FISHERIES OF VELLAR ESTUARY PORTO NOVO

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ABSTRACT

Results of a study of the fishery of fin fishes and shell fishes in the estuary of Vellar at Porto Novo (11° 29' N; 79° 46' E) for the period from December 1973 to November 1974 are reported. Several methods of fishing employed in this estuary are discussed. Among fin fishes, as a single group mullets (*Mugil* spp.) form the major fishery. The topography of the estuary, fluctuations of the fishery, and the major influence of land drainage due to rain during November and December on the fishery are also discussed. It is estimated that 1,70,000 kg. of fishes and crustaceaus are landed annually. The clam wealth of Vellar is one of the best in Tamil Nadu and about 2,10,000 kg. of clams are estimated to be hand-picked annually.

INTRODUCTION

The river Vellar finds its source from the Servarayan Hills in Uttanagarai Taluk of Salem District and traverses a distance of 192 km to drain into the Bay of Bengal at Porto Novo (11° 29' N; 79$ 46' E). The Vellar estuary forms an extensive network of backwater on the south (about 19 km) with Coleroon estuary which branches off from the Cauvery river. It is a bar-built estuary but the closure of the mouth being incomplete and unstable, there is always a small opening into the sea. It is an example of a true estuary being subjected not only to alterations in chlorinity and other properties resulting from seasonal variations in the amount of fresh water but also to tidal influence and consequent circulation of elements between the estuarine system and neretic waters. The sand bar is totally removed only during the North-east monsoon period when a large volume of fresh water is carried to the Bay of Bengal. Due to inadequate rainfall during the North-east monsoon in 1973 the sand bar at the mouth became pronounced and reached a maximum width preventing the normal fishery activities.

Although detailed account on the fauna and flora and hydrological conditions of the Vellar estuary is available through the investigations of Ramamoorthy (1954), Seshadri (1955), Rengarajan (1958), Jacob (1961), Balasubramanian (1966) and Venugopalan (1967), it is felt that there is a gap in our knowledge regarding the fishery potential of the Vellar estuary. The only

existing account on the fishery of this area is that of Chacko (1955) which gives us a preliminary idea but is still lacking in details. The present report deals with the fish landings of the estuary during the period of one year from December 1973 to November 1974, census of the fisherfolk of this area and their methods of fishing.

Material and Methods

Night fishing is not uncommon in the Vellar estuary, but the period between 5 a.m. and 6 p.m. is the usually fishing time between the railway bridge and the river mouth, the gear being cast nets of different mesh sizes. The fishing activities are slowed down during the time of north-east monsoon. Intermittent fishing is resorted to when the weather is slightly favourable during this period. The number of units operated and the fish landings were observed bi-weekly and their composition estimated. Estimates of the annual catch of the various fishes were made by random sampling. The catches were generally assorted into major categories like mullets, sciaenids, catfishes, crabs, etc., thus facilitating estimation of the composition. When it was not possible to sort out the catches, eye estimation was made. The clams are collected by the fisherfolk in 20 kg baskets. The total number of such baskets were counted and the composition of species estimated from bi-weekly observations.

Fishery

The bulk of the fishermen who operate in the Vellar estuary are drawn from the five villages of Manambadi, Mudasa Odai, Muzhukuthurai, Chinna Vaikkal and Porto Novo and the census is tabulated (Table 1).

