

Socio-Personal Characteristics of Fishermen Operating Marine Plywood Crafts in Kerala

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This paper analyses the socio-personal characteristics of fishermen who operate the marine plywood crafts in Kerala, India. The comparative profiles of the fishermen operating marine plywood crafts, dugout canoes and plank-built crafts are presented. The results revealed that the fishermen operating marine plywood crafts had higher mean scores on annual income, number of fishing days in a year, number of fishing gears used and total investment than the other two categories.

The project for the development of small-scale fisheries in the Bay of Bengal has designed, built and tested several designs of beach landing crafts with different construction materials over the last 12 years (Overa *et al.*, 1986). Due to the trickle-down diffusion strategy, several entrepreneurs in the south-east and south-west coasts of India have undertaken the construction of marine plywood crafts based on some of the successful craft designs. As a result, several marine plywood crafts with FRP sheathing are being operated by the fishermen in the south-east and south-west coasts. This paper presents the socio-personal characteristics of fishermen who operate marine plywood crafts in Kerala, India.

Materials and Methods

Two districts in Kerala namely, Trivandrum and Quilon were selected based on the number of marine plywood crafts in the various coastal districts. From these two districts, 57 traditional marine fishermen respondents operating marine plywood crafts were randomly selected. By using interview schedules, the data were collected on several socio-personal variables. For comparative analyses on the

socio-personal characteristics, the data collected from 36 traditional marine fishermen operating dugout canoes and 44 fishermen operating plank built crafts in Ernakulam district were used. The selection of villages and respondents was done taking into consideration the predominant type of crafts operated. Statistical techniques such as *t* test, *F* test and correlation analysis were used to analyse and interpret the data collected.

Results and Discussion

The socio-personal variables of artisanal fishermen operating marine plywood crafts are given in Table 1.

It is evident from Table 1 that the fishermen who operated marine plywood crafts had an average age of 38.7 years and an average experience of 22.2 years. The average number of fishing days in a year was about 265 days and the size of the crew was mostly found to be 4 or 5. It was found that these fishermen had operated 7.8-8.4 m LOA marine plywood crafts with 8 or 9 hp outboard motors. The number of fishing gears used was mostly 3 and included gears such as mackerel gill nets, prawn gill nets, lobster gill nets, and hooks and lines.

The average total investment on a fishing unit was found to be Rs. 78,179 and the respondents had operated these crafts for the last 4 to 5 years with an annual maintenance expenditure of Rs. 3617.5.

When two categories of fishermen namely, fishermen with more than 3 nets and fishermen with less than 3 nets were compared on their socio-personal characteristics, it was found that out of 16 variables, there were significant differences on four variables such as the number of fishing gears used, the depth of operation of the gear, the investment on the fishing gear and the total investment on the fishing unit. It could be seen from Table 1 that the

plywood craft owners with more than 3 nets had higher investment on their fishing units ($x_{ii} = 84684.6$; $x_i = 73,097.3$) and had also operated in lesser depths due to the possession of more types of nets than the other category ($x_{ii} = 90.4$; $x_i = 102.1$).

Table 2 presents the comparative profile of the fishermen operating marine plywood crafts with the fishermen operating dugout canoes and plank-built crafts.

It is evident that out of the 11 variables compared, the mean scores of nine variables differed significantly between these three categories of fishermen as shown by the corresponding *F* values.

Table 1. Socio-personal variables of fishermen operating marine plywood fishing crafts

Variables	Sample (n:57)			Fishermen with < 3 nets (n:22)			Fishermen with > 3 nets (n:25)			<i>t</i>
	$\bar{X}$	SD	CV	$\bar{X}_i$	SD	CV	$\bar{X}_{ii}$	SD	CV	
Age, years	38.66	12.31	31.84	39.68	12.46	31.40	37.36	12.24	32.76	0.70
Education, scores	1.78	0.83	46.62	1.71	0.85	49.70	1.88	0.83	44.14	0.75
Experience, years	22.21	11.41	51.37	22.90	11.86	51.79	21.32	10.98	51.50	0.51
Annual income, Rs.	14000.00	1868.44	13.34	13765.62	1717.95	12.48	14300.00	2041.24	14.27	1.07
Number of fishing days in a year	264.91	33.28	12.56	262.18	32.60	12.43	268.40	34.48	12.84	0.69
Number of crew engaged	4.54	0.75	16.51	4.43	0.84	18.96	4.68	0.62	13.24	1.24
Number of years of use of the craft	3.89	2.06	52.95	3.62	1.94	53.59	4.24	2.20	51.88	1.11
Size of craft used, m	7.81	0.33	1.26	7.85	0.17	0.66	7.75	0.42	1.62	1.26
Hp of engine used	8.73	2.33	26.68	8.35	0.75	8.98	9.21	3.40	36.91	1.39
Number of fishing gears used	2.85	1.52	53.33	1.81	0.39	21.54	4.20	1.38	32.85	9.30**
Depth of operation of the gear, m	96.97	20.83	38.65	102.08	22.10	38.97	90.43	17.37	34.56	2.16*
Investment on the craft, Rs.	27197.36	8110.66	29.82	28625.00	7666.43	26.78	25370.00	8448.71	33.30	1.52
Investment on the engine, Rs.	22855.78	5408.08	23.66	23244.21	4594.59	19.76	22358.60	6365.35	28.46	0.61
Investment on the fishing gear, Rs.	28126.31	17119.35	60.86	21228.12	11398.53	53.69	36956.00	19270.57	52.14	3.84**
Total investment on the fishing unit, Rs.	78179.47	27197.36	34.78	73097.34	15496.04	21.19	84684.60	24724.87	29.19	2.16*

