



Species Diversity of Prawns and Shrimps in Sittwe Coastal Water, Rakhine State, Western Myanmar

Myo Min Tun^{1*}

¹Department of Marine Science, Sittway University, Ministry of Education, Myanmar

INFORMATION

Article history

Received 15 February 2026

Accepted 21 March 2026

Published 30 April 2026

Contact

*Myo Min Tun

myomintun.marine@gmail.com (MMT)

How cite

Tun, M.M., 2026. Species Diversity of Prawns and Shrimps in Sittwe Coastal Water, Rakhine State, Western Myanmar. *International Journal of Earth Sciences Knowledge and Applications* 8 (1), 178-184. <https://doi.org/10.5281/zenodo.19950254>.

Abstract

A total of 16 prawns and shrimps belonging to 3 families and one order collected from Sittwe coastal water, Sittwe Township, Rakhine State, Myanmar were studied. All collected specimens were taken out of the fish landing sites of Sittwe Township. The freshwater prawn: *Macrobrachium rosenbergii*, *Macrobrachium equidens*, *Macrobrachium malcolmsonii*, *Macrobrachium lanchesteri*, *Macrobrachium neglectum*, and the marine shrimp species: *Penaeus monodon*, *Penaeus merguensis*, *Penaeus indicus*, *Penaeus penicillatus*, *Penaeus semisulcatus*, *Metapenaeus dobsoni*, *Metapenaeus affinis*, *Metapenaeus eboracensis*, *Parapenaeopsis sculptilis*, *Penaeopsis jerryi* and *Acetes indicus* were identified. The genus *Macrobrachium* and *Penaeus* were the most composition in Sittwe and other Rakhine coastal areas. The species *Acetes indicus* is the most popular shrimp in Myanmar as making for Ngapi (Myanmar fish paste). The taxonomy, morphological characteristics, and economic importance of each species were studied.

Keywords

Economic importance, Morphological characteristics, Prawns, Rakhine State, Shrimps, Sittwe coastal water

1. Introduction

Myanmar having a long coastline of 1835 miles with many rivers flowing into the extended and large continental shelf of 82000 square mile is rich in fishery resources. The coastal and estuarine areas of Rakhine State, particularly in Sittwe Township, are home to a wide diversity of marine organisms, including commercially important prawns and shrimps. These species play a vital role in supporting the livelihoods of coastal communities and contribute significantly to the country's fishery exports.

Shrimps and prawns constitute a large group of crustaceans varying in size and are widely distributed in marine, brackish and freshwater regions from the equator to the Polar Regions. Most shrimps are pelagic but the majority by far are benthic, living on a large variety of bottoms such as rock, mud, peat, and sand, fragments of shells or mixture of these materials. 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.

The peneideans are mainly exploited in tropical, subtropical, and warm temperate waters, and represented at all depths and in almost all environmental conditions. However, most commercial species live in coastal areas, and occupy shallow or moderately deep waters on continental shelves. Adult shrimps feed on a great diversity of prey in accordance with their availability and can be called opportunist. The diet consists mainly of invertebrates, mollusks, polychaetes, echinoderms, and small crustaceans.

Prawns and shrimps are known for their seasonal patterns of occurrence, often influenced by environmental factors such as water temperature, salinity, rainfall, tidal patterns, and breeding cycles. In traditional fisheries, local fishers use their



knowledge of seasonal abundance to time their harvests effectively.

The present study aims to study the morphological characteristics, to know the economic importance of each species and to investigate the seasonal occurrence of prawns and shrimps in Sittwe coastal water, Rakhine State, western Myanmar.

2. Materials and Methods

The study site of species occurrence of prawns and shrimps was selected in the Sittwe coastal water, Sittwe Township, Rakhine State (Fig. 1).

The study period lasted from January to December 2025. Specimens of each species were randomly and directly collected from the fishing boats in the fish landing sites of Sittwe Township. The specimens were caught using various types of fishing gear such as traps, cast net, bottom trawl and gill nets. The collected fresh specimens were brought to the laboratory of the Marine Science Department, Sittwe University. They were recorded with photographs and identified their species and then preserved in 10% formalin solution with water for further identification in the laboratory. The identification, classification, and analyzing system of the collected shrimps and prawns were followed Dholakia (2010) and Tun (2021).

