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COST AND EARNING OF TWO DIFFERENT SIZED 'DOL NET' BOATS AT VERSOVA (BOMBAY) *

The cost and earning of 7.5 and 12 m boats engaged in 'dol net' fishing are presented in this account. Though non-penaeid prawns accounted for bulk of the catch in both the categories of boats, the quantum of revenue realised depends largely on the magnitude of penaeid prawn landings. Considering the overall expenditure incurred for these boats, the small boat (7.5 m) is found to yield better economic returns. This is mainly due to the exhorbitant wages paid for the crew in bigger boats.

In the coastal sector of Maharashtra, the use of 'Dol net' (Bag net) has been in vogue, over the years. The 'dol net' fishing is one of the oldest method of catching Bombay duck and other fishes. This bag net mainly sustains the economy of a large segment of the fishing community of Maharashtra. Versova in Greater Bombay is a leading fish landing centre where almost 95% of the families depends directly or indirectly on 'dol net' fishery for their livelihood.

At this centre, 178 mechanised boats are exclusively engaged in 'dol net' fishing of which 60 are small (7.5 - 9.0 m) 47 medium (9.3 - 12.0 m) and 71 large (over 12 m). Though the size of boats and the depth of operation vary, the species composition remains more or less similar. Hence two types of boats viz. 7.5 and 12 m long classified as small and medium respectively were selected. Data on daily expenditure, catch, species composition and value realised were collected for three years continuously from 1983 - '84 to 1985 - '86. The cost and earnings of these two types of boats are dealt within this account.

Fishing pattern, season and effort

Usually the boats are owned by a single individual and he has to hire the crew for fishing activities. The fishing activities are being conducted as per direction or guidance given by the boat owner. The owners form into groups; each group consisting of three or more boats at the time of 'sus' making (driving spikes in the sea bed) in the fishing grounds. Further, they remain in groups for the entire season or perma-

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nently for all seasons. The duration of absence of these boats from the shore depends on the quantity of catch. During lean period, maximum number of boats i.e. 6 to 8 join together and each boat by turn returns from the fishing ground to landing centre, with the catch of the group fishing boats. The same boat carries water, food and other necessary items back to the fishing ground.

The operation of the 'dol net' depends on tidal current. Practically the dol nets remain in water for $4^1/_2$ to 5 hours at time of full or new moon. The rest of the time is required for hauling and shooting the nets and to unload the catch manually from net; whereas during neap tide period the net is operated for $2^1/_2$ to $3^1/_2$ hours due to slow tidal current which lasts for only few hours. The number of hauls made depends on the number of low and high tides, number of nets and distance to the fishing ground. The small boats having two nets are operated by three persons. The medium sized boats carry 2 or 3 nets and are operated by five members.

The fishing season commences from mid September or beginning of October and lasts upto the first week of June. The beginning of the season depends on the duration of monsoon and arrival of crew members from their home towns. The small boats are mostly operated by the owners and their family members with only a few hired crew. But the medium sized boats require more man power. Therefore, these boat owners have to wait until they get sufficient number of crew members.

Catch and disposal

The 'Dol' net is a multi-species gear like trawl. The mesh size varies from mouth to cod end of the net. Three types of cod end are used with mesh sizes of 1.3 - 1.5 mm for *Acetes* spp., 2.0 - 2.5 mm for *Palaemon tenuipes* and 3.5 to 4.0 mm for bigger forms like Bombay duck and others depending on their availability.

The catch of penaeid and non-penaeid prawns and all fish by the two types of boats during the different years is given in Table 1.

During 1983 - '86 the overall catch composition of small sized boat was: *Acetes* spp. 60%, *P. tenuipes* 12%, penaeid prawns 10%, Bombay duck 6%, *Cynoglossus dussumieri* 5% and others 7%. Similarly in medium sized boats, species composition was *Acetes* spp. 56%, *P.tenuipes* 12%, Bombay duck 8%, *Myctophids* 6%, *C. dussumieri* 5%, ribbon fish 4%, penaeid prawns 2% and others 7%.

