

Observation on Some Commercial Ichthyological Fauna from Thanlwin River mouth

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Abstract

Observation on some commercial fish fauna were conducted in three study sites of Thanlwin River mouth. The study period lasted for seven months from June 2012 to December 2012. A total of 41 fish species of 38 genera belonging to 27 families under 10 orders were recorded in the study area. Among the collected fish species, nineteen species were exported to other areas and foreign countries. Out of nineteen exported species, eight species were 'top' ten exported marine species. The economic position of recorded species were distinguished as highly commercial, commercial and minor in commercial. The types of fishing gears and their target species were also observed.

Key words: Top ten exported marine fish, role of economic importance of fish, fishing gear

Introduction

The rivers in Myanmar are very important for the inland fisheries because of the fertility of the soil with the catchments area of rivers which is a crucial factor in the ecology for the abundance of aquatic fauna and flora. The inland fisheries are mainly situated on the riverine system of the country. The main rivers in Myanmar are Ayeyarwady, Chindwin, Sittaung and Thanlwin (DOF, 2011).

Myanmar has rich freshwater and brackish water fishing areas in the coastal and extensive big river systems including Thanlwin River (DOF, 2007).

The fishery sector plays an important role in contributing social and economic development of Myanmar, especially for substantial increase in the fish supply for domestic consumption and for export. Fish resources are generally marketed fresh or frozen, processed into fish paste or dried (DOF, 2007).

Thanlwin River mouth lies off the north central part of the Gulf of Martaban (Mottama) coastline, between 15° 00' to 16° 30' N Lat. and Long. 97° 21' to 97° 36' E. Thanlwin River is one of the longest river in Myanmar and the highest amount of fish fauna is produced from this river (Stromme *et al.* 1981).

A fishing implement is the equipment with which aquatic resources are captured. Gear is also used in harvesting organisms. Moreover, the same gear can be used in various ways. The gear selection which may vary in respect of season, water body and types of fish. The gear efficiencies are based on certain established principle (Islam *et al.*, 2013).

Therefore, various kinds of fishes had been observed in abundance and most of the fish caught contributed as the major component in the commercial products of the study areas. The present study focused on commercial important of some fish fauna in Thanlwin River mouth was conducted by the following objectives: –

- to classify commercially important fish species in the study area
- to observe the types of fishing gears and their related target fish species.

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Material and Methods

Study area and study sites

Thanlwin River mouth ranged from Mawlamyine (Lat. 16° 21' – 16° 37' N, Long. 97° 37' – 97° 44' E) to Mudon (Lat. 15° 55' – 16° 25' N, Long. 97° 35' – 97° 63' E) was chosen as study area (Fig. 1).

Three study sites such as Kyauk-tan, Ka-don-paw and Ka-mar-wet were chosen in Thanlwin River mouth.

