

CMFRI

ICAR-Central Marine Fisheries Research Institute

- Sardar Patel Outstanding ICAR Institution Award (2007 and 2019)
- Top-ranked Institute among the Fisheries Research and Animal Science Institutes of ICAR (2019-2021)



An ISO 9001:2015 Certified Institute



CMFRI

The Central Marine Fisheries Research Institute (CMFRI), under the aegis of the Indian Council of Agricultural Research (ICAR), is headquartered at Kochi, Kerala, India. It is one of the leading tropical marine fisheries research institutes in the world, established on 03rd February 1947. The institute has completed 75 years of service to the nation in 2022. Over the past seven decades, ICAR-CMFRI has played a pivotal role in India's marine fisheries development through significant contributions in research, extension and education. With state-of-the-art research infrastructure and other auxiliary amenities, ICAR-CMFRI focuses on marine fisheries resource management, mariculture, marine biotechnology and bioprospecting, marine biodiversity, marine environment and pollution, climate change, socio-economic investigations, and policies. Research efforts in the open sea and coastal mariculture have resulted in technically sound and viable hatchery and farm technologies for marine finfishes, shrimps, edible oysters, mussels, clams, seaweeds, and marine pearls. The institute maintains the National Marine Living Resources Data Centre (NMLRDC) with over nine million catch and effort data records of more than 1200 fished species from all maritime states of India. ICAR-CMFRI is being counted as one of the premier research organizations in the country, and its contribution to marine stewardship is well respected in academic and policy circles and in the fishing community. The institute strives continually towards academic and scientific excellence and is dedicated to the nation's service ever onward.





VISION

- Sustainable marine fisheries through management interventions and enhanced coastal fish production through mariculture for improved coastal livelihood.