Table 1. *The number of fishermen of five villages engaged in fishing in Vellar estuary and their tackles.*

	Manapadi	*Mudasodai*	*Muluku-thurai*	*Chinna-vaikal*	*Porto*	*Total*
			Villages			
No. of fishermen engaged in fishing	50	155	173	192	70	640
Veechvalai	12	174	12	145	84	427
Kuzhivalai	—	99	18	29	—	146
Ko valai	—	6	32	80	—	118
Koonivalai	—	67	5	51	13	136
Thurivalai	—	10	18	—	—	28
Kannivalai	—	15	50	—	—	65
Koduvavalai	—	5	—	—	—	5
Ullanvalai	—	62	—	26	—	88
Thoni	—	92	42	83	—	217

Fishing Equipments

The main gears employed for fishing are 'Veechu Valai,' Kuzhi valai,' 'Ko valai,' 'Kooni valai,' 'Turi valai,' 'Kanni valai,' 'Koduva valai,' and 'Ullan valai.' The 'Veechu valai' (cast net) with varying mesh sizes, are mostly operated either in knee deep water or from the dug-out canoes or country crafts in deeper areas of the river. The cast nets, depending upon the mesh size and number of thread used for making it are variously known as given below with mesh size given in parnethesis: 'Kavuthu valai' (65 mm), 'Nolla valai' (40 mm), 'Pentha-perungavalai' (30 mm), 'Pottaperunga valai' (25 mm), and 'Era valai' (15 mm). 'Konda valai,' a dragnet, is also operated frequently in the shallow waters. Fishing by Ootha, a hollow basket with a cone shape with opening on both sides is also in vogue.

Fishes and Crustaceans

During the period of data collection, the catches were poor because of the sand bar which cut off the estuary from the sea. From the data presented in Table 2, it is evident that the peak period of availability of mullets is during the premonsoon season. But according to fishermen the peak season of availability of mullets in adjacent mangroove backwater environment is the north-east monsoon period. The exact reason for the poor catch of mullets in the Vellar estuary during the period of north-east monsoon and fairly good catch in the adjacent backwaters during the same period is not known. Most of the mullet catches of Vellar are brought ashore by various cast nets. Mullets are estimated to contribute annually 89,391 kg to the fishery, constituting 23.5% of the total catches. It is estimated that 1,34,785 kg of fin fishes and 35,166 kg of crustaceans have been landed from Vellar estuary during the period of study. The prominent species that are landed here are: *Opisthopterus tardoore, Kowala coval, Mystus gulio, Hemirahmphus georgii, Mugil cephalus, Ambasis commersoni, Carangoides malabaricus, C. oblongus, Lutianus johni, Leiognathus fasciatus, Gerres filamentosus, Drepane punctata, Scatophagus argus, Siganus oramin* and *Pampus argenteus*. It is not uncommon to see *Psettodes erumi, Therapon jarbua, Selar mate, Gastraphysus launaris* and *Lagocephalus inermis*.

The total crustacean landings have been estimated to be 35,166 kg. Among the crustaceans prawns constitute 13% of the total landings from the Vellar estuary while crabs form only 7.8%. *Penaeus indicus* and *P. monodon* constitute the bulk of the prawn landings. *P. indicus* has been observed throughout the year in catches, with a peak in June, July and August whereas *P. monodon* appears mostly in October and November. *Metapenaeus dobsoni, M. monoceros, Hippolysmata ensirostis, Acetes indicus, Macrobrachium rosenbergii* and *M. idae* are also landed in small quantities. Amongst crab landings *Scylla serrata* and *Portunus pelagicus* are predominant. These are landed almost throughout the year particularly during September-October period.

TABLE 2. *Monthwise catches (in kg) of fishes landed from Vellar estuary from Dec. 1973 to Nov. 1974.*

