

Study on Consumers Perception in Boosting Fish Sale at Markets of South Andaman, India

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Abstract

Consumers preference for a particular group of fish is relevant in the present scenario from the marketing and trading point of view and also for policy makers and planners at macroeconomic level. Present study have focused on 101 consumers from different fish markets and landing centres of South Andaman. The Frequency, Rank Based Quotient (RBQ) and Garrett ranking techniques have been used to analyse the consumer preference and constraints faced by them. Purchase behaviour of the consumer does indicate that the Islanders included fish in their regular diet (34%). Highest preference recorded was for marine fishes although the species consumption pattern varied widely with the ethnicity. Fresh water fishes like Tilapia, Roopchanda, Pangasius, and Indian Major carps have good demand among the Bengali population of the Islands. Majority of the marine landings were consumed in the fresh or dry forms. The islanders preferred species of anchovies, perches, mackerel, sardines and carangids. Identifying the huge potential of the marine resources of the islands, there is tremendous scope for value addition of many underutilised catches.

Key words: consumer, landings, fisheries, Andaman, Problems

Introduction

Andaman and Nicobar archipelago is a hub of diverse fishery potential varying from small reef fishes to large oceanic and deep sea catches. It constitutes an array of species belonging to ornamental, recreational and food fishes. Geographically isolated from the mainland India, the islands has unique species and diversity not commonly spotted from other oceanic sources. Food fishes reported from Andaman are also quite diverse in quantity and taste. (Rajan and Sreeraj., 2014) has reported that the fish diversity of Andaman waters also gained special attention in terms of the marine zoo-geography because of the confluence of Andaman sea fishes with Western Pacific and the Eastern Indian Ocean.

Andaman and Nicobar islands have a very rich tuna stock, oceanic tunas recorded in the Andaman Sea include *Thunnus albacare* (Yellow fin tuna), *Katsuvonus pelamis* (Skip jack tuna), and *Thunnus obesus* (Big eye tuna). (Pradeep *et al.*, 2014). These species are mainly exploited for the commercial fisheries. Smaller tunas like *Euthynnus affinis* (kawakawa), *Thunnus tongol* (long tail tuna), *Sarda orientalis* (oriental bonito), *Gymnosarda unicolor* (dog tooth tuna) are exploited by artisanal

fishermen. (Talwar., 1990). *Thunnus maccoyi* (blue fin tuna) and *Auxis thazard* (frigate tuna) were reported by Thailand fisheries in Andaman sea. (IPTP, 1985).

Market Surveys for analyzing consumer behaviours

Market surveys were conducted at different landing centers, fish markets, and fish processing plants. Information were gathered from seafood vendors, middlemen and auctioneers. The study were carried out in the fish markets of Junglighat, Mohanpura, Bathubasthi, Wimberligung and Bambooflat. Also data were collected from landing centers of Junglighat, Guptapara and Wandoor. The data were collected from primary as well as secondary sources. Semi-structured interview schedules were used to collect information from the primary sources like landing centers and major wholesale/retail fish markets through surveys and discussions with major stakeholders comprising traders, brokers/middlemen, retailers and officials from traders associations. The data were collected during December 2019 to June 2020 through direct interview as well as through phone in contacts, facing the issues related to COVID-19 pandemic and lockdown measures implemented. Data

were collected from 24 middlemen, 101 consumers, 3 processing plant exporters. Secondary data were collected from Department of Fisheries, Andaman and Nicobar Administration. Information on Major species landed, frequency of purchase, exploitation pattern (in fresh, dry or other value added forms), consumer preferences and constrains were estimated under the present objective. The constraints faced by the consumers were ranked by using frequency analysis. Demand for various product forms was ranked using Garrett's formula (Garrett and Woodworth, 1971).

The survey conducted highlighted the major landings of the islands and was constituted by species of grouper, snapper, scombroids, clupieds and carangids. Out of the total catches landed in the islands most of the landed catch is sold in the fresh form and only 15% of the catch was converted into dry form. – (dof, Andaman and Nicobar Administration, 2018). In the present study also similar findings were reported, The landings reported from Junglighat was 6-8 tonnes/ Day during seasons to 4-5 tonnes /Day during off seasons, majority of the catches are diverted to the domestic market (5-6.4 tonnes/Day) for fresh consumptions, 0.03-0.5 tonnes/day is going to the dry fish markets and 0.8-1.2 tonnes/day is proceeding to the mainland markets. (Data gathered from the middlemen and seafood processing plants). Most of the islanders included fish in their diet and the frequency of purchase indicated 34% of the consumers purchasing fish weekly more than twice and 33% of them including fish in their daily diet. A similar study was reported by Suresh (2012) in which it was observed that majority of the islanders consume fish 3-4 times a week. Freshness was the major selection criteria for the purchase of the fish followed by its taste and quantity. (Fig-3). Price was given the least preference as far as the consumer preference was considered.

