
PRESENT STATUS OF FISH PROCESSING IN GUJARAT

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INTRODUCTION

Gujarat is emerging as one of the leading states in fish production and utilisation. Presently this state ranks third (17.87% in marine fish Production in India, with 3,06,577 tons (1985-86) of landings. The state contributes about 8000 tons of fish products for export which earns about 31 crores of foreign exchange (Anon, 1987) Marine fish landings comprise of quality items like Prawns, Lobsters, Pomfrets, Squid, Cuttle fish, Hilsa, Seer fish, Ghol, Bombay duck etc.

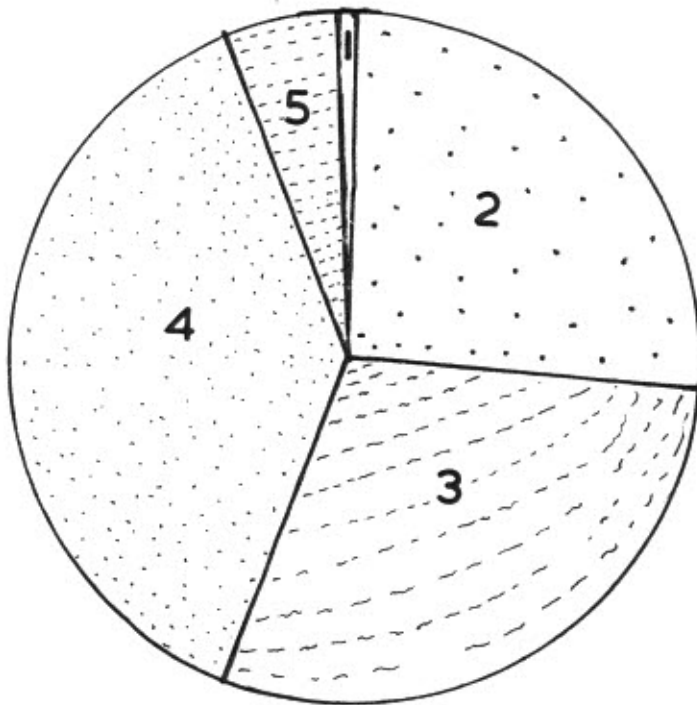
Till 1960 much attention was not given for the harvesting and utilisation of the vast fishery resources available along the 1600 km. coast line. This was mainly because of the facts that a major part of the population are vegetarian and as such the transportation and marketing system was not available to distribute the catch to the interior markets. Export trade was also in the beginning of development. On those days fishing was confined to inshore waters with traditional craft and gear.

Mechanized fishing in Gujarat was introduced in the early fifties by the then Saurashtra State with the help of Technical Co-operation Mission (TCM of the U. S. Anon, 1981). Stern trawling was introduced later by Central Institute of Fisheries Technology. With these technological developments and with attractive subsidy and loan given by the Government to this Sector, fishing industry flourished at a rapid pace. Presently most of the catch is landed by trawl nets, gill nets and dol nets.

PATTERN OF FISH UTILISATION

Marine fish landings in Gujarat during 1983-84-1985-86 is given in table 1 and the utilisation pattern of fish landed is presented in fig. 1 (Anon 1984). There is an increase of about 47% in marine fish landings from 1975-76 to 1985-86. This is mainly contributed due to the rapid development of mecanised sector especially trawl fishery. The commercially important fishery includes Bombay buck, perches, croakers, pomfrets, penaeid prawns etc.

FIG. I. FISH UTILISATION IN GUJARAT



1. DRY EXPORTABLE (0.53 %)
2. FRESH FISH (26.23 %)
3. DRY EDIBLE FISH (29.63 %)
4. FISH MEAL (38.29 %)
5. FROZEN EXPORTABLE (5.32 %)

The bulk of the fish landings goes for sundrying and pulverizing for fish meal production. Fishmeal is mainly marketed outside the state for incorporating in poultry and cattle feeds. The average whole sale price is Rs. 3600/-

per ton. The fresh fish is being consumed in the local market and by processors whereas iced fish is transported in lorries or train to distant markets like Ahmedabad, Bombay, Baroda, Surat, Delhi, Calcutta etc. The iced fish is also going to

processing plants for further processing and export. There are 239 ice making factories in the State with one in Co-operative sector and the rest in private sector. The total installed capacity of the ice plants is 2592 tons/day. Crushed ice is used for preservation and the main packaging material used for distant place transportation is tea-chest boxes. The entire frozen products except a small quantity goes for export. Major share of fish landed is sundried and cured for human consumption. Bulk of it is going out side the state. Main markets for cured products are Kerala, Tamil Nadu, Karnataka, Bombay, Assam, Delhi, Calcutta etc. Small portion of cured products is being exported mainly to Sri Lanka and Hongkong. A recent trend of utilising the fish in the state is in the form of semidried form with high moisture content. The main markets for this product are Kerala and Karnataka. Fish maws and shark fins produced in the state is fully exported mainly to Singapore, Malaysia, Hongkong etc. A detailed discussion of the present status of various processing methods are given below.

