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A study on some commercial fishes of Nyaw-byin coastal water, Launglone Township, Tanintharyi region, Myanmar

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Abstract

A total of 10 species (nine families of Belontiidae, Clupeidae, Chirocentridae, Mugilidae, Carangidae, Drepaneidae, Lutjanidae, Monodactylidae and Sciaenidae under 4 orders) of some commercial fishes was collected from Nyaw-byin coastal water, Launglone Township from April 2019 to March 2020. The collected specimens comprised *Albennes hians*, *Tenualosa ilisha*, *Chirocentrus dorab*, *Mugil cephalus*, *Megalaspis cordyla*, *Scomberoides tala*, *Drepane punctata*, *Lutjanus lunulatus*, *Monodactylus argenteus* and *Nibeia soldado*. The distribution and occurrence of some commercial fishes is present in all year round. In addition, habitats of each species, local distribution of some commercial fishes are briefly described.

Keywords: Distribution, diversity, Nyaw-byin coastal water, occurrence, some commercial fishes

Introduction

Myanmar as coastal country of the Bay of Bengal is fully aware of the transboundary effects on the health of the coastal and marine environment. Myanmar possesses a long coastline approximately 2,832 km, a continental shelf of 228,781 km² and Exclusive Economic Zone (EEZ) of 486,000 km², 8.1 million ha of inland freshwater bodies ^[1]. Along the Myanmar coastline, there are 139 fishing grounds. Artisanal fishery conducting with the bagnet, purse seine and beach seine net is mainly carried out in Nyawbyin coastal area.

The present study performed in Nyaw-byin coastal areas are parts of the Tanintharyi coastal area situated in the Andaman Sea. In these areas, fisheries play important role because most of the people rely on the fisheries as their livelihood. Fisheries are not only supplying the local fishermen for their survival but also their income and food. Both inshore and offshore fisheries are performed by the local people. So, various marine fish diversities could be found in this region. Most of fish species are commercially importance, such as herring, pony fish, grouper, snapper, crab and lobster.

Bony fish have many features; various shape and sizes and are cold blooded animals. They could be found in aquatic environments and diverse a lot of species. They very enrich protein that the animals needed for their nutrition. Fish are resources which are important and high quality sources of amino acids found in small amounts of cereals and grains as nutritionally important types of protein and present about 16% of protein attributed to the animal group ^[2, 3].

The relationship between humans and fish is not only phylogenetic but also religious, cultural and socio-economic because fish has the closest relationship with humans among the vertebrates. For food and livelihoods, millions of people around the world depend on fish that are a renewable natural resource and the production of fish and fish products has increased tremendously in the Indian Ocean region during the last half century as a result of improvements in fish capture technology and rising demand caused by a growing global population ^[4]. The objectives of this study are 1) to observe the distribution and occurrence of some commercial fishes and 2) to identify some commercial fishes from Nyaw-byin coastal water.

Materials and Methods

Fish specimens were collected from fishing landing sites of Nyaw-byin Area in Launglone Township, Thanintharyi Coastal Region, from April 2019 to March 2020 (Fig. 1).

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Samples were mostly collected from bag nets, locally known as “Kyar-pa-zat” and other kinds of nets such as longline; gill nets, bownets, trammel and trawl nets. The samples were arranged for analyzing in fresh condition and measured by measuring board in centimeter (cm). The total body length (from the snout to the hind tip of the upper caudal lobe) of fish was measured by using both measuring tape and measuring board. Photographs of the external morphological structure of fish were taken with a digital camera. The samples were preserved in the 5% formaldehyde solution in seawater. The identification of collected specimens was carried out in the laboratory, Department of Marine Science, Mawlmyine University. The identification was mainly based

on FAO identification sheets and catalogue for fishery purpose. The standard texts such as [5, 6, 7, 8, 9, 10, 11].

Results and Discussion

Description of commercial fishes from Nyaw-byin coastal water

A total of 10 species under nine families of commercial fish collected from Nyaw-byin coastal water, Launglone Township such as *Ablennes hians*, *Tenuulosa ilisha*, *Chirocentrus dorab*, *Mugil cephalus*, *Megalaspis cordyla*, *Scomberoides tala*, *Drepane punctate*, *Lutjanus lunulatus*, *Monodactylus argenteus* and *Nibea soldado* have been recorded.