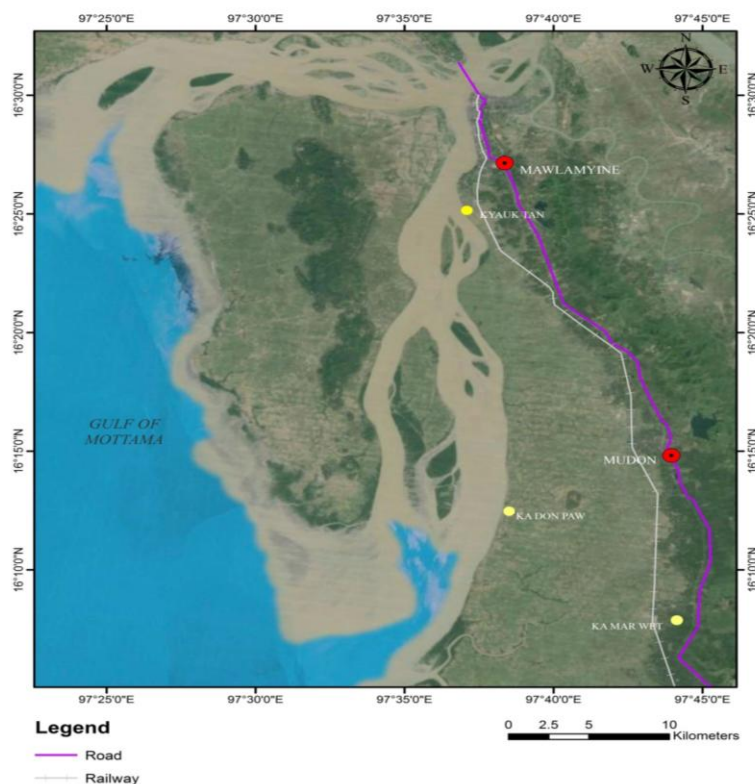


Fig. 1 Map of Thanlwin River mouth (Source: Google Earth, 2012)

Study period

Study period lasted from June 2012 to December 2012.

Specimen collection and identification of fish species

Specimen were collected from the markets and local fishermen. The photographs were taken prior to preservation in 10 % formalin for further identification. Identification keys and other morphological characteristics were applied according to Talwar and Jhingran (1991), Rainboth (1996) and Nelson (2006).

Top "ten" exported fish species were defined according to Sann Aung (2003). The species were (1) Hilsal/Nga tha lauk (2) Pomfret/Nga moke (3) Tongue sole/nga khway sha (4) Yellow croaker/Thin war (5) Ribbonfish/Nga da gon (6) Threadfin/ka ku yan (7) Croaker/ Pote tin (8) Mackerel/Nga kun shut (9) Fillet and (10) Assorted marine fishes/ Nga myo zone.

Commercial value of fish species

The commercial value of each species was also recorded by direct interview survey with the local fish sellers and Department of Fishery, Mon State. Moreover, according to Sann Aung (2003) and Indicative Price of Export Fish and Fishery Products (2010-2011), and Fish Inspection Quality Control Division, Department of Fisheries, the role of economic importance of fishes were recorded.

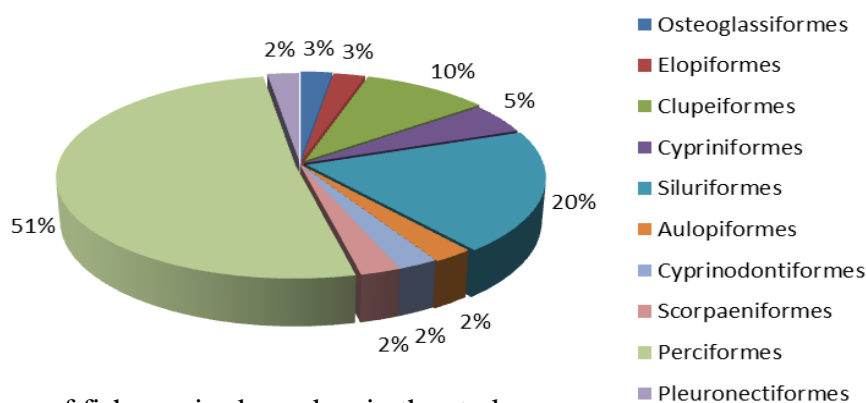
Utilization of fishing gears

In the study area, the utilized fishing gears were recorded with target species by direct observation and interview survey.

Results

Species composition of fishes in the study area

A total of 41 fish species belonging to 38 genera of 27 families under 10 orders were collected. The highest number of species was recorded in order Perciformes (21 species, 51 %) followed by Siluriformes (8 species, 20 %) and the least number of species in order Osteoglossiformes, Elopiformes, Aulopiformes, Cyprinodontiformes, Scorpaeniformes and Pleuronectiformes with only one species (2 %) each in the order (Fig.2).