SUNDRYING AND CURING:

Till 1968, fish was mainly preserved in the state by sundrying and salt curing on sundry beaches. The important fishes which were sundried and salt cured include Bombay duck, Dhoma, Small Clupeids, Ribbon fish, Elasmobranch, Eel, Jew fish, Thread fin etc. In late 1960s State Govt. installed a tunnel dryer at Nava-bunder to study the feasibility of tunnel drying of fish. But it was found to be uneconomical due to high cost of electricity and irregular supply of raw material. Still sundrying and curing continues to be the most viable and cheap way of

preserving fish. Small size fishes are salted and dried in whole condition where as big size fishes like shark, dhoma etc. are split opened, gutted salted and dried. The moisture, salt and total volatile nitrogen of cured and dried products are reported to be between 9-42% 1-39% (dry weight basis) & 22-658mg% respectively (Solanki & Sankar 1987). This shows that there is wide fluctuation in salting and drying process adopted by the curers.

Recently a new trend has been developed among the curers in Gujarat especially in Veraval and Mangrol to process the salted products in a semidried condition with a moisture content of about 50% Here fish after salting for about 24 hours in brine tanks are dried for few hours to remove the surface moisture and later stacked with alternative layers of salt. At the time of marketing, the fish is taken out of the Stacks, the salt removed and packed (about 50 kg) in gunny bags, and transported to destinations in lorries. During 1987-88 season there were about 35 curers involved in this business. The fishes used for semi-drying include sharks, rays, skates, Dhoma, Ribbon fish and Lactarius. It is estimated that about 1500 tons of semidried products were produced during the last season. The moisture and salt contents of the semidried are reported to be 50-62% respectively (Ramachandran & Solanki 1987.)

Experiments were conducted in 1985 at Veraval to study the feasibility of solar drying of Bombay duck by Tropical Development and Research Institute in collaboration with Central Institute of Fisheries Technology. (Trim, 1985). The quality of solar dried Bombay duck was found to be better than traditionally dried one by

hanging on ropes in open sun. But further studies are yet to be conducted on the economical aspects of it.

FISHMEAL

Sun drying and pulverizing it is an age old practice in Gujarat. Bulk of the fish landings, especially trash fish, is being converted into fishmeal. The main centre of fishmeal production in Gujarat is Veraval where about 700 trawl boats are landing substantial quantity of trash. Other centres are Mangrol and Porbunder. About 15-20 pulverising units are operating at present in the state. It is estimated that about 18,000 to 20,000 tons of fishmeal are being produced annually (Solanki and Badonia, unpublished). The price of fishmeal is fixed based on protein content in it. The average protein content of fishmeal is found to be 45%. This is mainly due to high salt and sand contents present in the sun dried product.

In 1962, Government of Gujarat set up a fishmeal plant with a capacity of 10 tons at Jaffrabad. The plant worked for some time and soon found to be uneconomical due to high cost of production and irregular raw material supply. The plant was later dismantled and sold. At present there are three fishmeal plants in Gujarat. They are located at Veraval, Mangrol and Porbunder. All these plants are under private sector. The Veraval plant remains closed due to various reasons. The mechanically produced fishmeal has high protein content of about 50-60%.

SHARK LIVER OIL PLANT

A shark liver oil plant was established by Govt. of Gujarat at Veraval in 1956 with a capacity of 125 litres oil/day. Due to irregular and short supply of shark liver and due to lack of demand for the product, the plant remains closed. The main reason for shortage of demand is due to the competition from other substitutes like other animal oil and synthetic materials.

FREEZING

Fish freezing was started in Gujarat in 1969 with the establishment of a freezing plant in Veraval by one of the private industrialists. With the development of trawl fishery for demersal varieties like prawns, lobsters, squid, cuttle fish etc. this sector progressed rapidly. More and more private entrepreneurs entered the field in Veraval and Porbunder. With the unprecedented export boom, the price of exportable varieties of marine products shot up bringing prosperity to the fishermen, processors as well as the trade in general.

There are 20 Sea Food (Freezing) Plants in Gujarat with 15 plants located in Veraval, 4 in Porbunder and one in Diu. They have an installed freezing and cold storage capacity of 250 and 5045 tons respectively. But of the 20 freezing units, one belongs to co-operative sector (GFCCA) and rest all in private sector. At present five units including the one in co-operative sector are nonfunctional.

Freezing in these plants is mainly carried out in plate freezers. Till recently the entire production was carried out manually. Now washing machine has been made compulsory in plants where peeled shrimp is packing. Some plants have replaced old freezers with freezers which can freeze in 90 minutes. Tunnel freezers are also introduced by some processors to produce Individually Quick Frozen (IQF) products. Govt. of India is encouraging automation of processing line by giving subsidy and grant for installing automatic peeling and grading machines. Two plants in Porbunder and two in Veraval have already installed automatic peeling and grading machine. The installed capacity of these machines is 40 tons/day. Three units have also installed automatic IQF plants. The installed capacity of these units is 26 tons/day. Some of the other processors are

also planning to establish IQF plants. There are more than 60 products being exported in frozen form from Gujarat. They include new products like Fr. Ghol whole, Fr. Ghol fillets, Fr. Red snapper, Fr. Red snapper fillets, Fr. Sole, Fr. Octopus, Fr. Shark fillets, Fr. Tuna, IQF shrimps etc.

