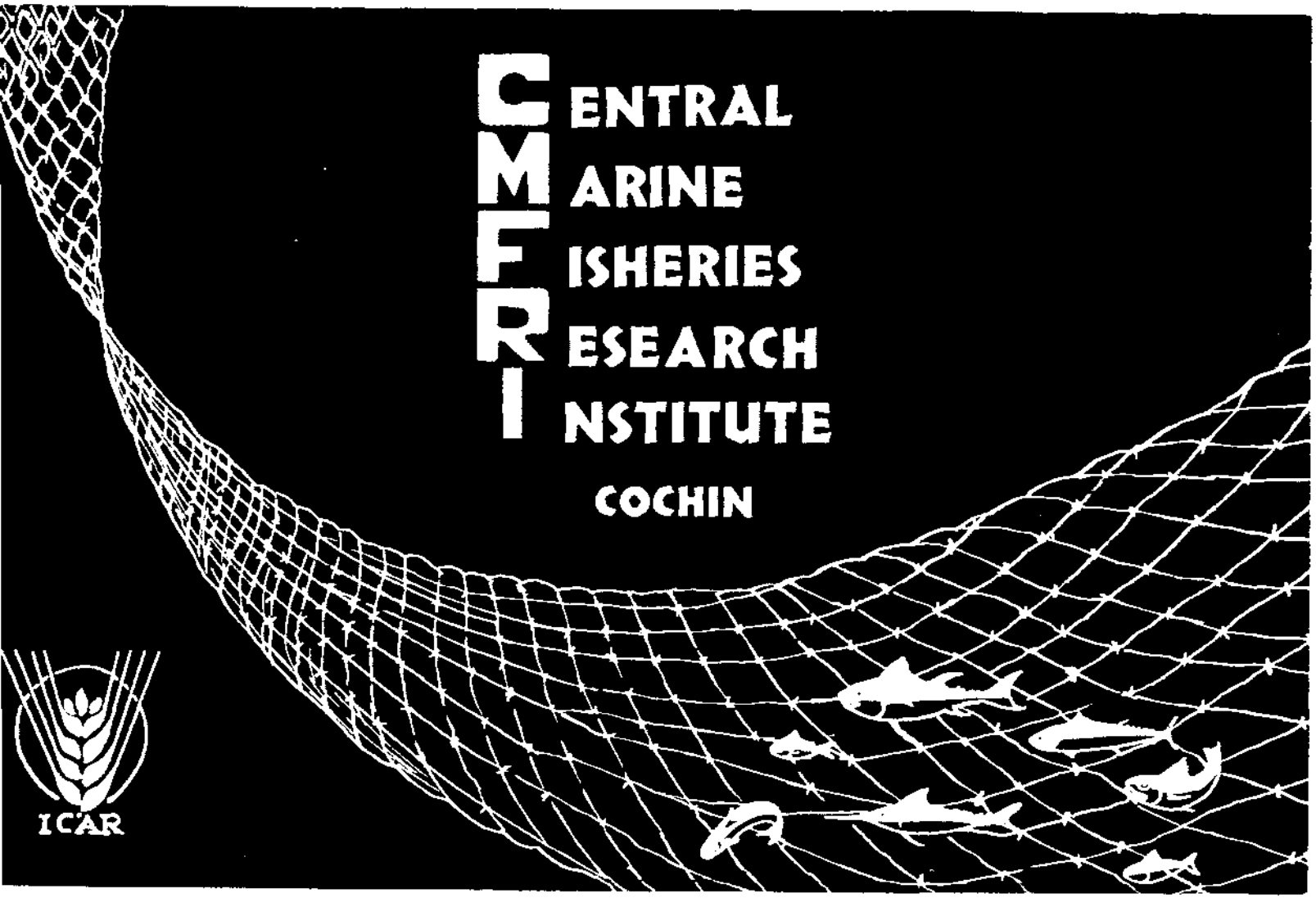
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CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
COCHIN

GENERAL ORGANISATION AND WORK PROGRAMME

The Central Marine Fisheries Research Institute was established in February 1947 under the Union Ministry of Food and Agriculture. In October 1967 the administrative control of the Institute was transferred to the Indian Council of Agricultural Research, New Delhi.

