CONSULTANCY SERVICES IN MARINE FISHERIES

CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
(Indian Council of Agricultural Research)
P.O. No. 1682, COCHIN - 682014
INDIA
CONSULTANCY SERVICES
IN
MARINE FISHERIES

A
Profile of technologies
and experts

CENTRAL MARINE FISHERIES
RESEARCH INSTITUTE
(Indian Council of Agricultural Research)
P. B. No. 1603, Tatapuram Post
Cochin - 682 014
INDIA
The ICAR system currently needs very effective partnership between the researchers and the user groups. The Central Marine Fisheries Research Institute, a premier Institute under the ICAR, has taken effective steps to introduce the services and technologies in the marine fisheries sector, achieved over the last 50 years R & D activities. With a view to institutionalising transfer of technologies, the institute has constituted a Consultancy Processing Cell (CPC) in 1997 for effectively serving the needs of our clients, through the short term and long term trainings, consultancies, contract services and contract research.

This Institute has developed many technologies in the areas of marine capture fisheries, seafarming and marine environment management. The Institute’s activities are carried out from its headquarters at Cochin, 12 research centres and 28 field centres located in the maritime states and Lakshadweep Islands. The technologies that have emerged from our laboratories are essentially in such critically and economically important areas as hatcheries (shrimps, crabs, lobsters, pearl oysters, mussels, edible oysters, clams, seacucumbers, squids, cuttlefish, mullets, groupers and clown fish), onshore and seafarms (shrimps, crabs, lobsters, pearls, edible bivalves, seaweeds, food and ornamental fishes), water quality management in
farming, probiotics, artificial fish habitats, fisheries resources assessment, validation of potential fishing zones, sea ranching, integrated coastal zone management and preparation of fisheries exploration and farming project plans. This book presents the details of manpower and expertise available with the Institute and the major areas of consultancy services the Institute can take up for the benefit of our client groups. Some of our important clients are NEERI, BHEL, Cochin Port Trust, SPIC, MRPL, KIOCL, CARE INDIA, HARDY Exploration & Production India etc.

We are grateful to Dr. R. S. Paroda, D G, ICAR and Secretary, DARE, Government of India and to Dr. K. Gopakumar, DDG(Fy), ICAR and Dr. R. A. Selvakumar, ADG (MF), ICAR for the encouragement they have given to build up excellent facilities in the Institute to enhance our overall capabilities.

I compliment the keen interest taken by Dr. K. K. Appukuttan, Chairman CPC, in co-ordinating and managing the consultancy activities carried out from different parts of the country. I am thankful to my colleagues Dr. N. G. Menon, Dr. V. K. Pillai, Dr. P. Laxmilatha, Mr. A. Nandakumar, Mr. K. Balachandran and Mrs. P. T. Mani for compiling and editing this publication. I hope that this publication would help a wide spectrum of our clients.

M. Devaraj,
Director.
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CONSULTANCY SERVICES

OBJECTIVE

In the wake of liberalization and globalization of markets, complexities of technology generation and transfer are increasing which have to be effectively dealt with by the public as well as private sector where agricultural entrepreneurship is developing rather fast. At this juncture, the partnership role between the public and private sector is considered crucial, to be mutually beneficial. Realizing this need, ICAR constituted a Committee to develop a system of partnership, resource generation, training, consultancy, contract research, contract service and incentive and reward so that the knowledge and skill developed are fruitfully utilised.

Recently, Central Marine Fisheries Research Institute, Cochin has constituted a Consultancy Process Cell of the Institute in December 1997 for effectively taking up consultancy work from the clients.
THE CONSULTANCY PROCESSING CELL OF CMFRI

<table>
<thead>
<tr>
<th></th>
<th>Name</th>
<th>Position</th>
<th>Member Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dr. K. K. Appukuttan</td>
<td>Head, MFD</td>
<td>Chairman</td>
</tr>
<tr>
<td>2</td>
<td>Dr. N. Gopalkrishna Pillai</td>
<td>Head, PFD</td>
<td>Member</td>
</tr>
<tr>
<td>3</td>
<td>Dr. V. K. Pillai</td>
<td>Senior Scientist</td>
<td>Member</td>
</tr>
<tr>
<td>4</td>
<td>Dr. N. G. Menon</td>
<td>Senior Scientist</td>
<td>Member</td>
</tr>
<tr>
<td>5</td>
<td>Shri. K. G. Girijavallabhan</td>
<td>Senior Scientist</td>
<td>Member</td>
</tr>
<tr>
<td>6</td>
<td>Dr. A. Laxminarayana</td>
<td>Senior Scientist</td>
<td>Member</td>
</tr>
<tr>
<td>7</td>
<td>Shri. T. S. Velayudhan</td>
<td>Senior Scientist</td>
<td>Member</td>
</tr>
<tr>
<td>8</td>
<td>Shri P. S. Sudersanan</td>
<td>Adm. Officer</td>
<td>Member</td>
</tr>
<tr>
<td>9</td>
<td>Shri. S. Many</td>
<td>Asst. Finance &amp; Accounts Officer</td>
<td>Member</td>
</tr>
<tr>
<td>10</td>
<td>Shri A. Nandakumar</td>
<td>Technical Officer</td>
<td>Member</td>
</tr>
</tbody>
</table>

The functions of CPC

- Give broad guidelines for consultancy work
- Bring out consultancy information systems
- Develop and prepare project proposals in major thrust areas
- Co-ordinate work related to consultancy assignments
- Periodic review of consultancy services
CONSULTANCY AREAS

Marine Environment

- Primary and secondary production data generation and analyses and interpretation
- Physical, chemical data generation
- Pollution monitoring
- Preparation of baseline oceanographic data
- EIA studies
- Assessment of carrying capacity of environment
- Biodiversity
- Bioprospecting
- Water and soil analyses
- Live feed culture
- Environment criteria for farm site selection

Fisheries

- Planning and implementation of sample surveys
- Coastal village/ district wise fisheries production data collection, collation and interpretation.
- Craft/gear infrastructure data generation and analyses
- Species wise marine living resource production data
- Stock estimation and biological information for planning and management
Training on sampling methodology, fish stock assessment related computer software

Generation, analyses and interpretation of socio economic data on craft-gear combination and marketing

Taxonomy of marine organisms with special reference to pharmacological importance, commercially important and ornamental fishes, corals, sponges, molluscs, echinoderms, shrimps and their distribution, abundance and exploitation.

Benthos, benthic biomass and ecology

Pelagic and demersal resources, spatial and seasonal production potential

Stock characteristics, conservation and management

Fishing gear impact assessment on the habitat

Exploited resources and their food web interrelationship

Fishery forecasting/remote sensing, modeling

Marine aquarium planning, construction and management

Artificial reef-site selection, construction and management

Transmission and scanning electron microscopy

Coastal Aquaculture

Farm site selection; estimation and evaluation of carrying capacity of culture system/habitat

EIA of various aquaculture practices
Hatchery technology for prawns, crabs, edible oysters, mussels, clams, pearl oysters, sea cucumber and finfishes

Seed production and transport

Physiology, nutrition, pathology and genetics of cultivable organisms

Feed formulation

Sea ranching and stock enhancement

**Technology packages**

1. Penaeid prawn farming
2. Crabs/Lobster fattening and live transport
3. Edible oyster culture
4. Mussel culture
5. Clam culture/relaying
6. Pearl oyster farming and Pearl production
7. Finfish culture and live transport
8. Sea cucumber culture
9. Seaweed culture

**Training**

* Fisheries resources, conservation and management
* Mariculture practices
* Underwater diving
* Sampling methodology, fish stock assessment related computer software
MARICULTURE TECHNOLOGY PACKAGES

Crustacean Mariculture Technologies

- Eighteen species of shrimps bred in captivity
- Viable hatchery technology for Penaeus indicus, P. monodon, and P. semisulcatus.
- Hatchery technology for potentially important shrimps P. merguiensis, P. latisulcatus, Metapenaeus monoceros and M. dobsoni.
- Induced maturation of P. indicus and P. semisulcatus through environmental and feed management and without resorting to eye stalk ablation.
- Repeated spawning without affecting the quality and quantity of progeny.
- Technology for semi-intensive farming of P. indicus, P. monodon, and P. semisulcatus.
- Farming technology for potentially important shrimps P. merguiensis, P. latisulcatus, P. japonicus, M. dobsoni, and M. monoceros.
- Sea ranching technique - post larvae of P. semisulcatus, 120 million seeds would have to be ranched to obtain an increase of 50 t in the trawl landings.
- Fattening of the spiny lobster Panulirus homarus by endocrine management.
- Mud crab fattening on a commercial scale and their live transport.
- Hatchery technology for Portunus pelagicus, reared through F1, F2, and F3 generation.
Farm site selection, water quality and farm management.

Shrimp/crab larval feed - micro algal culture

Farm feeds - pelleted artificial feeds for each species during different phase of growth; feed management.

Disease monitoring - identification of parasites - preventive measures for parasitic infestation.

Molluscan Mariculture Technologies

Developed and upgraded pearl production technology in the pearl oyster *Pinctada fucata*

Induced spawning for 10 bivalve species achieved

Hatchery technology for mass production of the seed of 2 species of pearl oyster; one species of edible oyster; 2 species of mussel and 5 species of clam have been developed.

Technology developed for seed/spat collection from wild/nature for edible oyster and pearl oyster.

Technologies for edible oyster (*Crassostrea madrasensis*) culture have been developed. The rack & tray method can yields 130 t/ha/year; the ren method 80 t/ha/year and the stake method 20 t/ha/year.

Technology for, both, open sea mussel farming and culture in the estuarine waters has been developed for 2 species of mussels (*Perna indica, P. viridis*). Production of 12-14 kg/meter of rope/6 months has been established.
- Developed package of practice for clam culture
- Sea ranching of clams in natural waters for stock enhancement/conservation has been developed and standardized.
- Established the optimum levels of abiotic environment (e.g. salinity and temperature) requirements for several bivalves.
- Predation, boring and parasitic infestation in the farmed bivalves have been studied and preventive regimes established.
- Tissue-specific genetic variations in edible oyster (Crassostrea madrasensis) has been traced and genetically similar stocks have been identified.

**Finfish Mariculture Technologies**

- Selection of sites for finfish farming; environment monitoring and farm management.
- Technologies for live transportation of seeds of groupers, seabass, eels, mullets and marine ornamental fishes.
- Technology for fattening / farming of groupers, seabass, mullets in different systems.
- Brood stock development and management.
- Induced spawning of groupers

**Mariculture Technology for Other Marine Biota**

- Farming technology for agar and algin yielding seaweeds in coastal lagoons and bays.
- Production of seaweed through vegetative and spore culture methods.
Seaweed post harvest technology for commercial application.

Technology for the mass culture of eleven species of micro algae including diatoms and phytollagellates

Technology for the mass culture of zooplankters such as rotifers, cladocerans and brine shrimp.

The technology for breeding and induced spawning of the sea cucumber Holothuria scabra.

