

# CMFRI

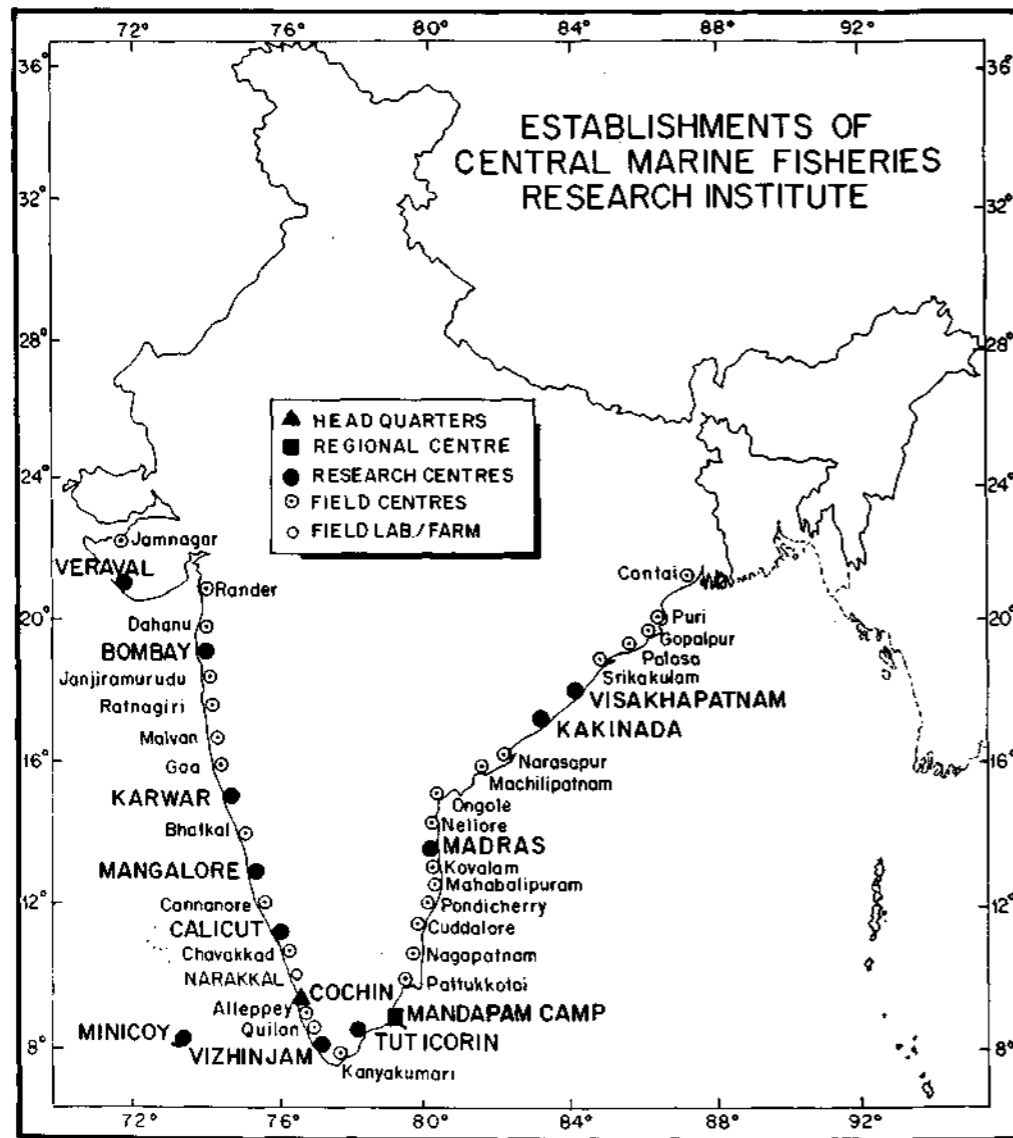


  
CMFRI

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CENTRAL MARINE FISHERIES RESEARCH INSTITUTE



**CENTRAL MARINE FISHERIES RESEARCH INSTITUTE**  
Indian Council of Agricultural Research  
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**ADDRESSES OF REGIONAL, CENTRE AND RESEARCH CENTRES OF CMFRI**

