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Species Occurrence of Marine Fishes in Cheduba Island, Rakhine State, Western Myanmar

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Abstract
A total of 32 species (31 genera) belonging to 22 families, 9 orders of collected fishes was identified from fish landing sites of Cheduba Island also called Man-Aung Island, Rakhine State, Western Myanmar from January 2023 to December 2023. Among them, two species (2 families, 2 orders) are cartilaginous fishes, and 30 species (20 families, 7 orders) are bony fish identified. Among them, the fish *Urogymnus polylepis* and *Brevitrygon imbricata* were the cartilaginous fishes and others were the bony fishes. The order Perciformes was abundant possessed families, geniuses and species. All species are caught by commercial catches in the study areas. Cheduba Island areas had both inshore and offshore fishing areas.

Ke ywords
Cheduba Island, marine fishes, occurrence, perciformes, rakhine state, Western Myanmar

1. Introduction

Fish are the most diverse group of vertebrates with more than 30,000 species world-wide. Saltwater fish, also called marine fish, are fish that live in ocean water. Marine fish are very popular among deep sea fishermen and aquariums all over the country. Saltwater fish can swim and live alone or live in a large group together, called a school of fish. Marine fisheries are conducted in all the oceans and seas of the world, including bays and estuaries. Fish is a very important source of nutrients of animal origin for varying healthy diets. Fish provides a good source of high-quality protein and contains many vitamins and minerals. Increase in human population and the attendant increase in demand for animal protein worldwide.

Myanmar has plenty of marine and freshwater fishes that can be used for fish meal and already produced food pallet, commercially. All species of fish are utilized for human consumption of fresh, dried and salted. There are strong consumers for marine fishes, being mainly preferred in the coastal population and land territory.

The aim of the present study is to identify and species occurrence of the marine fishes of Cheduba Island, Rakhine State, Western Myanmar and to know some information of fisheries sector in these areas.

2. Materials and Methods

The fish specimens were collected from the fish landing sites of Cheduba Island, Rakhine State, Western Myanmar as shown in Fig. 1. The working period covers the time frame from January 2023 to December 2023. The collected samples were carried out by the freezing box to the laboratory, Department of Marine Science, Sittway University, Myanmar for further studies.

All the specimens were preserved in 10% formaldehyde-seawater. In the field, the samples were washed with fresh water and then preserved in 10% formaldehyde solutions. Photographs of the external morphological structure of fish were taken with a digital camera.

The identification of fish was based on morphological distinctive characteristics. Especially, the classification of species was based on the distinctive characteristics such as body shape, counting spine and rays of fins and color

pigmentation pattern. The taxonomy of all species was used by the way of Day (1878), Fischer and Bianchi (1981), Collette and Cornelia (1983), Carpenter (1988), Russell (1990), Tun (2001), Motomura (2004), Ye and Kevern (2011) and Tun (2019; 2021).

3. Results and Discussion

3.1. Species Occurrence of Marine Fishes in Cheduba Island, Rakhine State, Western Myanmar

Cheduba Island is also called Man-Aung Island, a large outlying island off the Rakhine coast of Myanmar in the Bay of Bengal, just southwest of the larger Ramree Island. Manaung is one of the largest islands in Myanmar with an area of 523 km^2 which almost is equal to the size of Phuket which is the largest island in Thailand. The main town on the island is Manaung, located in the north-eastern corner. It has a ferry port that connects to nearby Kokkabyin on Ramree Island, and an airport which serves semi-regular connections to Sittwe, Pathein and Yangon. All collected specimens are taken out of the fish landing site of Cheduba Island, Rakhine State.

A total of 32 marine fish species belonging to 22 families and 9 orders were identified in the present study (Figs. 2-5). Inshore and offshore fisheries are commonly used in this area. The species classified list is shown in Table 1.

Fig.1. Map showing the sample collection sites of the study area

Cheduba Island is mostly flat with a few rolling hills in the southwest and shares a common geography with similar terrain all the way down the Bay of Bengal coast and down into Andaman and Nicobar Islands. The island's highest peak is located at the southern end. Man-Aung Island on the northeast coast is linked to Kyaukphyu (Ramree Island) by steamer. Farming and cattle rising are the main economic activities. Mud cones emitting steam and sulfurous fumes indicate slight volcanic activity on the island; there are alos gas and oil seepages. The present study was studied for the distribution and occurrence of fishes in Man-Aung Island areas. A total of 32 fish species belonging to 22 families and 9 orders were identified in the present study (Figs. 2-5). Among them, the fishes *Urogymnus polylepis* and *Brevitrygon imbricata* were the cartilaginous fishes and others were the bony fishes. The family Engraulidae was the abundant species in the study area (Fig. 6).