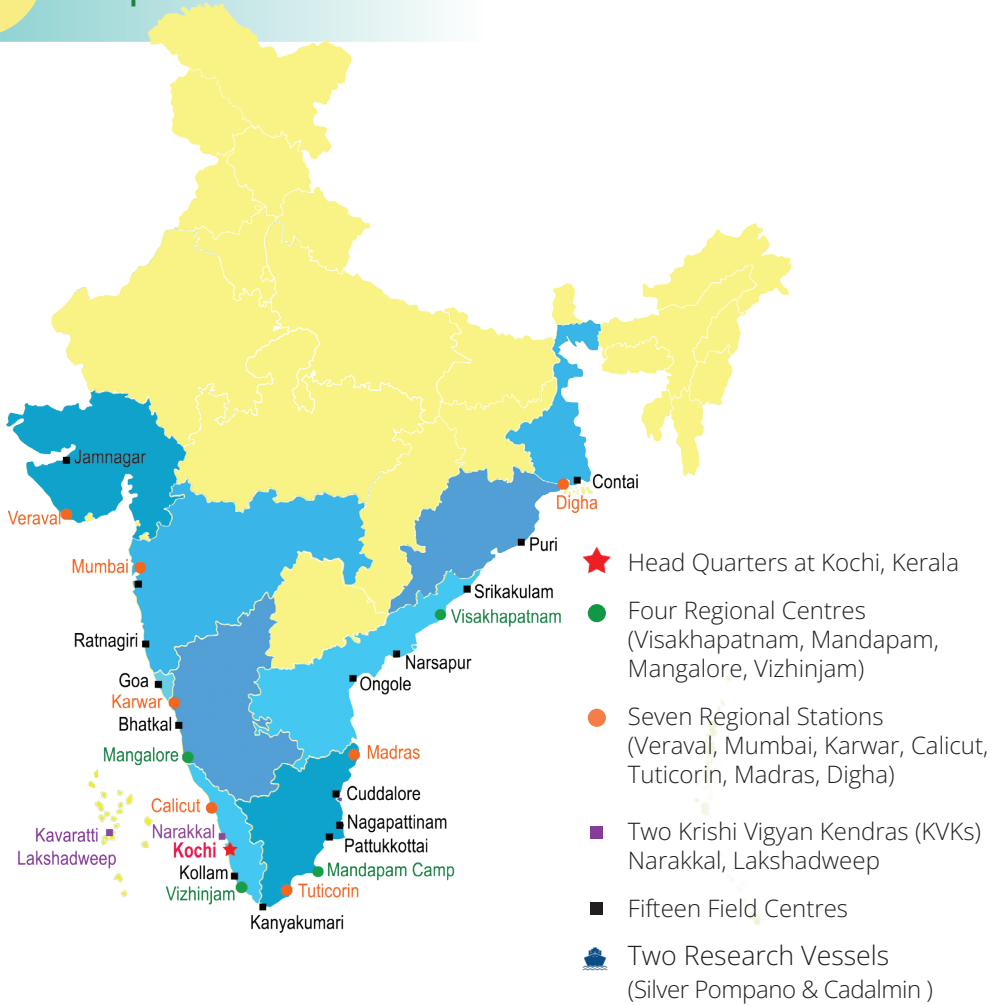
MISSION

- To develop information-based management system for changing over from open access to regulated regime in marine fisheries, augment coastal fish production through mariculture and sea ranching and restore critical marine habitats.

MANDATE

- Monitor and assess the marine fisheries resources of the Exclusive Economic Zone (EEZ) including the impact of climate and anthropogenic activity and develop sustainable marine fishery management plans.
- Basic and strategic research in mariculture to enhance production.
- Act as a repository of geo-spatial information on marine fishery resources and habitats.
- Consultancy services; and human resource development through training, education and extension.

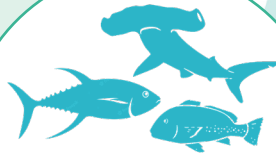
Campuses



Research Divisions



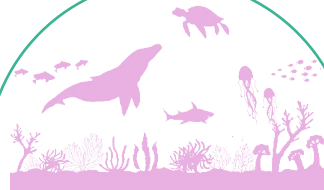
Fishery Resources
Assessment,
Economics and
Extension Division



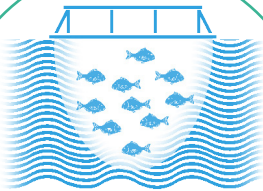
Finfish Fisheries
Division



Shellfish Fisheries
Division



Marine Biodiversity
and Environment
Management
Division



Mariculture
Division



Marine Biotechnology,
Fish Nutrition and
Health Division

Cadre strength



165

Scientific staff



198

Technical staff



121

Administrative staff



190

Multi Tasking staff



Significant Research Contributions

- Sustained contributions to marine fisheries management in the Indian EEZ through research interventions and policy advisories.
- Specific management interventions include State Fisheries Management Plans (FMPs); recommendations for Minimum Legal Size (MLS) for commercially important fishes to curb juvenile fishing; recommendations for seasonal fishing bans; estimation of potential yields; and Guidance on National Plan of Action for sharks.
- Scientific and Technical guidance for the National Fisheries Policy and other similar policy and legislative instruments for State/Central Governments.





- Database on landings of over 1200 marine fish species; species-wise, sector-wise marine fish landings/fishing effort estimation covering all maritime states/UTs, and National Marine Fisheries Census at 5-yearly intervals.
- Regular stock assessment of over 100 marine finfish and shellfish species using advanced analytical models. Of the 135 fish stocks assessed, as part of the latest such exercise, 91.1% were healthy, with 86.7% being sustainable (Marine Fish Stock Status 2022).
- Identification and mapping of new and non-conventional deep sea marine resources by vessel-based surveys, including abundance maps and potential yield estimates of oceanic squid (*Sthenoteuthis oualaniensis*) and ribbonfish (*Trichiurus auriga*).
- Development and popularisation of mariculture technology for augmenting marine fin fish and shellfish production, and technical and logistical assistance for farmer-entrepreneurs on regular basis.
- Promising mariculture technologies include marine and coastal cage farming, seaweed farming, mussel and oyster culture, Integrated Multi-trophic Aquaculture (IMTA), etc.