CANNING SECTOR

There was only one canning plant in Gujarat located in Veraval. It was established in 1976 with an installed capacity of 6.25 tons/day. The plant functioned upto 1987 season and there after closed due to lack of demand for canned shrimp. The Company was mainly catering the needs of USSR market. At present the canning plant is converted into freezing unit.

OTHER RESOURCES

Shark fins are dried and exported in good quantity and fetch good price. The air bladder of Ghol, Eel and Cat fishes has good market and Ghol air bladder fetches about Rs. 600-700/- in local market. Then quantity of shark fins and fish maws exported in 1985-86 was 6 tons. Good landings of Octopus and other molluscan resources are recorded and are yet to be utilised to the full extent. Fairly good resources of Sea weed are reported from Gujarat coast, especially in Kutch area. These can be used for extraction of Agar, Alginic acid etc. It can also be used as a fodder.

CONCLUSION

There has been rapid progress in the utilisation of fish landed in Gujarat during the last 12 years. Diversification of process, products and market is one of the recent developments. With the development of domestic ports like Kandla, Okha and Veraval for export of marine products and with the overall development achieved by the 32 crores

“World Bank Integrated Development Project”, the State has emerged as one of the important exporters of Marine products in India. On the other hand internal consumption of fish also multiplied several folds with the development of good road and transportation network. Fish from Gujarat is now being utilised by almost all states in India and several of the foreign markets. Further prospects of the development of this sector is very good.

REFERENCE

Anon (1981)

A status paper on the Fisheries of Gujarat, Commissionerate of Fisheries Govt. of Gujarat, Ahmedabad, 149 p.

Anon (1984)

Marine Fish Marketing in India, Vol. II a, Indian Institute of Management, Ahmedabad pp. 1-146.

Anon (1987)

Gujarat Fisheries Statistics, published by Gujarat Fisheries Information Centre, Commissionerate of Fisheries, Govt. of Gujarat, 79 p.

Ramochandran A & Solanki, K. K. (1987)

Processing and Quality Aspects of Semi-dried Fish Products of Commerce from Veraval, paper presented at the First Indian Fisheries Forum organised by Asian Fisheries Society (Indian-Branch) at Mangalore.

Solanki, K. K. and Sankar, T. V. (1987)

Quality of Traditionally Cured (dried) fish of Saurashtra Coast, paper presented at the First Indian Fisheries Forum organised by Asian Fisheries Society (Indian Branch) at Mangalore.

Trim, D. S. (1985)

R. 1305 (R) Report on a visit to India to investigate the Solar Drying of Bombay duck, Tropical Dev. and Res. Institute, London, 19 p.

Table 1
FISH PRODUCTION OF GUJARAT

Sl. No.	Fish	82-83	84-85	85-86	86-87
1.	White Pomfret	6,734	9,185	6,967	
2.	Black Pomfret	2,465	3,778	2,411	
3.	Bombay Duck	33,259	48,581	29,031	
4.	Thread Fin	1,157	1,938	1,050	
5.	Jew fish	5,396	7,457	7,408	
6.	Hilsa	3,813	7,097	4,897	
7.	Clupeids	6,069	9,755	8,928	
8.	Coilia	3,506	10,327	10,358	
9.	Shark	7,270	10,769	10,290	
10.	Mullet	3,449	3,513	2,507	
11.	Cat fish	6,951	9,556	10,598	
12.	Eel	3,267	2,699	4,072	
13.	Leather jacket	1,340	2,520	1,189	
14.	Seer fish	3,405	5,720	5,089	
15.	Indian Salmon (Rawas)	1,118	1,453	1,410	
16.	Ribbon fish	4,771	5,576	7,483	
17.	Silver bar	2,995	5,207	5,474	
18.	Perch	629	1,418	1,088	
19.	Small Scianids	51,807	81,396	1,07,818	
20.	Shrimps	9,764	12,028	10,546	
21.	Pran Medium	4,505	7,109	5,564	
22.	Pran Jumbo	1,002	1,452	1,946	
23.	Lobster	249	871	899	
24.	Crab	450	1,191	385	
25.	Levta (Mudskipper)	383	371	415	
26.	Cuttle fish, Squid	2,370	4,376	9,544	
27.	Miscellaneous	24,545	34,404	39,213	
28.	Total	1,92,669	2,90,708	3,06,577	
	Inland fish production	19,750	23,814	24,172	
	Grand Total	2,12,419	3,14,522	3,30,749	
	Value in Lakhs Rs.	8,235.05	16,060.71	18,628.41	

Source:— Gujarat Fisheries Statistics 1987, published by Commissionerate of Fisheries, Government of Gujarat, Gandhinagar-382 010.