The families Clupeidae and Scombridae possessed three species. The families Dasyatidae, Muraenesocidae and Carangidae were found to have two species in the present study. Each species was found in another family. The order Perciformes comprised most of the families, genus and species (Fig. 7).

The species of *Tennualosa toli, Lates calcarifer, Scomberomorus*

guttatus, and *Epinephalus breekeri* are commercial fishes in the study area and the whole country. *Congresox talabon, Congresox talabonoides, Mugil cephalus, Johnius coitor, Anodontostoma chacunda, Colia dussumieri, Setipinna taty*, *Stolephorus commersonnii*, *Terapon jabura, Leionathus equalus*, *Auxis thazard,* B) *Scomberoides tala*, C) *Scomberomorus guttatus*, *Auxis thazard, Scomberoides tala*, *Scomberomorus guttatus*, and *Osteogeniosus militarias* were commonly abundance during the study period.

Nu (2008) studied that the distribution, seasonal abundance and economic importance of some marine fishes in the Sittwe environs. She identified that the 24 species, 23 genera belonging to the 18 families of 7 orders in her study period. She described the species *Scomberomorus guttatus*, *Coilia dussumieri* and *Johnius coitor* for dried fishes, the species *Lates calcarifer* and *Tennualosa toli* for the first demand of consumers and the species *Scomberomorus guttatus*, *Coilia dussumieri*, *Johnius coitor, Lates calcarifer* and *Tennualosa toli* for the most commercially important fishes in her study period.

Wai (2020) studied that fish species availability and fishing gear used in Yambye Environs, Rakhine State. She identified 55 species belonging to 15 orders of fishes in the study period. Among them, the order Perciformes was most abundant in this area.