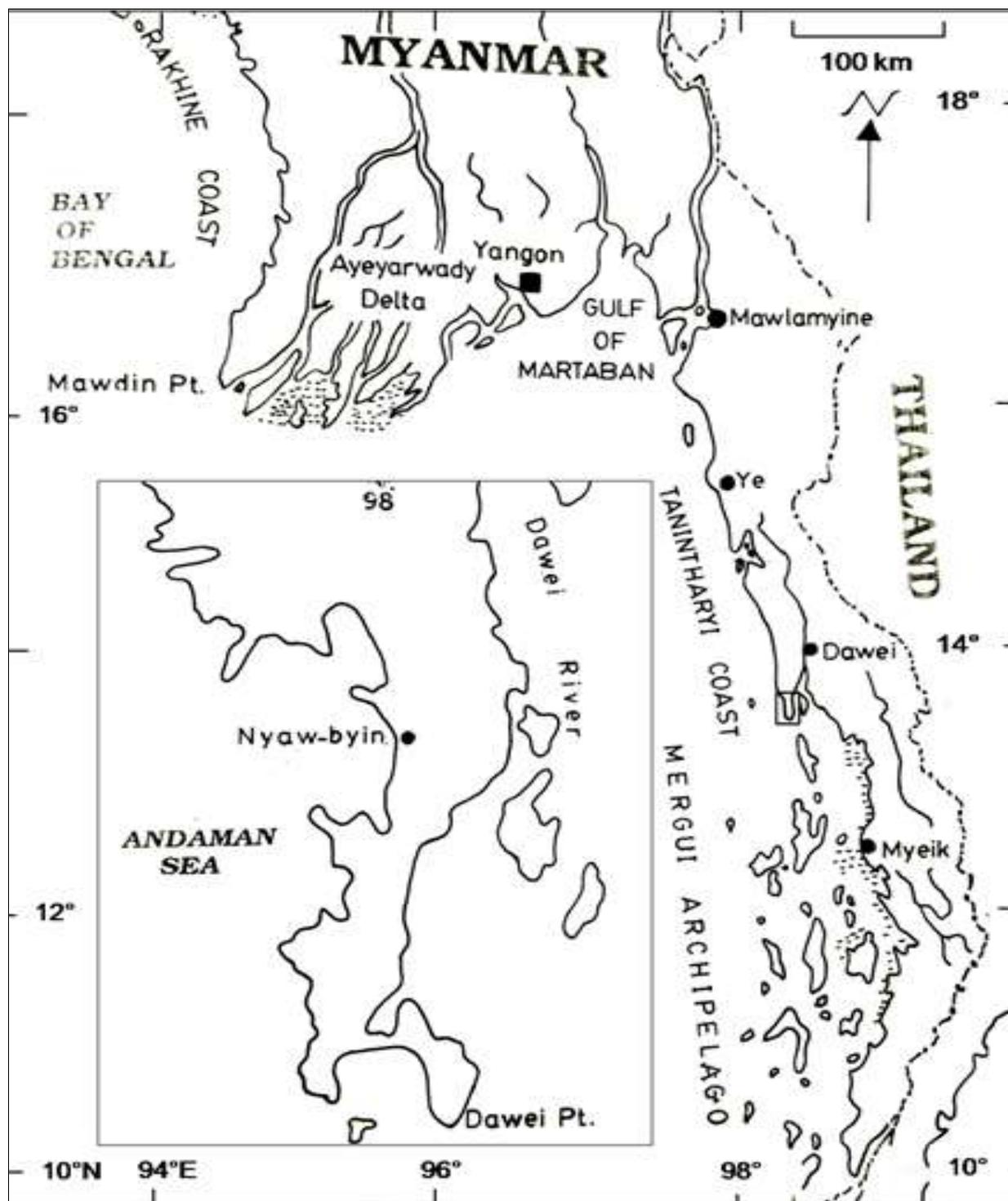


Fig 1: Map showing the sample collection from Nyaw-byin Coastal Areas, Launglone Township