About 85 - 90% of the 'dol net' catch is constituted by low priced fishes which are sun dried. The remaining quality varieties like prawns, pomfret and other fishes are sold in fresh condition in market. Dry fish is sold through three outlets - about 70% dry fish is sold to petty merchants locally, 25% at Marol wholesale dry fish market and 5% at retail market. The price of dry fish also varies according to place, quality and demand for particular fish.

Fishing expenditure

As seen from Table 2, the major component of the operational cost of small sized boat is the expenditure on food provided to the crew member, closely followed by oil and repairing charges; whereas in the case of medium sized boats, wages formed the major expenditure in the operational cost. This is because more number of hired labourers are engaged in medium sized boats. Regarding fixed cost, depreciation is calculated on the basis of the life of each capital asset and interest for capital investment calculated at the rate of 12%. The profit is calculated by deducting operational cost interest on capital investment and insurance of crew members, from revenue received for the three years separately. The quantum of revenue realised appears to depend largely on the magnitude of prawn landings, particularly the penaeid variety. The profit for small sized boats varied from Rs. 16, 988/- in 1984-'85 to Rs. 23, 411/- in 1985-'86; whereas in the case of medium sized boats there was a loss of Rs. 15, 887/- in 1983 - '84. This type of boat realized a maximum profit of Rs. 32, 897/- but considering the expenditure involved, the small sized boats were found to yield better return than the medium ones.

TABLE 1. *Catch details (in tonnes) of dol net boats at Versova*

Year	Small boat			Medium boat		
	Penaeid	Non-penaeid	All fish	Penaeid	Non-penaeid	All fish
1983 - '84	2.5	20.1	30.3	0.7	56.2	87.8
1984 - '85	1.2	26.4	32.1	0.9	131.6	163.4
1985 - '86	4.3	17.7	25.2	5.8	73.3	119.1

TABLE 2. *Annual costs and earnings for two different size dol net boats at Versova during 1983 - '86*

Particulars	Small size boat (25')			Medium size boat (40')		
	1983 - '84	1984 - '85	1985 - '86	1983 - '84	1984 - '85	1985 - '86
A. Initial investment	24,150			1,14,700		
B. Operational expenses :						
1. Oil	5,047	4,871	5,266	16,696	18,378	18,611
2. Preservation	1,100	1,262	1,710	2,772	3,817	7,230
3. Fish storage equipments	950	625	975	3,160	4,470	3,375
4. Crew's wages	1,567	1,477	1,650	50,061	43,618	49,880
5. Food and refreshment	5,755	5,860	5,845	11,400	13,650	15,275
6. Marketing expenses	2,180	1,798	1,754	3,367	3,591	3,545
7. Repair and maintenance	4,829	5,070	3,653	6,296	7,182	12,362
8. Miscellaneous	775	800	950	1,100	1,250	1,400
Total	22,203	21,763	21,803	94,852	95,956	1,11,678
C. Fixed expenses :						
a. Depreciation						
1. Hull	600	600	600	2,250	2,250	2,250
2. Engine	800	800	800	4,333	4,333	4,333
3. Nets	2,083	2,083	2,083	3,083	3,083	3,083
4. Ropes and accessories	775	775	775	1,450	1,450	1,450
5. Insulated fish hold	-	-	-	1,100	1,100	1,100
6. Cenoe -	-	-	275	275	275	
b. Insurance of crew member (Rs. 12 per annum)	-	-	-	60	60	60
c. Interest on capital investment (@ 12%)	2,898	2,898	2,898	17,364	17,364	17,364
Total	7,156	7,156	7,156	29,915	29,915	29,915
D. B+C	29,359	28,919	28,959	1,24,767	1,25,871	1,41,593
E. Gross revenue	50,304	45,907	52,370	1,08,880	1,35,945	1,74,490
Profit = E - D	20,945	16,988	23,411	-15,887	10,094	32,897