Rearing and fattening of seacucumbers under captive conditions for commercial market.
**INFRASTRUCTURE FACILITIES**

<table>
<thead>
<tr>
<th>EQUIPMENTS/centres</th>
<th>FACILITIES</th>
<th>CENTRES</th>
<th>CONSULTANCY AREAS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Coastal/marine environment</strong></td>
<td><strong>(Hydrology/oceanography/pollution)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) Atomic Absorption</td>
<td>Headquarters, Cochin</td>
<td>Hydrology, oceanography data analyses; pollution, EIA, environmental monitoring; microbiological analyses etc.</td>
<td></td>
</tr>
<tr>
<td>Spectrophotometer (AAS)</td>
<td></td>
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<tr>
<td>ii) Flame photometer</td>
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<tr>
<td>iii) Colorimeters</td>
<td>HQ, Cochin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iv) Spectrophotometer</td>
<td>Mangalore R C</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Calicut R C</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Mandapam R C</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Madras R C</td>
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<td></td>
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<tr>
<td>v) pH, D. O, salinometer, laboratory facilities for plankton/benthic/DSL and micro-biological investigations</td>
<td>All centres</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vi) SCUBA diving equipment/Underwater photography</td>
<td>Tuticorin RC</td>
<td>Underwater resource survey/observation/photography</td>
<td></td>
</tr>
<tr>
<td>EQUIPMENTS/ FACILITIES</td>
<td>CENTRES</td>
<td>CONSULTANCY AREAS</td>
<td></td>
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<tr>
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</tr>
<tr>
<td><strong>2. Capture fisheries</strong></td>
<td>All centres</td>
<td>Capture fisheries - production, stock assessment, conservation &amp; management measures, policy &amp; planning strategies</td>
<td></td>
</tr>
<tr>
<td>i) Facilities for capture fisheries investigations viz; biology &amp; analysis of data for stock assessment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii) Computer centre - UNIPOWER, 16 units, Pentium - 10 units, V-SAT, Internet, LAN facilities, all relevant software</td>
<td>HQ, Cochin</td>
<td>Collection, collation, analyses and dissemination of Marine fishery resources data through stratified random sampling technique</td>
<td></td>
</tr>
<tr>
<td>iii) National Marine Living Resources Data Centre (NMLRDC)</td>
<td>HQ, Cochin</td>
<td>Collection, collation, analyses and dissemination of Marine Living Resources data</td>
<td></td>
</tr>
<tr>
<td>iv) Marine Data Centre (MDC)</td>
<td>HQ, Cochin</td>
<td>Collection, collation, analyses and dissemination of meteorological, oceanographic and fishery data for application of remote sensing to marine fisheries</td>
<td></td>
</tr>
<tr>
<td>v) Remote sensing facilities and PFZ validation</td>
<td>HQ, Cochin</td>
<td>Collection, collation, dissemination of remote sensed data to fishers &amp; other beneficiary societies</td>
<td></td>
</tr>
<tr>
<td>vi) Fish Aggregating Devices (FADs)</td>
<td>Vizhinjam R C</td>
<td>Scientific designing, fabrication, installation, maintenance &amp; monitoring of Artificial reefs/ FADs</td>
<td></td>
</tr>
</tbody>
</table>
### 3. Basic/Applied research related to marine fisheries

<table>
<thead>
<tr>
<th>Equipment/Facility Description</th>
<th>Centre</th>
<th>Consultancy Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Electron microscope (STEM)</td>
<td>HQ, Cochin</td>
<td>Electron microscopy, Photography</td>
</tr>
<tr>
<td>ii) Equipments for conventional wet analyses of animal feeds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iii) Refrigerated super speed centrifuge</td>
<td></td>
<td>Nutrition, Physiology, Genetics, Pathological investigations and biodiversity/biotechniques</td>
</tr>
<tr>
<td>iv) Horizontal slab electrophoretic unit</td>
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<td></td>
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<tr>
<td>v) Chromatography unit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vi) Olympus light microscope with microphotographic attachments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vii) Seaweed repository</td>
<td>HQ, Cochin</td>
<td>Collection/maintenance of commercially important seaweed species invitro</td>
</tr>
<tr>
<td>viii) Tissue culture laboratory - seaweed</td>
<td>HQ, Cochin</td>
<td>Tissue culture for varietal improvement through somatic hybridization</td>
</tr>
<tr>
<td>- pearl oyster</td>
<td>Tuticorin RC</td>
<td>Pearl quality enhancement through hybridization at the cell/tissue level</td>
</tr>
<tr>
<td>ix) Facilities for marine resource survey, exploration, taxonomy</td>
<td>HQ, all centres</td>
<td>Survey exploration in neritic and oceanic realm; bioprospecting for organisms of biomedical, toxicological importance.</td>
</tr>
</tbody>
</table>
### EQUIPMENTS/FACILITIES

#### 4. Culture Fisheries

<table>
<thead>
<tr>
<th>Farms</th>
<th>CENTRES</th>
<th>CONSULTANCY AREAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Marine fish farms</td>
<td>Mandapam R C</td>
<td>Finfish farming demonstrations and action research, brood stock maintenance, induced maturation/spawning</td>
</tr>
<tr>
<td></td>
<td>Tuticorin R C</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Calicut R C</td>
<td></td>
</tr>
<tr>
<td>ii) Shrimp farm</td>
<td>K V K Campus, Narakkal</td>
<td>Training in shrimp farming</td>
</tr>
<tr>
<td>iii) Shellfish (Bivalve) farms</td>
<td>HQ, Dalawapuram, Quilon</td>
<td>Edible oyster culture demonstration and seed production centre</td>
</tr>
<tr>
<td></td>
<td>Calicut R C, Dharmadam, Mangalore R C, Mulky</td>
<td>Mussel farming in estuaries</td>
</tr>
<tr>
<td></td>
<td>Tuticorin R C</td>
<td></td>
</tr>
<tr>
<td>iv) Seaweed farm</td>
<td>Mandapam R C</td>
<td>Pearl culture farm, edible oyster farm and seed production centre.</td>
</tr>
<tr>
<td>Agar extraction unit</td>
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</tbody>
</table>

Seaweed culture and agar extraction demonstrations & trainings
<table>
<thead>
<tr>
<th>EQUIPMENT/FACILITIES</th>
<th>CENTRES</th>
<th>CONSULTANCY AREAS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hatchery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) Onshore hatchery cum culture facility</td>
<td>HQ, Cochin</td>
<td>Seed production &amp; farming of finfish, bivalve &amp; crustaceans</td>
</tr>
<tr>
<td></td>
<td>Fisheries Harbour Laboratory, Cochin Vizhakapatnam R C</td>
<td>Bivalve seed production</td>
</tr>
<tr>
<td>ii) Shellfish (Bivalve) hatchery</td>
<td>Madras R C Calicut Tuticorin Vizhinjam R C Mandapam R C</td>
<td>Bivalve seed production</td>
</tr>
<tr>
<td>iii) Shrimp hatchery</td>
<td>Mandapam R C</td>
<td>Seed production of commercially important shrimps sea ranching</td>
</tr>
</tbody>
</table>

| **Aquarium/Museum** |         |                   |
| i) Marine aquarium   | Vizhinjam R C Mandapam R C | Scientific designing, installation & maintenance of marine aquaria and maintenance of marine ornamental fishes/fauna |
| ii) Marine biodiversity museum | HQ, Cochin Mandapam R C | Identification and study of diverse marine fauna and flora including marine mammals and turtles |
### 6. Research Vessels

<table>
<thead>
<tr>
<th>Equipment</th>
<th>HQ, Cochin</th>
<th>CONSULTANCY AREAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Cadalmin (13.26 m OAL) with onboard equipments for fishery/oceanography research</td>
<td>Madras R C, Mandapam R C, Tuticorin R C, Vizhinjam R C</td>
<td>Collection of hydrographic, oceanographic, plankton/benthic data; experimental trawling, tagging studies; wild seed collection</td>
</tr>
<tr>
<td>ii) Cadalmin (7.5 m OAL)</td>
<td>Mangalore RC, Karwar R C</td>
<td>Collection of hydrographic, oceanographic, plankton/benthic data; experimental trawling.</td>
</tr>
</tbody>
</table>

### 7. Library

<table>
<thead>
<tr>
<th>Library</th>
<th>HQ, Cochin</th>
<th>CONSULTANCY AREAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Library</td>
<td></td>
<td>The central library has over 65,000 volumes of books, periodicals and reports. A total of 82 foreign and 40 Indian periodicals are subscribed, besides receiving 190 periodicals. Microfiche reprography, L &amp; D related software and photocopying facilities.</td>
</tr>
<tr>
<td>Regional Library</td>
<td>Mandapam R C</td>
<td>Possesses some of the rare and old publications on marine sciences and fisheries, besides a large number of periodicals (both Indian (20) and foreign (15)) and text books (About 70,000 books)</td>
</tr>
<tr>
<td>All other RCs</td>
<td></td>
<td>Major Indian journals, periodicals and books</td>
</tr>
</tbody>
</table>
8. Training

Krishi Vigyan Kendra (KVK) HQ, Narakkal
Trainer's Training Centre (TTC) HQ, Cochin

Trainings for farmers/entrepreneurs/trainers/officials of State and Central government departments in shrimp farming, crab/lobster fattening, bivalve, seaweed, finfish, live feed & ornamental fish culture, SCUBA diving, marine living resources survey, bioacoustics, marine fish stock assessment, computer applications in marine fisheries etc.

9. Human Resource Development

M. F. Sc. (Mariculture) HQ, Cochin (Under CIFE) Post Graduate education and research development
Ph. D. (Mariculture) Deemed Fisheries University) programmes
Name : E. M. ABDUSSAMAD

Date of birth : 15-01-1964

Present position : Scientist

Educational qualification : M. F. Sc.

Field of specialisation : Fish & Fishery Science

Total service in ICAR : 5 years

Brief Professional career

Scientist : 5 years

Experience : Fishery biology; stock assessment; resources surveys; bivalve seed production and culture; onshore - pearl culture consultancy

No. of research papers/books published : 3

Special Training undergone
(inside the country/abroad) : Acoustic Methods for Fish Detection and Abundance Estimation

Entrepreneurship Development Course in Marine Pearl Culture.

Areas where consultancy services can be offered :
Fishery biology, stock assessment, resources surveys; pearl oyster and other bivalve seed production and culture.
Name: P. M. ABOOBAKER
Date of birth: 30-07-1949
Present position: Technical Officer (T-5)
Educational Qualification: M.Sc.
Field of specialization: Fish & Fishery Science
Total service in ICAR: 28 years
Brief professional career:
  Technical Officer: 11 years


No. of research papers/books published: 7

Special training undergone (inside the country/abroad):
  Larval rearing of penaeid prawns, live feed culture

Areas where consultancy services can be offered:
  Water quality management, Prawn hatchery and live feed culture; Site selectionon
Name : K. K. APPUKUTTAN
Date of birth : 20-04-1944
Present position : Head, Molluscan Fisheries Division
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 30 years
Brief Professional career
  Head, M. F. D : 2 years
  Sr. Scientist : 14 years
  Scientist : 7 years
Experience : Taxonomy, biology, fishery of molluscs, sharks; management and conservation; hatchery & farming of bivalve molluscs
No. of research papers/books published : 56
Special Training undergone Nil (inside the country/abroad)
Areas where consultancy services can be offered:
  Taxonomy, biology, fishery of molluscs, sharks, management and conservation of molluscs; planning, organising and establishing molluscan hatcheries; aquaculture site selection; molluscan farming systems management.
<table>
<thead>
<tr>
<th>Name</th>
<th>ARPITA SHARMA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>10-09-1970</td>
</tr>
<tr>
<td>Present position</td>
<td>Scientist</td>
</tr>
<tr>
<td>Educational Qualification</td>
<td>M.Sc. (Home science)</td>
</tr>
<tr>
<td>Field of specialization</td>
<td>Extension</td>
</tr>
<tr>
<td>Total service in ICAR</td>
<td>2 years</td>
</tr>
<tr>
<td>Brief professional career</td>
<td>Scientist 2 years</td>
</tr>
</tbody>
</table>

**Experience**: Socioeconomic studies, transfer of technology, home management, ergonomics, community development, women studies, occupational health hazards and related aspects.