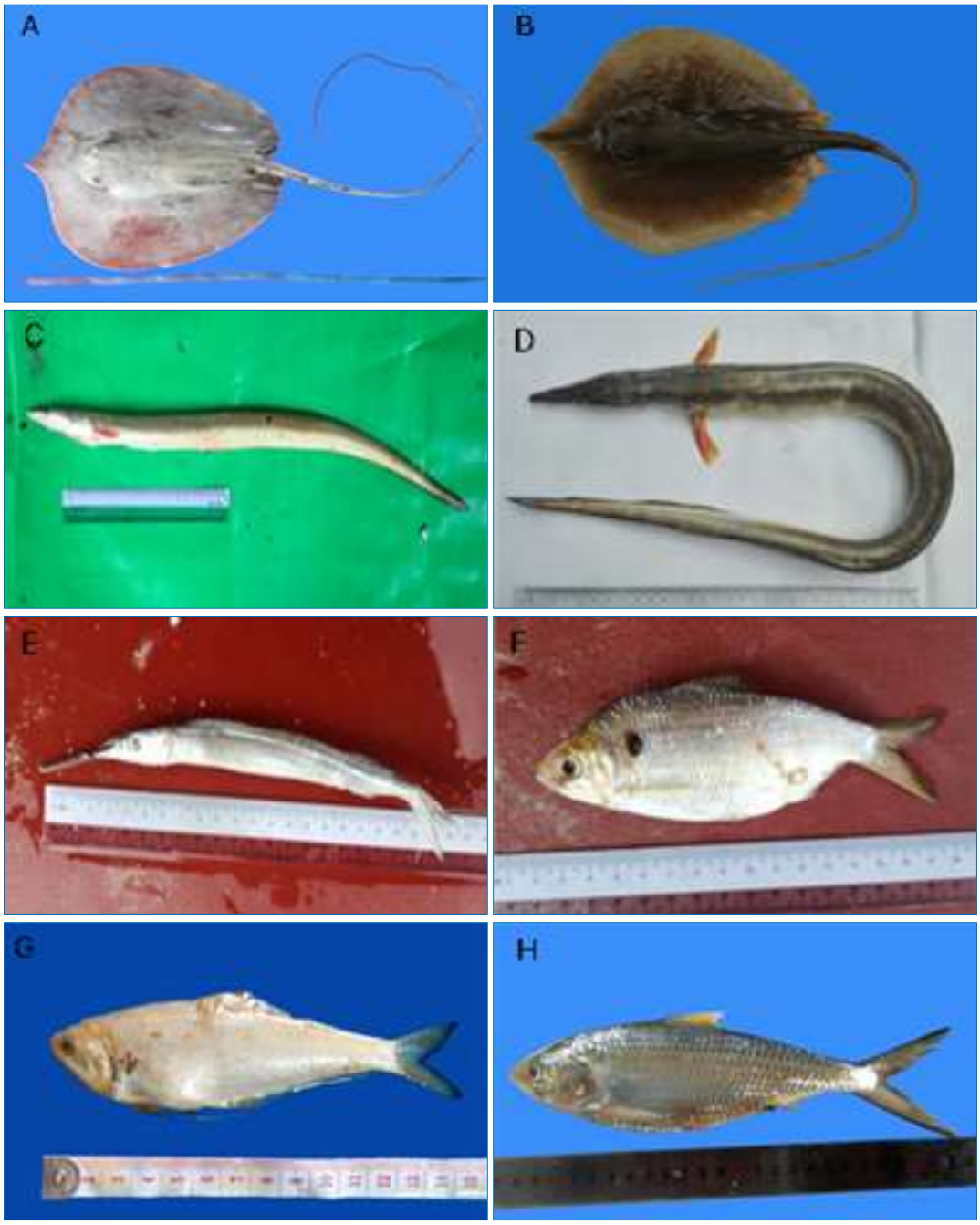


Fig. 2. Fishes of the study area. A) *Urogymnus polylepis,* B) *Brevitrygon imbricata,* C) *Congresox talabon*, D) *Congresox talabonoides*, E) *Strongylura strongylura*, F) *Anodontostoma chacunda*, G), *Sardinella gibbosa*, H) *Tennualosa toli*

