



Trend of Artisanal Fisheries Catch in South-Eastern Coast of Bangladesh

KM Shahriar Nazrul^{1*}, Al-Mamun¹, Bikram Jit Roy¹, Nripendra Kumar Singha¹, Md Gaziur Rahman¹ and Sanjay Kumar Mohanta²

¹Scientific Officer, Marine Fisheries Survey Management Unit, Department of Fisheries, Ministry of Fisheries and Livestock, Bangladesh

²Marine Fisheries Officer, Marine Fisheries Survey Management Unit, Department of Fisheries, Ministry of Fisheries and Livestock, Bangladesh

***Corresponding Author:** KM Shahriar Nazrul, Scientific Officer, Marine Fisheries Survey Management Unit, Department of Fisheries, Ministry of Fisheries and Livestock, Bangladesh.

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Abstract

A yearlong study was conducted from July 2016 to June 2017 and a total 32,241.74 MT of landed fish, shrimp and other resources data were recorded from 13 coastal fish landing centers of south-east Bangladesh. Highest 4,787.24 MT catch was observed in April 17 where the lowest 413.29 MT in July 16. General trend shows the maximum amount of catch in Cox's Bazar based landing centers. Among the percentage contribution of fishing gear by weight of fish, the dominant was MSBN fishery (73.45%) followed by SMD (11.75%). A total of 68,364 boats (average number of boats × active fishing days) were engaged in fishing during the study period in 13 landing centers. Active fishing days ranged from 16 - 28 where the highest and lowest was observed in Teknaf and Fishery Ghat respectively.

Keywords: Artisanal Fisheries; South-Eastern Coast; Bangladesh

Introduction

Bangladesh is one of the marginal coastal countries of the Bay of Bengal located on its northern tip and bounded by India on the west, north and north-east and by Myanmar on the east and south-east. Coast line of Bangladesh is 710 km long [1] stretching from south-west corner of the Sundarban mangrove forest of Satkhira up to Teknaf in the south-east [2]. The total marine water area of Bangladesh is 166,000 sq. km of which more than 24,000 sq. km is shallower than 10 m depth [3].

Marine fisheries resources of Bangladesh comprise of 475 fish, 36 shrimps, 5 lobsters, 12 crabs and 33 sea cucumbers and many other aquatic fauna and flora of economic and ecological importance [2,4,5]. The coastal and marine fisheries have been playing considerable roles not only in the social and economic development of the country but also in the regional ecological balance. A large number of commercially important fishes are exploited here which are of high export values [6]. Among the marine species of fishes and shell fishes, more than 90 are commercially important.

Hilsa, hair-tail, croaker, grunter, scads, snapper, pomfret, catfish, eel, sea bream, tuna, mackerel, flat fish, Bombay duck and sharks/skates/rays are the major commercial finfish species in Bangladesh [3]. Some fishing here is seasonal which depends on target species and gears and after fishing all fishes and shrimps are landed to the nearer fish landing centers for marketing which is mainly used for local consumption.

In 2015 - 16 fiscal year fish production of Bangladesh was 3,878,324 MT where marine fish production was 626,528 MT (16.15%). A total of 190,023 different gears, 67,669 mechanized and non-mechanized boats, and 247 industrial trawlers were engaged in marine fisheries harvest of Bay of Bengal. Among the total marine production, artisanal fisheries itself contributed 83.19% and the rest 16.81% came from industrial fisheries [1,5]. Therefore, the role of artisanal fisheries in the socio-economic development of the country is immense. The specific objectives of this study were a) to analyze the fish catch data from the mechanized boats, i.e. artisanal fisheries and b) to observe landing trends in active fishing days.

Materials and Methods

Study area and duration

Framed survey was conducted from July 2016 to June, 2017 in 13 sampling stations: Fishery Ghat, Ananda Bazar, Katghar, Gohira,

Jahaj ghata, Sitakunda, Kattoli, Kumira and Banshbaria of Chittagong district and, Teknaf, Bangladesh Fisheries Development Corporation (BFDC) Ghat, Moheshkhali and Nazirtek of Cox's Bazar district (figure 1).