* Significant at 5 percent level; ** Significant at 1 percent level

Table 2. *A comparative profile of the fishermen operating marine plywood crafts with the fishermen operating dugout canoes and plank-built crafts*

Variables	Fishermen operating plywood crafts (n: 57)			Fishermen operating plank-built crafts (n: 44)			Fishermen operating dugout canoes (n: 36)			F
	Mean	SD	CV	Mean	SD	CV	Mean	SD	CV	
Age, years	38.67	12.31	31.84	37.70	12.89	34.19	36.58	11.94	32.63	0.313
Education, scores	1.79	0.84	46.90	2.11	0.44	20.92	2.14	0.42	19.83	4.62*
Experience, years	22.21	11.42	51.40	20.50	13.36	65.19	19.25	10.78	55.99	0.713
Annual income, Rs.	14000.00	1868.44	13.35	5606.82	3016.73	53.80	4322.22	2517.72	58.25	224.65**
Number of fishing days in a year	264.91	33.28	12.56	208.59	53.42	25.61	241.25	50.81	21.06	19.188**
Number of crew members	4.54	0.76	16.66	39.77	10.41	26.17	2.39	0.96	40.35	552.344**
Size of craft, m	7.81	0.33	1.26	15.22	1.24	2.45	6.42	1.71	8.01	740.646**
Number of fishing gears used	2.86	1.53	53.45	1.45	0.55	37.62	1.92	0.91	47.29	20.167**
Total investment on the fishing unit, Rs.	78179.47	20701.98	26.48	26655.14	55593.67	-	12691.67	7406.96	58.36	59.946**
Ownership pattern, scores	1.98	0.13	6.66	1.05	0.21	20.19	2.00	-	-	618.881**
Use of inboard/outboard engines, scores	2.00	0	-	2.00	0	-	1.083	0.2803	25.37	543.929**

* Significant at 5 percent level; ** Significant at 1 percent level

Only two variables such as the age and experience did not vary significantly between these three categories of fishermen operating dugout canoes (3.6-10.8m LOA), plank-built crafts (12.0-18.0m LOA) and plywood crafts (7.8-8.4m LOA).

The results reveal that fishermen operating plywood crafts had higher mean scores on annual income, number of fishing days in a year, number of fishing gears used and total investment on the fishing unit than the other two categories. The mean scores of fishermen operating dugout canoes revealed that as a whole, they had higher education, lower annual income, lesser crew members, smaller crafts, lower total investment, more number of ownership operations and lesser motorisation of crafts than the other two categories. Thus, the dugout canoe operating fishermen are engaged in fishing with very low invest-

ment potential and the adoption of technological innovations would be a slow and time consuming process among these fishermen than the other two categories.

The mean score analyses of the fishermen operating plank-built crafts revealed that this category of fishermen were mostly shareholders of the big motorized plank built crafts ($\bar{x}_y = 15.22$ m) with a mean crew size of 39.8 including the reserve members at the shore. They had operated only for 208.5 fishing days on an average during the year due to the increased operational expenditure and lesser returns on off season days. The gears operated were few in number and they were mostly of the types such as the seine nets, gill nets, and cast nets. Their total investment on the fishing unit and their annual income were comparatively higher than that of the fishermen operating dugout canoes.

Therefore, for extension work, the key communicators approach and the peer group communication among the plank-built craft operators would have to be further strengthened. The technology dissemination and adoption among this category of fishermen would be relatively easier, if the informal leaders of the large groups of shareholders are convinced about the technologies. The relationship between the selected socio-personal variables of fishermen operating marine plywood crafts and their total investment are given in Table 3.

Table 3. Association between the selected socio-personal variables of fishermen operating marine plywood crafts and their total investment (n : 57)

Variables	Correlation coefficient
Age	-0.018
Education	0.010
Experience	0.026
Annual income	0.354**
Number of fishing days in a year	0.207
Number of crew member	0.171
Number of years of use of the craft	-0.413**
Size of craft used	0.231
Hp of engine used	0.282*
Number of fishing gears used	0.337*
Total annual maintenance cost	-0.364**
Depth of operation of the gear	-0.065

* Significant at 5 percent level

** Significant at 1 percent level

It is seen that out of the 12 variables, only for five variables, the correlation coefficients were significant. Of these five variables, three variables, namely, annual income, hp of engine used and number of fishing gears used were found to have positive correlation with their total investment. Obviously, the number of fishing gears used and hp of engine used are interrelated variables to total investment. This finding is similar to the earlier reports

of Kaul & Balasubramaniam (1982) that the total investment and annual income were positively correlated with each other among the fish curers. Therefore, any increase in the investment pattern of fishermen would definitely lead to an increase in their annual income. It is observed that in lower investments, fishing would be taken as a way of life rather than as an economic enterprise.

Further, it is seen that for the newly purchased marine plywood craft, the investment cost is more due to higher prices and the annual maintenance cost is less. Hence, these variables namely, number of years of use of the craft and annual maintenance cost had significant negative correlation with the total investment.

The following advantages in the use of marine plywood crafts were reported: (i) less weight, high speed and self - drainage deck model suited to rough sea conditions (100%) (ii) less repairing charges towards the change of the damaged craft portions (28.07%) and (iii) the possibility to overcome the non-availability of traditional wood materials at reasonable prices (14.03%).

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