**No. of research papers/books published**: 

**Special training undergone (inside the country/abroad)**: Ergonomics at Industrial Design Centre, IIT, Powai, Mumbai for 1 month 1993; Agricultural Research management training including FET, at NAARM, Hyderabad.

**Areas where consultancy services can be offered**: Socio economic studies, transfer of technology, home management, ergonomics, community development, occupational health and related aspects.
<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>S. ASHALETHA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date of birth</strong></td>
<td>31-05-1968</td>
</tr>
<tr>
<td><strong>Present position</strong></td>
<td>Scientist</td>
</tr>
<tr>
<td><strong>Educational Qualification</strong></td>
<td>M.Sc.</td>
</tr>
<tr>
<td><strong>Field of specialization</strong></td>
<td>Agricultural Extension</td>
</tr>
<tr>
<td><strong>Total service in ICAR</strong></td>
<td>1 year</td>
</tr>
</tbody>
</table>

**Brief professional career**

Scientist : 1 year

**Experience**

Teaching extension, research on sociological aspects, training, programme planning, evaluation and implementation

**No. of research papers/books published** : 3

**Special training undergone** : Nil (inside the country/abroad)

**Areas where consultancy services can be offered**

Programme planning, evaluation and implementation; training; organising seminar, melas; evaluation of social aspects of technology transfer.
<table>
<thead>
<tr>
<th>Name</th>
<th>K. ASOKAKUMARAN UNNITHAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>11-06-1949</td>
</tr>
<tr>
<td>Present position</td>
<td>Technical Officer (T-9)</td>
</tr>
<tr>
<td>Educational Qualification</td>
<td>Ph.D.</td>
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<td>Field of specialization</td>
<td>Fish &amp; Fishery Science</td>
</tr>
<tr>
<td>Total service in ICAR</td>
<td>27 years</td>
</tr>
<tr>
<td>Brief professional career</td>
<td>20 years</td>
</tr>
</tbody>
</table>

**Experience**: Biology of edible oyster, cuttle fish; resource studies of chanks, farming of edible oyster, shrimp trainings and extension activities in different aspects of marine fisheries; faculty member of PG programme in Mariculture.

**No. of research papers/books published**: 37

**Special training undergone** *(inside the country/abroad)*: Krishi Vigyan Kendra teacher's orientation course organized by the Trainer's Training Centre of National Dairy Research Institute, Karnal, Haryana during 6th April -7th May, 1979.

Trainers Training course jointly sponsored by ICAR and USAID during 2nd to 12th March 1992 at Coimbatore.

Trainer's Training course organized by the National Academy for Agricultural Research and Management (NAARM) Hyderabad, during 6th-17th December, 1994.

**Areas where consultancy services can be offered**: Shrimp farming; management of mariculture training at farmer as well as trainer level.
**Name** : K. BALAN  
**Date of birth** : 15-04-1944  
**Present position** : Sr. Scientist  
**Educational Qualification** : M.Sc., P.S.C., LL.B  
**Field of specialization** : Agricultural Statistics  
**Total service in ICAR** : 31 years  
**Brief professional career** :  
<table>
<thead>
<tr>
<th>Position</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sr. Scientist</td>
<td>14 years</td>
</tr>
<tr>
<td>Scientist</td>
<td>7 years</td>
</tr>
</tbody>
</table>

**Experience** : Marine fishery resource sampling strategies, data analyses, estimation of fish landing, stock assessment, database management and dissemination; teaching at post graduate level.

**No. of research papers/books published** : 17

**Special training undergone** : FAO/DANIDA Training in Bio-Economic Modelling, at FSI, Visakhapatnam

**Areas where consultancy services can be offered** : Fisheries statistics; fishery resources management.
Name: V. CHANDRIKA

Date of birth: 22-11-1946

Present position: Sr. Scientist

Educational qualification: Ph. D.

Field of specialisation: Fish & Fishery Science

Total service in ICAR: 26 years

Brief Professional career
- Sr. Scientist: 14 years
- Scientist: 9 years
- IOBC, Research fellow NIO, Goa: 2 years

Experience: Inshore and estuarine marine microbiology; mud bank flora; impact of man-made changes in the environment, especially multiple drug resistance in marine bacteria; environmental microbial monitoring of faecal pollution; aquaculture systems.

No. of research papers/books published: 20

Special Training undergone: Nil (inside the country/abroad)

Areas where consultancy services can be offered:
- Qualitative and quantitative marine microbiological examination; sanitary index of bacteria (the coliforms, faecal coliforms and Escherichia coli); isolation and identification of enterovirulent E. coli (EEC); detection of Vibrio etc.
<table>
<thead>
<tr>
<th>Name</th>
<th>A. CHELLAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>04-07-1943</td>
</tr>
<tr>
<td>Present position</td>
<td>Sr. Scientist</td>
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<td>Educational qualification</td>
<td>Ph. D.</td>
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<td>Field of specialisation</td>
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<td>Total service in ICAR</td>
<td>32 years</td>
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<tr>
<td>Brief Professional career</td>
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<tr>
<td>Sr. Scientist</td>
<td>16 years</td>
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<tr>
<td>Scientist</td>
<td>6 years</td>
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<tr>
<td>Experience</td>
<td>Pearl oyster resources, farming, pearl production, hatchery, on shore pearl farming, trainings in pearl oyster hatchery/farming, diving.</td>
</tr>
<tr>
<td>No. of research papers/books published</td>
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<td>Special Training undergone</td>
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<tr>
<td>(inside the country/abroad)</td>
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</tr>
<tr>
<td>Areas where consultancy services can be offered</td>
<td>Pearl culture, diving training.</td>
</tr>
</tbody>
</table>
G. S. DANIEL SELVARAJ

Name: G. S. DANIEL SELVARAJ
Date of birth: 24-07-1943
Present position: Sr. Scientist
Educational qualification: M. Sc.
Field of specialisation: Fish & Fishery Science
Total service in ICAR: 31 years

Brief Professional career
Sr. Scientist: 12 years
Scientist: 11 years

Experience: Inshore and estuarine ecology; E.I.A. Studies of aquaculture farms and backwater systems; mangrove ecosystem analysis; water quality aspects of intertidal zone.

No. of research papers/books published: 36

Special Training undergone
(inside the country/abroad): ARS management course (one month in 1983 at NAARM, Hyderabad)
UNESCO Sponsored Training Programme on 'Mangrove Ecosystem' (one month in 1984 at N. I. O., Goa)

Areas where consultancy services can be offered:
Water quality issues of intertidal/coastal zone; hydrographic aspects of mangrove ecosystems; Environmental Impact Assessment (EIA) studies of aquaculture farms and backwaters.
<table>
<thead>
<tr>
<th>Name</th>
<th>M. DEVARAJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>04-03-1939</td>
</tr>
<tr>
<td>Present position</td>
<td>Director</td>
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<td>Educational Qualification</td>
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<td>Total service in ICAR</td>
<td>28 years</td>
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</tbody>
</table>

**Brief professional career**

- Director (CMFRI): 4 years
- Jt. Director: 2 years
- Dean, fisheries college: 4 years
- Professor (CIFE): 11 years
- Scientist: 7 years

**Experience**: Thirty-seven years of experience in marine fisheries, stock assessment, biology and management. As a member in various government committees, proposed strategies for R & D.
programmes in marine fisheries and coastal zone management. Developed institutional infrastructure facilities for mariculture programmes and upgradation of several coastal aquaculture technologies. A new thrust has been given to sustainable fish production by integrating coastal aquaculture in the capture fisheries. This package is being transferred to end users through farmer's meet and other societal programmes. Project formulation, management, evaluation, EIA investigation; advise to state governments and other user groups on matters of marine resource conservation, management and mariculture strategies; Faculty member of CIFE and CMFRI.

**No. of research papers/books published**: 80

**Special training undergone** *(inside the country/abroad)*: Post-graduation from London School of Economics

**Areas where consultancy services can be offered**: Fisheries resources management; mariculture development, upgradation and management; Coastal Zone Management Plan for maritime states; EIA for marine related programmes; education consultant for fisheries universities.
<table>
<thead>
<tr>
<th>Name</th>
<th>S. DHARMARAJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>08-01-1944</td>
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<tr>
<td>Present position</td>
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<td>Field of specialisation</td>
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<td>Total service in ICAR</td>
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**Brief Professional career**

<table>
<thead>
<tr>
<th>Position</th>
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<tbody>
<tr>
<td>Sr. Scientist</td>
<td>14 years</td>
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<tr>
<td>Scientist</td>
<td>6 years</td>
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</tbody>
</table>

**Experience**: Pearl oyster hatchery, farming and pearl production, tissue culture trainings.

**No. of research papers/books published**: 45

**Special Training undergone**

(inside the country/abroad):  SCUBA diving 1982, in Tuticorin
Tissue culture under Dr. A Kira Machii, at Tuticorin
Marine invertebrate tissue culture at Nanchei-cho, Japan, 1985.

**Areas where consultancy services can be offered**:
Pearl oyster hatchery, farming and pearl production, tissue culture.
Name : D.C.V. EASTERSON
Date of birth : 09-04-1944
Present position : Senior Scientist
Educational Qualification : M.Sc.
Field of specialization : Fish & Fishery Science
Total service in ICAR : 31 years

Brief professional career :
- Sr. Scientist : 16 years
- Scientist : 7 years

Experience : Shrimp nutrition and energy budget; use of non-conventional and MCP diets for fish, pearl and edible oysters; live feeds in shrimp; nutritional pathology of shrimps; histopathological response to copper and zinc toxicity in edible oyster; potential maricultural sites and topographical survey; plan and layout for a marine Hatchery cum research laboratory; faculty member of PGPM

No. of research papers/books published :

Special training undergone (inside the country/abroad) : Bodega Marine Laboratory, University of California, Bodega for three months under FAO exchange programme in Nutritional Bioenergetics.

Areas where consultancy services can be offered :
Shell fish and fin fish nutrition, pathology, hatchery planning, pollution.
Name: M. FEROZ KHAN
Date of birth: 31.07.1961
Present position: Scientist (SS)
Educational qualification: M. Sc.
Field of specialisation: Fish & Fishery Science
Total service in ICAR: 12 years
Brief Professional career
Scientist (Sr. Scale): 4 years
Scientist: 8 years

Experience: Seafood processing, quality control and bacteriological analysis; fishery biology, population dynamics and management of demersal finfish resources; on board research experience in fishing survey, operation of acoustics instruments and studies of Deep Scattering Layer and deep sea fishes.

No. of research papers/books published: 10

Special Training undergone (inside the country/abroad): Seafood processing, Quality control and Bacteriology Fishery research, Development & Management - Intra Institutional training, Calibration and Operation of acoustic instruments, Acoustic methods of fish detection and abundance estimation.

Areas where consultancy services can be offered:
Deep-sea fishing, on board operation of acoustics instruments, Deep Scattering Layers; oceanic resources survey, estimation and management.
Name: GEETHA SASIKUMAR
Date of birth: 20-05-1969
Present position: Scientist
Educational Qualification: M. F. Sc.
Field of specialization: Fish & Fishery Science
Total service in ICAR: 2 years
Brief professional career:
Scientist: 2 years
Experience: Fishery biology; mariculture, dissemination of mussel culture techniques.

