

Tuna fish market in the Androth Island, UT of Lakshadweep, India: A field study

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ABSTRACT

The Laccadivian Islands are rich in Thunnus fish species that have high market values across different continents. Hence, Tuna fish industry is one of the major industries in all islands of the Union Territory of Lakshadweep (UTL). Therefore, to examine the current scenario of tuna fish industry, a field study on different attributes of tuna fishing and trading in the Androth Island of UTL was performed. A morning fish market located in the Eastern side of Androth Island, UTL was selected as the field of study.

The fishermen of Androth jetty fish market participated in the field study. Details regarding Tuna landings were collected from the fishermen. The field study identified that fishing and trading is done for raw tuna fish as well as dry tuna fish forms. House hold tuna consumption and local tuna based food markets resonate well as there is high abundance of tuna species during the seasons. It can be said that Tuna based traditional food markets are sustainable in Androth due to converting raw tuna fish into dried form called "mass meen". A market thus exists for developing Tuna based sea food industry on a larger scale at Androth.

Keywords: Coastal Island; Androth; Fish market; Tuna fish industry; Union Territory of Lakshadweep (UTL)

INTRODUCTION

Androth is one of the Coastal Islands of Lakshadweep lying on the Arabian Sea, 220 kms–440 kms off the Kerala Coast. It lies in the East West orientation, between 10°48' and 10°50' N latitude and 73°38' and 73°42' E longitude. Androth is the largest island of UTL with an area of 4.90 sq, length of 4.66 km and a maximum width of 1.23 km. It stands apart from other islands of Lakshadweep in having a very small lagoon area and in the orientation. It is the most populated island among the eleven inhabited islands of Lakshadweep [1,2].

Fishing is the major industry in Androth [3,4]. Fish markets thrive in Androth due to landings of different Tuna species and lagoon fishes. Due to low lagoon area, the numbers of landing sites are less when compared to other islands of Lakshadweep. There are two major landing sites in Androth Island, one at Androth jetty area and other at the Tharavakar junction. The present study is a field analysis on Tuna landings and Tuna fish market existing at the jetty area of Androth, UTL.

MATERIALS AND METHODS

A questionnaire was prepared and visits were made to the Androth fish market. Attributes of Androth tuna fish market were collected from the fishermen (Tab. 1.). The questionnaire had different sections A, B and C. Section A dealt with general attributes of fishermen like age, gender, education, source of income. The section B gave information on all fish landings (including Tuna) and section C on attributes of the Tuna fish market in the jetty area of Androth, UTL.

Study population

The study populations consist of male fishermen from Androth, a coral island of the UT of Lakshadweep. All respondents are in the age category of 30 to 50 years and fishing forms their major form of livelihood and income generation. Majority respondents are venturing into the sea for long years (>30 years) and a few are less than five years. Seasoned fishermen who participated in the study are trained on safety and security measures by the dept. of fisheries, Androth unit. The new fishermen are yet to receive any training [5]. Majorities are boat owners and have boat with gear. The revenue generated from landings depended upon the catch for the day.

Landings at Androth fish market

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Tab. 1. Attributes collected through the Questionnaire.**Major attributes of the field analysis**

S. no	Section A
1	Age
2	Education level
3	Trained
4	Boat owner
5	Boat gear
6	Major source of income
	Section B
7	Time of landings
8	Duration of landings
9	Landing size infinite (>50,000) or finite
10	Catch of all species
11	Catch by Tuna species
12	Consumption patterns
13	Commercial landing categories large species (A, B, etc), small species (A, B, etc)
14	First sale prices
	Section C
15	Main opportunities available in Andrott fish market
16	Significant trends observed in Androth fish market
17	Factors that are predicted to propel the growth of Androth fish market
18	Factors that are expected to limit the growth of Androth fish market
19	Opportunities for Androth fish market expansion and global reach
20	High season months in Androth fish market
21	Low season months in Androth fish market
22	Common varieties of Tuna species found in Andrott fish market
23	Unusual varieties of Tuna species found in Andrott fish market
24	Tuna fish market size in Androth
25	Growth rate of overall market in Androth

RESULTS AND DISCUSSION

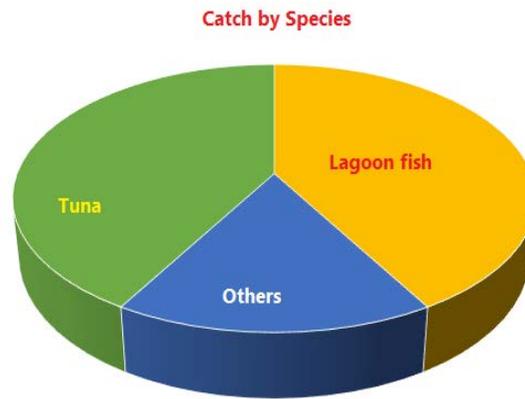
Landings are mostly done after fishing for an average duration of 6 hours. Some landings are done after 12 hours in the sea with different time gaps. It was reported that the catch is most yielding during the early time of the day (Fig. 1.). Tuna and lagoon fishes are prominent among the catch (Fig. 2.). Landings include large

Tuna fishes (Yellowfin and Bluefin tunas) and small Tuna fishes (Skipjack), Lagoon fishes (reef fish, rainbow runner, seer fish, and sail fish) and octopus. Skipjack is the most occurring among the Tuna species caught. Normally target landings are achieved during the monsoon when the fish numbers are increased due to a favorable productive time.

