FRESH FISH HANDLING IN MAHARASHTRA STATE, INDIA

by

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ABSTRACT

Reviews the present status of fresh fish handling in the Maharashtra State with particular emphasis on the use of ice.

INTRODUCTION

The annual fish production in the State is estimated at 170,000 metric tons of which 158,000 metric tons is derived from marine fishery and 12,000 metric tons from inland waters. It will thus be seen that the marine landing contributes a major share to the total production and as such this paper is based solely on the status and problems of handling marine fish.

The State of Mahashtra has a coastline of 720 km. dotted all along with 250 fishing villages. The coastline could be roughly divided into 3 sectors, viz. Bombay and the Thana district north of Bombay, Kolaba district to the south of Bombay and Ratnagiri district further south, which show distinct variations in fishery development, species of fish caught, prices realised, availability of markets for fresh fish, availability of ice, approach roads and railway and access to hinterland. The first sector is at an advantage in all the aforesaid factors in view of its easy approach to an ever-expanding Bombay market. The other two are at a disadvantage due to one factor or the other.

Table I brings out the salient differences in the three sectors.

PRESENT STATUS REGARDING THE USE OF ICE

The State of Maharashtra shares with the rest of the IPFC region the misfortune of inadequacy and high cost of ice. Use of ice for chilling fish intended for fresh-fish market has not therefore been a widespread practice. The position has been promising improvement over the past decade or so, with the realisation that use of ice does bring in dividends. Ice production in the coastal region of the State is at present 700 tons per day but it is

Proc. Indo-Pacific Fish. Coun., 11(III): 128-134, 1965.

estimated that 100-150 tons of ice is available per day for icing fresh fish. As against this, the daily landings of fish approximate to 700 tons, out of which around 200 tons have to be ignored as they comprise either small sized fish or immature fish which will hardly find a customer in the fresh-fish market. Such fish is mostly dried, though often salt-cured in the Ratnagiri sector, and sold as dry fish for edible purposes or as dry-fish for making fish-meal or manure. In many villages fish caught near the shore is disposed off immediately after landing requiring no ice at all. This deduction leaves a daily landing of 500 tons of fish which could possibly be iced under ideal conditions of the trade.

For the present, however, only a portion of this iceable catch is iced. This portion comprises the relatively costlier varieties of fish such as white pomfret, black pomfret, Indian salmon, giant threadfin, Jew fish, eel and prawn. The annual landings of these varieties are approximately 20,000 metric tons. These varieties are popular with the consumer in view of their flavour which explains their higher price. Even so, it is not yet a normal practice to ice these varieties at sea, although with the advent of larger mechanised boats the situation promises some improvement. The fading out prejudice against iced fish, especially in towns and cities where the consumer acceptance of iced fish is growing fast, will also hasten improvement.

An analysis of the causes that lead to non-icing of the remaining iceable fish is as under:

(a) Non-availability of Ice: As can be seen from the Table I, the fish landings in the State are scattered all along the coast, there being no specially constructed fishing harbours to which the fishing boats could be induced to land their catch for their own benefit. Such harbours cost much in construction and development. Besides, sail-boats fishing in inshore waters can ill afford to allocate extra time to reach a centralised fishing harbour which is, say, ten miles away from their own village. The question of disposal of unpopular and immature varieties of fish, which is so conveniently solved by landing in their respective villages where labour and drying grounds are a family affair, will create a new problem. Under these circumstances the situation regarding diffused landings is destined to continue till a major portion of the fishing craft is mechanised at least to the extent of propulsion.

It is obvious therefore why non-availability of ice in fishing centres has been a prime factor discouraging the use of ice. Most of these villages are more or less inaccessible. It will not be feasible to construct ice depots and insulated iced-fish storages at such villages, to say nothing about maintaining an ice factory and cold-storage. The daily landings in