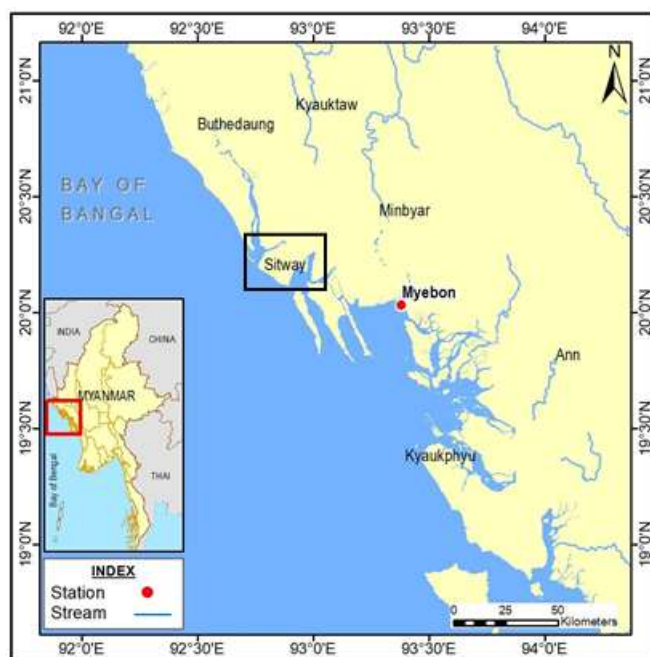


Fig. 1. Map showing the sample collection sites of Sittwe (Sitway) Area

3. Results and Discussion

3.1. Species Occurrence of Prawns and Shrimps in Study Area

A total of 16 prawn and shrimp species belonging to 6 genus, 3 families and 1 order were identified in the present study. Inshore fisheries are commonly used in this area. The classified species list is shown below.

3.2. Classification System of Prawns and Shrimps in Sittwe Coastal Water

A total of 16 prawns and shrimps belonging to 3 families and one order collected from Sittwe coastal water, Sittwe Township, Rakhine State, Myanmar were studied and the classification system are followed (Tabel 1).

3.3. Descriptions of Prawns and Shrimps in Sittwe Coastal Water

3.3.1. *Macrobrachium rosenbergii* (De Man, 1879) (Fig. 2A)

FAO Name: Giant River Prawn

Local Name: Yay Cho Pazun Tok

Description: Rostrum long and curved upwards, armed with 11-14 teeth on dorsal and 8-13 on ventral margin, well extending beyond antennal scale; forming a high basal crest above the eye. Carapace broad, large and rounded, hepatic

spine situated distinctly below antennal spine. First and second pairs of pereopod are chelate, second leg is very large. Telson tapering posteriorly, two pairs of apical spines present; a pair of dorsal spine present. Body generally dark green to greyish blue, eyes dark brown; antennal flagella dark blue to greyish; large pincer bluish to dark blue.

Economic Importance: Marketed fresh

3.3.2. *Macrobrachium equidens* (Dana, 1852) (Fig. 2B)

FAO Name: Furry tip Estuarine Prawn

Local Name: Yay Cho Pazun Tok

Description: Rostrum convex above the eye; tip strongly curved downward and armed with 10-12 dorsal teeth, 5-7 ventral teeth. Carapace smooth; hepatic spine locates on the horizontal line through antennal spine. Color in life of body is whitish grey, with reddish brown mottles on all pereopod, reddish in uropod.

Economic Importance: Marketed fresh

3.3.3. *Macrobrachium malcolmsonii* (Edward, 1837) (Fig. 2C)

FAO Name: Monsoon River Prawn

Local Name: Yay Cho Pazun Tok

Description: Rostrum slightly curved upwards with a elevated basal crest and reaching almost end of antennal scale; armed with 11-12 dorsal and 5-6 ventral teeth. Body is elongated, spindle-shaped and bilaterally symmetrical.

Carapace broad and round, antennal and hepatic spine are

present. Two pairs of apical spines are present, dorsal spine present on telson. Exopod of uropod reaching beyond the tip of telson. Usual color is dull pale-blue or green with brown, orange-red patches. Pale gray in live form, antennular flagella long and gray, walking legs and pleopod are gray.

