

MARINE FISHERY POSSIBILITIES of the WEST COAST OF INDIA

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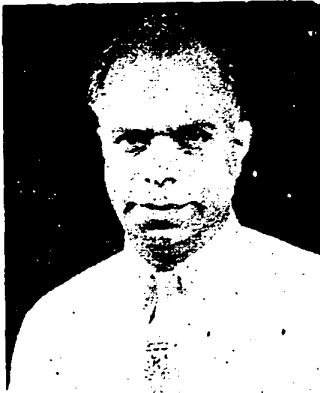
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As a result of study and analysis of fish landings on the Indian coast it is now fairly well established that nearly three fourths of the total sea fish production is from the west coast of India. The higher productivity of the Arabian Sea is strongly supported by oceanographical investigations which have clearly brought out the fact that the waters of the Arabian Sea are continually enriched by upwelling and related phenomena which bring the richer waters from below to the surface and are able to support heavy fish populations. In contrast to this, waters of the Bay of Bengal are of a somewhat static character with a comparatively higher temperature, lower amount of nutrient salts, lower plankton production and consequently lower quantity of fish catches. (See Table)

Taking the west coast of India the south western part of India adjoining the coasts of Kerala and Mysore are particularly productive. This area accounts for the large landings of sardines and mackerel. In the north of Canara region on the western coast, i. e. the coast off

the Bombay and Gujarat area; there are dense concentrations of fish that inhabit the sea shelf and consequently fall within the category of trawl fish. There are excellent grounds for prawn fishing off Kathiawar Peninsula and at the entrance of Gulf of Cutch. But of all these the southern half of the Western coast is by far the most productive.

Taking statewide figures also it is well-known that the Kerala State accounts for the largest production of fish in India at the present time. The catches mainly consist of the Sardines, the Mackerel, various percoids, prawns, the larger scombroids or the seer fish, the tunnies around the Laccadive and Maldives, and a large variety of miscellaneous species. Industrial importance has always been attached to the oil sardine of Malabar which is well-known as a first class fish for canning. During the past decade a tremendous interest has grown in the fisheries for prawns, or shrimps to use the American trade name, owing to its export value. The oil sardine (*Sardinella longiceps*) has been



known as a species liable to great fluctuations in abundance and this has been one of the principal drawbacks for its commercial exploitation.

The prawn fisheries on the other hand are not liable to the same amount of fluctuations, and the indications are that the catches can be increased many times. The Kerala coast has also been famous for the traditional farming of prawns in the paddy fields adjoining the coast during the non-paddy season.

RESOURCES

The marine fishery resources of the Kerala coast are very considerable and the present production of about 300,000 tons per annum presents only a part of the stocks of the sardines, mackerel and prawns, which extend beyond the marginal seas. The Malabar sole is a promising summer fishery whose catches even now are very considerable. The actual values for chemical nutrients available in the waters of the south west coast of India as compared with the values elsewhere give much room for optimism and these taken with the plankton values indicate the region to be one of the best fishing grounds of the world.

METHODS OF INCREASING YIELD

One of the most successful method of increasing the yield is the mechanization of

About the Author

Dr. N. K. Parikkar, one of the most outstanding marine biologists of the country, hails from Kottayam, Kerala and took his D. Sc. from the Madras University at a very young age. His academic record brought him in 1938 the coveted award of an overseas scholarship to study in London, Plymouth and Cambridge, for five years, in the company of eminent scientists. His studies during the period led him to establish for the first time certain important concepts in the physiology of certain marine animals.