Percentage of fish species by orders in the study area

Fig. 2 Species composition (% of total) of the fishes in the study area

Commercial importance of recorded fish species

Among the collected 41 species, nineteen species were listed as economically important and exported to other areas and foreign countries. Moreover, of nineteen species, eight-species were listed as 'top' ten exported of marine species. These eight species were *Tenualosa ilisha* (Nga-tha-lauk), *Lates calcarifer* (Ka-ka-dit), *Scomberomorus guttatus* (Nga-kun-shut), *Eleutheronema tetradactylum* (Nga-tha-yaw), *Leptomelanosoma indicum* (Ka-khu-yan), *Trichiurus lepturus* (Nga-da-gon), *Pampus argenteus* (Nga-mote-phyu) and *Cynoglossus lingua* (Nga-khway-shar)

The role of economic importance of recorded fish species

The roles of economic important fish species were distinguished as three categories such as highly commercial, commercial and minor in commercial. In sampling, 17 species (51%) of highly commercial, 21 species (42%) of commercial and three species (7%) of minor in commercial values were described in Fig.3.

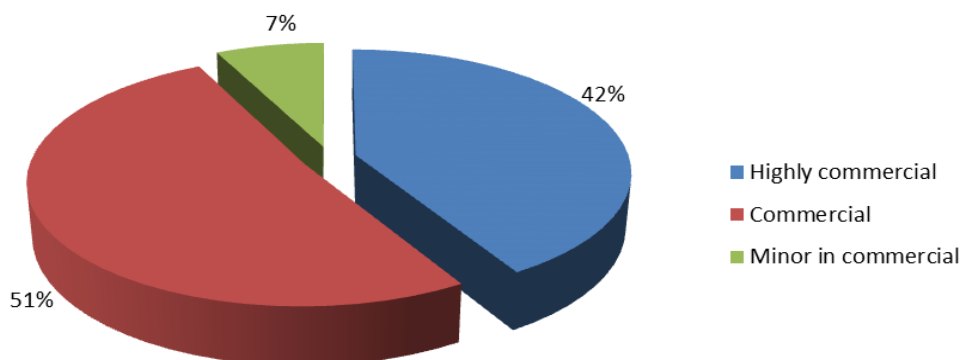


Fig. 3 Percentage composition of commercial fish species under three categories

Fish and fishery products

Fishes could be utilized as food in many ways such as fresh state, dried salted, smoked, fish paste, fish sauce and fried swim-bladder. Economic aspect of fishery products from the study area was also described (Fig.4). Most of collect fish were marketed in fresh state.

From these collecting areas, economically important fish species of 22 species can be produced as salted dried fishes. Eleven species were processed for fish paste and six species were processed for salted fish in the selected study area.

The swim-bladders of the three species namely *Arius spp.*, *Leptomelanosoma indicum* and *Otolithiodes pama* were processed for dried in the study area. All the fish species caught in this study area have their significant commercial values.

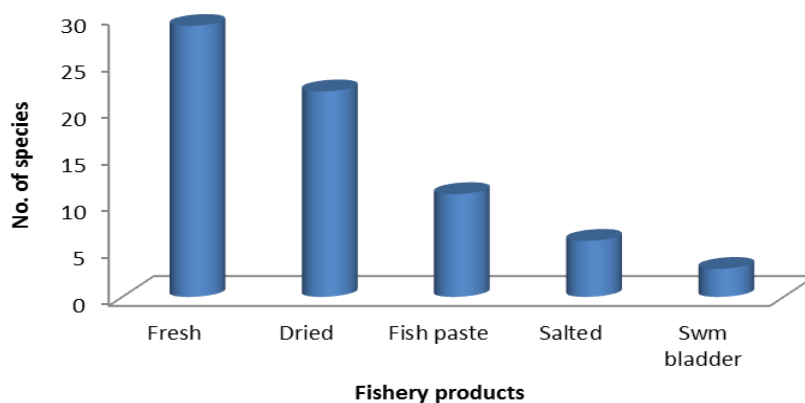


Fig. 4 Numbers of species in the economic aspect of fishery products in the study area

Fishing gears utilization in the study area

Five kinds of fishing gears such as Nga tha lauk pike, Bottom set gillnet, Beg net, Fence net and Hook and line were recorded in the study area. Different fishing gears were used to catch different target species based on the condition of the fishing habits. The fishing gears and their related target species were described in Table 1.