Majority of the domestic market sale comprised of the species of Mackerel, sardine, perch, lizard fish, goat fish, carangids, anchovies, tuna, shrimps and crabs. However the market demand for the species was restricted to few groups of perches, anchovies, mackerels, carangids and crustaceans. Earlier studies have reported the preference for species like perches, anchovies, mackerel, sardine, carangids and prawns. (Shirke *et al.*, 2016). Most of the fishing operations were carried out using gill net and longlines. Species of Lutjanidae, Lethrinidae and Carangid constituted the major landings. Orange spotted grouper (Dollar machi) priced 600 Rs/Kg and scomberoids (queen fish) priced 350 Rs/Kg were recorded as the commercially important high valued species of the island. Instead, species like tuna, sharks and skates fetched low value (prices below Rs100) with less demand in the island. Further, smaller fishes like sardine (*Amblygaster sirm*) locally called as "kapatharni" were mainly used as bait in long lines and gill nets due to its less demand in the local markets. Most of the high value species landed were immediately transported to the different sea food processing plants for further transfer to mainland and the rest were sold in the domestic markets. During off season the fishermen relied on near shore fishing activities for their livelihood activities.

During our survey, middlemen, Processing Plant exporters and consumers mentioned that there is no direct export of seafood from the islands to International markets. Instead, the species of Elasmobranches, Reef fishes, mackerel and tunas are transported directly to mainland from where they reach the international destinations like Thailand, China, Malaysia and Saudi Arabian Countries.

Major constrains identified by the consumers during fish purchase were, wide price fluctuations, lack of hygiene, distance to the markets, lack of infrastructure facilities and illegal sale of liquors and drugs in fish markets

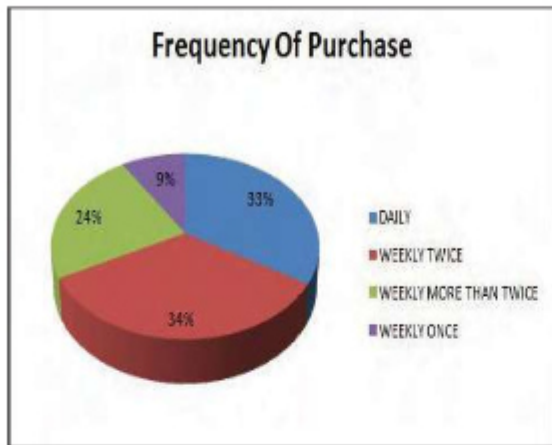


Fig: 1 Frequency of fish purchase from different fish markets and landing centers.

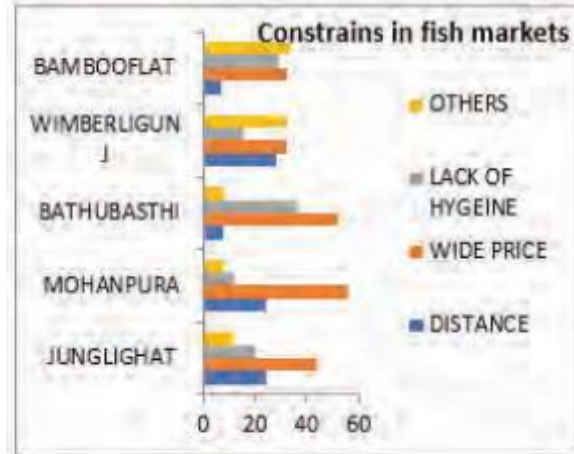


Fig 2: Constrains identified in fish markets

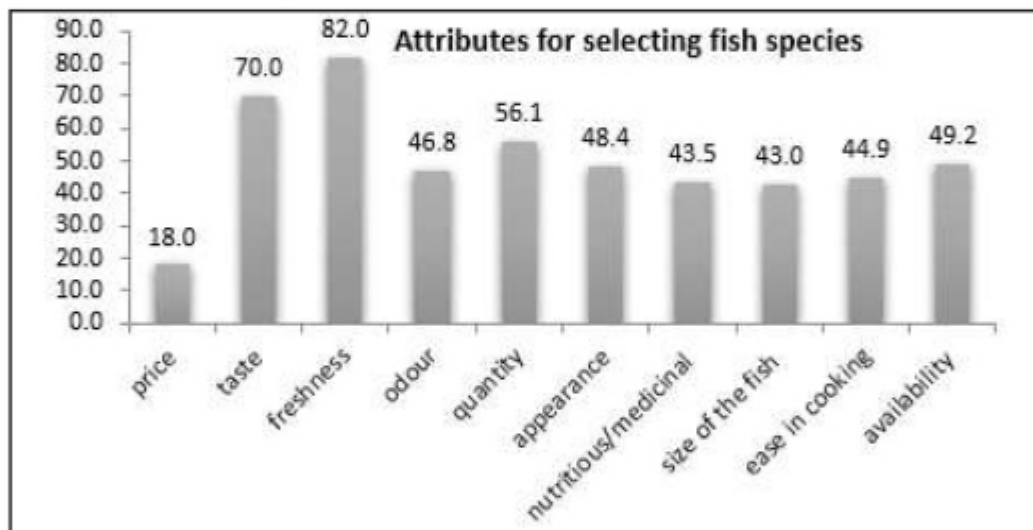


Fig:3 Attributes affecting the purchase frequency of fishes from different fish markets and landing centers.

