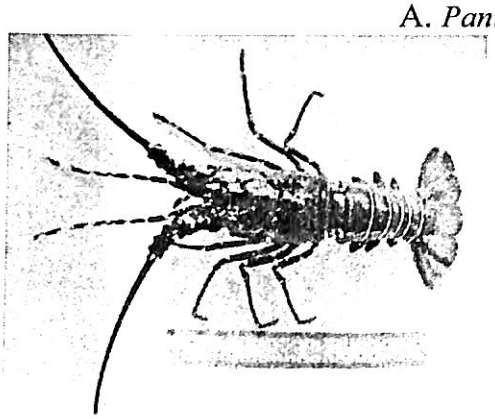


D. *Palaemon styliferus*

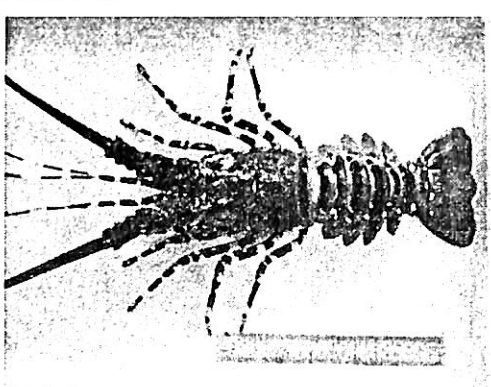
Plate 1. Four species of freshwater prawns belonging to Family Palaemonidae



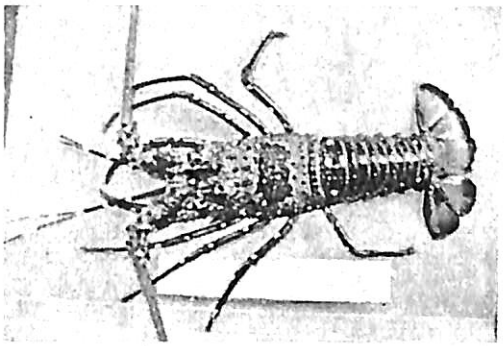
A. *Panulirus. homarus*



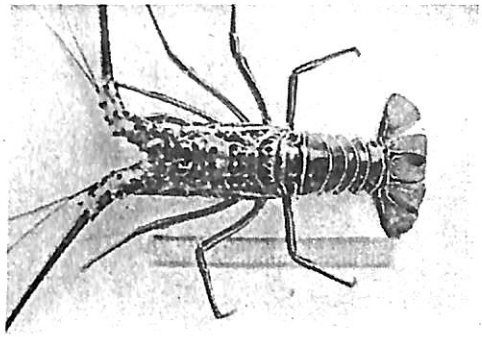
B. *Panulirus longipes*



C. *Panulirus ornatus*

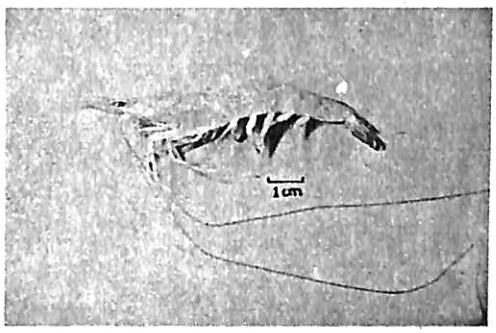


D. *Panulirus polyphagus*

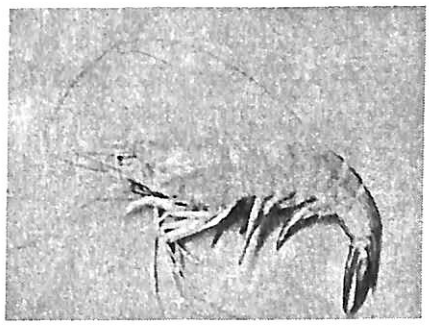


E. *Panulirus versicolor*

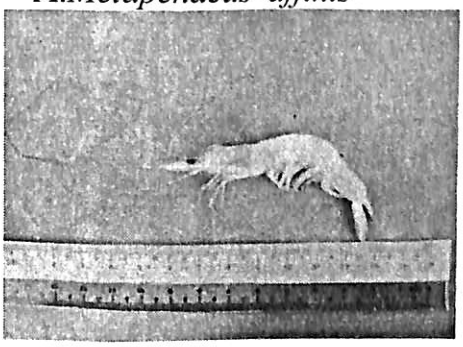
Plate 2, Five species of spiny lobsters belonging to Family Palinuridae