No. of research papers/books published: Nil
Special training undergone (inside the country/abroad): Nil
Areas where consultancy services can be offered:
Fishery biology; bivalve aquaculture.
Name : J. P. GEORGE
Date of birth : 28-05-1944
Present position : Sr. Scientist
Educational Qualification : Ph. D.
Field of specialization : Fish & Fishery Science
Total service in ICAR : 18 years
Brief professional career :
  Sr. Scientist : 12 years
  Scientist : 6 years

Experience : Limnology, freshwater fish taxonomy and biology, fish seed production and aquaculture; freshwater and marine environment impact assessment; pollution monitoring; planning, organising and conducting fish resource surveys; fishery/research vessel management; manpower development and management in fisheries education.

No. of research papers/books published : 40

Induced breeding by pituitary hormone administration.
Special training undergone
(inside the country/abroad): Training in Limnology in Vienna University, Austria, 1975

Areas where consultancy services can be offered:
Limnology, freshwater fish taxonomy and biology, fish seed production and aquaculture; freshwater and marine environment impact assessment; pollution monitoring; planning, organising and conducting fish resource surveys; fishery/research vessel management; manpower development and management in fisheries education.
Name : K.C. GEORGE  
Date of birth : 06-05-1946  
Present position : Sr. Scientist  
Educational Qualification : Ph.D.  
Field of specialization : Veterinary Pathology  
Total service in ICAR : 21 years  
Brief professional career :  
  Sr. Scientist : 12 years  
  Scientist : 5 years  
  Animal pathologist : 9 years  
Experience : Diagnosis of domestic animal and laboratory animal diseases, fish and shrimp diseases, diagnosis, control, treatment regimes; Faculty member of PGPM in M.Sc. and Ph.D. programmes.  
No. of research papers/books published : 20  
Special training undergone : Nil  
(inside the country/abroad) :  
Areas where consultancy services can be offered :  
Control of fish diseases; diagnosis, control of shrimp diseases; treatment of fish and shrimp diseases; laboratory animal disease diagnosis, treatment and control.
Name : K. G. GIRIJAVALLABHAN
Date of birth : 08-07-1941
Present position : Sr. Scientist
Educational qualification : M. Sc.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 35 years

Brief Professional career

Sr. Scientist : 16 years
Scientist : 7 years

Experience : Monitoring of environmental parameters; fishery resource surveys; fishery biology; marine bio-active agents; lab to land activities; planning, coordinating vessel based programmes, ocean fishery survey and fishery management.

No. of research papers/books published : 23

Special Training undergone : Nil (inside the country/abroad)

Areas where consultancy services can be offered :
Environmental Impact Assessment; resources surveys, vessel management and ocean based fishery and oceanography research planning and management.
Name: G. GOPAKUMAR

Date of birth: 26-11-1952

Present position: Sr. Scientist

Educational qualification: Ph. D.

Field of specialisation: Fish & Fishery Science

Total service in ICAR: 22 years

Brief Professional career:

Sr. Scientist: 14 years

Scientist: 8 years

Experience: Resource investigations and stock assessment of pelagic resources (tunas, mackerel and anchovies); tuna live bait fish investigations; mass production of live feed organism especially the rotifer, Brachionus plicatilis for larviculture of marine and brackishwater fishes; ornamental fish breeding.

No. of research papers/books published: 30

Special Training undergone: Nil

(inside the country/abroad)

Areas where consultancy services can be offered:
Mass production of rotifers for larviculture; tuna and tuna live bait investigation; ornamental fish breeding.
<table>
<thead>
<tr>
<th>Name</th>
<th>N. GOPALAKRISHNA PILLAI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>01-04-1948</td>
</tr>
<tr>
<td>Present position</td>
<td>Head, Pelagic Fisheries</td>
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<td>Field of specialisation</td>
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<td>Total service in ICAR</td>
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<td>Brief Professional career</td>
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<tr>
<td>Head, P. F. D</td>
<td>2 years</td>
</tr>
<tr>
<td>Sr. Scientist</td>
<td>12 years</td>
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<tr>
<td>Scientist</td>
<td>6 years</td>
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</table>

Experience: Fishery, biology, population dynamics and stock assessment, conservation and management of finfishes; benthos and benthic ecology; systematics of polychaetes.

No. of research papers/books published: 60

Special Training undergone (inside the country/abroad): Acoustic methods in fish detection and abundance

Areas where consultancy services can be offered: Conservation and management of pelagic resources; taxonomy of marine finfishes; benthos and benthic ecology, systematics of polychaetes.
Name : C. P. GOPINATHAN
Date of birth : 12-12-1943
Present position : Sr. Scientist
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 30 years

Brief Professional career
Sr. Scientist : 16 years
Scientist : 7 years

Experience : Systematics, biology, ecology and culture of phytoplankton; phytoplankton productivity of the estuarine, inshore and marine environments; faculty member of the PGPM for M. F. Sc., Ph. D.

No. of research papers/books published : 80

Special Training undergone (inside the country/abroad) : Two months training in the culture of fishfood organisms (micro algae) at SEAFDEC, Philippines.

Areas where consultancy services can be offered : Phytoplankton productivity, micro algae taxonomy, culture.
Name: GRACE MATHEW
Date of birth: 19-03-1951
Present position: Sr. Scientist
Educational qualification: M. Sc.
Field of specialisation: Fish & Fishery Science
Total service in ICAR: 22 years

Brief Professional career
Sr. Scientist: 12 years
Scientist: 10 years

Experience: Fishery, biology and stock assessment of major perches of the family Serranidae, Lutjanidae and Lethrinidae; resource characteristics of carcharinid sharks; mariculture and broodstock development of groupers; preparation of fishery atlases and calendars.

No. of research papers/books published: 19

Special Training undergone (inside the country/abroad): 3 weeks training on induced breeding of finfishes at CIFA, Bhubaneswar.

Areas where consultancy services can be offered: Fishery, biology and taxonomy of major perches, sharks; marine finfish brood stock and breeding management; induced maturation, sex reversal and spawning of groupers.
Name : GULSHAD MOHAMMED
Date of birth : 13-02-1962
Present position : Scientist
Educational qualification : M. Sc.
Field of specialisation : Economic Botany
Total service in ICAR : 5 years

Brief Professional career

Scientist : 5 years

Experience : EIA studies in thermally affected areas, hydrology, coral reef ecosystem; seaweed culture; resources and biology of mangrove and seagrass ecosystem; agroforestry.

No. of research papers/books published : Nil
Special Training undergone : Nil
(inside the country/abroad)

Areas where consultancy services can be offered :
EIA studies, hydrographical investigations; seaweed culture; survey and monitoring of coral reefs, mangroves, seaweeds and seagrass communities; agroforestry.

Longline cultured seaweed
<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>I.JAGADIS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date of birth</strong></td>
<td>27-11-1958</td>
</tr>
<tr>
<td><strong>Present position</strong></td>
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<td><strong>Educational Qualification</strong></td>
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<tr>
<td><strong>Field of specialization</strong></td>
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<tr>
<td><strong>Total service in ICAR</strong></td>
<td>14 years</td>
</tr>
<tr>
<td><strong>Brief professional career</strong></td>
<td>Scientist, 4 years</td>
</tr>
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</table>

**Experience**: Monitoring of capture fisheries; water quality management in relation to culture practices; culture of green, brown mussels and pearl oysters; hatchery seed production, farming and pearl production; monitoring of benthic fauna, dislocation due to bottom trawling.

**No. of research papers/books published**: 4

**Special training undergone**: Nil

**Areas where consultancy services can be offered**: Cultivation of marine mussels; Hatchery seed production, farming and pearl production.
Name : D. B. JAMES  
Date of birth : 24-01-1940  
Present position : Sr. Scientist  
Educational qualification : Ph. D.  
Field of specialisation : Fish & Fishery Science  
Total service in ICAR : 35 years  

Brief Professional career

Sr. Scientist : 16 years  
Scientist : 7 years

Experience : Taxonomy of echinoderms, seed production and culture of sea cucumbers

No. of research papers/books published : 150

Special Training undergone :  
(inside the country/abroad) : Basic course in Animal tissue culture at the National Centre for Cell Science, Pune, Maharashtra.

Areas where consultancy services can be offered :  
Identification of echinoderms; resources survey for sea cucumbers and sea urchins; hatchery and culture of sea cucumbers.
Name: A. A. JAYAPRAKASH
Date of birth: 01-11-1945
Present position: Sr. Scientist
Educational qualification: Ph. D.
Field of specialisation: Fish & Fishery Science
Total service in ICAR: 28 years
Brief Professional career:
- Sr. Scientist: 14 years
- Scientist: 7 years

Experience: Fishery, biology, population dynamics of nemipterids, sciaenids, tunas, seerfishes, mackerel; conventional and nonconventional resources in Indian EEZ; exploratory survey; marine and freshwater ornamental fishes maintenance; forecasting models for oilsardine, mackerel and flat fishes.

No. of research papers/books published: 48
Special Training undergone (inside the country/abroad): Acoustic methods in fish detection and abundance

Areas where consultancy services can be offered:
Conservation and management of pelagic resources of Indian EEZ; taxonomy of marine teleosts; rhythms in Malabar upwelling ecosystem, long term forecasting of oil sardine, mackerel; ornamental fishes and aquarium maintenance; resource surveys.
<table>
<thead>
<tr>
<th>Name</th>
<th>P. JAYASANKAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>08-10-1959</td>
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<tr>
<td>Present position</td>
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<td>Educational qualification</td>
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<td>Fish &amp; Fishery Science</td>
</tr>
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<td>Total service in ICAR</td>
<td>12 years</td>
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**Brief Professional career**

- Scientist (SS) : 7 years
- Scientist : 5 years

**Experience** : Bio toxicity; finfish reproduction, fishery biology, stock assessment; bottom trawling effect on benthic biota; ornamental fish culture; fish molecular genetics.

**No. of research papers/books published** : 35

**Special Training undergone (inside the country/abroad)**: 'Stock discrimination in Indian mackerel Rastrelliger kanagurta (Cuv.) using DNA-level polymorphisms' at the School of Biotechnology, Madurai Kamaraj University, Madurai, 1995.

**Areas where consultancy services can be offered**:
Ornamental fish culture; taxonomic/stock discrimination/ biodiversity studies using DNA-level genetic markers.
Name: JIJU P. ALEX
Date of birth: 31.05.1969
Present position: Scientist
Educational qualification: M. Sc
Field of specialisation: Agricultural Extension
Total service in ICAR: 2 years

Brief Professional career
Scientist: 2 years

Experience: Formulation, implementation of extension programmes, research on socio-economic aspects of the marine fisheries sector; editing of Newsletter.

No. of research papers/books published: 6
Special Training undergone: Nil
(inside the country/abroad)

Areas where consultancy services can be offered:
Formulation, implementation of extension programmes, research on socio-economic aspects of the marine fisheries sector; editing of Newsletter.
Name : JOE K. KIZHAKUDAN
Date of birth : 06-07-1970
Present position : Scientist
Educational qualification : M. Sc.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 2 years

Brief Professional career

Scientist : 2 years

Experience : Prawn and shrimp hatchery, farming, lobster farming, ornamental fish (freshwater and marine) rearing, breeding; freshwater and brackish water fish hatchery and farming; molluscan farming.