Table 1: Description and classification of some commercial fishes in Nyaw-byin Coastal Water

Phylum:	Chordata
Class:	Actinopterygii
Order:	Beloniformes
Family:	Belonidae
Genus:	<i>Ablennes</i>
Species:	(i) <i>Ablennes hians</i>
Order:	Clupeiformes
Family:	Clupeidae
Genus:	<i>Tenualosa</i>
Species:	(ii) <i>Tenualosa ilisha</i>
Family:	Chirocentridae
Genus:	<i>Chirocentrus</i>
Species:	(iii) <i>Chirocentrus dorab</i>
Order:	Mugiliformes
Family:	Mugilidae
Genus:	<i>Mugil</i>
Species:	(iv) <i>Mugil cephalus</i>
Order:	Perciformes
Family:	Carangidae
Genus:	<i>Megalaspis</i>
Species:	(v) <i>Megalaspis cordyla</i>
Genus:	<i>Scomberoides</i>
Species:	(vi) <i>Scomberoides tala</i>
Family:	Drepaneidae
Genus:	<i>Drepane</i>
Species:	(vii) <i>Drepane punctata</i>
Family:	Lutjanidae
Genus:	<i>Lutjanus</i>
Species:	(viii) <i>Lutjanus lunulatus</i>
Family:	Monodactylida
Genus:	<i>Monodactylus</i>
Species:	(ix) <i>Monodactylus argentus</i>
Family:	Sciaenidae
Genus:	<i>Nibea</i>
Species:	(x) <i>Nibea soldado</i>

***Ablennes hians* (Valenciennes, 1846) (Fig. A)**

Body elongate, greatly compressed laterally; no caudal peduncle keel; lateral line without pectoral branch; jaw greatly elongate, studded with small sharp teeth; gill rakers absent. Dorsal and anal fins with high falcate lobes anteriorly; origin of dorsal fin posterior to anal fin origin; pectoral fin falcate; caudal fin deeply forked, lower lobe much longer than upper lobe. Color: body silvery white, bluish green dorsally; an distinct dark blue stripe along sides; about 12-14 prominent dark vertical bars on sides; tip of lower jaw red; scales and bones green.

***Tenualosa ilisha* (Hamilton, 1822) (Fig. B)**

Belly with 30 to 33 scutes. Distinct median notch in upper jaw. Gill rakers fine and numerous, about 100 to 230 on lower part of the arch. Fins hyaline. A dark blotch behind gill opening, followed by a series of small spots along flank in juveniles. Color in life, silver shot with gold and purple.

***Chirocentrus dorab* (Forsskal, 1775) (Fig. C)**

Body elongate, strongly compressed, belly sharp; pectoral fin short. Mouth large, directed upward; both jaws with large canine teeth anteriorly. Scales cycloid very small. Color: dark bluegreen dorsally, silvery ventrally; black marking on the upper part of dorsal fin; caudal fin blackish.

***Mugil cephalus* (Linnaeus, 1758) (Fig. D)**

Body stout, cylindrical in cross section, slightly compressed;

head broad and flattened. Well-developed adipose eyelid covering most of pupil. Upper lip thin and without papillae, armed with 1-6 rows of fine teeth; hind end of upper jaw reaching a vertical line from anterior eye margin; maxillary pad not visible below corner of mouth when closed; origin of first dorsal fin nearer to snout tip than to caudal-fin base; anterior part and bases of second dorsal and anal fins with a moderately dense coverage of scales; pectoral axillary process; 14-15 scale rows between origins of dorsal and pelvic fins.

***Megalaspis cordyla* (Linnaeus, 1758) (Fig. E)**

Body torpedo-shaped, elongate, subcylindrical; snout pointed; dorsal and ventral profiles equally convex. Breast naked, naked area extending to between one third and one half distance to pectoral base. Dorsal and anal fins low; soft dorsal and soft anal with subfalcate anterior lobes; pectoral fins falcate, extending to well beyond junction of straight and curved lateral line segments and to beyond origin of soft anal fin. Maxilla extends to below middle of eye. Pluriseriate villiform teeth on upper jaw, vomer, palatines and tongue; outer teeth on upper jaw may be slightly enlarged; small pointed teeth uniseriate on lower jaw.