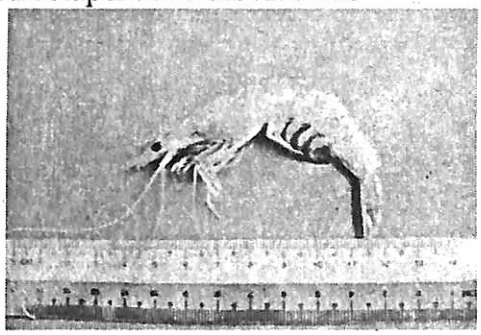
A.*Metapenaeus affinis*



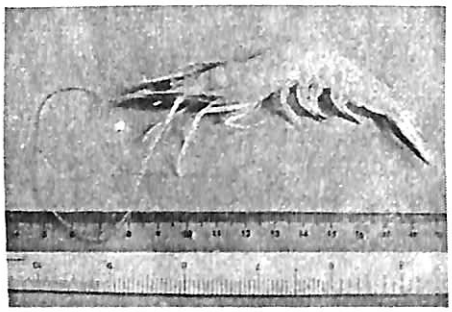
B.Metapenaeus brevicornis

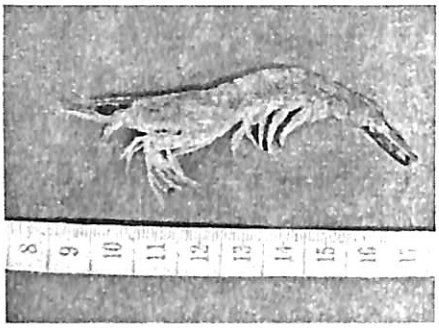


C.*Metapenaeus dobsoni*



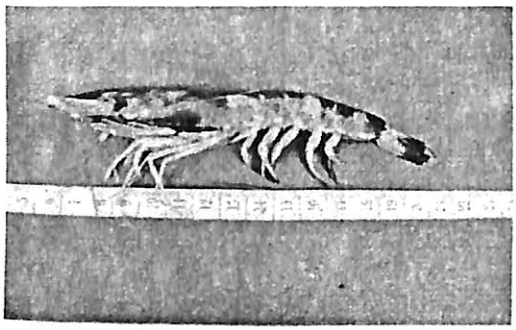
D.*Metapenaeus ensis*

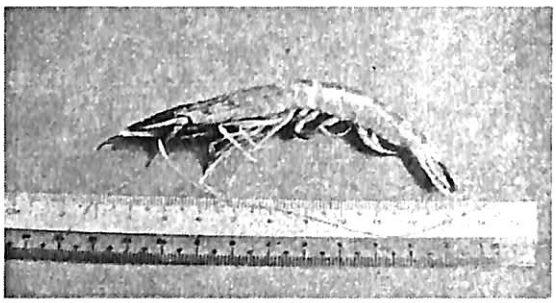




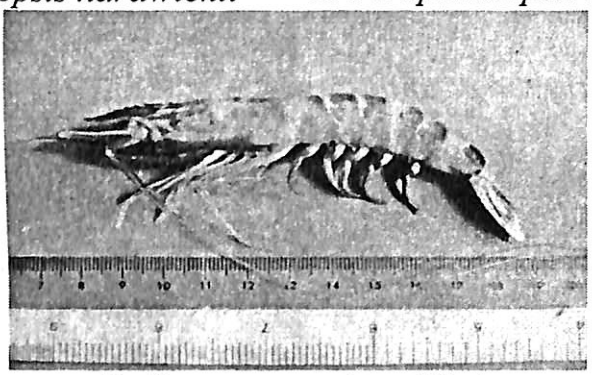
E.*Metapenaeus lysianassa* F.*Metapenaeus tenuipes*

Plate 3, Six species of genus *Metapenaeus* collected from the studysites



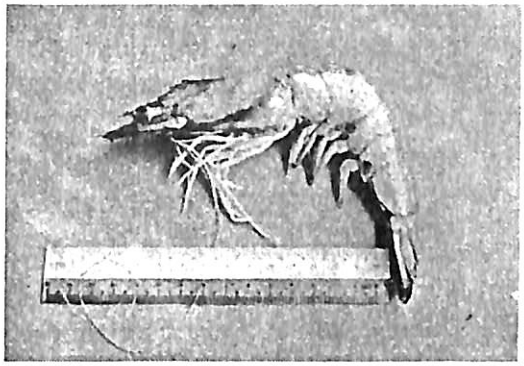


A.*Parapenaeopsis hardwickii* B. *Parapenaeopsis sculptilis*

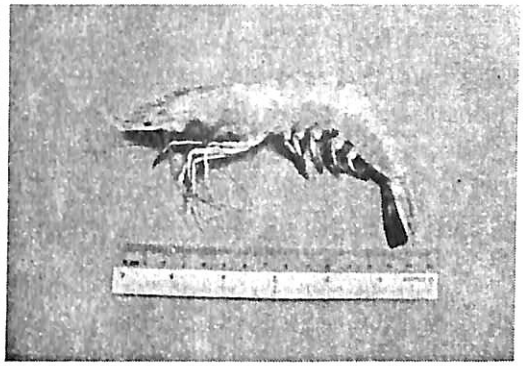


C. *Parapenaeopsis stylifera*

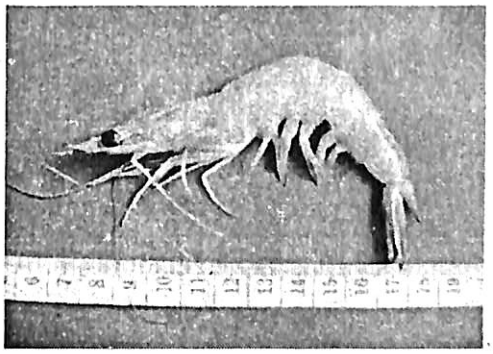
Plate 4. Three species of genus Parapenaeopsis collected from of specides the study sites