- Hatchery and seed production technologies for finfishes such as cobia, silver pompano, Indian pompano, snappers, groupers and sea breams; edible and pearl oysters, mussels, clams and marine ornamental fishes (totalling 37 species).
- Development and commercialization of 12 nutraceuticals (11 from seaweeds and 1 from green mussel; 9 commercialized) to treat human lifestyle diseases; 2 disease diagnostic kits for marine animals and 2 ornamental fish feeds.
- Whole genome sequencing of the Indian oil sardine (*Sardinella longiceps*), green mussel (*Perna viridis*) and seaweed (*Gracilaria edulis*). Characterization of whole mitogenome of 17 marine fishes, oyster, clam and lobster; Genetic stock structure identification of marine fin and shellfish species.
- Climate change and biodiversity studies; Species identification and description; Marine pollution research; and development of restoration protocols through artificial reef deployment.



- Greenhouse gas emissions (CO₂ equivalent) in India's marine fisheries 17.7% lower compared to global average as revealed by carbon footprint analysis using lifecycle approach (LCA).
- Socio-economic assessment, impact evaluation and field-level extension of promising technologies.
- Technical and extension support for commercial farming of mussels and oysters in coastal areas with an annual production of over 10,000 tonnes benefitting nearly 6000 women self-help groups.
- Bio-inventorying of marine organisms (fishes, shellfishes, sponges, copepods, and fish parasites). 248 marine species new to science described since 1947.
- Identified and mapped potential sites for sea cage farming (131 sites; 46824 ha) and seaweed farming (317 sites; 23950 ha) using GIS models.
- Sea ranching of *Penaeus semisulcatus* (50 million post larvae- PL20 per year) in Palk Bay & Gulf of Mannar since 2017 leading to 17.51% increase in fishery in the region.
- Developed management strategies for 68 commercially important marine species based on vulnerability assessment in line with the IPCC norms, and mapped species shift.
- Developed marine fish models (*Oryzias dancena* and *O. setna*) for experimental studies.
- Developed Live-bait management plan for pole and line fishery in Lakshadweep with a vision for a sustainable live bait fishery through creating awareness on habitat protection and responsible fishing practices.
- Played a leading role in revalidating the Potential Yield Estimate (PYE) – 5.31mmt/year for the Indian EEZ (2018)
- Estimated the returns on Investment (ROI) of marine fisheries research to be 76.6 (A return of Rs. 76.6 on every rupee invested in research).





Perikanan Kelautan
Pusat Penelitian dan Pengembangan
Perikanan Kelautan
Pusat Penelitian dan Pengembangan
Perikanan Kelautan

Distinctions

- Recipient of Sardar Patel Outstanding ICAR Research Institute Award (twice; in 2007 and 2019).
- Top-ranked Institute among fisheries and animal science institutes in the country.
- More than 10,000 scientific papers published in peer reviewed journals, books, special publications and bulletins.
- Ranked as the topmost institute with respect to number of patents among the ICAR fisheries research institutes. Holds 21 Indian patents (40 under process).
- More than 105 other national accolades at institute and individual levels during 2014-2023 period.
- Mobilised External funding of Rs 120.47 crores through 43 externally funded projects and 14 Consultancy assignments.

Emerging thrust areas of research

- Application of GIS, remote sensing, artificial intelligence (AI) and genetic and genomic tools to aid in sustainable fisheries management.
- Development of suitable models to assess multi-species stocks based on EAFM in tropical context.
- Assessment of deep sea and unconventional resource potential.
- Sustainable mariculture intensification through innovations in production system using species diversification, genetic and omics tools, nanotechnology, automation and AI.
- Bioprospecting of bio-active compounds from marine organisms.
- Development of micro-propagation techniques for seaweeds.
- PUFA-rich microalgae and lab meat production of marine fish for human consumption.
- Genomic selection and selective breeding of prioritized finfish, shellfish and seaweed species, production of triploid oysters.
- Marine Spatial Planning (MSP) for allocating and regulating ocean and coastal areas among competing demands of stakeholders.