TABLE I

Sector	No. of fishing villages with landing site	No. of active fishermen	Important species	Annual landings (metric tons)	% of Prime fish in the landings	No. of country craft without engines	No. of mechanised boats	No. of ice factories	Price range of ice in Rs. per ton	Quantity of ice produced per day (metric tons)
Bombay and Thana District	50	15,800	White and black pomfret, giant threadfin, Bombay duck, Jew fish, eel, catfish	100,000	18	1746	1146	35	20-75	700
Kolaba District	36	8,000	Prawn, black pomfret, tiny shrimp, Jew fish	18,000	6	1367	292	1	70-100	1
Ratnagiri District	124	9,900	Seerfish, tuna, prawn, mackerel, catfish, shark, sardine	40,000	17	4127	101	3	70-100	7.5
Total	210	33,700	-	158,000	-	7240	1539	39	-	708.5

a particular village may be just a few quintals and again uncertain and irregular. Supply of ice and removal of iced fish therefore proves impracticable and uneconomical, with the result that the entire landings in such villages remain uniced. Consequently there is a very limited fresh fish market available to the village fishermen, the area catered to being a mere five miles or so in the interior wherein the purchasing power of the consumer is poor.

(b) High Price of Ice: This factor appears only in places where ice is available at all. A reference to Table I will show that there are only three ice factories in the Ratnagiri sector, as many as 35 in the Bombay and Thana sector and one in the Kolaba sector. The problem therefore mainly relates to the first two sectors. The three factories in Ratnagiri district produce seven and a half tons of ice per day. Ice has a good sale in the respective towns especially in summer while in rainy-season with decreased sales to non-fishing trade and complete stoppage of sale to fishing trade in view of suspension of sail-boat fishing for three to four months, the factories have to be kept idle. The factories have therefore to make up the unproductive overhead expenditure by keeping the prices high. Again, the higher cost of electrical energy in the towns adds to cost, with the result that a retail price of Rs. 70-100/- per ton generally occurs.

The wholesale price of popular varieties of fish locally caught varies between Rs. 500 to 600 per ton. Assuming that requirement of ice for maintaining the quality of fish over a period of three to four days, including periods during which the fish is handled in non-insulated conditions and normal wastage of ice due to high ambient temperatures, is twice the weight of fish, the cost of the required quantity of ice is Rs.150/- per ton of fish. Adding cold storage charges for two to three days, iced fish would be around Rs. 660/- to Rs.760/- per ton, registering an increase of more than 30% in the price of fish. It is doubtful whether ideally iced fish would fetch a proportionately higher price of this order over the uniced or meagrely iced fish. The situation would however be hopeful if the price of ice was around Rs.30/- per ton, in which case the increase in the price of fish would be around 15%.

The problem is more or less similar in the Bombay-Thana sector, especially in March-May period, when the price of ice increases due to heavy demand from both the fishing and the non-fishing trade. As a result it becomes economically feasible to ice only such varieties as stated earlier which fetch a wholesale price of Rs.1500 to Rs.2000 per ton. Accordingly cheaper varieties of fish such as croaker, shark, catfish, ribbon fish, tuna and Bombay duck appear in the market without ice.

PRODUCTION AND USE OF ICE

The data regarding ice-factories supplying ice mainly to fishing trade and those which cater to fishing industry in a small way, is being furnished separately in reply to an FAO questionnaire based on the needs of the symposium. It may however be generally stated that the fishing trade will feel encouraged to use ice only if the cost is below Rs.40/- per ton all over the year which seems to be a rather difficult goal to achieve in view of the eight-monthly fishing season and high cost of plant and apare-parts.

The costing analysis of production of ice at the State Government's Ice factory in Bombay is given in Table II.

All the ice factories in the State produce block ice. No data on cost of production of flake ice is therefore available.

As stated earlier, the practice of carrying ice to the fishing grounds is not in vogue in this State. The fishermen still feel that no harm is done to the quality of fish during its 4 to 6 hours' transit from the fishing grounds to the landing site. The fishing method popularly resorted to is the bag-net fishing with fixed bag-nets set at 10-20 fathoms. Drift net fishing is also carried out within this limit. Trawling is still in a nascent stage of development; as such long and uncertain stay at sea is not common. However, the situation promises some improvement especially in the case of boats with larger holds, when the stay-out period exceeds a day.

The procedure for icing fish on shore is not uniform and differs from place to place and at any one place from day to day depending on availability and price of ice, the cost of fish to be iced and the journey time. The icing is usually inadequate so that on a few occasions fish arrives at the wholesale market with no ice at all.