On his return from the U. K. he became Professor of Zoology in the Travancore University and very soon after he took over as Head of the Department of Zoology of the Madras University from where he entered the Government of India's Fishery Research Department. He has to his credit a number of projects for the study of marine fish in India and was largely responsible for the network of marine fisheries research institutions in the country. He was Director of the Institute at Mandapam and was appointed Fisheries Adviser to the Government of India. Oceanographic research is of very recent origin in India. When the International Indian Ocean Expedition was launched, the need for Oceanographic studies was realised and when the National Institute of Oceanography was established in India Dr. Panikkar was naturally selected to head the Institution. A Fellow of the Indian Academy Sciences, Dr. Panikkar has represented India in many international conferences and was the Chairman of the Indo-Pacific Fisheries Council. He attended the first International Oceanographic Congress held in 1959 in New York and presided over one of its sessions. He again led the Indian delegation to the second International Oceanographic Congress at Moscow and presided over the session on the Indian Ocean.

small boats. Mechanization of indigenous craft and the introduction of new powered craft have both been tried. It is the experience that the "Vallums" although capable of mechanized operation is not an economically viable fishing unit. Experimental fishing operations of the Indo-Norwegian Project and the work of the Central and State Fisheries Departments have clearly shown the need for newly designed small boats and in fact two or three suitable designs have been developed and are now being built in large numbers in the Cochin area. At the present time nearly 600 mechanized boats of new designs are operating. The catches brought by these smaller boats upto about 40 ft. length are not very different from that obtained at present by the indigenous craft. But the yield per person and per hour of operation is substantially higher.

The second avenue of increasing fish catch is through the introduction of medium and large powered boats. Here medium vessels of 40 to 70 ft. have distinct economic possibilities. The feature here is that the commercially valuable constituents of catches, for example, the larger prawns and good quality table fish, are substantially increased in terms of the total catch. Cochin is also currently the base of operation for some of the larger fishing boats upto about 150 ft. but in spite of the fact that exploratory fishing operations have been in progress for sometime the commercial possibility of large vessels yet remains to be established. Individual vessels belonging to the Indo-Norwegian Project have reported good results and it is hoped that the three newly introduced experimental fishing boats of the Project will be able to indicate more encouraging results. The commercial feasibility of mother-ship operation has also been established from the work of the State Fisheries Department.

IMPROVED GEAR.

A large scale revolution has taken place in the world in gear material and this is replace-

ment of the cotton and hemp fibres by synthetic fibres belonging to the category of nylons. The striking feature of the synthetic fibre is that even by existing methods the catches are often increased 50 to 100 per cent, but the initial investment is heavy. The change is gradually taking place throughout the Indian coast but naturally depends on easily available supplies of imported nylons until such time as the Indian synthetic fibre industry is developed.

NEW TECHNIQUES

New fishing techniques have a distinct place in the improvement of the yield and considerable amount of experimental work is in progress. Newer methods, like purse-seining, fishing with light, long-lining, ground set nets etc, have all new and distinct possibilities.

IMPROVED UTILISATION

An invisible increase in fish production has been taking place in most parts of India by better utilisation of the catches landed. In former times, owing to poor communications, absence of storage facilities and ice, a great deal of the catches were lost or used as manure. Kerala and Mysore people are familiar with the sad spectacle of decaying sardines used as manure in the fields. Fortunately this will only be a thing of the past. One of the major programmes of development of fisheries has been the provision of increased facilities of ice and cold storage, including the introduction of refrigerated railway vans for the distribution of fish and it can confidently be said at the present time that a large part of the fish which formerly used to go waste in the State of Kerala is now finding its way to the interior markets in the State of Madras and Mysore and consumed as good quality fish. The catches of prawns from the State were formerly dried and exported to Burma as a very inferior dry product. This is now slowly changing to the frozen product for export to the more lucrative markets, particularly the United States, and has become a notable dollar earner. The present exports of fish from

India are of the order of sixty to seventy millions per annum and with the gradual replacement of the dried prawns by the frozen product the export value will increase manifold. The incentive provided by good returns in the United States has led to large number of processing units being established in the Cochin area. All these processing units were not of the same technical competence and there were inevitable but occasional rejections in the United States market owing to the unsatisfactory nature of the export product. These are being straightened out by the introduction of quality control by the Government of India. In spite of the initial resistance of the exporters it is a matter of satisfaction that the system has been firmly developed and now the exporters are enthusiastic supporters of quality control which they themselves wish to see changed from a voluntary to a compulsory system.