No. of research papers/books published : 9

Special Training undergone (inside the country/abroad) : Penaeid hatchery/brackish water fish culture at Mandapam/Tuticorin, CMFRI; Fish processing technology/microbiology. Ornamental fish culture, at KAU, Trichur

Areas where consultancy services can be offered :
Prawn and shrimp hatchery, farming, lobster farming, ornamental fish breeding and rearing; aquaria setting; finfish hatchery, cage culture, finfish feed formulation, molluscan farming.
Name : JOSEPH ANDREWS  
Date of birth : 17-07-1947  
Present position : Technical Officer (T-5)  
Educational Qualification : M.Sc.  
Field of specialization : Fish & Fishery Science  
Total service in ICAR : 29 years  
Brief professional career :  
  Technical officer : 3 years  
Experience : Fishery survey; marine pearl and mussel farming.  
No. of research papers/books published : 14  
Special training undergone  
(inside the country/abroad) : Application of computer in Agricultural statistics at IASRI, New Delhi.  
Training course in Pearl culture and hatchery technology.  
Areas where consultancy services can be offered :  
Stratified multistage random sampling technique; seed production and farming of pearl oysters and mussels; multicrop farming of marine organisms in shallow seas.
<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>K. K. JOSHI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date of birth</strong></td>
<td>30-01-1960</td>
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<tr>
<td><strong>Present position</strong></td>
<td>Scientist</td>
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<td><strong>Educational qualification</strong></td>
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<td>Scientist</td>
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<tr>
<td><strong>Experience</strong></td>
<td>Fish reproductive biology, stock assessment; taxonomy, biology of Nemipterids, Elasmobranchs and Silverbellies.</td>
</tr>
<tr>
<td><strong>No. of research papers/books published</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Special Training undergone</strong></td>
<td>Nil</td>
</tr>
<tr>
<td>(inside the country/abroad)</td>
<td></td>
</tr>
<tr>
<td><strong>Areas where consultancy services can be offered</strong></td>
<td>Fish reproductive biology, stock assessment, biodiversity, taxonomy, resource survey.</td>
</tr>
<tr>
<td>Name</td>
<td>V. S. KAKATI</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Date of birth</td>
<td>28-06-1949</td>
</tr>
<tr>
<td>Present position</td>
<td>Sr. Scientist</td>
</tr>
<tr>
<td>Educational qualification</td>
<td>Ph. D.</td>
</tr>
<tr>
<td>Field of specialisation</td>
<td>Fish &amp; Fishery Science</td>
</tr>
<tr>
<td>Total service in ICAR</td>
<td>22 years</td>
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</tbody>
</table>

**Brief Professional career**

<table>
<thead>
<tr>
<th>Position</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sr. Scientist</td>
<td>15</td>
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<tr>
<td>Scientist</td>
<td>7</td>
</tr>
</tbody>
</table>

**Experience**: Crustacean biology, larval development and farming technologies, larval rearing of crab; crustacean physiology; teaching/guidance at P.G levels.

**No. of research papers/books published**: 22

**Special Training undergone**
(inside the country/abroad): Crustacean physiology at Station Marime D' endoume, Marseille, France.

**Areas where consultancy services can be offered**: Crustacean hatchery, farming.
Name: P. KALADHARAN
Date of birth: 17-08-1959
Present position: Scientist (SS)
Educational qualification: Ph. D.
Field of specialisation: Fish & Fishery Science
Total service in ICAR: 15 years

Brief Professional career
Scientist (Sr. Scale): 9 years
Scientist: 5 years

Experience: Mariculture and Tissue culture of Seaweeds and Marine algae; Soil and water quality assessment and management in aquaculture systems; Marine pollution.

No. of research papers/books published: 28

Special Training undergone (inside the country/abroad)
Biotechnological utilization of marine Cyanobacteria for 15 days at the National Facility for marine Cyanobacteria, Bharathidasan University, Trichy. Application of Remote Sensing techniques on coastal management at IIRS., Dehradun; Acoustics in detecting fish aggregates and abundance on board FORV Sagar Sampada. Polyculture of Laminaria japonica with scallops for 45 days at Quingdao, CHINA sponsored by UNDP/FAO.

Areas where consultancy services can be offered: Aquaculture, biological filters-bio purification; mariculture of agar yielding seaweeds; soil-water quality assessment, Bioremediation.
Name : N. KALIAPERUMAL
Date of birth : 02-04-1944
Present position : Sr. Scientist
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 26 years

Brief Professional career
Sr. Scientist : 16 years
Scientist : 7 years

Experience : Taxonomy, ecology, biology, chemistry, culture and utilisation of seaweeds.

No. of research papers/books published : 82/3

Special Training undergone (inside the country/abroad) : Seaweed culture at the Marine Science Center, University of Philippines, Manila from January to March, 1984.

Areas where consultancy services can be offered : Seaweed taxonomy, culture.
Name : D. KANDASAMI
Date of birth : 15-06-1947
Present position : Senior Scientist
Educational Qualification : Ph.D.
Field of specialization : Fish & Fishery Science
Total service in ICAR : 28 years
Brief professional career
  Sr. Scientist : 12 years
  Scientist : 8 years

Experience : Induced maturation, seed production and larval rearing of fishes; fish and shellfish nutritional requirement; micro particulate and micro encapsulate diet preparation for fish and shellfish larvae; live feed culture; pearl culture; hatchery seed production, pearl oyster farming in both onshore and offshore; water quality management; industrial pollution studies; faculty member of PGPM for M.Sc., Ph.D.

No. of research papers/books published : 18

Special training undergone (inside the country/abroad) : Fish and shellfish nutrition, FAO fellowship, 3 months, Kagoshima, Japan

Areas where consultancy services can be offered:
  Fish breeding, seed production, larval rearing and farming of clown fish; shell and finfish nutrition, formulation of diets for grow out system, micro particulate and micro encapsulate diets preparation for larval rearing; live feed culture and enrichment (with polyunsaturated fatty acids); water quality management studies; industrial pollution managements; pearl culture, hatchery, seed production pearl oyster farming (onshore and offshore).
<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>V. KRIPA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date of birth</strong></td>
<td>21-02-1962</td>
</tr>
<tr>
<td><strong>Present position</strong></td>
<td>Scientist (SS)</td>
</tr>
<tr>
<td><strong>Educational Qualification</strong></td>
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<td><strong>Field of specialization</strong></td>
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<td><strong>Total service in ICAR</strong></td>
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<td><strong>Brief professional career</strong></td>
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</tr>
<tr>
<td>Scientist (Sr. Scale)</td>
<td>4 years</td>
</tr>
<tr>
<td>Scientist</td>
<td>8 years</td>
</tr>
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</table>

**Experience**: Site selection for bivalve farming; fabrication/erection of grow out structures; harvesting and marketing of farmed bivalves; identification and mapping of bivalve resources in coastal areas; experimental breeding and rearing of clams and gastropods; population ecology and hydrography of bivalve beds; population dynamics of cephalopods; research guidance in Mariculture.

**No. of research papers/books published**: 21

**Special training undergone (inside the country/abroad)**: Breeding and Culture of Scallop and Sea cucumber at Yellow Sea Fisheries Research Institute, Qingdao, P.R. of China during May-June 1991 under the NACA/UNDP/FAO Project on Seafarming.

**Areas where consultancy services can be offered**: Site selection and project formulation for bivalve farming; seed production and farming of bivalves; live feed culture; identification, estimation and mapping of molluscan resources in estuaries/marine ecosystems through planned surveys; environment/ecosystem monitoring, organising educational programmes in Mariculture/Fisheries.
<table>
<thead>
<tr>
<th>Name</th>
<th>S. KRISHNA PILLAI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>30-11-1942</td>
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<tr>
<td>Present position</td>
<td>Sr. Scientist</td>
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<td>Educational qualification</td>
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<td>Field of specialisation</td>
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<td>Total service in ICAR</td>
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</table>

**Brief Professional career**

- Sr. Scientist: 12 years
- Scientist: 10 years

**Experience**: Fishery biology of crustaceans, pelagic and demersal fishes; hydrography of coastal water; conservation of endangered marine mammals; breeding of cephalopod.

**No. of research papers/books published**: 67

**Special Training undergone**: Nil

*(inside the country/abroad)*

**Areas where consultancy services can be offered**: Zooplankton; conservation of marine mammals and turtles.
<table>
<thead>
<tr>
<th>Name</th>
<th>P.K. KRISHNAKUMAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>18-01-1959</td>
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<tr>
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<td>Scientist (SS)</td>
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<td>Educational Qualification</td>
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<td>Scientist (Sr. Scale)</td>
<td>7 years</td>
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<td>Scientist</td>
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**Experience**: Marine pollution monitoring; Environmental Impact Assessment, chemical analysis of refinery effluent; mussel watch; image analysis; cytochemical studies; oil and heavy metal pollution monitoring; coastal hydrography, primary and secondary production.

**No. of research papers/books published**: 15
Special training undergone (inside the country/abroad): Coastal Zone Management as a Sustainable Process, organised by the International Ocean Institute, Operational Centre (India), Indian Institute of Technology, Madras for 5 weeks; Post Doctoral study on biomarkers of environmental contaminants in the marine environment, at the Environmental Conservation Division, Northwest Fisheries Science Centre, National Marine Fisheries Service, NOAA, Seattle, USA, for 1 year under the Overseas Associateship programme of Dept. of Biotechnology, Government of India.

Advanced training on effects of oil pollution on marine animals, one year.

Areas where consultancy services can be offered:

Marine pollution monitoring; environmental Impact Assessment; coastal zone management study, chemical analysis of effluent quality, Oil & heavy metal pollution, bio-effect monitoring, mussel watch.
Name : V. S. KRISHNAMURTHY CHENNUBHOTLA

Date of birth : 29-06-1940

Present position : Principal Scientist

Educational qualification : Ph. D.

Field of specialisation : Fish & Fishery Science

Total service in ICAR : 31 years

Brief Professional career

- Principal Scientist : 14 years
- Sr. Scientist : 8 years
- Scientist : 1 year

Experience : Seaweed resources and culture technology

No. of research papers/books published : 51

Special Training undergone (inside the country/abroad) : Advanced training in seaweed farming (marine algal culture) of Eucheuma, Caulerpa and Gracilaria under FAO/UNDP training and demonstration programme at the Marine Science Centre, University of Philippines.

Areas where consultancy services can be offered : Seaweed resource survey, culture of Eucheuma, Gracilaria, Gelidiella, Caulerpa etc.
<table>
<thead>
<tr>
<th>Name</th>
<th>L. KRISHNAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>26.05.46</td>
</tr>
<tr>
<td>Present position</td>
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</tr>
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<td>Educational qualification</td>
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**Brief Professional career**

<table>
<thead>
<tr>
<th>Role</th>
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<tbody>
<tr>
<td>Sr. Scientist</td>
<td>12 years</td>
</tr>
<tr>
<td>Scientist</td>
<td>10 years</td>
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</table>

**Experience**: Induced breeding of brackish water fishes; Monoculture/Polyculture of fishes; larval rearing of brackishwater fishes, livefeed culture, integrated farming of fish with poultry; reproductive physiology of fishes.

**No. of research papers/books published**: 18/2

**Special Training undergone**

(inside the country/abroad): FAO training in Hawaii on breeding of mullets, Nov 1983 - Mar 1984; training on transgenics in fish at Indian Institute of Immunology, New Delhi, 1990.

**Areas where consultancy services can be offered**: Breeding/larval rearing of brackishwater/marine fishes; livefeed culture; integrated farming; monoculture/polyculture of fishes and prawns.