***Scomberoides tala* (Cuvier, 1832) (Fig. F)**

Body elongate-oval to oval, moderately to strongly compressed; snout pointed. Soft dorsal and soft anal fins low with falcate anterior lobes, posterior rays of both fins consisting of semi-detached fin lets; pectoral fins short, not falcate; pelvic fins short, depressible into shallow abdominal groove. Upper jaw with an outer row of enlarged conical teeth and inner row of viliform teeth; dentary with inner row of large and outer row of small teeth; dentary also with 1 or 2 pairs of symphyseal canines in juveniles, becoming less distinct with age; viliform teeth on vomer, palatines and pterygoids. Soft dorsal, fin dusky green, uniformly pigmented; rakers short and stout; 4-8 large, vertically elongate blotches above, or interesting with, lateral line; maxilla long, extends to slightly beyond posterior margin of eye; scales lanceolate. Silvery blue to blue green above in color; silvery white below; lateral blotches dark grey to black; 12 soft anal and caudal fins dusky green, uniformly pigmented.

***Drepane punctate* (Linnaeus, 1758) (Fig. G)**

Body oval and strongly compressed, its depth 1.2 -3 inches SL. Mouth highly protrusible, forming a downward pointing tube when protruded. Caudal fin rounded or bluntly wedge shaped; pectoral fins elongate, falciform, reaching caudal peduncle. Large adults with a bump or bony knob on interorbital region, a result of hyperostosis of frontal ones. Color: generally silvery with a greenish tinge on upper half of body; 5-10 series of black spots arranged in vertical lines on dorsal part of body from below dorsal fin to caudal peduncle.

***Lutjanus lunulatus* (Park, 1797) (Fig. H)**

Two parts of body that is the same in size and shape; symmetrical, typically moderately compressed, additionally head length is two-third of body length. Adipose eyes are usually moderate and snout is quite distance from eyes. Snout lacrimal and lower jaw naked. Mouth is terminal and fairly large having thick jaws; jaws usually with more or less distinct canines; vomer and palatines usually with teeth. Opercula and scaled preopercle are moderately broad. Dorsal

fin single extending towards the caudal peduncle and operculum are scaly. The first part of the dorsal has spines and latter are soft rays. Pectorals are falcate and longer than pelvic fin. Caudal fin shape is variable frequently truncate, emarginated or lunate; shaped like a crescent moon. Scales are moderate to rather small, ctenoid. Lateral line is present completely from the upper part of opercula to the caudal peduncle. Color is highly variable according to age, upper portion along trunk is dusky grayish, generally yellow with bronze to silvery sheen, a large dark patch near the posterior end of dorsal or near anterior part of peduncle.

Monodactylus argenteus (Linnaeus, 1758) (Fig. I)

Body oval, deep and strongly compressed. Eye moderately large; mouth small and oblique. Anterior soft fin rays of both dorsal and anal fins elongated; posterior edge of dorsal and anal fins distinctly concave; caudal fin slightly emarginated; pelvic fin rudimentary or absent in adults. Color: adults bright

silver, tip of dorsal and anal fins dusky; juveniles more colorful with yellow over most of the dorsal fin; tip of dorsal and anal fins black; anterior edge of anal fin with broad black margin; two vertical black bars over the head, one through the eye and the other in front pectoral-fin base.

Nibea soldado (Lacepede, 1802) (Fig. J)

Snout rounded, but not swollen or projecting; upper jaw length 38-44% of head length, lower jaw length 44-50% of head length. First pair of mental pores close together, united by a crescent-shaped groove just behind symphysis. Teeth differentiated into large and small in both jaws. From 8 to 13 scale rows above lateral line to origin of dorsal fin; 12-17 scale rows below lateral line to origin of anal fin. Swim bladder carrot-shaped, with 18-22 pairs of arborescent appendages along its sides, the first pair entering head beyond transverse septum. Sagittal (large earstone) with a tadpole-shaped impression, the tail of which is J-shaped.