	Dec. 73	*Jan 74*	*Feb.*	*Mar.*	*Apr.*	*May*	*Jun.*	*Jul.*	*Aug.*	*Sep.*	*Oct.*	*Nov.*	*Total*
Mullets	5038	5261	4884	7816	10168	6294	7753	11432	8861	6928	9973	4983	89391
Arius	344	800	875	795	1410	755	690	3411	709	693	672	256	11410
Thrissocles	60	180	152	930	168	250	168	172	210	184	173	87	2734
Sardinella	—	—	—	643	1170	557	—	—	—	—	—	—	2370
Leiognathus	—	—	—	730	410	—	170	368	509	706	1348	978	5219
Sciaenids	135	388	1015	2325	195	312	115	265	386	178	1364	165	6843
Pomadasys	—	—	—	310	990	155	—	114	—	115	—	—	1684
Polynemus	—	248	210	1240	990	—	—	—	—	93	—	—	2781
Sillago	—	140	70	—	—	155	30	—	186	—	279	—	860
Scatophagus argus	—	—	—	155	—	—	60	—	—	—	—	—	215
Serranus	—	—	—	—	—	155	—	—	—	—	93	—	248
Rays	—	78	182	—	—	—	90	—	—	—	1547	—	1897
Miscellaneous	270	308	220	1013	905	1131	720	456	425	2590	1015	280	9333
Prawns	550	3507	2080	1550	1300	2914	1400	2312	1450	1698	2809	350	21920
Crabs	327	782	597	—	1217	627	947	2766	534	2177	3272	—	13246
Clams	19447	19105	40552	61225	5154	7514	6277	3938	4518	5588	16865	19817	210000
Total catch	26171	30797	50837	78732	24077	20819	18420	25234	17788	20950	39410	26916	380151
% age of clams	74.3	62	79.8	77.8	21.4	36.1	34.1	15.6	25.4	26.7	42.8	73.6	

Molluscs

Regarding molluscan fisheries it is estimated that 2,10,000 kg of clams are handpicked annually. *Meretrix meretrix, M. casta, Katelysia opima* and *Arca granosa* are the common forms. *M. casta* and *K. opima* form extensive beds in Vellar estuary. In addition to clams, *Sanguinolaria diphos* and *Crossostrea madrasensis* form extensive beds in the adjoining backwaters.

Usually fisherwomen collect the clam during low tides by simply ploughing the sandy bottom with their feet to feel the presence of clams and handpick them. The clam meat is consumed and the accumulated shells are used for shell-lime manufacture. The shellfish constitute 64.4% of the total annual landing of 3,80,151 kg of fishes. The contribution of clams is about 55.2% of the total annual landing of fishes.

From Table 2 it is evident that during the post-monsoon months *Meretrix* spp are landed most abundantly. But the other two molluscs viz. *Katelysia opima,* and *Arca* spp. are fished considerably during October, November and December.

The shells of *Meretrix* are sold at the rate of 40 paise per basket of 20 kg to the traders; manufactured lime is sold at the rate of Rs. 4 per 20 kg to the consumers. Shells of *Crossostrea madrasensis, Mytilus viridis* and *K. opima* are also utilised for lime.

Discussion

The importance of Vellar estuary as a rich ground for mullets as well as shell fishery, is evident from the individual contributions of mullets (52.4%), prawns (13%) and Crabs (7.8%) to the total fishery resources excluding clams. This is in striking contrast with the observations made by Chacko (1962) in respect of Ennore estuary where mullets, prawns and crabs formed 40%, 5% and 2.5% respectively of the total catches.

Of the four quarters during the year the maximum yield of 50,128 kg of all fishes excluding clams has been recorded during the 3rd quarter while the last quarter registered a minimum return of 36,368 kg. Month-wise total statistics revealed the maximum and minimum catches of 22,545 kg and 6724 kg during October and December respectively. In short it can be said that the fishing activity is more intense during the months prior to the north-east monsoon and immediately thereafter than during the actual monsoon months.

Chacko (1954) while describing the fisheries of the Vellar estuary with special reference to their conservation pointed out the predominance of juvenile mullets, prawns and miscellaneous fishes. This is further supported by the observation reported here with regard to the operations of the specialised tackles like the 'Penthapeeanga valai,' 'Nolla valai, and 'Era valai' which are meant for catching small fishes.

ACKNOWLEDGEMENTS

The authors are grateful to Dr. K. V. Sekharan, S|Shri K. Nagappan Nayar and S. Mahadevan for the keen interest evinced by them in our work and for going through the typescript with critical eye.

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