Larval rearing and live feed culture in progress
Name: S.R. KRUPESHA SHARMA
Date of birth: 27-12-1966 
Present position: Scientist 
Educational Qualification: M.V.Sc. 
Field of specialization: Veterinary Pathology 
Total service in ICAR: 2 years 
Brief professional career: 
Scientist: 2 years 
Experience: Fish and shell fish pathology. 
No. of research papers/books published: 5 
Special training undergone (inside the country/abroad): Foundation course for agricultural research scientists at NAARM, Hyderabad for 4 months 
Immunopathology - Modern trends in disease diagnosis at G.B. Pant Agriculture University, Pantnagar 
Areas where consultancy services can be offered: 
Fish and shell fish disease investigation, diagnosis, treatment, disease prevention programmes.
Name : G. P. KUMARASWAMY ACHARY
Date of birth : 30-06-1940
Present position : Sr. Scientist
Educational qualification : M. Sc.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 34 years
Brief Professional career
 Sr. Scientist : 14 years
 Scientist : 8 years
Experience : Mussel culture technology; new design of spat collection, hapa system, pearl oyster cages; two-in-one cage for multiple farming and collection of bivalve seeds, edible/ornamental fishes; clam resources conservation and management; transfer of technology.
No. of research papers/books published : 42
Special Training undergone Nil
Areas where consultancy services can be offered : Pearl, mussel & clam farming, aquaculture management; environmental management, biodiversity.

Sea bottom farming in two-in-one cage
<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>P.S. KURIAKOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date of birth</strong></td>
<td>17-05-1939</td>
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<tr>
<td><strong>Present position</strong></td>
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<td><strong>Educational Qualification</strong></td>
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<td><strong>Field of specialization</strong></td>
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<tr>
<td><strong>Total service in ICAR</strong></td>
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<td><strong>Brief professional career</strong></td>
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<tr>
<td>Principal Scientist</td>
<td>12 years</td>
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<tr>
<td>Sr. Scientist</td>
<td>6 years</td>
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<tr>
<td>Scientist</td>
<td>4 years</td>
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</table>

**Experience**: Fishery, biology of molluscs (bivalves, gastropods); open sea and estuarine farming of mussels and oysters; hatchery technology for mussels, transfer of technology to farmers; faculty in PGPM for M.Sc & Ph.D programmes.

**No. of research papers/books published**: 25

**Special training undergone**: Mussel culture in Spain from 16-10-1985 to 15-02-1986 under FAO/UNDP Programme.

**Areas where consultancy services can be offered**: Commercial mussel Farming; hatchery production of mussel seed; purification of mussels.
Name : P. LAXMILATHA  
Date of birth : 07-06-1962  
Present position : Scientist  
Educational qualification : Ph. D.  
Field of specialisation : Fish & Fishery Science  
Total service in ICAR : 5 years  

Brief Professional career
Scientist : 5 years
Aquaculture specialist (AFPRO) : 4 years

Experience: Site selection for aquaculture; project preparation, implementation; trainings for skill development and project evaluation; cephalopod, bivalve and gastropod fishery, biology, management & conservation; oyster, clam, and mussel culture; shrimp culture and physiology; teaching at P G levels.

No. of research papers/books published : 6

Special Training undergone (inside the country/abroad): Application of Remote Sensing in Fisheries, NRSA, Hyderabad, February, 1993; Aquatic microbiology, Selective breeding of Rohu, Magur breeding, 1994, CIFA, Bhuvaneswar.
Blue-green Algae at NFBGA, IARI, New Delhi, March, 1996.
The Regional training course in "Fishing Technology & Resource Conservation", 16 June to 15 December, 1997 at SEAFDEC, THAILAND.

Areas where consultancy services can be offered:
Fishery, biology and resource conservation of cephalopods, bivalves and gastropods; mariculture of shrimps; clam, oyster, mussel; shrimp physiology; trainings; project formulation and evaluation.
Name: A. LAXMINARAYANA
Date of birth: 02-01-1947
Present position: Sr. Scientist
Educational qualification: Ph. D.
Field of specialisation: Fish & Fishery Science
Total service in ICAR: 22 years
Brief Professional career
Sr. Scientist: 12 years
Scientist: 10 years
Experience: Shrimp/Prawn hatchery and farming, mud crab farming and fattening, polyculture, Crustacean physiology; technologies for induced maturation of shrimps, low cost shrimp hatchery, backyard hatchery for shrimp seed production, shrimp seed production by artificial insemination and in vitro fertilization. Served as consultant to several Government and private agencies in Indian and abroad in shrimp hatchery/farming and crab farming/fattening. Trained Vietnam Fishery officials under FAO Programme. Recipient of Sukumar Basu Memorial Award for the year 1980-1981.

No. of research papers/books published: 52

Special Training undergone
(inside the country/abroad): Advanced Training in Reproductive physiology of penaeid shrimps at University of California, USA.

Areas where consultancy services can be offered:
Shrimp/prawn hatchery, shrimp/prawn farming, mudcrab farming, fattening; polyculture; reproductive physiology.
Name : A. P. LIPTON
Date of birth : 24-02-1953
Present position : Sr. Scientist
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 22 years

Brief Professional career
Sr. Scientist : 12 years
Scientist : 10 years

Experience : Fish pathology, identification, isolation and characterizations of pathogens and toxic exo-endocellular products; in vitro and in vivo effects; aetiology of bacterial/protozoan diseases in marine finfish/shellfish/ornamental fish; biological control of fish pathogens; tissue culture and recombinant DNA techniques.

No. of research papers/books published : 40

Special Training undergone (inside the country/abroad) : Biotechnology National Associateship on fish disease management aspects, Madurai Kamaraj University for 1 year; Biotechnology Associateship in fish virology, fish tissue culture, recombinant DNA vaccine, at the Department of Microbiology, Oregon State University, Oregon, USA, for 3 months.

Areas where consultancy services can be offered:
Total bacterial load in aquatic system; isolation and identification of bacterial/fungal/protozoan pathogens/parasites; general disease prophylactic measures; treatment protocols for bacterial and protozoan diseases.
<table>
<thead>
<tr>
<th>Name</th>
<th>G. MAHESWARUDU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>09-09-1957</td>
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<tr>
<td>Present position</td>
<td>Scientist (SS)</td>
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<tr>
<td>Educational Qualification</td>
<td>Ph. D.</td>
</tr>
<tr>
<td>Field of specialization</td>
<td>Fish &amp; Fishery Science</td>
</tr>
<tr>
<td>Total service in ICAR</td>
<td>12 years</td>
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<tr>
<td>Brief professional career</td>
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<td></td>
<td>Scientist (Sr. Scale)</td>
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<td>Scientist</td>
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</tbody>
</table>

**Experience**: Hatchery management, seed production, grow-out farming; broodstock development and management of penaeid shrimps; penaeid shrimp and crab resource exploitation.

**No. of research papers/books published**: 24

**Special training undergone (inside the country/abroad)**: Overseas Associateship of DBT on Aquaculture and Marine-Biotechnology during 95-96 at Tulane University, Louisiana, USA.

**Areas where consultancy services can be offered**: Shrimp Culture; broodstock development and management; seed production and growout farming.
<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>K. R. MANMADHAN NAIR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date of birth</strong></td>
<td>15-10-1949</td>
</tr>
<tr>
<td><strong>Present position</strong></td>
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<tr>
<td><strong>Educational qualification</strong></td>
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<tr>
<td><strong>Field of specialisation</strong></td>
<td>Fish &amp; Fishery Science</td>
</tr>
<tr>
<td><strong>Total service in ICAR</strong></td>
<td>22 years</td>
</tr>
</tbody>
</table>

**Brief Professional career**

- Sr. Scientist : 13 years
- Scientist : 9 years

**Experience** : Crustacean biology & fishery; shrimp hatchery; crab farming.

**No. of research papers/books published** : 8

**Special Training undergone**
(inside the country/abroad) : Shrimp hatchery technology, Mandapam Research Centre, CMFRI.

**Areas where consultancy services can be offered** :
Mud crab fattening/farming; shrimp hatchery training.

*Farm fattened mud crabs*
<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>P.P. MANOJKUMAR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date of birth</strong></td>
<td>10-05-1964</td>
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<tr>
<td><strong>Present position</strong></td>
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<tr>
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<td><strong>Field of specialization</strong></td>
<td>Fish &amp; Fishery Science</td>
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<tr>
<td><strong>Total service in ICAR</strong></td>
<td>6 years</td>
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<tr>
<td><strong>Brief professional career</strong></td>
<td>Scientist : 6 years</td>
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**Experience**: Fishery, biology, stock assessment, management and conservation of demersal finfishes; culture of groupers.

**No. of research papers/books published**: 6

**Special training undergone**
(inside the country/abroad): Bioproduction and environmental Management in semi-enclosed Sea in Japan, for three months.

**Areas where consultancy services can be offered**:
Fishery, biology, stock assessment, management and conservation of demersal fishes
Name : MANPAL SRIDHAR
Date of birth : 18-08-1957
Present position : Scientist (SS)
Educational Qualification : Ph. D.
Field of specialization : Home Science
Total service in ICAR : 12 years
Brief professional career :
Scientist (Sr. Scale) : 7 years
Scientist : 5 years

Experience : Finfish and shellfish nutrition; Mahima feed development, nutritional strategies with regard to environmentally friendly feed production; development of alternative non-conventional feeds through solid state fermentation technologies; nutrition in probiotics.

No. of research papers/books published : 16

Special training undergone (inside the country/abroad) :
National overseas Associateship awarded by Department of Biotechnology, New Delhi, on Solid state fermentation for producing non conventional feeds at the Department of Biotechnology, Cochin University of Science and Technology, Cochin, 1995-96.


Areas where consultancy services can be offered :
Feed production; proximate composition analyses of feeds; setting up of small scale feed production units for farmers with regard to shrimp nutrition.
Name : MARY K. MANISSEMI
Date of birth : 11-12-1949
Present position : Sr. Scientist
Educational Qualification : Ph. D.
Field of specialization : Fish & Fishery science
Total service in ICAR : 21 years
Brief professional career
   Sr. Scientist : 16 years
   Scientist : 5 years
   Asst. Professor (C of F, Mangalore) : 4 years
Experience : Fishery, biology, stock assessment and management of shrimp, crab, lobster resources; shrimp hatchery technology development and farming; histopathology and energetics of prawns exposed to heavy metal toxicity; faculty member of PGPM in M.Sc. & Ph.D. programmes.
No. of research papers/books published : 26
Special training undergone (inside the country/abroad) : Shrimp pathology at the University of Queensland, Brisbane, Australia from January to August 1995.
Summer Institute in Fish Processing Technology
Workshop in Crustacean Physiology, Fish Nutrition, Fish pathology.
Areas where consultancy services can be offered : Crustacean Biology and Fisheries.
Name : K. J. MATHEW
Date of birth : 13-12-1940
Present position : Sr. Scientist
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 33 years

Brief Professional career
Sr. Scientist : 16 years
Scientist : 7 years

Experience : Zooplankton and secondary production of the EEZ of India; distribution, ecology and biology of Euphuaisacea of the Indian seas; Mud banks of Kerala coast

No. of research papers/books published : 101/1

Special Training undergone : Nil
(inside the country/abroad)

Areas where consultancy services can be offered : Marine zooplankton.
Name: M. M. MEIYAPPAN
Date of birth: 22-09-1943
Present position: Sr. Scientist
Educational qualification: M. Sc.
Field of specialisation: Fish & Fishery Science
Total service in ICAR: 31 years

Brief Professional career
Sr. Scientist: 13 years
Scientist: 9 years

Experience: Survey of cephalopod resources in the EEZ and coastal areas, stock assessment and management, cephalopod taxonomy and biology; molluscan resources survey in coastal areas and estuaries; pearl culture.