- |   |  |
|---|--|
| 1. Mandapam Regional Centre of CMFRI,<br>Marine Fisheries P.O.,<br>Mandapam Camp 623 520,<br>Tamil Nadu.<br>Phone : 443 & 446                   | 7. Vizhinjam Research Centre of CMFRI,<br>Vizhinjam P.O.,<br>Thiruvananthapuram 695 521,<br>Kerala.<br>Phone : 224                           |
| 2. Veraval Research Centre of CMFRI,<br>Bhidiya Plot,<br>Near BMG Fisheries,<br>Veraval 362 267,<br>Gujarat.<br>Phone : 20065                   | 8. Tuticorin Research Centre of CMFRI,<br>90 North Beach Road,<br>Tuticorin 628 001,<br>Tamil Nadu.<br>Phone : 20274                         |
| 3. Bombay Research Centre of CMFRI,<br>2nd Floor, 148 Army and Navy Building,<br>M.G. Road, Bombay - 400 023,<br>Maharashtra.<br>Phone : 245260 | 9. Madras Research Centre of CMFRI,<br>68/1, 4th Floor, Greams Road,<br>Madras 600 006,<br>Tamil Nadu.<br>Phone : 8254252                    |
| 4. Karwar Research Centre of CMFRI,<br>Post Box No. 5, Karwar,<br>Uttara Kanara,<br>Karnataka.<br>Phone : 6471                                  | 10. Kakinada Research Centre of CMFRI,<br>8-14-18/2 Red Cross Street,<br>Gandhi Nagar, Kakinada 533 004,<br>Andhra Pradesh.<br>Phone : 76231 |
| 5. Mangalore Research Centre of CMFRI,<br>Post Box No. 244, Bolar,<br>Mangalore 575 001,<br>Dakshina Kanara,<br>Karnataka.<br>Phone : 24152     | 11. Visakhapatnam Research Centre of CMFRI,<br>Andhra University P.O.,<br>Visakhapatnam 530 003,<br>Andhra Pradesh.<br>Phone : 55793         |
| 6. Calicut Research Centre of CMFRI,<br>West Hill P.O.,<br>Calicut 673 005,<br>Kerala.<br>Phone : 50377   | 12. Minicoy Research Centre of CMFRI,<br>Minicoy,<br>U.T. of Lakshadweep.<br>Phone: 228  |



*Laboratory and Administrative building of CMFRI at Cochin*

### BACKGROUND

The proposal for establishing different Central Fisheries Research Institutes under the Union Government was first made in 1943. The fish subcommittee of the Policy Committee on Agriculture and Fisheries in its report in 1945 endorsed this proposal. Finally on the basis of the "Memorandum on the proposed Fishery Research Institute" by Lt. Col. Dr. R.B. Seymour Sewell in 1946, the **Central Marine Fisheries Research Institute (CMFRI)** was established in 1947 by the Government of India under the Ministry of Food and Agriculture with Headquarters at Madras which was shifted to Mandapam Camp in 1949 and to Cochin in 1971. In 1967 the Administrative control of the Institute was transferred to the Indian Council of Agricultural Research.

### MANDATE

CMFRI is one of the eight national Institutes/ Centres under ICAR Fisheries Research network. The mandate of the Institute since its establishment underwent changes to meet the requirements of

the changing scenario of the marine fisheries sector. Presently, the mandate of the Institute is to :

- conduct researches on the exploited marine fishery resources aiming at stock assessment, management and conservation,
- assess the under- and unexploited marine fishery resources of the EEZ,
- understand the influence of variations in the environment on the availability/ abundance of fish stocks,
- study of the coastal ecology with reference to pollution and endangered ecosystems,
- develop suitable technologies for sea-farming of finfish, shellfish and other cultivable marine organisms,
- study the techno-economics of fishing and sea-farming operations and related social aspects,
- conduct postgraduate teaching programmes leading to M.Sc. (Mariculture) and Ph.D degrees, and

- transfer technologies developed; to take up extension education and specialised training programmes, and to undertake consultancy services.