Key facilities

- National Brood Bank facility for Silver Pompano and Cobia.
- Dr EG Silas Centre for Excellence in Fish Nutrigenomics & Marine Microbiome.
- Marine Biodiversity Museum (Designated National Repository).
- Central Instrumentation Laboratory, Scanning Electron Microscope (SEM) facility, Fish ageing Laboratory and Genetics and Genomics Laboratory.
- FISH@CMFRI, a superfast computation facility for bioinformatics simulation modeling and data management in marine fisheries.
- Library and Documentation Centre (including online facilities such as eprints@CMFRI (2nd Rank among the Indian Institutional Repositories), DSpace@CMFRI, and electronic journals made accessible through J-Gate, NDLI, ASFA and Indiatatagri).
- Marine Aquarium, Marine Hatcheries, Wet and dry labs, Indigenous Recirculatory Aquaculture System (RAS) and Platinum Jubilee Auditorium.
- Science Technology and Innovation (STI) Hub in fisheries sector.
- CITES recognized research facility for conservation and management of endangered marine species.
- National facility for mass production of marine copepods as larval feed.



Consultancy services

ICAR-CMFRI offers consultancy and contract research services to Public/Private organizations in a wide array of specialized areas. The key areas are Environment Impact Assessment, artificial reef, setting up of aquarium, mariculture, finfish hatchery, pearl culture, biodiversity evaluation, socio-economic evaluations, specimen identification, biotechnology, underwater scuba diving, library, etc. Since the establishment of the Consultancy Project Cell in 1997, the institute has signed 128 consultancy project agreements.

HRD programmes

(Human Resource Development)

Academic Programmes

Post-Doctoral



Post-Doctoral
Fellows

Doctoral



PhD Scholars
(Two streams)

Masters



PG Scholars
(Two streams)

Training Programmes

Need-based training programmes for farmers, researchers, academicians, officials of state fisheries department, administrators and students on various aspects of marine fisheries and mariculture.

Research partnership

ICAR-CMFRI has collaborations with several international research organizations such as FAO, IUCN, IOTC, Plymouth Marine Laboratory, Nansen Environmental and Remote Sensing Centre (NERCI), BoBP IGO, BoBLME, Michigan State University, Rhodes University, and Commonwealth Scientific and Industrial Research Organization (CSIRO), in addition to the fisheries related institutes under ICAR, academic universities, DST, DBT, ISRO and the fisheries departments of coastal states in the country.

Outreach activities

The outreach activities of ICAR-CMFRI are mainly through the Agricultural Technology Information Centre (ATIC) and two KVVs (Krishi Vigyan Kendra) located at Ernakulam and Lakshadweep. The ATIC acts as a single window delivery system for the products, publications and services from CMFRI to the fishers/fish farmers, entrepreneurs and other interested groups. The ATIC also participates in fish farmer melas, exhibitions, awareness programmes, and extension activities at various places. The ATIC coordinates the visitors of marine aquarium, hatchery, library and marine biodiversity museum of the institute which attracts thousands of visitors annually. KVVs functioning under ICAR-CMFRI aim at the overall development of the agriculture and allied sectors through the linkages with the line departments, Agricultural Universities and ICAR Institutes in the country. KVVs also develop location-specific technology modules in agriculture and allied enterprises, through technology assessment, refinement and demonstrations.

In-house publications

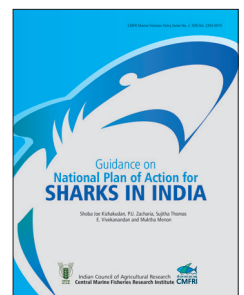
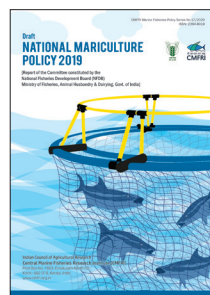
Annual Report



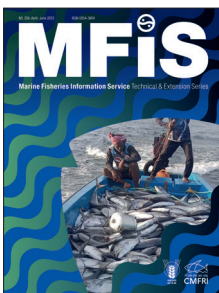
Booklet Series



Policy Series



Marine Fisheries Information Service (Quarterly)



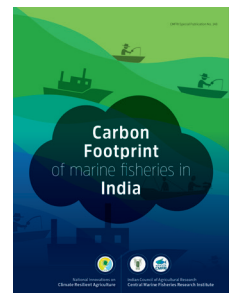
CMFRI Newsletter (Quarterly)