No. of research papers/books published: 30

Special Training undergone (inside the country/abroad): Fish stock assessment under the auspices of FAO/DANIDA/ICAR in India

Areas where consultancy services can be offered: Cephalopod resource management, assessment of molluscan resources; pearl culture.
Name: N. G. MENON
Date of birth: 13-06-1945
Present position: Senior Scientist
Educational qualification: Ph. D.
Field of specialisation: Fish & Fishery Science
Total service in ICAR: 27 years
Brief Professional career:
- Sr. Scientist: 14 years
- Scientist: 8 years

Experience: Fishery biology; stock assessment; EIA studies for shallow water mining; preparation of fishery atlas; biodiversity; bottom trawling effect on the coastal living resources; coastal zone management studies, mesopelagic resources survey; assessment of DSL resources; faculty member of PGPM for M. F. Sc. and Ph. D.

No. of research papers/books published: 50/2

Special Training undergone: Nil (inside the country/abroad)

Areas where consultancy services can be offered:
Fishery biology, stock assessment, DSL investigation; Deepsea survey and mesopelagics; EIA studies; impact of trawling, biodiversity.
Name : MIRIAM PAUL
Date of birth : 28-02-1967
Present position : Scientist
Educational Qualification : M.Sc.
Field of specialization : Fish & Fishery Science
Total service in ICAR : 2 years
Brief professional career :

Scientist : 2 years

Experience: Development of live feed technology for crab, shrimp and grouper larvae; development of sustainable and environmentally compatible low cost culture systems for crabs; development of hatchery and culture systems for Metapenaeus monoceros; monitoring of environmental parameters in grouper culture systems; taxonomy of decapod.

No. of research papers/books published : Nil

Special training undergone (inside the country/abroad) : Foundation course in Agriculture Research Management, at NAARM, Hyderabad.

Live Feed Culture Technology at Fisheries Harbour Laboratory of CMFRI, Thoppumpady, for 10 days.

Areas where consultancy services can be offered :

Crab culture; live Feed Culture; biodiversity and conservation issues; decapod taxonomy.
Name : H. MOHAMAD KASIM
Date of birth : 07-02-1948
Present position : Sr. Scientist
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 21 years

Brief Professional career
Sr. Scientist : 14 years
Scientist : 7 years

Experience : Fishery biology, stock assessment of demersal and pelagic fishery resources; fin fish culture; ecophysiology with special reference to effect of environmental factors on the survival and respiratory physiology of marine organisms; Effect of aquatic pollution on living organisms; studies on marine mammals and ornamental fish.

No. of research papers/books published : 52

Special Training undergone (inside the country/abroad) : Ornamental fish culture, Cochin

Areas where consultancy services can be offered : Coastal aquaculture; fishery biology, stock assessment, fishery management; aquatic pollution on living organisms; aquarium and ornamental fish keeping.
<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>MOHAMMAD ZAFAR KHAN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date of birth</strong></td>
<td>11-04-1946</td>
</tr>
<tr>
<td><strong>Present position</strong></td>
<td>Sr. Scientist</td>
</tr>
<tr>
<td><strong>Educational qualification</strong></td>
<td>M. Sc.</td>
</tr>
<tr>
<td><strong>Field of specialisation</strong></td>
<td>Fish &amp; Fishery Science</td>
</tr>
<tr>
<td><strong>Total service in ICAR</strong></td>
<td>29 years</td>
</tr>
</tbody>
</table>

**Brief Professional career**

- Sr. Scientist: 14 years
- Scientist: 7 years

**Experience**: Fishery, biology, population dynamics, conservation and management of bombay duck, pomfret, golden anchovy, tuna, ribbon fish; exploratory surveys.

**No. of research papers/books published**: 25

**Special Training undergone (inside the country/abroad)**: Orientation course on Agriculture Research Management 20th January - 19th February, 1987; work shop on Statistical methods for Ecologists sponsored by Department of Science and Technology, 2-14 December, 1991 at University of Poona.

**Areas where consultancy services can be offered**: Exploratory survey and fishery resource management; fish biology and stock assessment; coastal zone management.
Name : G. MOHANRAJ
Date of birth : 30-12-1948
Present position : Sr. Scientist
Educational qualification : M. Sc.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 21 years

Brief Professional career

Sr. Scientist : 15 years
Scientist : 6 years

Experience : Fishery biology, stock assessment of demersal finfish resources; mariculture of finfishes, breeding and seed production of finfishes,

No. of research papers/books published : 25

Special Training undergone
(inside the country/abroad) : "The principles of fishery science and co-operation" at the Staff Training Institute, TNFD, Madras during August '75-'76

The capture, transport, domestication and breeding and seed production of milkfish at SEAFDEC, Philippines during March-April, 1977.

Areas where consultancy services can be offered : Fishery, biology, stock assessment; finfish culture, brook stock management.
<table>
<thead>
<tr>
<th>Name</th>
<th>MOLLY VARGHESE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>25-05-1960</td>
</tr>
<tr>
<td>Present position</td>
<td>Scientist (SS)</td>
</tr>
<tr>
<td>Educational Qualification</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>Field of specialization</td>
<td>Fish &amp; Fishery Science</td>
</tr>
<tr>
<td>Total service in ICAR</td>
<td>12 years</td>
</tr>
<tr>
<td>Brief professional career</td>
<td></td>
</tr>
<tr>
<td>Scientist (Sr. Scale)</td>
<td>4 years</td>
</tr>
<tr>
<td>Scientist</td>
<td>8 years</td>
</tr>
</tbody>
</table>

**Experience**: Monitoring of environmental parameters of estuarine/inshore/marine water bodies; identification of zooplankton - copepod, decapod larvae, mysids, chaetognaths, fish eggs/larvae, brachionids, amphipods, isopods, ctenophores, salps, doliolids; culture of live feed organisms - zooplankton (rotifers/cladocerans); organoleptic and bacteriological evaluation of shell fish for export.

**No. of research papers/books published**: 5

**Special training undergone (inside the country/abroad)**: NAARM training at Hyderabad
Freshwater ornamental fish breeding and rearing, KAU, Panagad.

**Areas where consultancy services can be offered**:
Zooplankton identification; environmental monitoring of water bodies/culture sites; live feed culture; organoleptical and bacteriological evaluation of shell fish.
Name : C. MUTHIAH  
Date of birth : 25-02-1946  
Present position : Sr. Scientist  
Educational Qualification : Ph.D.  
Field of specialization : Fish & Fishery Science  
Total service in ICAR : 27 years  

Brief professional career  

Sr. Scientist : 12 years  
Scientist : 10 years  

Experience : Fishery biology; stock assessment of pelagic fishes; industrial fishery resources survey; mariculture.  

No. of research papers/books published : 23  
Special training undergone (inside the country/abroad) : Nil  

Areas where consultancy services can be offered : Fishery biology; stock assessment; management; identification of pelagic fishes; mariculture.
Name : P. MUTHIAH
Date of birth : 01-02-1949
Present position : Sr. Scientist
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 21 years
Brief Professional career
   Sr. Scientist : 15 years
   Scientist : 7 years
Experience : Edible oyster spat collection, nursery and farming systems; transfer of technology; clam seed hatchery
No. of research papers/books published : 17
Special Training undergone (inside the country/abroad) : FAO training on Oyster culture and hatchery, in France, September - October, 1985.
Areas where consultancy services can be offered : Edible Oyster culture and clam hatchery.
Name : P. NAMMALWAR
Date of birth : 26-06-1943
Present position : Sr. Scientist
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 30 years

Brief Professional career
Sr. Scientist : 16 years
Scientist : 7 years

Experience : Coastal fisheries assessment and management; finfish aquaculture and farm management; marine pollution monitoring; conservation and management of marine mammals; biodiversity and conservation management plan for mangroves.

No. of research papers/books published : 78

Special Training undergone (inside the country/abroad) : Workshop on Water Quality management in Aquaculture; Workshop Training on Netcage culture of marine finfishes in Marine Aquaculture Centre, Singapore under FAO/UNDP/NACA/IDRC sponsored program. Summer Institute on application of Innovative Instructional Technology for Optimising, learning teaching in Indian Agriculture University System; Workshop on Conservation and assessment and Management plan for Indian mangrove ecosystem.

Areas where consultancy services can be offered :
Resource characteristics and stock assessment of pelagic and demersal finishes; marine finfish culture, production, farm management and seed production technology, marine pollution monitoring, biodiversity conservation and biosphere reserves management.
<table>
<thead>
<tr>
<th>Name</th>
<th>A. NANDAKUMAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>25-09-1950</td>
</tr>
<tr>
<td>Present position</td>
<td>Technical Officer (T-6)</td>
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<tr>
<td>Educational Qualification</td>
<td>M.Sc.</td>
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<tr>
<td>Field of specialization</td>
<td>Fish &amp; Fishery Science</td>
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<td>Total service in ICAR</td>
<td>19 years</td>
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<tr>
<td>Brief professional career</td>
<td></td>
</tr>
<tr>
<td>Technical Officer</td>
<td>4 years</td>
</tr>
<tr>
<td>Field Assistant/</td>
<td>7 years</td>
</tr>
<tr>
<td>Research Assistant</td>
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</tr>
<tr>
<td>(UNDP/FAO, PFP)</td>
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</table>

**Experience**: Fishery oceanography; environmental monitoring; EIA studies; pollution studies related to estuarine and marine environment; remote sensing studies in marine fisheries

**No. of research papers/books published**: 18

Sea water sampling for EIA studies
Special training undergone (inside the country/abroad): On the job training Programme in ‘Remote Sensing’ at Space Application Centre, Ahmedabad, for 3 months; Orientation course on ‘Sea truth data collection for National Ocean Remote Sensing Programme’ at National Institute of Oceanography, Goa, for one week; Advanced level summer institute in ‘Analytical Techniques in Biochemistry’ at Madurai Kamaraj University, Madurai, for 3 weeks.

Areas where consultancy services can be offered:
Environmental monitoring; EIA studies; pollution studies.
<table>
<thead>
<tr>
<th>Name</th>
<th>G. NANDAKUMAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>13-09-1946</td>
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<tr>
<td>Present position</td>
<td>Sr. Scientist</td>
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<tr>
<td>Educational qualification</td>
<td>Ph. D.</td>
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<td>Field of specialisation</td>
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<tr>
<td>Total service in ICAR</td>
<td>29 years</td>
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</table>

**Brief Professional career**

- Sr. Scientist: 16 years
- Scientist: 8 years

**Experience**: Fishery, biology, stock assessment; population dynamics, conservation and management of crustaceans, EIA studies, and trainings.

**No. of research papers/books published**: 30

**Special Training undergone**: Nil

**Areas where consultancy services can be offered**:
Crustacean resource survey, stock assessment, biology and management; identification of marine prawns, lobsters and crabs, prawn culture.
<table>
<thead>
<tr>
<th>Name</th>
<th>K. NARAYANA KURUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>25-06-1944</td>
</tr>
<tr>
<td>Present position</td>
<td>Sr. Scientist</td>
</tr>
<tr>
<td>Educational Qualification</td>
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<td>Field of specialization</td>
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<td>Total service in ICAR</td>
<td>31 years</td>
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<td>Brief professional career</td>
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</tr>
<tr>
<td>Sr. Scientist</td>
<td>16 years</td>
</tr>
<tr>
<td>Scientist</td>
<td>10 years</td>
</tr>
</tbody>
</table>

**Experience**: Planning, designing and execution of sample survey for assessment of exploited marine fishery resources; fish stock assessment studies; research management; faculty member of PGPM in M.Sc and Ph.D programmes.