The main objectives of the Institute are as follows:-

i to estimate the catches of marine fishes and other animals from the seas around India throughout the year by different types of vessels and gears, and the effort expended,

ii to conduct researches on marine fisheries resources in order to step up their production to the maximum possible extent,

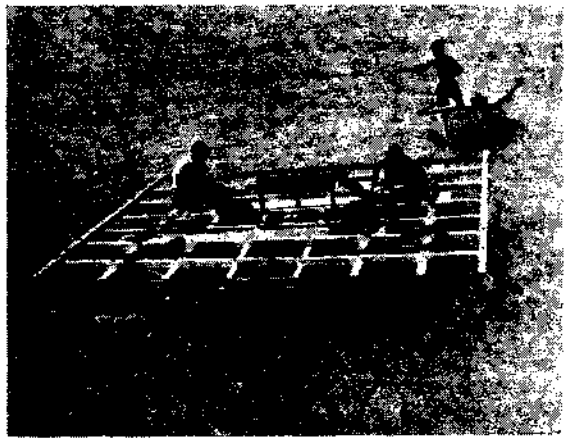
iii to locate new fishing grounds and untapped resources; to conduct environmental studies in relation to fisheries,

iv to recommend measures for the rational exploitation of the various resources, and

v to develop techniques for the culture of suitable species of marine animals and plants for augmenting natural production.

Organisational set-up:

The Institute has at present five Divisions, namely Fishery Survey and Statistics, Fishery



Pearl culture raft at Veppalodai, Tuticorin

Biology, Crustacean Fisheries, Molluscan Fisheries, and Marine Biology & Oceanography. Besides the Headquarters at Cochin, the Institute has one Regional Centre (at Mandapam Camp), 8 Sub-stations (at Waltair, Madras, Tuticorin, Vizhinjam, Calicut, Mangalore, Karwar and Bombay), 4 Research Centres (at Kakinada, Veraval, Port Blair and Minicoy), 3 Research Centres (at Puri, Porto Novo and Goa) and 26 Survey Centres along the east and west coasts of India. The present staff strength of the Institute is 827.

In the execution of the research programmes, the Institute has been collaborating with the Central Institute of Fisheries Technology, Cochin, the National Institute of Oceanography, Goa, the Government of India Exploratory Fisheries Project, Bombay, the Government of India Integrated Fisheries Project, Cochin and the Fisheries Departments of the maritime States. Liaison is also maintained with the fishing industry, and Agricultural and other Universities. The Institute is also the Headquarters of the Marine Biological Association of India.

Publications:

The Institute publishes the *Indian Journal of Fisheries,* Bulletins on special scientific topics and scientific papers by the staff and also issues occasional special publications.

Training facilities:

The Institute at present imparts training in Fishery Survey and Statistics, Fishery Biology, Marine Biology & Oceanography and mariculture to personnel from the Fisheries Department on request. Training is also imparted to personnel deputed from abroad.

The scientists give lectures at the Central Institute of Fisheries Education, Bombay, and various Universities in India. A number of scientists from abroad have made use of the facilities provided for carrying out researches in marine sciences. The Institute also offers facilities for specialisation in fisheries and oceanography at the M. Sc. and Ph. D levels by research. The books and periodicals from the Institute's Library are being utilised by several organisations and are loaned to other Institutions. The Institute has been offering free consultancy service to the Departments of Fisheries of the various States and private entrepreneurs in the field of fisheries development.

Extension:

The Institute organises and takes part in symposia, seminars and exhibitions on topics of interest to marine fisheries R & D programmes.

ACHIEVEMENTS OF THE INSTITUTE

The Institute has played a pioneering role in developing a statistical sampling design for the colleetion of marine fishery data. The stratified multistage sampling design developed and perfected by the Institute is now being used by the FAO and several other developing countries.

The Institute is at present the only source for reliable marine fisheries statistics, so essential for the proper exploitation and management of

Oyster with cultured pearl in situ

living resources. These data on exploited stocks are very much in demand and are supplied to the Government of India, all the maritime States, the FAO, and the Industry. The compilation of these statistics has greatly helped in planning the recent Indian Ocean Fishery Programme of the FAO.