The products were transported to the mainland markets of Chennai, Vizag and Kolkatta from where it was diverted to respective International destinations. Based on our surveys conducted across the processing plants, it was reported that Elasmobranch (sharks-42% and rays-25%) in Frozen whole form were the major items transported from Islands to states of Kerala and Tamil Nadu. (2019-20, Export Data from Processing Plants). Species of Tuna, *Euthymus affinis*, *Thunnus albacore* and *Katsuvonus pelamis* were transported in the Frozen whole, fillets and Butterfly style to countries of Tanzania and Thailand via mainland routes. Island mackerel, *Rastrelliger brachysoma* has good demands in chilled and frozen form in Malaysia. Further, Island

Groupers-*Cephalopis miniata* and *Epinephelus sp* have very good demand in Saudi Arabian countries, Italy and Chinese countries. ((2019-20, Export Data from Processing Plants). The quantity transported varied widely with time. *Cephalopis miniata* had high values Rs 3000/ Kg during December end to January in Chinese markets in commemoration with the New Year celebrations there. Mackerel species from islands had year round demand in the Malaysian markets.

The dry fish markets were mainly dominated by the *Stolephorus sp*, *Rastrelliger sp* and *Caranx sp*. The average price of these species varied widely with seasons. However, in general following are the existing range of market value for the species.

Species	Product Forms	Price
<i>Rastrelliger sp</i>	Butterfly style	200-250 Rs/Kg
<i>Stolephorus sp</i>	Whole	150-300 Rs/Kg
<i>Trichiurus sp</i>	Whole	200-250 Rs/Kg
<i>Caranx sp</i>	Butterfly style	350-400 Rs/Kg
<i>Selar crumenophthalmus</i>	Butterfly style	150-300Rs/Kg

Species commonly available in Dry fish markets of South Andaman

Conclusion

The value added fishery products were not very familiar among the islanders. Most of the catch was consumed in fresh form and remaining dried and used. Products like fish pickle were tried by few SHGs and distributed to the local markets. The products prepared in the islands need further standardization of procedures, storage facilities and marketing demand in the local markets. However, since there is good demand for the locally available fish, there is a need to increase its consumption pattern and at the same time focus on the unexplored group which

has to be diversified for improving its current form and acceptability. For this purpose, Department of Fisheries, Andaman and Nicobar Islands, Industries department and ICAR-CIARI has to promote scientific practices in handling fish and product preparations. Further, fish marketing facilities of the islands are poor and market premises and infrastructure has to be improved for promoting the seafood consumption in the islands. Further, based on our observations, the following points have to be considered for the efficient functioning of the markets.

Focus areas which can Boost fish sale in fish markets of South Andaman based on consumers perceptions.

S.No	Points to ponder
1.	Weighing equipments to be Calibrated
2.	Regular inspection and monitoring of the fish markets for quality check of the raw materials.
3.	Proper waste disposal facility required
4.	Domestic consumption to be boosted.
5.	Calibration to be digitalised
6.	Proper storage requirements like Deep Freezers to be provided.
7.	Rate reversal required.
8.	Market accessibility and path to be made appropriate.
9.	Spacious markets have to be well organized to include more fish shops.
10.	Diversity of the species should be increased in the markets.

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Reference

- Shirke, S.S., Sukham, M.D., Nashad, M. & Pradeep, H.D., (2017). Assessing the Adoption of Hygienic Fish Handling Practices by Fishermen of South Andaman District of A&N Islands. *Indian Research Journal of Extension Education*, 17(2), pp.52-6.
- Garrett, H.E. & Woodworth, R.S. (1971). *Statistics in Psychology and Education*. Vakils, Feffer and Simons Ltd., Bombay. 491 p
- Das, A., Kumar, N.R., Debnath, B., Barman, D. & Datta, M., (2013). Fish consumers' behaviour at selected fish markets of Tripura, India. <https://dof.gov.in/index.php/documents/state-fisheries-profile/andaman-nicobar>
- Rajan, P.T. & Sreeraj, C.R., (2014). Seven new records of fishes from Andaman Islands. *Records of the Zoological Survey of India*, 114(1), pp.111-117.
- Pradeep, H.D., Swapnil, S.S., Dwivedi, S.K., Ramachandran, S., & Premchand. (2014).
- IPTP, (1985). Indian Ocean Tuna fisheries data summary, IPTP Data Summary, 3, 62p
- Talwar, P.K. (1990). Fishes of Andaman and Nicobar Islands: A synoptic analysis. *J. Andaman. Sci. Assoc*, 6 (2):71-102