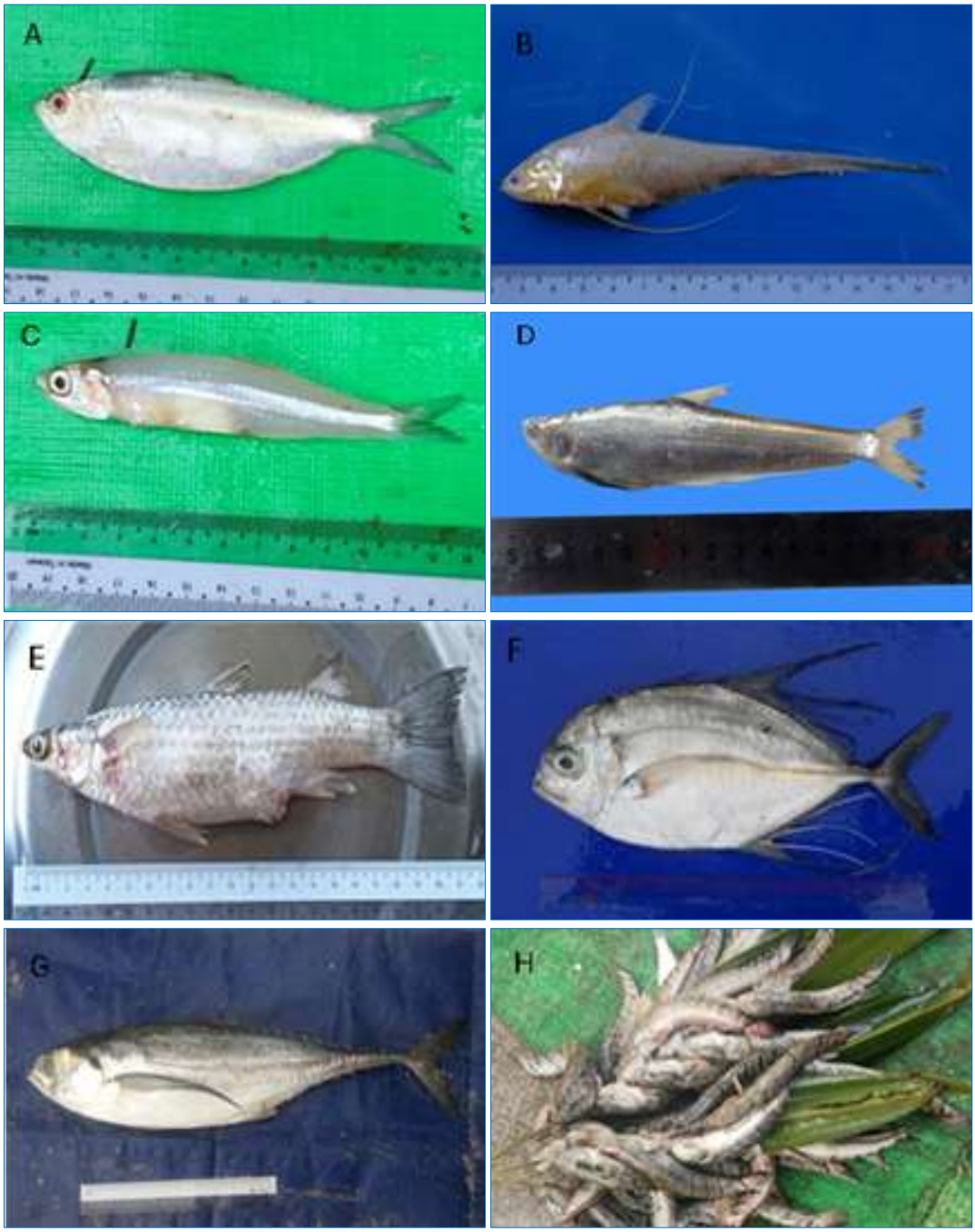
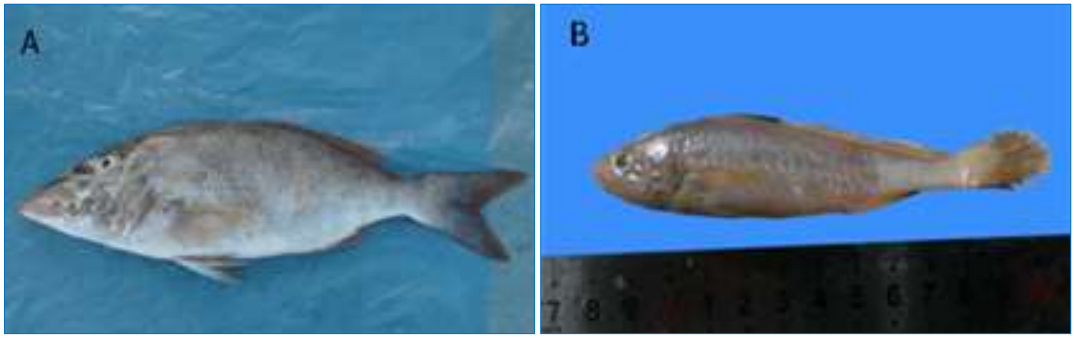


Fig. 3. Fishes of the study area. A) *Colia dussumieri,* B) *Setipinna taty*, C) *Stolephorus commersonnii*, D) *Thryssa mystax*, E) *Mugil cephalus*, F) *Carangoides ferdau*, G) *Megalapis cordyla*, H) *Boleophthalmus boddarti*