The Institute carried out detailed studies of the major sea fisheries resources of the country.

The distribution and relative abundance of the mackerel larvae off the south-west coast of India have been charted out for the first time and this has given a clue to the spawning grounds of this fish. The eggs and larvae of the oil sardine have been identified and described. The average annual standing stock of the oil sardine in the present fishing grounds was estimated as about 400,000 tonnes and that of the mackerel as 57,000 tonnes during 1960–71. There is scope for a marginal increase in the catches of these fishes from the present fishing grounds during November-April. But from April-October the shoals move further

offshore, where these could be exploited by mechanised boats. The landings of prawns along the south-west coast are not likely to increase significantly even if the fishing effort is stepped up. However, it is possible to increase their catches from grounds along the north-west coast and the east coast. The studies have also shown that the yield of Bombay duck off the Maharashtra and the Gujarat coasts may not increase markedly, even with increased input of fishing effort.

A national programme of tagging oil sardine, mackerel and prawns has been undertaken. The tagging studies on lobsters indicate that they do not undertake large scale migration and are confined to their selected habitat.

In collaboration with the Government of India Exploratory Fisheries Project and Integrated Fisheries Project, the Institute has charted satisfactorily, demersal fisheries resources up to the depth of 50 metres in the seas around India, and explored and located new fishing grounds and resources from the continental shelf edge and upper continental slope along the south-west coast. The results have been of great value to the country and several commercial organisations have started exploiting the fishery resources.

The underwater exploration group of the Institute (scientists doing SCUBA diving) is the only one of its kind in the country and one of the few such groups in this part of the world. This team has surveyed the chank and pearl oyster beds off Tuticorin by diving and has been giving a series of annual forecasts as regards the pearl fishery at Tuticorin.

The work of the Institute has drawn attention to the resources of tunas, oceanic squids, cuttle fishes and their possible commercial exploitation. There is increasing demand for these in the export trade.

The Institute's pioneering studies on mariculture have shown the possibility of culturing fishes in low-lying coastal areas. With the milk fish, *Chanos chanos,* production in the range of 450–800 kg/ha/year has been obtained.

Prawn Culture Laboratory at Narakkal

The Institute has set up a prawn culture laboratory at Narakkal where most of the commercially important penacid prawns namely, *Metapenaeus dobsoni* ('Poovalan'), *M. affinis* ('Kazhandan'), *M. monoceros* ('Villan'), *Parapenaeopsis stylifera* ('Karikadi') have spawned in the laboratory and the larvae have been reared for mass culture under controlled conditions. *Penaeus indicus* ('Naran') has also spawned in the laboratory for the first time and the eggs have been successfully reared upto the post-larval stage suitable for stocking in the culture ponds.

Abundant resources of prawn seed for culture have been found in the surf area at Narakkal.

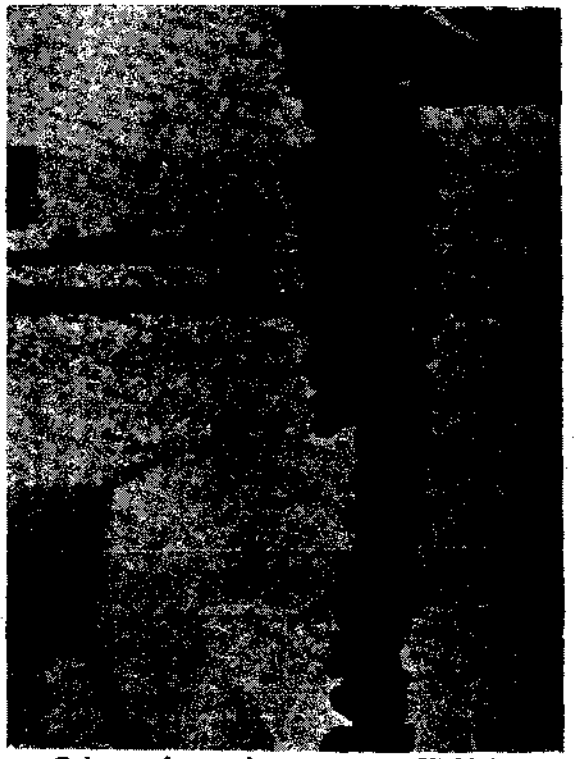
Prawn culture in low-lying estuarine ponds at Cochin without using artificial feeds, has yielded 500–2000 kg/ha.