Figure 1: Brown (Chittagong) and black (Cox's Bazar) circles are showing the data collection sites of the present study.

Sampling procedure

In artisanal fishing coastal fishers go for fishing from shore to deep sea (up to 40 m) around half an hour to one and half an hour running for daily fishing and some with days fish by traditional

mechanized boats. Data were collected from the landing center by interviewing these incoming boat owner and fishermen from the sea during three days of each lunar month; first quarter, last quarter, full moon or new moon. Three consecutive days' data were averaged to get the ideal picture of each station.

Data analysis

Fish samples were collected from each station throughout the year. The species were preserved in 5-10% (depending on the type) formalin just after collection. Taxonomic studies were conducted according to FAO identification sheet later in the laboratory.

The average number of landed boats was estimated from the total number of boats landed in the sampling days divided by the total sample days in a month. Total landed boats were estimated by the average number of landed boats in a sampling day multiply by the number of active fishing days in a month.

Collected data were analyzed in Microsoft Excel version 10 and fitted with relevant graphs.

Results and Discussions

Month wise total landing

Monthly landing data reveals that, the highest landing was observed in April 17 which was 4,787.24 MT and the lowest during July 16 (413.29 MT). Except a decline in October, overall a gradual trend of increase was observed from July 16 to April 17 (figure 2). Generally, the period from September to March is characterized by fine weather and calm seas in Bangladesh [7] and fishing is mainly occurred within this period. October decline in the present study is due to the fact that there is 22 days catch banning for brood Hilsa (*Tenualosa ilisha*) fish conservation.

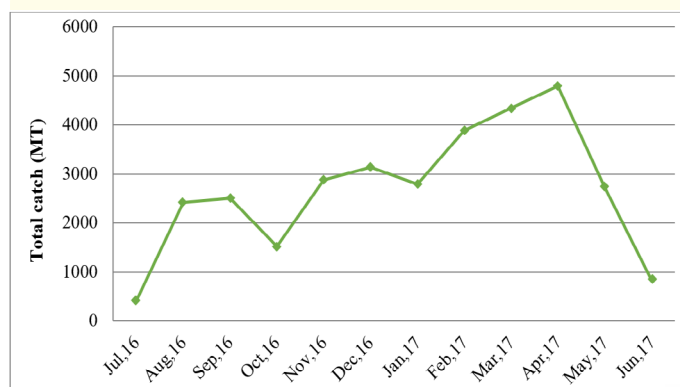


Figure 2: Month wise total landing (MT) from July 16 to June 17.

Landing center based information

Among the fish landing centers, Nazirtek was in the highest position with 23,364.44 MT of yearly landing followed by BFDC (5,878.94 MT). Other landing centers' catch ranged between 45.15 - 1032.06 MT (figure 3).

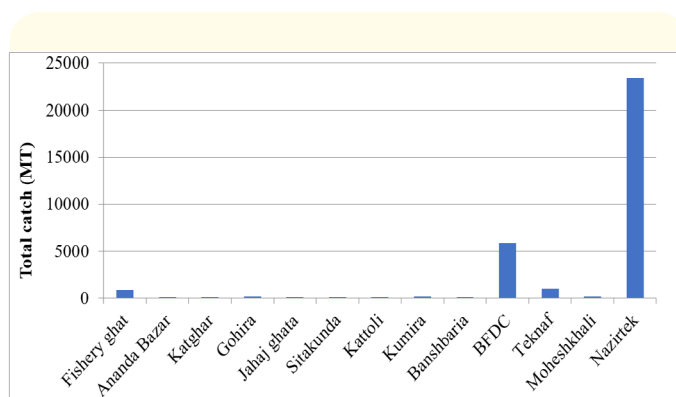


Figure 3: Total catch (MT) at 13 fish landing centers (July 16-June 17).