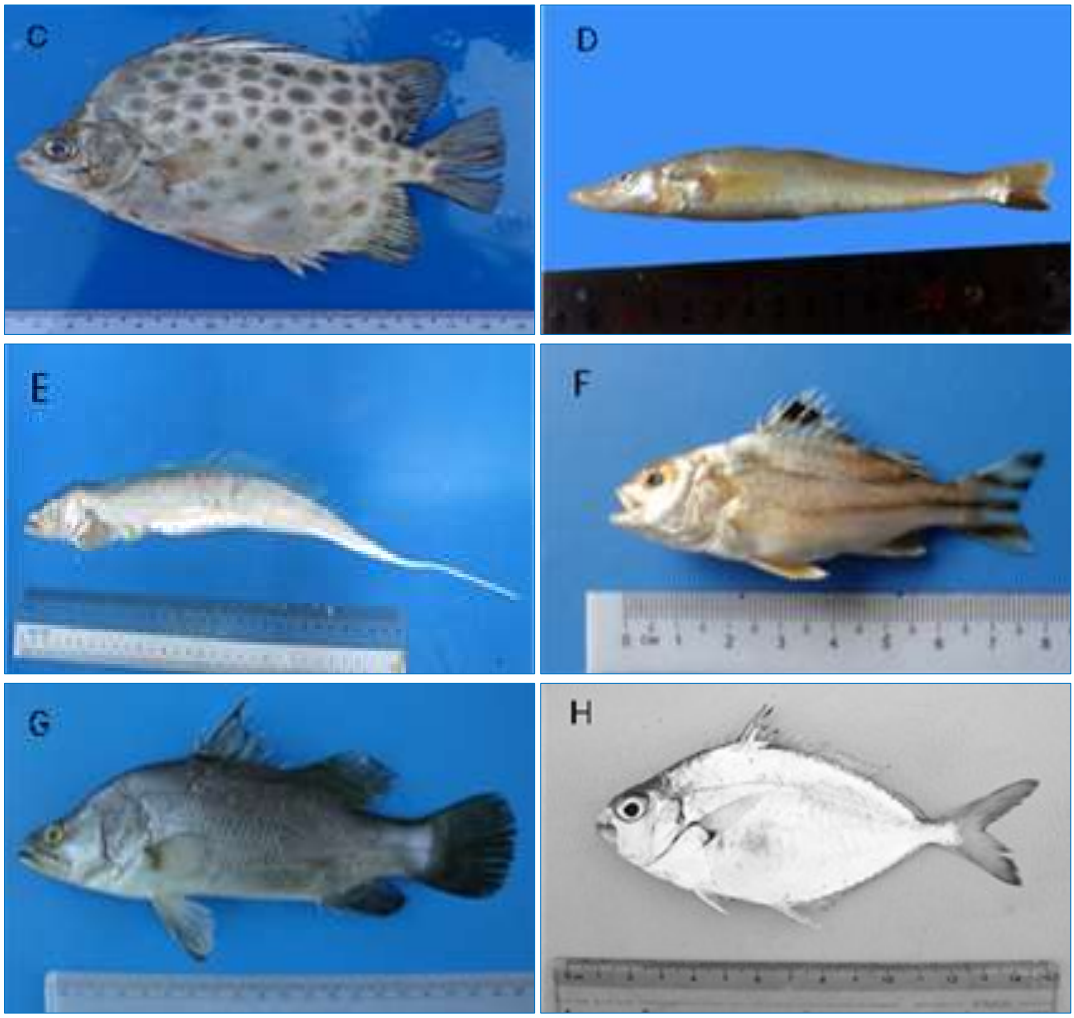


Fig. 4. Fishes of the study area. A) *Lethrinus miniatus,* B) *Johnius coitor*, C) *Scatophagus argus*, D) *Sillaginopsis panijus*, E) *Trichiurus lepturus*, F) *Terapon jabura*, G) *Lates calcarifer*, H) *Leionathus equalus*

Fig. 5. Fishes of the study area. A) *Auxis thazard,* B) *Scomberoides tala*, C) *Scomberomorus guttatus*, D) *Epinephalus breekeri*, E) *Cynoglossus bilineatus*, F) *Pseudorhombus arsius*, G) *Platycephalus indicus*, H) *Osteogeneiosus militarias*

Hsan (2020) also studied that the assessment of fish species availability and fishing gears used in Sittway Environs, Rakhine State. She described the 49 species belonging to 15 orders of fishes in the study period. The order Perciformes was also most abundant in this area.

Aung (2020) also studied the occurrence of fish species of Ma-Ei Myoma Market from Ma-Ei Town 55 in Toungup Township, Rakhine State. He identified a total of 24 fish species of 20 genera belonging to 16 families of 6 orders in this area.