Similarly, it has been shown that by culturing mussel on ropes an annual production of 60-70 tonnes/ha can be achieved. Abundant resources of young ones of mussels (spats) have been found

off the south-west coast and this could form seed for commercial culture.

Another significant achievement was the successful development of the technology of production of cultured pearls, without foreign collaboration at Tuticorin. Recently good resources of young pearl oysters have been discovered at Vizhinjam near Trivandrum. Experiments show that cultured pearls of good quality can also be produced here.

The Institute has played a pioneering role in establishing and mapping the areas of upwelling along the south-west coast of India; in studying primary production using radio carbon techniques (^{14}C) and assessing theoretically the annual marine fish production from within the continental shelf; in estimating qualitatively and quantitatively the nutrients, phytoplankton and zooplankton; investigating the bioscattering and the Deep Scattering Layers along the south-west coast and the Lakshadweep.



Culture of mussels on ropes at Vizhinjam

Prawn culture ponds at Narakkal

The work of the Institute on the biology and chemistry of sea weeds and the development of methods of extraction of agar and algin from sea weeds has helped the nation in establishing sea weed industries. Both agar agar and sodium alginate which at one time used to be imported are now being produced within the country saving several crores of rupees in foreign exchange. Methods of culturing seaweeds have also been developed by the Institute.

Detailed studies on the fringing reefs of Gulf of Mannar have shown that large scale quarrying of corals for commercial purposes has caused considerable destruction to reefs and associated fauna. The possibility of re-colonisation of these areas by corals for building reefs seems to be remote.

THE FIFTH FIVE-YEAR PLAN PROGRAMMES

1. *Strengthening of the Fishery Data Centre:*

It is proposed to acquire a computor for the Centre so that the Institute can be of greater

service to the Industry and the nation in regard to the dissemination of fishery resources data.

2. *Exploratory surveys:*

Grounds not covered so far will be explored and the resources estimated. Special emphasis will also be given for oceanic pelagic fisheries surveys for tunas, billfishes, squids and non-conventional resources.

3. *Characteristics of the fish stocks:*

The characteristics of the exploited fish stocks will be assessed and monitored continuously and the maximum possible yields from these resources estimated in order to give timely advice to the Government on management policies.

4. *Preparation of fishery atlases:*

These will show the areas of abudance of important fisheries and their seasons and biological characteristics. These atlases will be of great help to the fishing industry.

Rearing of prawn larvae in the laboratory at Narakkal

5. *Development of mariculture techniques:*

The research on the development of methods for culturing fishes, prawns, and molluscs will be intensified for adoption of the processes on a commercial scale. Survey of seed resources as also areas suitable for mariculture will be undertaken.

6. *Fishery Oceanography:*

The research on the environmental conditions as applied to fisheries will be given greater emphasis, in order to elucidate the oceanogrphic factors responsible for changes in the abundance of fishes in different grounds.

7. *Breeding grounds of fishes:*

Intensified study will be undertaken of the breeding grounds of commercially important fishes.

8. *Survey and culture of sea weeds:*

The resources survey of sea weeds will be extended to different sections of the coast in collaboration with the concerned State Departments of Fisheries. The techniques of culturing sea weeds in which some progress has already been made will be worked out in detail by the Institute.

9. *Marine Pollution:*

Pollution of the seas and estuaries by industrial and other wastes and their effect on the living resources will be investigated.

10. *Extension and Training:*

Greater emphasis will be given for the rapid dissemination of the results of the research and developmental activities of the Institute. Suitable training programmes will be organised.

Pilot projects to demonstrate the economic feasibility of pearl culture and of culturing prawns, mussels, and eels are being taken up by the Institute. Operational research projects will be taken up for testing, adapting and demonstrating the new technologies developed by the Institute to the fishermen, rural communities, the industry and financing institutions. These projects will also critically examine socio-economic aspects, creditworthiness and profitability of the new technologies developed by the Institute.