Economic Importance: Marketed fresh

Table 1. 16 shrimp and lobster from 3 families and one team, collected from the coastal waters of Sittwe, Sittwe County, Rakhine Prefecture, Myanmar

Phylum	Arthropoda
Class	Malacostraca
Order	Decapoda
Family	Palaemonidae
Genus	<i>Macrobrachium</i>
Species	i. <i>M. rosenbergii</i> , De Man, 1879 ii. <i>M. equidens</i> , Dana, 1852 iii. <i>M. malcolmsoni</i> , Edward, 1837 iv. <i>M. neglectum</i> , De Man, 1905 v. <i>M. lanchesteri</i> , De Man, 1911
Family	Penaeidae
Genus	<i>Penaeus</i>
Species	i. <i>P. monodon</i> , Fabricius, 1798 ii. <i>P. merguensis</i> , De Man, 1888 iii. <i>P. indicus</i> , Edwards, 1837 iv. <i>P. penicellatus</i> , Fabricius, 1798 v. <i>P. semisulcatus</i> , De Hann, 1844
Genus	<i>Metapenaeus</i>
Species	i. <i>M. dobsoni</i> , Mitres, 1879 ii. <i>M. affinis</i> , Edwards, 1837 iii. <i>M. eboracensis</i> , Dall, 1857
Genus	<i>Parapenaeopsis</i>
Species	<i>P. sculptilis</i> , Heller, 1862
Genus	<i>Penaeopsis</i>
Species	<i>P. jerryi</i> , Farfante, 1979
Family	Sergestidae
Genus	<i>Acetes</i>
Species	<i>A. indicus</i> , Edwards, 1830

3.3.4. *Macrobrachium neglectum* (De Man, 1905) (Fig. 2D)

FAO Name: Java River Prawn

Local Name: Yay Cho Pazun Tok

Description: Rostrum curved upwards, armed with 10-11 teeth on ventral and 7-8 teeth on dorsal margin. Antennal spine sharp pointed, hepatic spine strong. Carapace and abdomen are uniformly glabrous. Color in life body is light grey cover with spotted bands are placed from the orbit region to the tail.

Economic Importance: Marketed fresh

3.3.5. *Macrobrachium lanchesteri* (De Man, 1911) (Fig. 2E)

FAO Name: Java River Prawn

Local Name: Yay Cho Pazun Tok

Description: Rostrum straight at proximal, dorsal margin of rostrum with 5-9 teeth, 1-2 teeth behind orbital margin which more widely spaced than other, ventral margin with 2-4 teeth, hepatic spine strong. Carapace and body smooth, first three body segments broadly rounded. Color in life of body transparent with brownish granular lines on carapace and joints of abdominal segments.

Economic Importance: Marketed fresh

3.3.6. *Penaeus monodon* (Fabricius, 1798) (Fig. 2F)

FAO Name: Giant tiger prawn

Local Name: Kalar Pazun

Description: Rostrum extending beyond the tip of the antennular peduncle; armed with usually 8-9 dorsal teeth and

2-4 ventral teeth. Carapace is smooth. Antennal and hepatic spine well-developed. Telson sharp pointed shorter than inner uropod with no lateral spines. Color of body is dark gray to yellowish brown and mud-yellow band on abdomen and uropod, pereopods and pleopods, reddish-brown to dark in color with some bright yellow marks.

Economic Importance: Marketed fresh

3.3.7. *Penaeus merguensis* (De Man, 1888) (Fig. 2G)

FAO Name: Banana shrimp

Local Name: Pazun Pyar

Description: Rostrum armed with 6-9 teeth on dorsal and 3-6 on ventral margin; blade of rostrum high, broadly triangular. Carapace is smooth, broad and hepatic spines are present. Body pinkish to pale yellow and whitish in live form. Antennal flagella long and red, antennular flagella short and white with black spots.

Economic Importance: Marketed fresh

3.3.8. *Penaeus indicus* (H.M Edwards, 1837) (Fig. 2H)

FAO Name: Indian white shrimp

Local Name: Pazun Phyu

Description: Rostrum armed with 6-9 teeth on dorsal and 3-6 on ventral margin; blade of rostrum high, broadly triangular in shape. Carapace is smooth, broad and hepatic spines are present. Body pinkish to pale yellow and whitish in live form. Antennal flagella long and red, antennular flagella short and white with black spots.

