

Socio-economic Status of Fishermen Population in the Vicinity of Vembanad Lake

B.Madhusoodana Kurup, M.J.Sebastian, T.M. Sankaran and P.Rabindranath

College of Fisheries, Kerala Agricultural University, Kochi- 682506

17,369 households in the vicinity of the Vembanad lake belong to the fishermen with a population of 95,182. The average size of each fishermen and non-fishermen household surveyed was found to be 5.48 and 5.42 respectively. 37.65% of the numbers of each fishermen family are employed either directly in fishing (25.2%), in fishery related activities (5.54%) or in non-fishery occupation (6.9%). The numerical strength of the active fishermen of the study area has become reduced to 84% of what existed earlier. The average household annual income showed variations from region to region, with a maximum of Rs. 1558 and a minimum of Rs. 158 and the average annual income of the whole region thus works out to Rs.607. Considering the total fish produced from the lake as the source of income for the fisherfolk of the study area, the average the household income works out to be Rs.1,313.

Information on socio-economic status of the fishermen of a particular region are very essential for the proper planning and implementation of resource based developmental schemes. Implementation of various land reclamation programmes for agriculture and for other purposes and the construction of a 1402 m long barrier across the Vembanad lake (lat. $9^{\circ}28'$ and $10^{\circ}10'$ N & long. $76^{\circ}13'$ & $76^{\circ}31'$ E) at Thanneermukkom to prevent salt water intrusion into the Southern part of the lake have, in fact, brought to surface the conflicting interest of the agriculturists and fishermen. The commissioning of the salt water barrier has resulted in the spectacular difference in the yield between the two sectors, the yield from the southern sector (Thanneermukkom to Alapuzha) form only 13% of the northern sector (Kochi to Thanneermukkom) (Kurup *et al*, 1990). The changed situation may have a major set back in the economy and occupation of the fishermen living in the vicinity of the Vembanad lake. A review of the literature shows that even though attempts were made to study the exploited fishery resources of this lake (Menon & Raman, 1960; Shetty, 1965; Kurup & Samuel, 1985), no concerted at-

tempt was made so far to collect data on household number and population size, average household size, average annual income and occupational status of the fisherfolk living in the vicinity of the Vembanad lake. The scanty literature available on

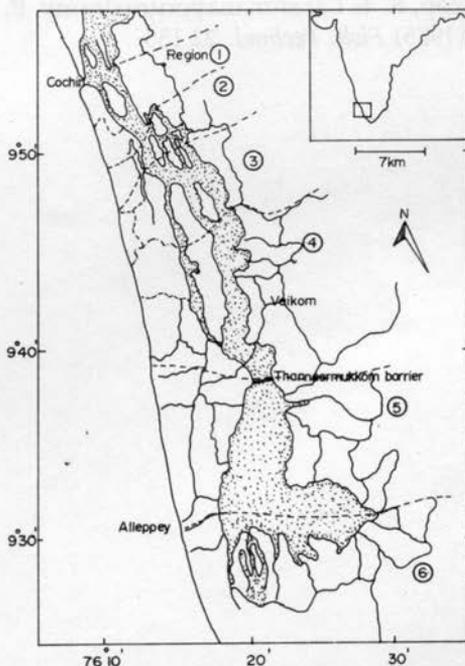


Fig. 1. Area covered under socio-economic survey

similar aspects are those of Kurien (1978) and Valiakandathil (1978).

Materials and Methods

The whole area (Fig.1) has been divided into 6 regions. A preliminary survey was conducted during August 1988 to ascertain the extent of inhabitation of fisherfolk in the different revenue villages located in and around the Vembanad lake. Based on the information so gathered, 1366 households were selected at random from the entire region, giving due representation to coastal as well as interior regions of the lake. The details of revenue villages and houses covered in the survey are as follows:Ernakulam (Census houses 1091-1206), Nettoor (1091-1952), Panavalley (127-250), Pallippuram (797-914), Vadakkemuri (1-127), Udayanperoor (2024-2143), Vaikom (279-388), Kulasekharamanglam (123-248), Thanneermukkom (1987-2117), Kumarakom (280-423) and Kavalam (81-187). The household number and population size of the study area as per the Census 1981(Anon,1981) (Table 2) was taken as the baseline for the enumeration of the respective figures of the fisherfolk. The selected houses were visited and data on household

number and size, income, occupational status such as fishing and non fishing activities, if any, fishery allied occupation namely, processing, marketing etc were collected during 1988-89 and entered in the proforma. The number of active fisherman engaged in fishing is also computed based on the average number of gears operated in the lake on a daily basis and the respective crew size. The gear number and crew size were registered during the monthly fishery survey cruises (Kurup *et al.*, 1990) conducted with the help of two boats supplied by the Indo-Dutch Co-operation programme during July 1988 to June 1989.