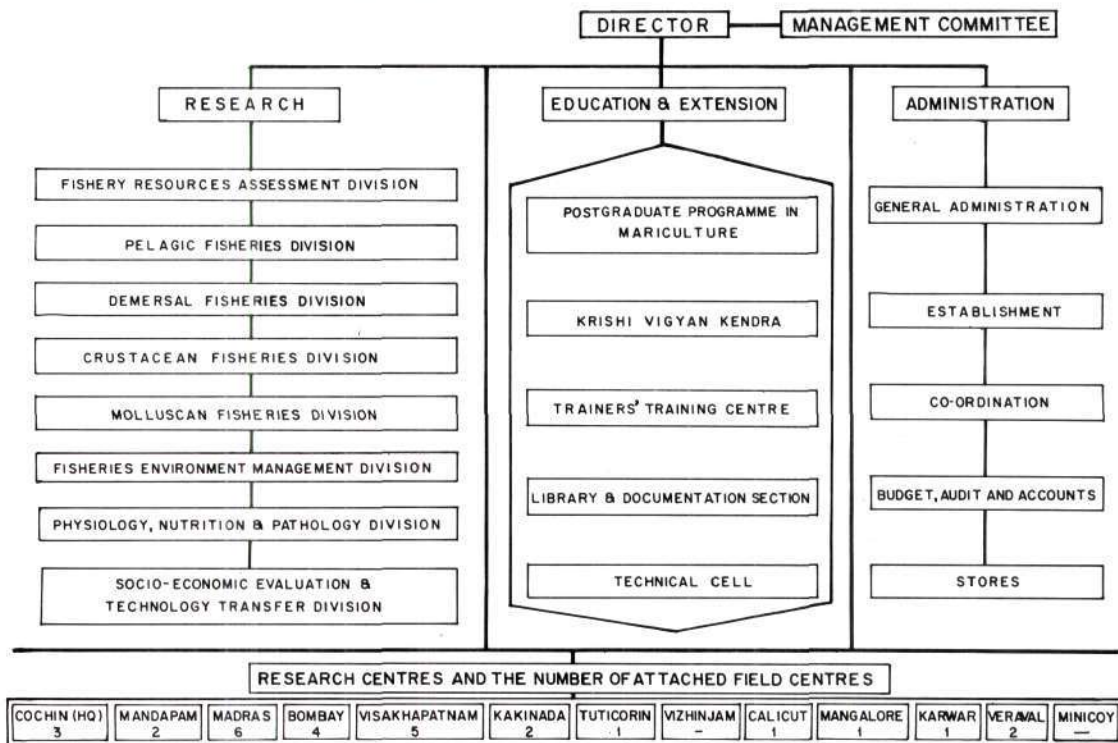
### ORGANISATION

To accomplish the above mandate, the Institute conducts researches on characteristics of exploited stocks; develops seafarming techniques; carries out exploratory surveys and assesses under- and unexploited resources, and

the country's coast-line including Andaman and Lakshadweep Islands. Teaching, training and extension programmes are also undertaken. The Institute thus strives to improve the yield and stability of protein-rich-fish harvest from the seas and to suggest measures that would facilitate maximum use of marine living resources and effective development of related activities.

To be able to effectively carry out these tasks, the Institute has set up a Regional Centre at Mandapam Camp and Research Centres at

### CENTRAL MARINE FISHERIES RESEARCH INSTITUTE: ORGANISATIONAL CHART



undertakes to integrate the fluctuations of marine fish production with the environmental characteristics and sea-dynamics. Besides, the Institute collects fisheries statistics and makes estimates of specieswise landings and monitors the landings on a continual basis from all along

Minicoy, Veraval, Bombay, Karwar, Mangalore, Calicut, Vizhinjam, Tuticorin, Madras, Kakinada and Visakhapatnam and 28 Field Centres (16 along east coast and 12 along west coast). The entire activity is co-ordinated by the Head-quarters at Cochin.