Economic Importance: Marketed fresh

3.3.9. *Penaeus penicellatus* (Fabricius, 1798) (Fig. 3A)

FAO Name: Redtail prawn

Local Name: Pazun Pyar

Description: Rostrum armed with 7-9 teeth on dorsal and 3-

5 on ventral margin; blade of rostrum convex. Carapace is smooth, broad and hepatic spines are present. Body semi-translucent, covered with numerous minute dark brown dots. Antennal flagella long and pink; antennule flagella short.

Economic Importance: Marketed fresh



Fig. 2. Prawns and shrimps: A) *Macrobrachium rosenbergii*, B) *Macrobrachium equidens*, C) *Macrobrachium malcolmsonii*, D) *Macrobrachium neglectum*, E) *Macrobrachium lanchesteri*, F) *Penaeus monodon*, G) *Penaeus merguensis*, H) *Penaeus indicus*

3.3.10. *Penaeus semisulcatus* (De Hann, 1844) (Fig. 3B)

FAO Name: Flower

Local Name: Pazun Sein Kyar

Description: Rostrum armed with 6-8 teeth on dorsal and 3 on ventral margin; tip slightly upturned, not exceeding beyond the tip of antennule peduncle. Carapace broad; median groove present; spines of the post-orbital, antenna and hepatic are present. Telson is simple, with median sulcus. Color of body is reddish brown.

Economic Importance: Marketed fresh

3.3.11. *Metapenaeus dobsoni* (Mitres, 1879) (Fig. 3C)

FAO Name: Kadal shrimp

Local Name: Pazun Tak

Description: Rostrum long, more curved, extending up to tip of antennular peduncle, sharply pointed at tip and armed with 7-9 teeth on dorsal margin and ventral teeth absent. Hepatic spine and antennular spine small, antennal carina short. Telson armed only with row of small lateral spine. Body pale yellow to brownish with red, brown or green specks.

Economic Importance: Marketed fresh

3.3.12. *Metapenaeus affinis* (Edwards, 1837) (Fig. 3D)

FAO Name: Jinga Shrimp

Local Name: Pazun Tak

Description: Rostrum is straight and armed with 8-11 teeth along entire dorsal margin. Ventral teeth are absent on rostrum. Rostrum is short, extends to the middle of the eye and the ventral margin is slightly concave. Telson armed only with spinules. Body is pale greenish to pinkish, sometimes green-bluish or pink brownish, with green or red-brown specks.

Economic Importance: Marketed fresh

3.3.13. *Metapenaeus eboracensis* (Dall, 1857) (Fig. 3E)

FAO Name: York Shrimp

Local Name: Pazun Tak

Description: Rostrum is nearly straight and uptilted, reaching almost to the tip of the antennular peduncle and armed dorsally with 9 to 12 teeth. Carapace has a postrostral border and broadly rounded anterolateral angles. Telson is shorter than the endopod of the uropod and lacks marginal spines.

Economic Importance: Marketed fresh



Fig. 3. Prawns and shrimps: A) *Penaeus penicellatus*, B) *Penaeus semisulcatus*, C) *Metapenaeus dobsoni*, D) *Metapenaeus affinis*, E) *Metapenaeus eboracensis*, F) *Parapenaeopsis sculptilis*, G) *Penaeopsis jerryi*, H) *Acetes indicus*

3.3.14. *Parapenaeopsis sculptilis* (Heller, 1862) (Fig. 3F)

FAO Name: Rainbow shrimp

Local Name: Pazun Kyaung

Description: Rostrum is sigmoid shaped possesses 7 dorsal teeth and no ventral teeth. Carapace is slender. Telson having median groove with sharp pointed and lateral spine absent.

Body is reddish orange, with gray colored transverse bands on the abdominal, pleopod pink to reddish.

Economic Importance: Marketed fresh

3.3.15. *Penaeopsis jerryi* (Heller, 1862) (Fig. 3G)

FAO Name: Gondwana shrimp

Local Name: Pazun Kyaung

Description: Rostrum almost horizontal, straight or slightly sinuous and long, armed with 12 to 16 dorsal teeth. Telson armed with a pair of fixed lateral spines and 3 pairs of small, movable spines. Red or dark brown with a reddish tint.