Fig. 1. A glimpse of landings at Androth fish market.



Fig. 2. Catch by species.



Trading at Androth fish market

Majority of the fisherman are also traders. The fish is traded in raw form and given to customers after cleaning and cutting (customer friendly). Domestic consumption of Tuna is as cooked Tuna curry and fried. Dry fish market is mainly Tuna based and depends on the availability of Tuna fish and mass production. For preparing “mass”, fresh Tuna fish is taken and the abdomen region is processed by removing head, tail and gut content. The fish is cut

into pieces, washed and cooked in brine for 2 hours. Smoking is performed over the brined tuna for 2 to 3 hours using smoke from burning coconut husks (Thondu). This is an important process to help preserve the fish as the smoke delivers an acidic coating onto its skin surface. This coating prevents oxidation and slows the growth of bacteria, which in turn slows the decomposition of fish. The smoked fish is sun dried and stored in containers as mass meen (Fig. 3.).

Fig. 3. Mass meen.



Tuna mass based food market

Mass produced is mostly consumed during the off season when fresh tuna availability is limited in the island and also in preparing

traditional mass-based dishes of Androth (Tab. 2.). In Androth Island, the mass production is low on an industrial scale, though it is made in individual families where the mass and traditional dishes are prepared using open kitchen spaces (Fig. 4.).

Tab. 2. Name of certain traditional food items prepared in Androth from Tuna fish and mass for local consumption.

Traditional food items prepared in Androth from Tuna fish and mass	
	Mass podichath
	Mass appam
	Tuna fish bowl
	Madakkappam
	Mass idiyadda
	Idichathum kanjiyum
	Tuna fish pickle

Mass undakadi
Tuna fish kadi
Tuna nadan biriyani
Tuna kozhukatta
Tuna cutlet
Tuna samosa
Mass puttu
Massanum and orotti

Fig. 4. Open kitchen space for preparing traditional Tuna food items.



“Mass podichath” is made by cutting dried Tuna into small pieces and mixed with coconut, turmeric powder, onions and garlic, grinded into a powder form. This is consumed along with rice. For

mass appam, mass and coconut gratings are mixed and are covered with flour spread, then and cooked in oil (Fig. 5.).

Fig. 5. Mass appam



Tuna fish market in Androth

A stable Tuna fish market exists in Androth due to overall landings and trading. Several opportunities contribute such as supply meets demand, availability of monsoon and availability of a fish market space (MPLAD building). However, the first sale prices often fluctuate according to the demand and supply. Certain attributes like fish transportation and storage facilities exist and if enhanced is beneficial for the overall improvement in the livelihood of fishermen

who are into fish trading. Fluctuations in climate, selling price, and less tuna processing facilities are found to lower the overall revenue generated from the Androth tuna fish market. Further, Androth being a coastal island, subsequent COVID lockdowns and changes in policies have slowdown the market expansion, though an availability of more cargo from Androth fish market is expected to accelerate the limited tuna export especially to gulf countries [6]. Overall, the Androth fish market is now approaching into a monsoon when the study was carried out. The yield is expected

to be high compared to the off season. A favorable expansion of Androth Tuna fish market due to the onset of monsoon is possible with more storage and processing facilities.

Welfare measures for Androth fishermen community

Fish markets operating in the islands of Lakshadweep are supported by government welfare measures. In Androth, fisherman registered with the fisheries department are provided subsidies through Pradhan Mantri Matsya Sampada Yojana (PMMSY) to purchase ice boxes, installation of cold storage/ ice plant and boat upgradation to export competency. There are also awareness classes on territorial water borders and security measures. Insurance coverage is given to fishermen. However, some welfare schemes are covered under “island” population throughout Androth (overall Lakshadweep). This limits the coverage of fishermen community from Androth under similar government welfare schemes that are given to mainland fishermen community.

CONCLUSION

Androth is a coastal island belonging to the Lakshadweep archipelago of 36 islands in the Arabian Sea. Tuna landings are more prominent and Tuna based fish industry is one of the main revenue generations in Androth. Therefore, the purpose of this field study was to compile information on tuna fishing and trading activities at the jetty fish market, in the eastern side of Androth.

The field study included visits to the fish market, interacting with fishermen registered at the department of fisheries, Androth unit, UTL through a questionnaire mode. The respondents of this study were traditional fishermen, with fishing activities stretched over long years and experienced with tuna and lagoon fish landings. They are familiar with the fluctuations of the Tuna fish market in Androth. They have overcome natural calamities and COVID lockdowns over the years and strive to maintain the fishing industry in Androth.

The major attributes of opportunities and significant trends

identified in the present field study indicates a favorable tuna fish market in Androth Island. At the same time, the limitations for further expansion of the Androth tuna fish market and its global reach can be overcome by the key components identified from the field study. This field study carried out at Androth fish market is first of its kind. The field study observed that the Tuna fish market size and growth rate of overall market in Androth is limiting at times. Therefore, the study concludes that this field study could assist Androth fishermen in informing appropriate technological assistances and govt. policies to sustain their livelihood through Tuna based fishing industry.

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AUTHOR CONTRIBUTION

Dr Rekha conceptualize and written the manuscript. Ms. Najva contributed to methodology, investigation and resources. All the authors read the final draft and approved the manuscript.

DISCLOSURE

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