The Administration, Co-ordination, Stores, Audit and Accounts units located at the Headquarters, endeavour in smooth functioning of the Institute. The Regional Centre and Research Centres are also supported by appropriate administrative units.

### Staff

Towards the end of the VII Plan, the sanctioned staff strength is : Scientists 200, Technical 445, Ministerial 172, Supporting 296 and Auxillary 39.



*Regional Centre of CMFRI, Mandapam Camp*

The Technical Cell at Headquarters, looks after the technical matters, processes the research project proposals and technical reports on the activities of the Institute.

### Facilities

The Institute has built up adequate laboratory and office facilities for carrying out the research programmes and has been upgrading the same to meet the changing and additional requirements.



*Marine aquarium at the Regional Centre, Mandapam Camp*

**Accommodation :** The Headquarters, Regional Centre at Mandapam Camp and Research Centres at Calicut, Karwar and Veraval are housed in own laboratory buildings. The construction of Laboratory building of the Research Centre at

Mandapam Camp and the construction of Staff quarters at Cochin is taken up.

**Library :** The Institute has its central library at Cochin with the Research Centres having sectoral libraries catering to their immediate



*Shellfish Hatchery facility at the TRC of CMFRI, Tuticorin*

Visakhapatnam is completed and the building will be occupied soon. The other Research Centres including the Fishing harbour centre at Cochin

needs. The central Library lends books and periodicals to the sectoral libraries at Research Centres whenever demanded.



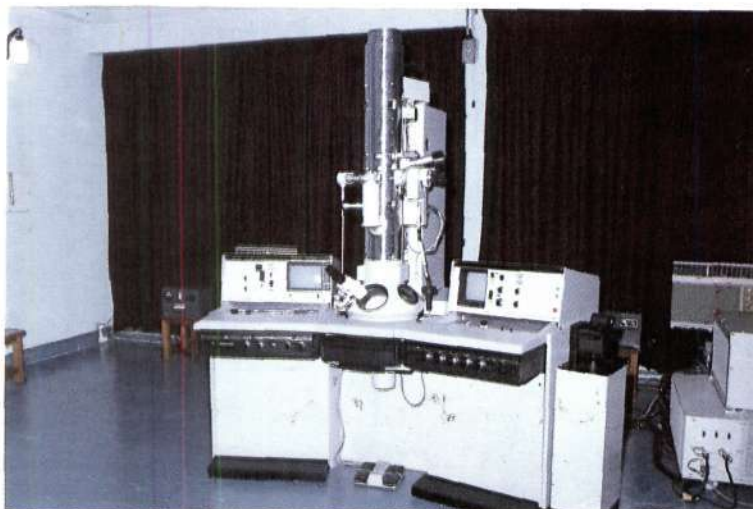
*A section of the library at Headquarters*

are housed in rented buildings. Residential quarters and guest house are available at

The Central library presently has 60,000 volumes of books, periodicals, reports and others.

A total of 78 foreign and 41 Indian periodicals are subscribed besides receiving 190 periodicals on exchange / complimentary basis.

The library at the Regional Centre at Mandapam Camp, possesses some of the rare and old publications on marine sciences and



*Electron Microscopy laboratory at Headquarters*

The library is open to visiting students and research workers from within and outside the country; the books and periodicals are given on

fisheries, besides a large number of periodicals (both Indian and foreign) and text books of use to the staff working there.