Table 1. Classification system of marine fishes at Cheduba Island, Rakhine State, Western Myanmar

No	Phylum	Class	Order	Family	Genus	Species
1	Chordata	Chondrichthyes	Myliobatiformes	Dasyatidae	*Urogymnus*	*Urogymnus polylepis*
2					*Brevitrygon*	*Brevitrygon imbricata*
3		Actinopterygii	Anguilliformes	Muraenesocidae	*Congresox*	*Congresox talabon*
4						*Congresox talabonoides*
5			Beloniformes	Belonidae	*Strongylura*	*Strongylura strongylura*
6			Clupeiformes	Clupeidae	*Anodontostoma*	*Anodontostoma chacunda*
7					*Sardinella*	*Sardinella gibbosa*
8					*Tennualosa*	*Tennualosa toli*
9				Engraulidae	*Coilia*	*Coilia dussumieri*
10					*Setipinna*	*Setipinna taty*
11					*Stolephorus*	*Stolephorus commersonnii*
12					*Thryssa*	*Thryssa mystax*
13			Mugiliformes	Mugilidae	*Mugil*	*Mugil cephalus*
14			Perciformes	Carangidae	*Carangoides*	*Carangoides ferdau*
15					*Megalaspis*	*Megalaspis cordyla*
16				Gobiidae	*Boleophthalmus*	*Boleophthalmus boddarti*
17				Lethrinidae	*Lethrinus*	*Lethrinus miniatus*
18				Polynemidae	*Johnius*	*Johnius coitor*
19				Scatophagidae	*Scatophagus*	*Scatophagus argus*
20				Sillaginidae	*Sillaginopsis*	*Sillaginopsis panijus*
21				Trichiuridae	*Trichiurus*	*Trichiurus lepturus*
22				Terapotidae	*Terapon*	*Terapon Jarbua*
23				Latidae	*Lates*	*Lates calcarifer*
24				Leiognathidae	*Leionathus*	*Leionathus equalus*
25				Scombridae	*Auxis*	*Auxis thazard*
26					*Scomberoides*	*Scomberoides tala*
27					*Scomberomorus*	*Scomberomorus guttatus*
28				Serranidae	*Epinephalus*	*Epinephalus breekeri*
29			Pleuronectiformes	Cynoglossidae	*Cynoglossus*	*Cynoglossus bilineatus*
30				Paralichthyidae	*Pseudorhombus*	*Pseudorhombus arsius*
31			Scorpaeniformes	Platycephalidae	*Platycephalus*	*Platycephalus indicus*
32			Siluriformes	Ariidae	*Osteogeneiosus*	*Ostegeneiosus militarias*

Table 2. Different types of marine fishes in Cheduba Island, Rakhine State, Western Myanmar

No	Scientific Name	FAO Name	Local Name
1	*Urogymnus polylepis* (Fig. 2A)	Giant Freshwater whipray	Nga-late-kyauk
2	*Brevitrygon imbricate* (Fig. 2B)	Scaly stingray	Laik-kyauk-smark
3	*Congresox talabon* (Fig. 2C)	Yellow pike - conger	Nga-shwe, Thin-paung-htoe
4	*Congresox talabonoides* (Fig. 2D)	Yellow pike - conger	Nga-shwe, Thin-paung-htoe
5	*Strongylura strongylura* (Fig. 2E)	Spottail Needlefish	Nga-paung-yoe
6	*Anodontostoma chacunda* (Fig. 2F)	Chacunda Gizzard Shad	Nga-wun-pu, Bar -thi
7	*Sardinella gibbosa* (Fig. 2G)	Goldstripe Sardinella	Nga-kone-nyo
8	*Tennualosa toil* (Fig. 2H)	Toli shad	Nga-par-mae, Nga-tha-lauk-yauk-pha
9	*Coilia dussumieri* (Fig. 3A)	Goldspotted grenadier anchovy	Mee-tan-thwe, Nga-la-war
10	*Setipinna taty* (Fig. 3B)	Scaly hairfin anchovy	Nga-byar, Nga-pa-shar
11	*Stolephorus commersonnii* (Fig. 3C)	Commerson Anchovy	Nga-ni-tu
12	*Thryssa mystax* (Fig. 3D)	Moustached thryssa	Nga-bya
13	*Mugil cephalus* (Fig. 3E)	Flathead grey mullet	Ka-be-luu, Nga-kin-gyine, Nga-kan-thar
14	*Carangoides ferdau* (Fig. 3F)	Ferdau's cavalla, Ferdy, Kingfish	Zar-gyan, Nga-own
15	*Megalaspis cordyla* (Fig. 3G)	Hardtail scad	Nga-chin-baung, Pyi-daw-tha
16	*Boleophthalmus boddarti* (Fig. 3H)	Mudskipper	Nga-din-pyauk
17	*Lethrinus miniatus* (Fig. 4A)	Trumpet Emperor	Nga-wet-sat
18	*Johnius coitor* (Fig. 4B)	Coitor croaker	Nga-bote-gone, Nga-byit, Bite-chay
19	*Scatophagus argus* (Fig. 4C)	Spotted scat	Nga-bee, Nga-pa-thone
20	*Sillaginopsis panijus* (Fig. 4D)	Flathead sillago	Nga-pa-lway, Nga-sa-lone
21	*Trichiurus lepturus* (Fig. 4E)	Small-headed ribbonfish	Nga-ta-kon
22	*Terapon Jarbua* (Fig. 4F)	Jarbua therapon	Nga-goan-kyarr, Za-pa-sar
23	*Lates calcarifer* (Fig. 4G)	Gaint Perch	Ka-ka-dit, Nga-tha-dite
24	*Leionathus equalus* (Fig. 4H)	Slimy, coomon ponyfish	Nga-din-ga
25	*Auxis thazard* (Fig. 5A)	Frigate tuna	Nga-mae-lone
26	*Scomberoides tala* (Fig. 5B)	Barred Spanish mackerel	Nga-zar-pyit/ Pan-zin
27	*Scomberomorus guttatus* (Fig. 5C)	Indo-Pacific king mackerel	Nga-kwin-shut, Nga-nyoe
28	*Epinephalus breekeri* (Fig. 5D)	Duskytail grouper	Kyauk-nga
29	*Cynoglossus bilineatus* (Fig. 5E)	Fourlined tongue sole	Nga-khway-shar, Kha-shar
30	*Pseudorhombus arsius* (Fig. 5F)	Largetooth Flounder	Nga-khway-shar, Kha-shar
31	*Platycephalus indicus* (Fig. 5G)	Dusky flathead	Nga-sin-ninn, Kwel-pa-done, Nat-pan-kha
32	*Ostegeneiosus militarias* (Fig. 5H)	Soldier catfish	Nga-Yaung, Nga-zute, Nga-suu