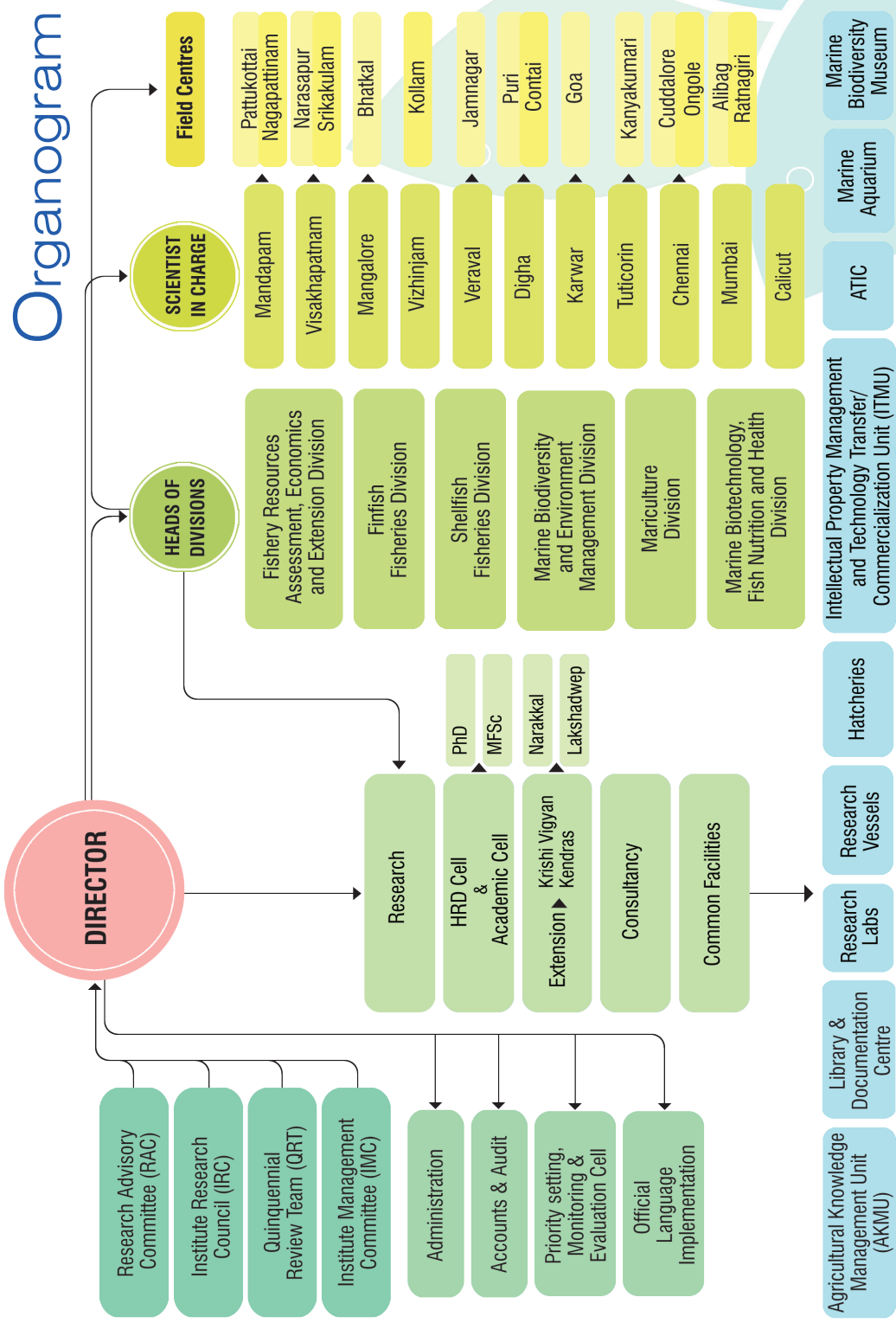
Matsyagandha (Half yearly)



Special Publication Series



Organogram



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