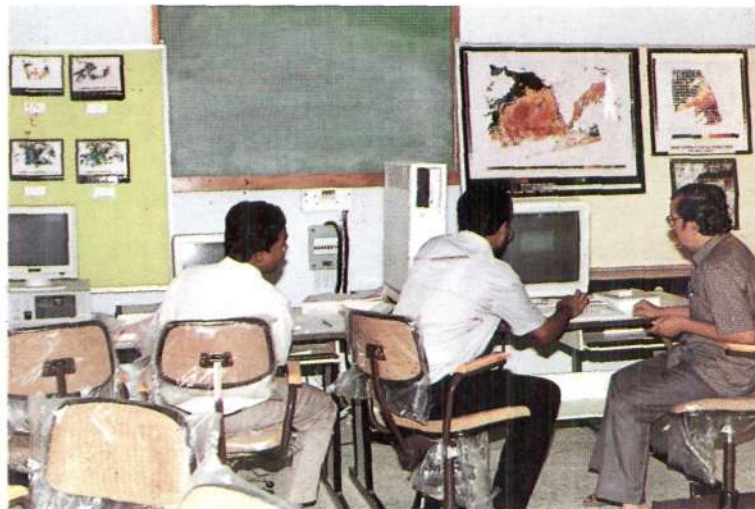
*Computer centre at Headquarters*

loan to interested organisations like universities and research institutes. A publication "Current Awareness Service" is issued at monthly intervals for the benefit of staff of the Institute.

**Laboratory facilities :** The laboratories at Headquarters and Research Centres are adequately equipped with facilities such as compound microscopes, binocular microscopes,

binocular stereozoom microscopes, cameras with close-up lenses, electronic balances, calculators,

Isotope Laboratory are other major facilities at Headquarters.



*MARSIS programme at Headquarters*

refrigerators, deep freezers, ovens, incubators, spectrophotometers, colorimeters, pH meters, autoclaves and several other facilities to carry out researches in the laboratories and to collect

A transmission cum scanning electron microscope has been installed in the Institute at Cochin to tackle certain frontier areas of fisheries research.



*'Cadamin' in the series of research vessels for fishery oceanography and resources studies*

hydrographic data and plankton onboard research vessels.

Atomic absorption spectrophotometer, amino acid analyser and fully equipped Radio

A marine fish farm and prawn hatchery are functioning at Mandapam Camp; a shellfish hatchery is available at Tuticorin.



A running-seawater aquarium is maintained at the Regional Centre for facilitating researches on fish behaviour, controlled breeding and physiological aspects.

**Computer facility :** The National Marine Living Resources Data Centre at the Institute receives fisheries statistics collected from all over the Indian Coast on a continual basis from the Institute's Research and Field Centres. For efficient analysis, storage and retrieval of these data, for providing computing facilities to scientists working

Additionally one PC AT 386 with hard-disc capacity of 300 MB with printer and cartridge tape and 24 PCs & AT 286 with Hard-disc capacity 40 MB with printer (12 PCs for different divisions and sections at Headquarters and 12 nos one each to the Research Centres) are available.

For the Project jointly carried out by the Institute and NRSA, on Marine Remote Sensing Information System, the Department of Ocean Development provided a micro-computer (AVION



*Reference collection Museum at Headquarters*

in large number of research programmes, for cataloguing and documentation in the library and for speeding up the disposal of work in the administrative and accounts sections in the Institute, the undermentioned computer facilities are installed.

- a. Microcomputer UNIPOWER 30 (Processor 68030 with 5 terminals - 3 VT100 terminals and 2 PCs; hard-disc capacity 170 MB and 4 MB RAM, Lineprinter 600 LPM, Magnetic tape, QIC cartridge tape).
- b. Two PC XTs with printers and one plotter.

4000-1000 MB Hard-disc, 6 terminals VT220, windows, ingress RDBMS) and a PC AT 386 with image processing software and 300 MB Hard-disc for analysing the sea surface temperature data of the Satellites, sea-truth data and analysis of data from potential fishing zones.