Economic Importance: Marketed fresh

3.3.16. *Acetes indicus* (Milne-Edwards, 1830) (Fig. 3H)

FAO Name: Jawla Paste Shrimp

Local name: Myin Phyu

Description: Rostrum very short, not reaching eye-stalk; armed with 2 dorsal teeth, the vertical fleshy triangular projection in front of the rostrum, occupying between the bases of eye stalk. The eye stalk longer and slender than other *Acetes* species, Postrostral and hepatic spines present; cervical groove short and defined, Entire body and carapace are glabrous. Telson sharp pointed and triangular apex, shorter than inner uropod, about sub equal as long as inner uropod, Color of body is translucent whitish.

Economic Importance: Myanmar Fish paste species

The shrimps and prawns are collected from Fish landing sites, Sittwe Township, Rakhine State is situated between east by Kaladan (Kispanadi) River and west by the Bay of Bengal. In the present study, 16 species belonging to 3 families of shrimps and prawns were recorded. Among three families, Palaemonidae have 5 species and Sergestidae has one species respectively. The family Penaeidae has mostly possessed species (Fig.4).

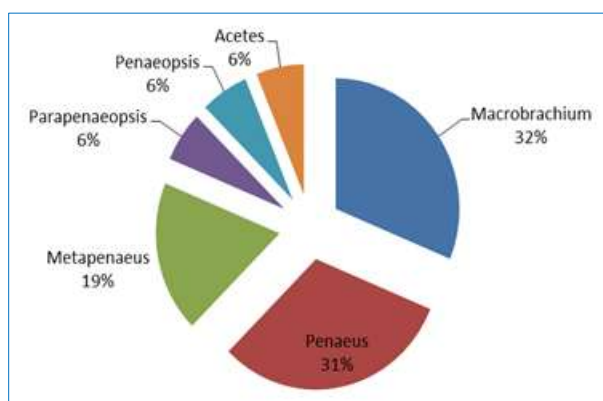


Fig. 4. Genus-wise occurrence of shrimp and prawn in the study area

The abundant genus *Penaeus* have ten species followed by the genus *Macrobrachium*, *Metapenaeus* and *Parapenaeopsis*, *Penaeopsis* and *Acetes* respectively. The genus *Parapenaeopsis*, *Penaeopsis* and *Acetes* were one species respectively. The genus *Acetes* has only one species in the study area. The species *Macrobrachium rosenbergii*, *Penaeus merguensis* and *P. monodon* are most commercial species in the study area and the whole country. The species *Acetes indicus* is the most popular shrimp in Myanmar as making for Ngapi (Myanmar

fish paste). The freshwater prawn, *Macrobrachium rosenbergii* and the penaeid shrimp, *Penaeus monodon* are commercial species in the study area. All species occur throughout the year. The freshwater prawn, *Macrobrachium rosenbergii* is abundant in monsoon season. The catches are landed almost year-round by the operation of both artisanal and commercial fishery.

Swe (2011) presented biology and economics of fishery resources caught by stationary bag nets along the coast of Mon State. He studied 4 species of shrimps and prawns. Myint (2013) investigated that species occurrence, sex ratio and length-weight relationship of some Penaeid shrimps from Pauktaw Environs, Rakhine State. She recorded 14 species belonging to three genera, one family and one order and water parameters in Pauktaw Environs, Rakhine State.

Khine (2015) examined that investigation on some economic values of prawns and shrimps in Myauk-U Environs. She reported 15 species belonging to five genera of two families under Decapoda and described the habitat, rostral formula, monthly catch and local price per kg of recorded species from Myauk-U Environs. Tun and Oo (2018) reported the diversity of shrimps from Nyawbyin coastal area, Launglon Township. They observed a total of six species of penaeid shrimps under family Penaeidae in study area.

Phyo (2020) studied fishery and economics of shrimp resources from Kalegawk Island and surrounding areas, Mon State. She observed fifteen species of shrimp, and the most effective fishing gear was bag net in Kalegawk Island. She also stated that the highest catch rate (8126 kg) of shrimp in post-monsoon season and followed by 8076 kg in monsoon and 7546 kg in pre-monsoon season.