Results and Discussion

Of the 1366 households selected for the present survey, 172 belonged to fishermen distributed in all regions except in region 1. Thus, the total fishermen household is computed as 17,369 in the entire study area (Table 1). Region 1 is close to sea and hence the fishermen belonging to the marine sector are its inhabitants. The fishing in this region is therefore carried out by those who migrate to this region from inside as well as outside the Ernakulam district. The average size of each fishermen and non

Table 1. *Average household size, number of households and average income per household in the study area*

Region	Average household size			Estimated number of households			Average income per household (Rs)		
	All	Fishermen	Non fishermen	All	Fishermen	Non fishermen	All	Fishermen	Non fishermen
1	5.76	-	5.76	33918	0	33918	669	-	669
2	5.84	5.56	5.86	10775	817	9958	1001	1558	955
3	5.50	5.91	5.34	25124	6989	18135	661	482	730
4	5.30	5.62	5.25	21978	2656	19322	458	431	452
5	4.89	4.81	4.91	26140	4579	21561	817	907	797
6	5.40	5.33	5.41	20756	2328	18428	389	261	406
All regions	5.43	5.48	5.42	138691	17369	121322	646	607	652

Table 2 *Estimated population in the vicinity of the Vembanad lake*

Region	Total population (1981)	Number of persons engaged in			Estimated fishermen population
		Fishing	Allied occupation	Non fishing occupation	
1	195368	0	575	42521	--
2	62926	1277	204	13329	4542
3	138184	9924	4253	25708	41304
4	118184	3489	1375	28639	14926
5	127826	6005	1049	35364	22024
6	112081	3297	194	23851	12408
Total	752866	23992	7650	169412	95204

fishermen household surveyed was found to be 5.48 and 5.42 respectively (Table 1), as against an average of 5.43 reported for the whole population (Anon, 1981). Based on the observed household size and the total number of households computed, the total fishermen population can be enumerated as 95,204 (Table 2). However, the average fishermen household size of Kerala is estimated as 6.25, which includes both the inland and marine sectors (Anon, 1982). The same in the case of the inland sector alone works out to 6.22, which is far above the present observed household size.

There are 23,992 fishermen actively engaged in fishing and 7650 persons engaged in related activities, such as serving as middleman, vendor of fresh fish, etc in the study area (Table 2). This forms 25.2% of the fisherman population, which compares favourably with the all Kerala figure of 22.3% for the inland sector. In Kerala, out of the 1,76,415 fishermen in the inland sector, 39,308 are listed as active (Anon, 1982). Based on the Census conducted in 1979, total number of active fishermen of the inland fishery sector of Alleppey, Kottayam and Ernakulam district is

enumerated as 27,977 (Anon, 1982). It would thus appear that around 3985 active fishermen of the study area might have given up their occupation over a period of 8 years. The numerical strength of the active fishermen thus became reduced to 84% of what existed earlier and this change could be attributed to the dwindling nature of the fishery resources of the lake (Kurup *et al.*, 1990), especially in the Southern sector.

The number of stationary and wandering gears operated in the lake on a daily basis are given in Table 3. In general, the gill net is operated by 2 persons, irrespective of region or month. The seines has 3-4, stake net 2 and dip net 2-4 persons, the second person usually functioning as the helper while in the indigenous fishing methods, the number of persons engaged varied from 2 to 6. The number of active fishermen was computed on the basis of average crew size and number of fishing gears and methods enumerated from the lake on a daily basis. The number of fishermen engaged in the northern and southern regions of the lake is computed as 18,900 and 2095 respectively (Table 3). The total number of active fishermen engaged in fishing in the lake is thus enumerated as 20,995. It can also be seen

Table 3 Number of fishermen operating different types of fishing gears

Sl. No.	Gears & Fishing Methods	Northern sector		Southern sector		Total No. of units	Total No. of fishermen	Percentage
		No. of units	No. of fishermen	No. of units	No. of fishermen			
1	Gill net	770	1531	175	346	945	1877	8.94
2	Seine net	382	1362	104	349	486	1711	8.15
3	Stake net	4777	9421	84	167	4861	9588	43.67
4	Dip net	1422	3728	6	18	1428	3756	17.89
5	Cast net	393	649	314	513	707	1180	5.62
6	Hand line	449	569	255	335	704	904	4.30
7	Other indigenous methods	599	1630	78	349	677	1979	4.43

that the crew operating the stake and dip nets accounted for 50 and 20% respectively (Table 3). In the southern side, these two gears together had only less than 9%. While some of the gears such as cast nets and seines which are of moderate importance in the north appeared as significant in the southern sector. The results on the numerical strength of active fishermen of the study area obtained on the basis of household surveys and gear based assessments when compared, show that the latter one is on the lower side by a margin of 2997. Since the fishermen employed in the molluscan fisheries of the lake are not being accounted in the latter, it can reasonably be inferred that about 2997 active fishermen are engaged in the fishery of black clams and subfossil deposits of the lake.