**Research vessels :** Seven mechanised vessels (*Cadalmin*) of OAL 13.4 m of the Institute are carrying out fishery and oceanographic researches in the inshore areas upto about 50 m depth at Visakhapatnam, Madras, Tuticorin, Mandapam, Vizhinjam and Cochin. The Vessel Management Cell at Headquarters co-ordinates the operation and maintenance of the vessels.

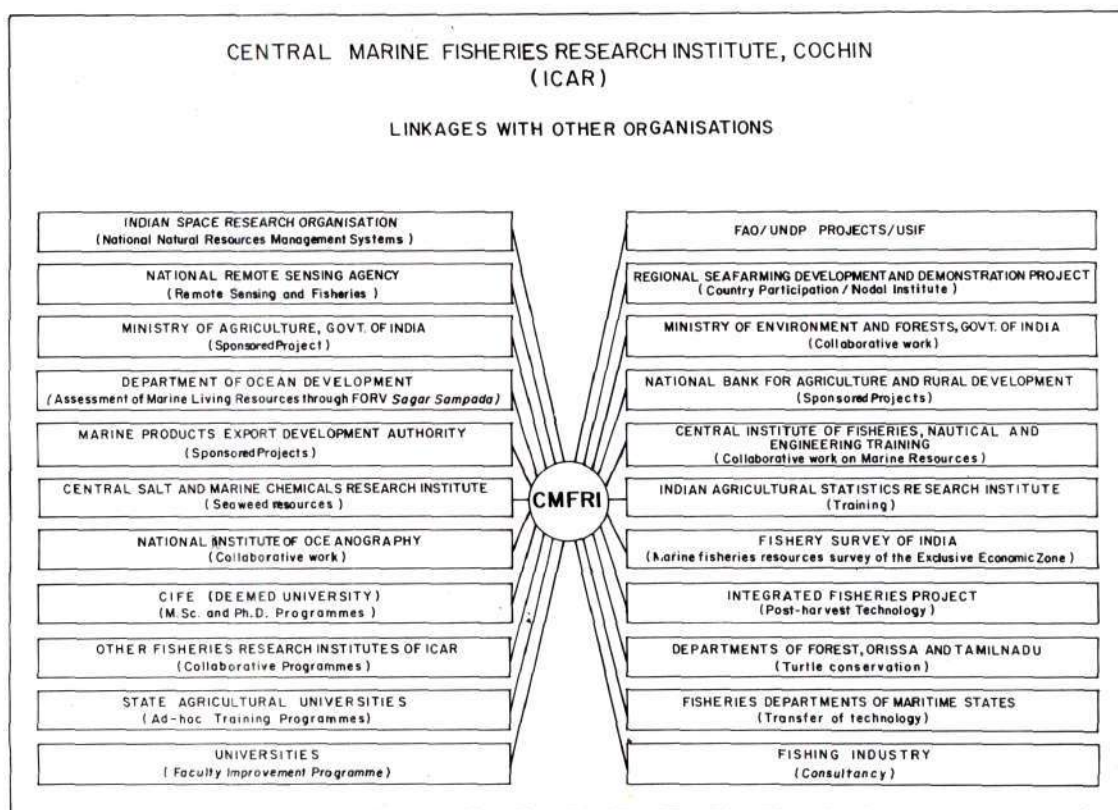
The FORV *Sagar Sampada* (71.5 m) of the Department of Ocean Development is also utilised by the Institute for conducting oceanographic and resources surveys in the EEZ.

**Museum** : At the Headquarters and the Regional Centre, Reference Collection Museums are available. Specimens of sponges, corals, echinoderms, polychaetes, shrimps, lobsters, crabs and fishes belonging to a large number of species from all along the Indian Coast are preserved, and stuffed specimens of large fishes, turtles, marine mammals, and others are also displayed. While they serve the purpose of

**Vehicles** : The Institute is adequately supported for its programmes of field work with 21 jeeps at different research centres and headquarters. For training purposes, a van and for "on the spot analysis" of samples in the field, a bus (Mobile Laboratory) are available. A staff car is also available.