Cold storage of fresh fish is mostly done in Bombay after the fish arrives at the wholesale market. The fish is re-iced before storage. Here again the quantity or proportion of ice used is uncertain and usually inadequate. Whenever transport is directly effected from landing site to retail market, fish is iced subject to consideration of factors stated earlier. Transport is made in non-insulated trucks equipped with a roof.

During retailing in Bombay, fish is displayed on open wooden boards, usually separated from ice. Extra fish is held back in the basket, which may get replenished with ice from time to time. In small towns, not any or much attention is paid to holding fish in ice.

Recently this Department has put up eight retail fish stalls in Bombay with a view to providing better quality of fresh fish to consumers. Here fish is adequately iced from the time it is purchased in the wholesale market to the

time it is sold to the consumers in polythene bags.

No attempts have been made in this State to use chilled sea water or brine or antibiotic ice for preservation of fish.

COLD STORAGE FACILITIES

Cold storage facilities exist only in the Bombay-Thana sector. Here again there are only two storages in the Thana district, with a total capacity of 70 tons. In Bombay a cold-storage capacity of approximately 1000 tons is available for fish storage. Iced fish packed in split bamboo baskets is stored in the storages which maintain temperatures around 0°C. No insulated boxes are used in fresh fish trade. There are no insulated trucks or refrigerated trucks operating in the State. The retail markets are not equipped with cold storages, except for one market in Bombay city. Unsold fish, if any, is taken back by the retailers in Bombay to a cold storage of their choice.

CO-OPERATIVE MARKETING

Co-operative marketing of fresh fish has been a recent step in the State. Two co-operatives handle as much as 18% of the total trade and limit themselves to wholesale trading only. The pattern of handling, chilling and transport is of the same nature as private traders. The co-operatives do not have a system of retailing fresh fish.

ROLE OF GOVERNMENT

The Department of Fisheries has District Officers and other subordinates in the districts but does not have a separate extension unit in the State for educating the fishermen, trades men, retailers and consumers on the merits of proper icing of fish because ice is yet scarce and costly and consumers are likely to be deterred from purchasing fish if the rate of fish are enhanced any further due to use of ice. Even so, the Departmental offices attempt to bring home the merits of proper icing by contributing popular articles in local press. Moreover, the Department of Fisheries has a project for opening new ice and cold storage plants at important fishing centres. In order to create interest in fishermen themselves, the department gives these ice and cold storage plants at 33 1/3% subsidy and 66 2/3% as loan, thus giving entire financial assistance to the fishermens' co-operative societies. In some cases the Department runs these ice and cold storage for the benefit of the trade.

Work on use of insulated boxes for transport of fish involving a transport period of 24 hours was undertaken by the Technological Laboratory of the Department. Here again it was found that the extra cost of boxes and freight is a great handicap in its application in trade practice.

No quality standards have been evolved for grading fresh fish. In Bombay, the Municipal authorities ensure that fish suspected to be a health hazard is not sold. However, the inspection does not materially concern control of quality.

The Department of Fisheries does not participate directly in marketing of fish except for the 8 retail fish stalls in Bombay.

TABLE II

Cost of Production and Price per ton ex-factory

Cost per 2100 lb.	1961	1962	1963
Currency (Indian Rupee) Annual exchange rate to US$	4.75	4.75	4.75
1. FIXED TOTAL	11.13	12.53	10.22
Rent	3.50	3.29	3.22
Land	-	-	-
Buildings	-	-	-
Depreciation	-	-	-
Buildings	0.63	0.63	0.63
Machinery	3.50	3.50	3.50
Insurance	-	-	-
Other	3.50	5.11	2.87
2. VARIABLE TOTAL	8.26	11.41	10.01
Power	5.53	5.18	5.67
Water	0.63	0.98	0.84
Other	2.10	5.25	3.50
3. MANPOWER TOTAL	4.83	4.90	5.04
Cost of Management Cost of Labour	4.83	4.90	5.04
TOTAL COST PER TON	24.22	28.84	25.27
4. PRICE PER TON EX-FACTORY	18-35	20-45	25-50