Among the fisherfolk 5.54% are engaged in fishery allied occupations whereas 6.91% work in other fields not connected with fishery (Table 4). Even among the nonfishermen category a few get their earnings from fishery related occupations though the percentage is very small (0.37%). Further, 24.76% of the total population in the area covered are active fishermen (Table 4).

The average household annual income showed variation from region to region,

with a maximum of Rs.1,558 at region 2 and a minimum of Rs.261 at region 6 (Table 1). The overall average of the annual income thus works out to Rs.607 per household, when all the 6 regions are taken together. The above data have not, however, been corrected with the expenditure figures or any other cross-check method. Anon (1982) has given Rs.1,136 as average annual income of fishermen household. Evidently this figure is higher compared to the present estimate of Rs.607. The difference can mainly be due to the fact that the census figure is based on income of both marine and inland categories of fishermen, whereas the present result depends only on the inland sector, limited to a specified area.

It is pertinent to note that the income figures reported in the present study agree with the production figures estimated for the respective regions (Kurup *et al.*, 1990). The production is highest at the zone covered under region 2, where the income is also maximum. Similarly lowest production figure is seen in the area of region 6 with the lowest average estimated income. In zone VIII there is an increase in production which is also reflected in the average income of region 5.

Table 4 *Persons engaged in different occupations in the study area (figures in percentages)*

Occupation	Region	Region	Region	Region	Region	Region	All regions
	1	2	3	4	5	6	
All households							
Fishing	0.00	2.03	7.18	3.30	4.70	2.94	3.19
Related occupations	0.29	0.32	3.08	1.18	0.82	0.17	1.02
Other than fishery related	21.76	21.02	18.60	24.59	27.67	21.28	22.50
Total	22.05	23.37	28.86	29.07	33.19	24.39	26.71
Fishermen households							
Fishing	-	28.09	24.03	25.77	27.27	26.56	25.20
Related occupations	-	2.25	8.01	7.36	3.46	0.00	5.54
Other than fishery related	-	23.60	1.84	5.52	15.15	4.69	6.91
Total	-	53.94	33.88	38.65	45.88	31.25	37.65
Other than fishermen households							
Fishing	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Related occupations	0.29	0.18	0.98	0.27	0.27	0.19	0.37
Other than fishery related	21.76	20.82	25.76	27.39	30.27	23.35	24.76
Total	22.05	21.00	26.74	27.66	30.54	23.54	25.13

Considering the total fish production as the source of income for the fisherfolk, an estimate of annual income of average household is worked out. This is a crude estimate arrived at by covering the total production figures into corresponding value in terms of price and calculating the per capita income. The annual yield from the whole lake during the period between July 1988 to June 1989 is estimated to be 7202.12 t and the total value of the resources is computed at Rs.961.88 lakhs (based on market prices), consisting of penaeid prawns (3499.08 t), fishes (3297.2 t) crabs (284.0 t) and palaemonids (117.69 t) (Kurup *et al.*, 1990). The per capita income thus worked out to Rs.961. Since on an average there is an estimated 1.38 active fishermen

per household, the average household income works out to Rs. 1313. This is comparable to the estimate of Rs.1,136 (Anon, 1982). In estimating the income the region-wise variations in production and price were taken into consideration.

The authors are grateful to Mr. S.N. Vipond, Project Director, K.W.B.S.P. for providing financial support, to Mr.K.C.Chernan for data processing, to Shri Gopalakrishnan Nair & Thankappanachari for their valuable suggestions and to the Kerala Agricultural University for making available all the required facilities at the College of Fisheries, Panangad, Kochi.

References

- Anon(1981)*Census of India*, Govt. of India
 Anon (1982) *Census of Fisherfolk in Kerala*, Directorate of Fisheries, Kerala

- Kurien, J. (1978) in *Seminar on Role of Small-Scale Fish. Coast Aquacult. Integr. Rur. Dev.* (Abstract)
- Kurup, B.M., & Samuel, C.T. (1985) in *Harvest and Post harvest Technology of Fish* p.232, Society of Fisheries Technologists, India
- Kurup, B.M., Sebastian, M.J., Sankaran, T.M. & Rabindranath, P. (1990) *Indian J. Fish* (in press)
- Menon, M.K. & Raman, K. (1961) *Indian J. Fish* 8(1), 1
- Shetty, H.P.C (1965) *Proc. Natn. Acad.Sci. India*.35(1), 115
- Valiakandathil, V. (1978) in *Seminar on Role of Small Scale Fish Coast. Aquacult. Integr. Rur. Dev.* (Abstract)