Table 1 Types of fishing gear and target fish species of the three study sites

Sr. No	Type of fishing gear	Fishing month	Target species
1.	Nga tha lauk pike	Sept. to Nov.	<i>Tneualosa ilisha</i>
2.	Bottom set gillnet	Aug. to March	<i>Leptomelanosoma indicum</i> , <i>Polymemus paradiseus</i> , <i>Arius spp.</i>
3.	Bag net (Tiger mouth net)	Jan to Dec.	Miscellaneous
4.	Fence net (Kan wein pike)	Jan. to Dec.	Miscellaneous
5.	Hook and line	May to Sept.	Miscellaneous

Discussion

Fishing also plays as a significant role in the economy of the Thanlwin River mouth. The survey of commercially important fish species in this area was carried out from June, 2012 to December, 2012.

During the study periods, a total 41 species of 38 genera belonging to 27 families under 10 orders could be recorded and identified.

In the present study, the highest numbers of 21 species were recorded for order Perciformes. It could be assumed that the species of order Perciformes were the common one in the study area. The present finding agreed Ni Ni Lwin (1995) and Su Su Hlaing (2010) who stated that the highest number of species was recorded in order Perciformes.

Among the recorded fishes, most of the species were used for local consumption. Out of the total recorded species, 19 species were listed as economically exported to other areas and foreign countries as noted by local fishermen and Department of Fishery, Mon State. Moreover, of 19 species, eight species were listed as “top” ten exported of marine species. This finding agreed with Sann Aung (2003).

The role of economic importance was distinguished as three categories: highly commercial, commercial and minor in commercial. Seventeen species were highly commercial, 21 species were commercial and three species were minor in commercial. Distinguishing was followed by Sann Aung (2003), Hla Win *et. al.*, (2008) and base upon local demand and also Inductive Price of Export Fish and Fishery Products (2010-2011), Fish Inspection Quality Control Division, Department of Fisheries.

In the present study, fishes could be eaten as food in various ways such as dried, salted, pasted, dried swim bladder and fresh state. According to department of Fishery, fish could be utilized as food in many ways: fresh state, dried, swim bladder etc. for locally and also export to many other countries to earn foreign currency.

The production of swim bladder is one of the most important articles and also fetch high price. In the study area, there are three species of swim bladder such as *Arius spp.*, *Leptomelanosoma indicum* and *Otolithiodes pama* were recorded. *O. pama* is not popular for the taste, but their dried swim bladder are valuable for the fishing products. Fourteen species of dried swim bladder were recorded from Thanbyuzayat Township, Mon State (Yee Yee Win, 1997).

Five kinds of fishing gears were recorded in the study area. The different kinds of fishing gears have different functional properties. Fishing gear is the link between the fishermen and the fish. The fishermen select the gear, they used on the target species and habits (Hovgard and Lassen, 2000).

Fish species are abundant major commercial important in the study area. *Hilia* has occupied a very important position in local consumption as well as in export market.

Nowadays, *Tenualosa ilisha* and *Otolithiodes pama* were also gradually decreased in size and declined in catch weight of fish year by year. This is because of environmental degradation, utilization of small mesh size and human impacts, etc.

Therefore, it is important to have public awareness and educational talk concerning sustainable use of natural resources because it is the usual requirement of natural resources for every human and to improve the socio-economic development.

Conclusion

The present study was study was focused on commercial important of some fish fauna in Thanlwin River mouth. Thanlwin River mouth is not only varieties of inland and marine fish fauna but also a distinctive inland fisheries areas. Fish resources are generally marketed fresh or frozen, processed into fish paste or dried. Various types of fishing gears are operated in Thanlwin River mouth.

Nowadays, the commercial fish of *Lates calcarifer*, *Tenualosa ilisha* and *Otolithoides pama* were more declined from year after year because of physical conditions, climate changes, utilization of small mesh size and human impacts, etc.

Therefore, it is important to have well- management program and public awareness concerning sustainable use of fish fauna for generation.

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