Mar (2022) studied the distribution and seasonal occurrence of fish species in Rar Maung River at Minbya Township, Rakhine State. She identified a total of 48 species belonging to 45 genera, 37 families and 13 orders of fishes in this area. Among the collected species the order Perciformes was dominant with 18 species. Htun (2022) studied the species occurrence and composition of marine fish species from Myoma Market, Sittwe, Rakhine State. A total of 58 species, genera belonging to 38 families of 14 orders of marine fishes, were identified in her study period.

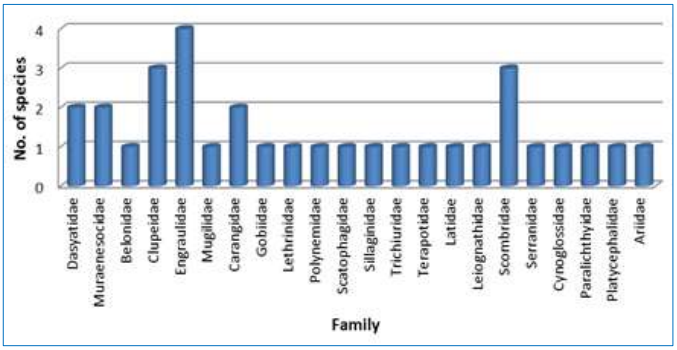


Fig. 6. Percentages of the familywise in the study area

In the present study, the commercial fishes are *Tennualosa toli, Megalapis cordyla, Lates calcarifer*, *Auxis thazard, Scomberomorus guttatus* and *Epinephalus breekeri* and the species *Brevitrygon imbricata, Sardinella gibbosa, Colia dussumieri, Setipinna taty*, *Stolephorus commersonnii*, *Trichiurus lepturus, Cynoglossus bilineatus* and *Pseudorhombus arsius* for the dried fish's species in this station.