Issued by:

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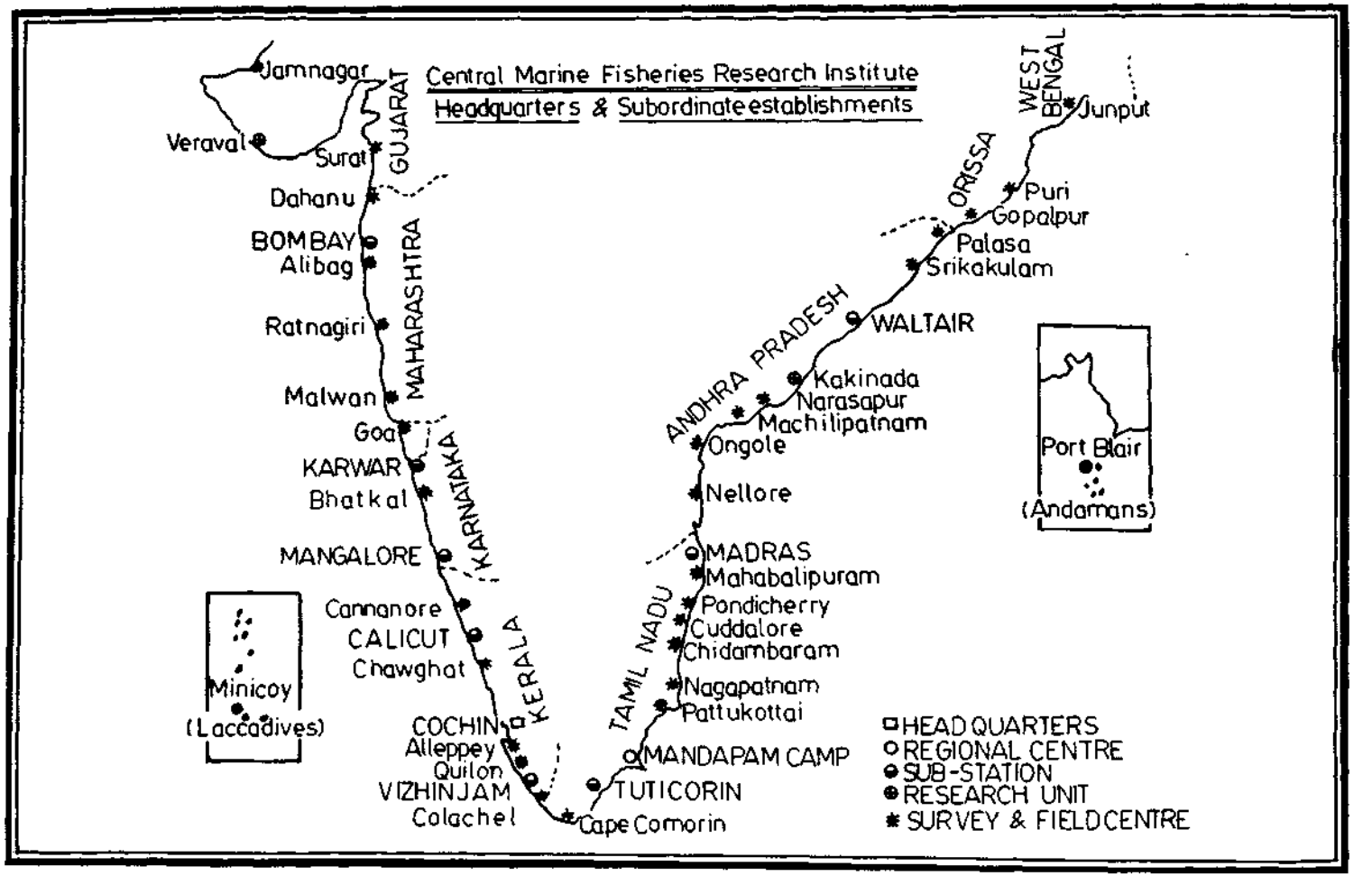
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