### RESEARCH DIVISIONS AND ACTIVITIES

Multidisciplinary research in capture and culture fisheries are conducted under eight Divisions. Inter-Divisional programmes and Inter-Institutional programmes with collaborating



reference material to scientists of the Institute as well as outsiders, they are also open to the public and students visiting the Institute.

agencies are carried out for greater utilisation of expertise and facilities. The research activities in the eight Divisions are as follow :

**Fisheries Resources Assessment Division :** The Division is responsible for collection of fisheries statistics from all along the Indian Coast through a Stratified Multi-Stage Random Sampling Scheme developed at the Institute and for making estimates of Statewise, specieswise and gearwise landings and fishing effort. These estimates are utilised by the Institute scientists working on different fishes and shellfishes and are also made available to different governmental and non-governmental agencies on request. This Division consisting

in the environment are also studied. The researches lead to understanding the recruitment, growth and mortality of each species and finally to an advice on the maximum sustainable yield of all exploited species. Investigations on Live-bait resources for the pole and line fishery of tunas at Lakshadweep are also carried out.

**Demersal Fisheries Division :** This Division is concerned with research in both capture and culture fisheries. The investigations on capture



An important single species pelagic finfish resource of India - the Indian Mackerel *Rastrelliger kanagurta*

mainly of statisticians, is also involved in development of mathematical models for assessment of exploited stocks.

**Pelagic Fisheries Division :** The researches in this Division are aimed at studying the fishery and biological characteristics of oilsardine, Indian mackerel, Bombay-duck, seerfish, tuna, ribbonfish, whitebait, lesser sardines, trevallies, horse-mackerels, scads and pomfrets. The fluctuations in abundance resulting from changes

in fisheries include monitoring the landings, studying biological characteristics such as maturation, spawning, fecundity, food and growth, estimation of mortality rates, stock sizes and maximum sustainable yield of important demersal resources such as croakers, threadfin-breems, silverbellies, catfishes, lizardfishes, goatfishes, groupers, snappers, pigface-breems, threadfins, flatfishes, sharks, rays and others.

Researches in culture fisheries include breeding and rearing of seabass and culture of groupers.

**Crustacean Fisheries Division :** This Division is responsible for monitoring the landings and biological characteristics of penaeid and non-penaeid prawns, lobsters and crabs. Researches are directed to understand the dynamics of the constituent species, to be able to give advice on rational exploitation.

The activities of the Division also include breeding and culture of lobsters and crabs, and development of hatchery technology and sea-ranching of penaeid prawns. This Division also extends consultancy on setting up hatcheries.

**Molluscan Fisheries Division :** Monitoring the



Pearl oyster *Pinctada fucata* with cultured pearl in situ



Edible oyster *Crassostrea madrasensis*

landings of squids, cuttlefish, gastropods and bivalves and researches on stock characteristics of these resources are among the responsibilities of this Division.

The major thrust in this Division is research in development of hatchery technology, and sea-ranching and culture of oysters, clams and mussels. Maintenance of stocks of pearl oyster, pearl culture using tissue culture techniques, demonstration of edible oyster culture at certain places, and location testing for the same all over the Indian Coast are among the ongoing culture research programmes of this Division.

**Fishery Environment Management Division :** The research programmes include studies on hydrography, plankton production and marine pollution. Using the research vessels, the environmental characteristics in the EEZ are investigated and the relationship between fish

abundance / availability and various oceanographic characteristics studied.

The Division is participating in the programmes of Marine Remote Sensing Information System at Cochin in collaboration with National Remote Sensing Agency of the Department of Space. The sea surface temperature data of the satellites, the sea-truth data and the data on potential fishing zones are analysed for the development and improvement of remote sensing techniques in fisheries.

Location testing and culture of seaweeds, and seed production and sea-ranching of sea-cucumbers are also among the research programmes of the Division.

