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THE MARINE FISHERIES INFORMATION SERVICE: Technical and Extension Series envisages the rapid dissemination of information on marine and brackish water fishery resources and allied data available with the National Marine Living Resources Data Centre (NMLRDC) and the Research Divisions of the Institute, results of proven researches for transfer of technology to the fish farmers and industry and of other relevant information needed for Research and Development efforts in the marine fisheries sector.

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ECONOMICS OF TURTLE CATCH IN WEST BENGAL*

An investigation was carried out during the months of November and December, 1983 to study the economics of turtle catch in the coastal belt of West Bengal. The data relating to income and expenditure of different units were collected from Midnapore district of West Bengal where the turtles caught from Orissa coast were landed. An attempt is made here to understand the factors responsible for the expansion of turtle fishery in Orissa and West Bengal, the distributional aspect of the accrual of benefits among different categories of operators and the impact of Government intervention to prohibit the turtle catch.

Turtle marketing

In the sixties, the turtle catch in West Bengal was occasional. Casual landings of turtle were observed at Digha as by-catch when monofilament gill net was introduced. The entangled turtles are caught by hol-

ding the flippers and pushing them inside the boat. After turning the animals upside down the flippers were tied together with thin galvanised iron or nylon string to avoid escape. The fishermen landed their catches at Digha and Banksalghat landing centres where they were sold to the turtle traders.

The fishermen were not interested to catch turtle on commercial basis, since its consumption was confined primarily to the lower stratum of the society in areas adjacent to the coastal belts of West Bengal only.

Gradually the fish traders started transporting few numbers of turtle along with the fish to Calcutta and Howrah to find out market, as well as to observe its demand. In Calcutta and Howrah a large percentage of the population is from East Bengal to whom the turtle meat is a delicacy. Therefore the turtles introduced into Calcutta and Howrah markets were very well received by the Bengalis and this caused an

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increase in price. Soon the turtles were introduced to Siliguri also where they realised more price.

As a result, there was tremendous competition between the traders of south and north Bengal to capture the market by offering higher prices. The average price of a turtle in Howrah and Siliguri markets is given in Table-3. The expansion of the external market for turtle in conjunction with a decrease in its costs of transportation (a consequence of the extension of the transportation network linking the interior coastal belts to the distant large urban centres) resulted in its increased profitability. In addition to this, since turtle catch was relatively a sure event, less uncertainty was involved in its fishery as compared to fish catch. This ensured a steady income for the fishermen.

Table 1. Number of different units from different places engaged in turtle catch in different years.

Years	Howrah		Midnapore	
	Country boat	Country boat	Trawler	Launch
1977-78	—	7	—	—
1978-79	—	11	—	—
1979-80	6	14	2	1
1980-81	65	38	12	3
1981-82	110	42	15	8
1982-83	32	22	12	4

The above mentioned facts removed the constraints inherent in turtle fishing for commercial purpose and led the fishermen of West Bengal to locate Gahirmata (a place in the district of Cuttack in Orissa) as a ground for turtle fishing. The outcome of all these efforts got reflected in the increase in the number of units operated over the years (Table-1) and the number of trips made in a season (Table-2). Onward journeys to Gahirmata took one or two days due to favourable northern winds, but the return journeys were hazardous which took 8-9 days for a country craft. As a result 40-60% mortality took place. Each boat brought 80-120 animals depending on the size of the boat.

From 1980 onwards, the necessity of the country boats to be towed by motor launches and trawlers was strongly felt because it helped them to increase their

Table 2. Number of trips by different units in a season (November to January) from 1978-'79 to 1982-'83

Units	Years				
	1978-'79	'79-'80	'80-'81	'81-'82	'82-'83
Country boat	2-3	3-4	9-10	6-7	3-4
Trawlers	1-2	6-7	9-10	6-7	3-4
Launch	1-2	3-4	8-9	4-5	3-4

income in two ways; (a) it took less time, say a maximum of 48 hrs for a trip. By being towed by the trawlers or launches it helped to reduce mortality rate of the animal from 40-60% to 10-15%; (b) secondly, a boat in a season usually made maximum 3-4 trips, but after introducing trawlers and launches it increased upto 10 trips in a season.

Table 3. Average price per turtle in different months of the season from producers market to intermediate market in 1982-83

Months	Price at the landing centre (Rs)	Howrah market (Rs)	Siliguri market (Rs)
November	55.00	90.00	120.00
December	45.00	75.00	110.00
January	28.00	55.00	85.00

Income and expenditure of different units

It has been observed that the owners engaged 3-4 labourers for turtle catch in case of a trawler or fishing launch whereas in the case of country boats, 5-6 persons jointly hired a boat at Rs. 500 for four months, and they shared the net income equally after deducting the operational expenditure.

Fuel is the major cost item for trawlers and launches, accounting for about 90% of total operational cost (Table 4).

The major cost component for a country craft is towing charges, which amounted to 70% of total expenditure.

Table 4. *Cost and earnings (in Rs.) of different units in a trip in 1982-83*

Units	EXPENDITURE					INCOME				Income over operational cost
	Food	Fuel	Towing	Rent for a boat	Wages	Total cost	From turtle	From towing	Total income	
Country craft	200	12	700	150	—	1,062	2,900	—	2,900	1,838
Trawler	207	980	—	—	300	1,487	1,870	4,900	6,770	5,283
Launch	200	920	—	—	300	1,420	2,000	2,805	4,805	3,385

The income over the operational cost was estimated to be Rs. 1,838 for a trip in case of a country craft, whereas in case of a trawler or fishing launch it was about Rs. 5,283 and Rs. 3,385 respectively.

The operators of trawlers and launches earned more than that by a country craft because their sources of earnings were in two ways (a) from capture of turtle and (b) from towing the country craft.

In 1982 the West Bengal Government enforced the Indian Wild Life Act, 1972 (Amendment, October '77) though landing still continues in some unscheduled places. However, the immediate result was the decrease in the numbers of units operated and the number of trips made by each category in 1982-83 (Table 1 & 2). This apparently gave a big jolt to the employment opportunities and income of the area covering a total of about 16 villages; nine in Midnapore, four in Howrah and three in 24 Parganas. About six persons, on an average, were engaged in each boat. With the enforcement of the Act, the scope for employment opportunities appear to get minimised all over the areas.

Conclusion

The empirical findings reported here reveal some important aspects. In the first place, the rising price of turtle over the years drew the interior coastal economy into the distant urban market, but this has helped to strengthen the position of a few economically and socially namely, the operators of trawlers and the mechanised boats and secondly, once drawn into the urban commercial circuit, the rural coastal scenario could not escape the demonstration effect of urban centres, the result of which gets manifested in the change of living standard of the people associated with country boat.

But consequent upon the contraction in the employment opportunities arising out of the restriction and the near absence of employment prospects outside the agricultural sector, they are forced to curtail their consumption but less than proportionately, since consumption in any period is geared to the history of income.

Extensive study is necessary to find out the detailed biology, and stock position of the species and if controlled fishing can be allowed so that the species does not face extinction and at the same time help to maintain the existing living standards of the fishermen.