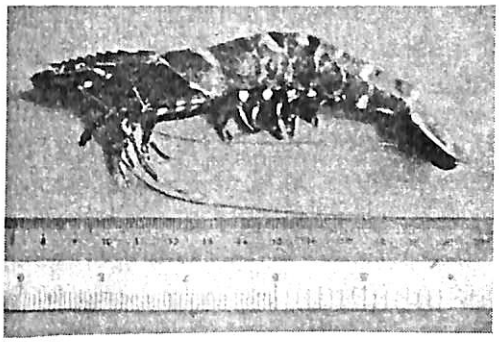
A. *Penaeus. indicus*



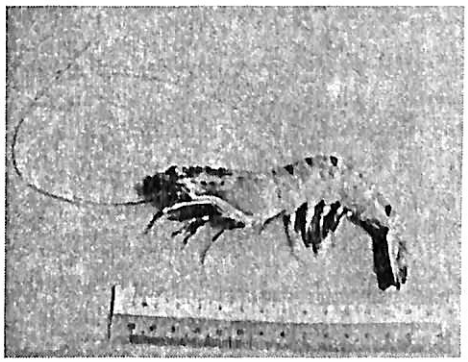
B. *Penaeus japonicus*



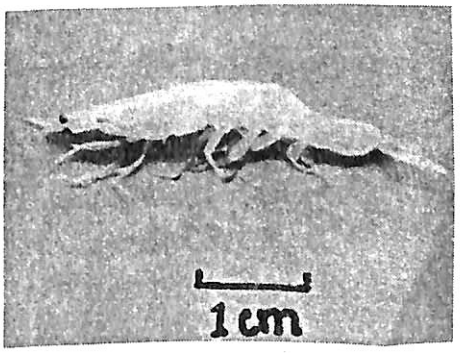
C. *Penaeus merguiensis*



D. *Penaeus monodon*



E. *Penaeus semisulcatus*



F. *Acetes indicus*

Plate 5 Five species of genus *Penaeus* and *Acetes indicus* collected from the study sites

Discussion

A total of 24 species belonging to seven genera, four families, and one order were recorded in Yay-chan-pyin and Kywe-dae mangrove area in Sittway environs during the period from June 2009 to December 2012. The highest number of species and percent (14 species, 58%) was recorded for the Family Panaeidae . Family Segestidae was found to have the least number of species and percent(one species,4%).

It agrees with Aye Aye Khine (2003) who recorded 23 species of decapods belonging to seven genera, four families under order Decapoda in Sittway Township. More number of decapods species were recorded in the present study. It may be assumed that the diversity of decapods in Sittway environs may indicated good condition.

Myint Myint Aye (2013) recorded six species of shrimps and eight species of prawns belonging to five genera and three families from U-To Creek, Chaungtha,Ayeyarwady Region.

In Rakhine State, among the 14 *Penaeids* species, black tiger shrimp, *Penaeus monodon* is one of the valuable aquatic food resources, high in portion and demand good export markets. It has become the main target commodity for aqua farming and one of the major earners of foreign exchange in recent year.

In the present study.*Penaeus*, *Metapenaeus*, *Parapenaeopsis*, and *Macrobrachium* species depend on juveniles, which enter the estuarine mangrove area of Yay-gyan-pyin and Kywe-dae. These mangrove areas are the critical breeding areas for the shrimps.

Among 24 decapod species, *Macrobrachium rosenbergii* and *Penaeus monodon* species were economically important species in Yay-chan-pyin and Kywe-dae mangrove areas.

In the present study, three species belonging to genus *Macrobium* was recorded in Sittway environs. It agrees with Holthius (1980) who stated that species of the freshwater prawn genus *Macrobrachium* are distributed throughout the tropical and subtropical zones of the world .

Hla Phone (2005) observed that eleven species of genus *Macrobium* were identified and four species were recorded as new species in Myanmar.

In the present study, among the 14 native Penaeids species, black tiger shrimp *Penaeus monodon* is one of the valuable aquatic food resources and commands good export markets.

It agrees with Holthius (1980) who stated that black tiger shrimp *Penaeus monodon* is one of the major earners of foreign exchange in recent year. Prawns, shrimps, and lobsters are more popular and become a good earning for export market. They are used as condiments in the preparation of food because of their high protein value (Umoh and Basir, 1977); Deekae and Idoniboye-Obu, 1995). They are highly priced and are in high demand in the market (Marioghae, 1990).

Acknowledgement

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