**Physiology, Nutrition and Pathology Division** To help improve the various technologies

organisms in relation to changing environmental characteristics, farm trials of compounded feeds, identification and control of diseases in culture systems and genetics of commercially important penaeid prawns, fishes and molluscs.

**Socio-Economic Evaluation and Technology Transfer Division** :The economic performance of trawlers, economic efficiency of gillnet units, motorisation of country crafts and its impact on marine fisheries and extension education for rural women are the important research activities of this Division.

### EDUCATION

Under the Postgraduate Programme in Mariculture, the Institute organises M.Sc. and Ph.D. programmes. The teaching programme is



*M.Sc. Mariculture students in the laboratory*

of mariculture, this Division conducts researches on cryopreservation of gametes of cultivable fishes and shellfishes, endocrinological factors influencing maturation of marine prawns, physiological behaviour of some cultivable

carried out by the scientists of the Institute. The course programme covers comprehensively both basic and applied aspects of the subject including a dissertation. So far these programmes were affiliated to the Cochin University of Science and

Technology and recently they were transferred to the Central Institute of Fisheries Education, Bombay - a Deemed University in Fisheries under the Indian Council of Agricultural Research.

#### TRAINING PROGRAMMES

Recognising the crucial role of training in marine fisheries development and transfer of technologies, the CMFRI has been offering need-based training within the purview of the Institute's mandate. The training programmes include subjects such as Fisheries Statistics and Population Dynamics, Hatchery Production of Prawn Seed, SCUBA Diving and Seaweed Culture. The contents of the Training Programmes match with Divisional programmes. An "International Training on Pearl Oyster Farming and Pearl Culture" sponsored by FAO / UNDP Regional Seafarming Development and Demonstration Project, NACA was conducted at the Tuticorin Research Centre during 1991.

#### KRISHI VIGYAN KENDRA (KVK)

The KVK established in 1976, has been functioning under the Institute at Narakkal and imparts training in mariculture, agriculture, animal husbandry and others to fish farmers, agricultural farmers and farm women. The technologies developed at the Institute are utilised for imparting training to fisherfolk and others.

#### TRAINERS' TRAINING CENTRE (TTC)

The TTC under the Institute is engaged in giving training to officials of State Governments, Banks, Societies and autonomous bodies interested in fisheries development.

#### SPONSORED RESEARCH PROGRAMMES

In addition to the ongoing research programmes, the Institute also takes up short term research projects on important and priority areas, sponsored by outside agencies in the country. The projects currently under operation are :

1. Pilot project on edible oyster culture (Partly funded by NABARD).
2. Survey and Assessment of marine ornamental fish resources of Lakshadweep (Funded by Ministry of Agriculture).
3. Genetic studies on marine penaeid prawns (Funded by USIF).
4. Hatchery production and sea-ranching of clams (Funded by Marine Products Export Development Authority).
5. Hatchery production and sea-ranching of sea-cucumbers (Funded by Marine Products Export Development Authority).
6. Studies on the biology and sea-ranching of the sacred chank with special reference to its production in the Marine National Park of the Gulf of Mannar (Funded by Ministry of Environment and Forests).

#### PUBLICATIONS

While the results of researches carried out in the Institute are published as research papers in various science journals in and outside the country, the Institute publishes *Bulletins* and *Special Publications* on major research findings in marine capture and culture fisheries. Bibliographies and monographs are also published on subjects of topical interest. The information generated in the Institute on particular aspects of marine capture and culture fisheries is disseminated through the Institute's publication *Marine Fisheries Information Service* - Technical and Extension Series to help the planners, industry, fish farmers and others concerned with marine fisheries development.

The CMFRI Newsletter serves as a house journal of the Institute, besides highlighting the research findings in a popular language and maintaining a link between the Institute and other organisations.

The progress of research projects implemented during a year, the salient research findings and the activities of the Institute are reported in the *Annual Report* of the Institute and "*Research Highlights*". These publications form valuable immediate reference materials.