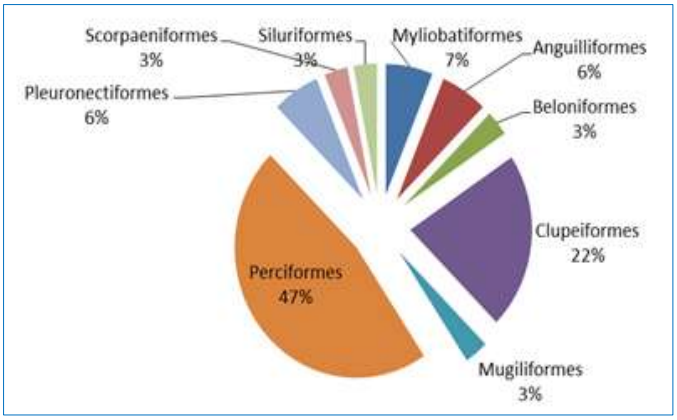


Fig. 7. Percentages of the Orderwise in the study area

4. Conclusion

A total of 32 marine fish species belonging to 22 families and 9 orders were identified in the present study. This study can contribute to the further study of the different kinds of species and morphological characters, species composition, distribution of marine fishes in Cheduba Island and adjacent waters. So, further research needs to be done by researchers on the ecology and fishery biology of marine fishes in detail and future. In addition, it is also needed to conserve and manage the fishes and fishery status in Rakhine coastal waters, Myanmar.

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Reference

Aung, Z.Z., 2020. Occurrence of fish species of Ma-Ei Myoma Market from Ma-Ei Town in Toungup Township, Rakhine State. Unpublished MSc Thesis. Department of Zoology, Sittway University, 37pp.

Carpenter, K.E., 1988. FAO Species Catalogue. Vol. 8. Fishes of the world. FAO Fisheries Synopsis No. 125. Food and Agriculture Organization of the United Nations Rome.

Collette, B.B., Cornelia, E.N., 1983. FAO Species Catalogue, Vol.2 Scombrids of the world. Food and Agriculture Organization of the United Nations Rome,

Day, F.F.L.S., F.Z.S., 1878. The fishes of India; Being a natural History of the Fishes. Published by Bernard Quaiutcii, 15 Piccadilly.

Fischer, W., Whitehead, P.J.P., 1981. FAO Species Identification Sheets for Fishery Purpose. Vol. 1. Eastern Central Atlantic (fishing areas 34, 47). Food Agriculture Organization of the United Nation by the Department of Fisheries and Ocean, Canada.

Hsan, N.A., 2020. Assessment of fish species avalibility and fishing gears used in Sittway Environs, Rakhine State. Unplished MSc Thesis.Department of Zoology, Sittway University, 93pp.

Htun, W.C.C., 2022. Species Occurrence and Composition of Marine fish species from Myoma Market, Sittway, Rakhine State. Unpublished MSc Thesis. Department of Zoology, Sittway University, 43pp.

Mar, P.W., 2022. Distribution and seasonal occurrence of fish species in Rar Maung River at Minbya Township, Rakhine State. Unpublished MSc Thesis. Department of Zoology, Sittway University, 53pp.

Motomura, H., 2004. Threadfins of the world (Family Polynemidae). FAO Species Catalogue for Fishery Purpose No. 3. Food and Agriculture Organization of the United Nations Rome.

Nu, T.T., 2008. Species Abundance and Economic Importance of Some Fishes from Sittway Environs. Unpublished MRes Thesis.Department of Zoology, Sittway University.

Russell, B.C., 1990. FAO Species Catalogue Vol. 12. Nemipterid Fishes of the world. Food and Agriculture organization of the United Nations. FAO Fisheries Synopsis No. 125.

Tun, M.T., 2001. Marine Fishes of Myanmar (Pelagic and Demersal). Marine Fisheries Resources Survey Unit, Department of Fisheries, Yangon, Myanmar.

Tun, M.M., 2019. Diversity of commercial fishes in Gulf of Mottama, Mon State. Proceedings of Research Paper Reading Seminar in Commemoration of the 23rd Anniversary of Monywa University, Vol. 1. 251-256.

Tun, M.M., 2021. A study on some commercial fishes of Nyaw-byin Coastal Water, Launglone Township, Tanintharyi Region, Myanmar. International Journal of Fisheries and Aquatic Studies 9 (1), 42-46.

Wai, M.S., 2020. Study of fish species avalibility and fishing gear used in Yambye Environs, Rakhine State. Unpublished MSc Thesis. Department of Zoology, Sittway University, Myanmar. 77pp.

Ye, Y., Kevern, C., 2011. FAO Review of the State of World Marine Fishery Resources. Food and Agriculture organization of the United Nations. FAO Fisheries and Aquacultural Technical Paper No. 569. Rome, FAO. 334 pp.