Fig 2(A- J): Commercial fishes: A) *Albennes hians*, B) *Tenulosa ilisha*, C) *Chirocentrus dorab*, D) *Mugil cephalus*, E) *Megalaspis cordyla*, F), *Scomberoides tala* G), *Drepane punctata* H), *Lutjanus lumulatus* I), *Monodactylus argenteus* J) *Nibea soldado*.

Table 1: Individual habitat of some commercial fishes from Nyaw-byin Coastal Areas, Launglon Township, Tanintharyi Region

Sr. No	Species	Common name	Habitat
1	<i>Ablennes hians</i>	Flat needlefish	Occur in offshore surface waters. They are widely distributed in tropical to warm temperate waters in worldwide.
2	<i>Tenulosa ilisha</i>	Hilsa shad	Schooling in coastal waters and ascending rivers for as much as 1200 km.
3	<i>Chirocentrus dorab</i>	Dorab Wolf-herring	Occur in inshore waters. They are widely distributed in Indo-West Pacific Regions.
4	<i>Mugil cephalus</i>	Flathead grey mullet	Found in coastal waters, often entering estuaries and rivers. Sometimes far up river, lagoons and hypersaline environments.
5	<i>Megalaspis cordyla</i>	Tuna	Live in pelagic and schooling fish and feed on small fishes.
6	<i>Scomberoides tala</i>	Barred queenfish	Occur inshore water and found in estuaries and around reef systems throughout the region.
7	<i>Drepane punctata</i>	Spotted sicklefish	Occur in inshore habitats such as sand or mud bottom, reefs and estuaries.

8	<i>Lutjanus johnii</i>	John's snapper	Occur in brackish and marine, reef associated, mud and sandy mud in tropical and subtropical reefs and mangrove forests.
9	<i>Monodactylus argenteus</i>	Silver Moony	Found in mangrove estuaries, sometimes found in salty coastal reefs.
10	<i>Nibea soldado</i>	Soldier croaker	Found in coastal waters and estuaries. Juveniles occur in brackish estuaries and often ascend the lower reaches of large, turbid river.

Su Su Hlaing (2010) ^[12] reported that 70 species of ichthyological fauna from Thanlwin river mouth and adjacent sea. In the present study, *Tenualosa ilisha* and *Megalaspis cordyla* species were observed and these two species also found in above study. Khin Myo Myo Tint (2015) ^[13] studied that 47 species of ichthyofauna in Ka-Bya-Wa coastal waters, Ye Township, Mon State. Among her study, 3 species of fishes namely *Tenualosa ilisha*, *Megalaspis cordyla* and *Mugil cephalus* were found in the present study. Nyo Nyo San (2016) ^[14] described that 83 species of fishes in Kalegawk Island, Ye Township, Mon State. Among the Kalegawk study, *Chirocentrus dorab*, *Mugil cephalus*, *Megalaspis cordyla* and *Drepane punctate* were also found in Nyawbyin areas. In the comparisons of fishes in Mon and Tanintharyi coastal waters, the species of *Megalaspis cordyla* was found in all stations. The Carangidae is large families represented by numerous in numbers. Fish is an important part of the diet in Myanmar and the main role of the fishery sector which has been as a provider of food. All species of fishes are utilized for human consumption both fresh and salted. There are strong consumers for marine fishes being mainly preferred in the coastal population and land territory. The marine fisheries sector has gradually developed during the late 1980. Therefore, the occurrence and distribution of fish species studied in the study areas.

Conclusion

Study on some commercial fishes collected from Nyawbyin coastal areas, Longlone Township. In the Tanintharyi coastal area, the diversity of species is traditionally collected by coastal populations for human consumption. Nowadays, although the shell trade is getting more and more important, many bony fish are collected by fishermen for personal consumption or sold as food on local markets. This is evident from the disappearance of most of expensive marine commercial species in aquatic ecosystem indicates that the habitat destruction has changed enough to result in the disappearance of these more environmentally sensitive species. Thus it is better in the long term to improve the marine environment so that the existing species can reproduce and grow in abundant and contribute to the local fisheries.

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