FUTURE PROSPECTS

It can confidently be said that the yield of fish from Kerala area could be increased by something like 5 to 10 times within the course of the coming fifteen years, but this will be possible only if there is a very concerted effort at all round development. It is one of the fallacies of the lay-public that all one has to do for catching fish is to go to the sea, put the net and take what is there. The truth is that fishing technology is a highly specialized job in which both the skill of technology and the daring of seamen have to be deftly employed for increasing yields. The yields from fishing fleets can only become a practical reality with good harbour facilities

To man the large number of fishing boats trained hands familiar with modern technology of the use of engines and the use of modern fishing gear, are necessary. After the catches are brought to the landing place, good storage and processing facilities and a transport link to distribute the catches to the consumer far-off or to the factories which will process the catches are vital in the establishment of the industry. It is

in this secondary aspect that skills other than that of the fishermen are called for. Organisational skill of the entrepreneur, or technology of the engineer and the fish processing technician, factory skill of workers and foremen and the scientific knowledge of the fishery experts are all called for in this all round development.

For large fishing fleets to operate successfully and to obtain economically large catches a good combination of oceanographic research with fishing operations is absolutely essential. This is because the tropical waters are generally less dense in fish concentrations than the rich fishing grounds of the temperate waters. There are, however, certain natural oceanographic phenomena which tend to increase yields by concentrating fish in certain regions. For example, movements of the oxygen minimum layers, sea temperature and salinity distributions have all a part to play in deciding on the concentrations of organisms which could be caught in commercial quantities.

INVESTMENTS

The provision of a large number of steel or wooden mechanized boats with engines, electronic equipment to support fishing operations, ice plants and storage facilities, canning and freezing plants, insulated or refrigerated trucks/vans and distribution vehicles are all items which call for a considerable investment. But it has been demonstrated in many places that these investments are worthwhile, in not merely increasing the catches but also for providing the base for a prosperous processing industry.

In all these directions the States adjoining the West coast of India have made some progress but most of us feel that the progress should be many times more rapid than has so far been possible. This calls for an all out effort on the part of persons engaged in the industry, Government, scientific institutions and organizations providing capital

TOTAL MARINE FISH LANDINGS OF EAST AND WEST COAST OF INDIA

(Fish landings in tonnes)

Name of the State	1959	1960	1961	1962	1963	1964	1965
EAST COST							
West Bengal	3,962	5,532	8,924	7,948	11,176	10,642	12,244
Andhra Pradesh	29,464	56,720	54,506	60,027	64,913	71,727	76,477
Madras - 80% catch	82,797	85,248	98,800	87,681	87,681	105,047	79,214
East coast Total:-	116,223	148,500	162,230	157,123	163,770	187,416	167,935
West Coast							
Madras - 20% Catch	20,699	21,562	24,700	22,287	21,920	26,261	19,804
Kerala	191,375	344,605	267,493	191,421	203,242	317,974	339,173
Mysore	52,825	100,557	17,248	43,904	39,176	104,218	68,476
Maharashtra	198,192	127,172	111,839	123,708	124,587	130,603	131,907
Gujarat		127,982	91,396	97,751	102,040	92,882	80,590(a)
South Andaman	123	129	131	155	159	148	224
Laccadive Islands	-	509	872	178	589	-	-
Trawler catches	4,755	7,226	7,207	7,717	-	-	-
Goa	-	-	452	-	-	-	-
WEST COAST TOTAL	467,969	729,742	521,338	487,121	491,713	672,086	640,174
GRAND TOTAL:-	584,193	878,242	683,569	644,244	655,484	859,503	808,109

(a).....Exclusive of Kutch area for which
data were not available.