Khine (2020) examined that occurrence of some shrimp and prawn species from Kha Yaing Village, Toungup Township, Rakhine State. She observed 18 species of shrimps, 2 species of prawns and 3 species of mantis shrimps in Toungup Township, Rakhine State. Kyaw (2022) stated that occurrence and abundance of some prawns and shrimps in Sittway Township, Rakhine State. He recorded 13 species belonging to four genera, two families under order Decapoda.

In the present study, there are 5 species of freshwater and 11 species of marine water species. The marine species, *Acetes indicus* are utilized by making Ngapi (Myanmar fish paste) that are abundant in Rakhine coastal water.

Fishermen use a wide range of fishing gears in many different methods. Types of gear used, and methods are based on many factors, including target species, habitat, time and hydrological conditions; the fishermen's knowledge is very important for the selection and usage of gears. Groups of fish and shrimps are economically valued for production of various forms such as fresh, cold freeze, paste form and dried forms.

4. Conclusion

A total of 16 prawn and shrimp species were collected from the Fish landing sites, Sittwe Township, Rakhine State in the present study. There are conservation initiatives for

freshwater prawn, *Macrobrachium* species in Rakhine State that is supported by Department of Fisheries. Prawns and shrimp are dominant components of inland, inshore and marine waters but there are significant gaps in the knowledge of the basic taxonomy, biodiversity and community structure of prawns and shrimp. A variety of fish products are processed by various methods including traditional and modern techniques. Depending on different sizes of shrimp/fish groups, market price and landing price were differed. A small amount of shrimp was processed by shrimp paste as domestic usage.

Acknowledgements

I am very grateful to Professor Dr Mya Kyawt Wai, Head of the Department, Department of Marine Science, Sittway University for her valuable suggestions and helping of field trip on this study. I would like to express my sincere thanks to my MSc student, Ma Su Yin Phyto, Department of Marine Science, Sittway University, Myanmar for her kindly help me in many ways during field trips. I would like to thank my beloved parents, for their physical, moral and financial supports throughout this study.

References

- Dholakia, A.D. 2010. *Identification of Prawns / Shrimps of India and their culture*. Daya Publishing House, Delhi. 363 pp.
- Holthuis, L.B., 1980. FAO species catalogue. Vol. 1. Shrimps and Prawns of the world. An annotated catalogue of species of interest to fisheries. FAO Fish. Synop., (125) Vol. 1: 271 pp.
- Khine, M.M., 2020. Occurrence of some Shrimp and Prawn species from Kha Yaing Village, Toungup Township, Rakhine State. Unpublished MSc Thesis, Department of Zoology, Sittway University. 64 pp.
- Khine, S.M., 2015. Investigation on some Economic Values of Prawns and Shrimps in Myauk-U Environs. Unpublished MSc Thesis, Department of Zoology, Sittway University. 72 pp.
- Kyaw, W.M., 2022. Occurrence and Abundance of some Prawns and Shrimps in Sittway Township, Rakhine State. Unpublished MSc Thesis, Department of Zoology, Sittway University. 43 pp.
- Myint, A.A., 2013. Species Occurrence, Sex Ratio and Length-Weight Relationship of some Penaeid Shrimps from Pauktaw Environs, Rakhine State. Unpublished MSc Thesis, Department of Zoology, Sittway University. 46 pp.
- Phyo, Z.M., 2020. Fishery and Economics of Shrimp Resources from Kalegawk Island and Surroundings Areas, Mon State. Unpublished PhD Dissertation, Department of Marine Science, Mawlamyine University. 104 pp.
- Swe, T., 2011. Biology and Economics of Fishery Resources Caught by Stationary Bagnets along the Coast of Mon State. Unpublished PhD Dissertation, Department of Marine Science, Mawlamyine University. pp 109-112.
- Tun, M.M., Oo, Y.N., 2018. Diversity of shrimps from Nyawbyin coastal area, Launglon Township. Departmental Research Paper. 25 pp.
- Tun, M.T., 2021. Marine Creatures of Myanmar. Wildlife Conservation Society, Myanmar Program. pp 889-896.