Both Nazirtek and BFDC are in Cox's Bazar district which is close to the most prominent fishing grounds of the Bay of Bengal, i.e. South Patches and South of South Patches. For this reason, this area is a heaven for artisanal fishers.

Fishing gear wise landing information

A total of 32,241.74 MT fish, shrimp and other resources were exploited by Estuarine Set Bag Net (ESBN), Marine Set Nag Net (MSBN), Large Mesh Drift Net (LMD), Small Mesh Drift Net (SMD), Tong jal, Rog jal and Pekua jal. The total volume of landing was 31,754.63 MT in 2015-16 [7-8] which discloses that catch has increased by 1.53% in 2016-17. In gear wise percentage contribution, the highest 73.45% was contributed by MSBN followed by SMD, LMD, Rog jal, Tong jal, ESBN and Pekua jal as 11.75%, 8.30%, 3.20%, 1.87%, 1.14% and 0.29 % of total catch (figure 4).

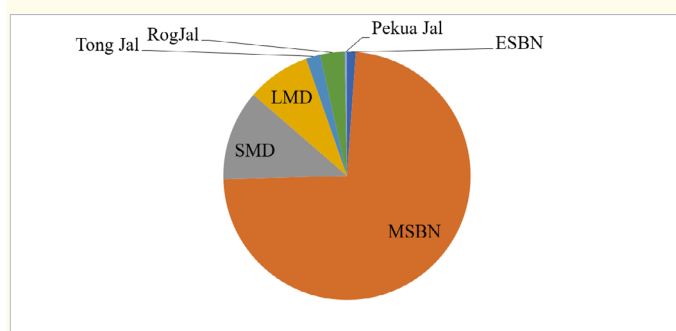


Figure 4: Gear wise catch percentage contribution.

Landed number of boats

During the study period total 68,364 boats (average number of boats × active fishing days) were engaged in selected 13 fish landing centers. Among them 47,892 were engaged in Chittagong

at nine fish landing centers and 20,472 boats in four fish landing centers of Cox's Bazar (figure 5). Month wise variation reveals the highest number of boats in September 16 and the lowest in January 17.

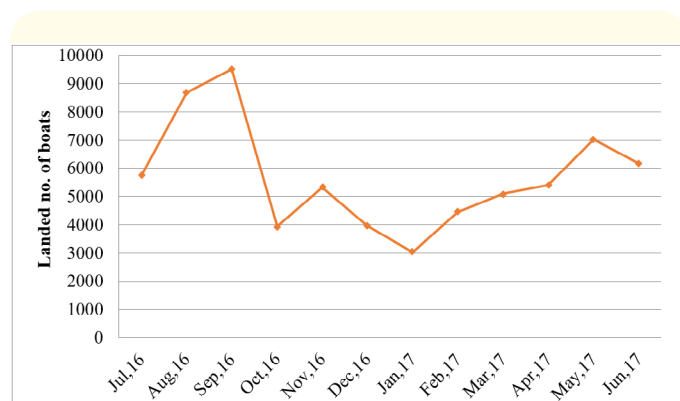


Figure 5: Month wise landed boat numbers at 13 fish landing centers.

Active fishing days

The highest (28) monthly average active fishing days were recorded in Teknaf fish landing center and the lowest (16) in Fishery Ghat fish landing center. Teknaf sub-district is dominated by the fisher-folk community and fishing is their only way of livelihood. This is the main reason of highest active fishing days there.

Conclusion

Artisanal fisheries are the most contributing marine fisheries sector of Bangladesh. Therefore, proper management is necessary for the sustainable use of these resources. It is assumed that increasing the total landing volumes of marine catch is due to increase of fishing boats, active fishing days, gears and modern technology etc. Further extended research works are needed to study the gear wise catch composition and the effects of destructive gears on these limited resources.

Conflict of Interests

The authors declare that there are no conflicts of interests associated with this article.

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