**No. of research papers/books published**: 26

**Special training undergone**
(inside the country/abroad): Professional Statisticians Certificate, IASRI, New Delhi

**Areas where consultancy services can be offered**: Design of Sample Survey including market survey, design of field laboratory experiments; fish stock assessment.
Name : A.K.V. NASSER
Date of birth : 12-06-1963
Present position : Scientist
Educational Qualification : Ph. D.
Field of specialization : Fish & Fishery Science
Total service in ICAR : 8 years
Brief professional career :
Scientist : 8 years

Experience : Fishery biology; primary and secondary production; hydrology, ecology of coral reefs, mangroves, seaweeds and seagrasses; economics of fishery and culture operations.

No. of research papers/books published : 9
Special training undergone : Nil
(inside the country/abroad)
Areas where consultancy services can be offered :
Fishery biology; hydrographical investigations; primary and secondary productivity studies; surveying and monitoring of coral reefs, managroves, seaweeds and seagrass communities.
Name : N. NEELAKANTA PILLAI

Date of birth : 19-01-1940

Present position : Sr. Scientist

Educational qualification : Ph. D.

Field of specialisation : Fish & Fishery Science

Total service in ICAR : 36 years

Brief Professional career

<table>
<thead>
<tr>
<th>Position</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sr. Scientist</td>
<td>16</td>
</tr>
<tr>
<td>Scientist</td>
<td>7</td>
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</tbody>
</table>

Experience : Biology, fishery of marine crustaceans, larval history and development of marine and brackish water shrimps, hatchery technology for penaeid shrimps and crustacean aquaculture.

No. of research papers/books published : 51
Special Training undergone:
(inside the country/abroad): Breeding and culture of *Penaeus monodon*, SEAFDEC, Philippines, for 3 months; FAO fellowship training in Hawaii, in *Macrobrochium* culture, for 3 months; Summer Institute on advanced cytogenetics and other application in live-stock improvement & Production, NDRI, Karnal, India for 3 months.

Areas where consultancy services can be offered:
Hatchery design, construction; production of seed of *Penaeus monodon*, *P. indicus* and *P. semisulcatus*. 
<table>
<thead>
<tr>
<th>Name</th>
<th>T.S. NAOMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>26 - 01 - 1950</td>
</tr>
<tr>
<td>Present position</td>
<td>Scientist (SS)</td>
</tr>
<tr>
<td>Educational Qualification</td>
<td>M.Sc.</td>
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<td>Field of specialization</td>
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<td>Total service in ICAR</td>
<td>26 years</td>
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<td>Brief professional career</td>
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<td></td>
<td>Scientist (Sr. Scale)</td>
</tr>
<tr>
<td></td>
<td>Scientist</td>
</tr>
</tbody>
</table>

**Experience**: Investigations on the secondary producers in relation to environmental parameters and fisheries; comprehensive studies on certain selected components of the zooplankton in the inshore and oceanic areas around India; EIA studies on the shallow water mining.

**No. of research papers/books published**: 42

**Special training undergone**
(inside the country/abroad): Nil

**Areas where consultancy services can be offered**:

Zooplankton identification, biomass estimation and secondary production; taxonomy of marine copepoda, cladocera and mysids; marine and brackishwater ichthyoplankton.
Name : D. NOBLE
Date of birth : 13-04-1946
Present position : Sr. Scientist
Educational Qualification : Ph.D.
Field of specialization : Livestock Production & Management
Total service in ICAR : 25 years
Brief professional career :

Sr. Scientist : 10 years
Scientist : 12 years
Demonstrator : 3 years

Experience : Training, management of livestock farm, laboratory animal production, farm extension, integrated farming, transfer of technology; farmers training.

No. of research papers/books published : 5

Special training undergone (inside the country/abroad) : Research Management Training, Central Staff College, Hyderabad.

Rural training, Operation Research Project, Rithora, Bareilly, UP
Animal Production under Arid Conditions, CAZRI, Jodhpur.
Rajasthan Trainer’s training, NAARM, Hyderabad
Principles and Practices for Dairy Farming and Transferable Technologies, TTC of NDRI, Karnal, Haryana
Manpower Planning in Agriculture, NAARM, Hyderabad

Areas where consultancy services can be offered :
Live stock production and management; manpower training for integrated farming.
Name : P. PARAMESWARAN PILLAI
Date of birth : 10-11-1942
Present position : Principal Scientist
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 34 years

Brief Professional career
- Principal Scientist : 13 years
- Sr. Scientist : 6 years
- Scientist : 3 years

Experience : Systematics, biology, population characteristics, stock assessment, conservation and management of tunas of the Indian seas.

No. of research papers/books published : 82

Special Training undergone (inside the country/abroad) : Fish stock assessment; Biology and population dynamics of tunas in Japan.

Areas where consultancy services can be offered : Biology, stock assessment, conservation and management of tunas in the Indian seas.
Name : R. PAUL RAJ  
Date of birth : 02-06-1949  
Present position : Sr. Scientist  
Educational qualification : Ph. D.  
Field of specialisation : Fish & Fishery Science  
Total service in ICAR : 22 years  
Brief Professional career

<table>
<thead>
<tr>
<th>Position</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sr. Scientist</td>
<td>13</td>
</tr>
<tr>
<td>Scientist</td>
<td>9</td>
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</tbody>
</table>

Experience : Fish and crustacean nutrition; feed Technology; Environment Impact Assessment; nutritional pathology; teaching/research Guidance at P G level course in fish and shellfish nutrition, feed technology, research techniques; curriculum design; aquaculture, mariculture, trainings; setting up of laboratories in nutrition and feed technology; consultancy/technical advice; sustainable shrimp culture; EIA of coastal aquaculture projects, fish and shrimp feed management.

No. of research papers/books published : 54

Special Training undergone

<table>
<thead>
<tr>
<th>(inside the country/abroad)</th>
<th>Duration</th>
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<tbody>
<tr>
<td>Coastal Aquaculture</td>
<td>1 month, CMFRI</td>
</tr>
<tr>
<td>Inland Fisheries and Aquaculture</td>
<td>8 months, CIFRI</td>
</tr>
<tr>
<td>Research Management</td>
<td>3 months, NAARM</td>
</tr>
<tr>
<td>Fish Nutrition and Feed Technology</td>
<td>3 months, CIFRI</td>
</tr>
</tbody>
</table>

Areas where consultancy services can be offered : Fish and crustacean nutrition and feed technology; quality assessment of feeds and raw materials; training in fish and crustacean nutrition, feed technology; design and development of curriculum for aquaculture, mariculture nutrition and feed technology course; Environment Impact Assessment studies; sustainable shrimp culture.
Name : K. K. PHILIPOSE
Date of birth : 23-09-1955
Present position : Scientist (SS)
Educational qualification : M. Sc.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 12 years
Brief Professional career
Scientist (Sr. Scale) : 4 years
Scientist : 8 years
Experience : Marine ornamental fish culture and aquarium development; artificial reefs; lobster culture.

No. of research papers/books published : 10

Special Training undergone
(inside the country/abroad) : Workshop on the problems and prospects of export of ornamental fishes held at Chennai, organised by MPEDA.

Areas where consultancy services can be offered : Ornamental fish resources; planning designing and setting up of marine aquarium, artificial reefs; lobster culture.
Name : V. K. PILLAI
Date of birth : 21-08-1940
Present position : Sr. Scientist
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 34 years
Brief Professional career
Sr. Scientist : 16 years
Scientist : 7 years

Experience : Inshore and estuarine hydrobiology; benthos of the fishing grounds, impacts on environment; marine pollution; application of remote sensing in marine fisheries; faculty member of PGPM; organising TTC training courses in various technologies developed by CMFRI.

No. of research papers/books published : 58

Areas where consultancy services can be offered:
Coastal hydrobiology; EIA; marine pollution; application of remote sensing in marine fisheries
<table>
<thead>
<tr>
<th>Name</th>
<th>V. N. PILLAI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>01-09-1940</td>
</tr>
<tr>
<td>Present position</td>
<td>Head, Fishery Environment Management Division</td>
</tr>
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<td>Educational qualification</td>
<td>Ph. D.</td>
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<td>Field of specialisation</td>
<td>Fish &amp; Fishery Science</td>
</tr>
<tr>
<td>Total service in ICAR</td>
<td>13 years</td>
</tr>
</tbody>
</table>

**Brief Professional career**

- Principal Scientist: 13 years
- Chief Instructor, CIFNET: 6 years
- Deputy Director, IFP: 6 years
- Sr. Oceanographer, FAO/UNDP, PFP: 2 years
- Chief Instructor, CIFNET: 7 years

**Experience**: Fisheries oceanography; application of remote sensing in marine fisheries; teaching at PG level.

**No. of research papers/books published**: 64

**Special Training undergone (inside the country/abroad)**: Acoustic methods of estimation of fish abundance FAO training programme, Cochin - 1971; Application of oceanographic and meteorological data for fisheries forecasting and management; FAO study tour fellowship, MAFF Fisheries Laboratory, Lowestoft, England (2 months during 1979); Management training for Senior Administrators - 1 month, IIM, Calcutta, 1981; Management training for senior scientists, NAARM, Hyderabad, 10 days, 1991; Training for Senior Managers/ Scientists in the application of Remote sensing techniques in Agriculture/Fisheries, IIRS, Dehradun, 10 days, 1996.

**Areas where consultancy services can be offered**: Fisheries oceanography; application of remote sensing techniques in marine fisheries.
Name : K. PRABHAKARAN NAIR
Date of birth : 23-12-1940
Present position : Sr. Scientist
Educational qualification : M. Sc.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 30 years
Brief Professional career
  Sr. Scientist : 14 years
  Scientist : 9 years
Experience : Fishery resources assessment; trawl fishery survey, fisheries biology, taxonomy, stock assessment and fishery characteristics of cephalopods; survey of fish and shellfish seed resources; exploratory survey onboard Fishery and Oceanographic Research Vessels; teaching in Mariculture at P G level.
No. of research papers/books published : 40
Special Training undergone (inside the country/abroad) : Acoustic methods in Fish Detection and Abundance Estimation, CMFRI, September, 1984
  Fishery Resource Assessment, CMFRI, January - March, 1987
Areas where consultancy services can be offered : Taxonomy, biology and fishery of cephalopods.
<table>
<thead>
<tr>
<th>Name</th>
<th>PRATHIBA ROHIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>18-11-1961</td>
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<tr>
<td>Present position</td>
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<td>Educational Qualification</td>
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<td>Field of specialization</td>
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</tr>
<tr>
<td>Total service in ICAR</td>
<td>12 years</td>
</tr>
</tbody>
</table>

**Brief professional career**

| Scientist (Sr. Scale) | 4 years |
| Scientist             | 8 years |

**Experience**: Fishery biology, stock assessment of marine pelagic fishes; preparation of Marine Fishery Resources Atlas; biochemical genetics; mariculture of crustaceans and molluscs.

**No. of research papers/books published**: 15

**Special training undergone**

(inside the country/abroad): Workshop on Stock assessment of tropical marine fishes.

**Areas where consultancy services can be offered**

Fishery biology, stock assessment, mariculture; fish identification.
Name: D. PREMA
Date of birth: 21.07.1963
Present position: Scientist
Educational Qualification: Ph. D.
Field of specialization: Soil Science and Agricultural Chemistry
Total service in ICAR: 5 years
Brief professional career:
Scientist: 5 years
Agricultural Officer, (Govt. of Kerala): 5 years
Experience: Soil chemistry and soil fertility studies in relation to agriculture with special reference to horticultural crops and plantation crops; soil and water analysis for chemical parameters, soil physical analysis.
No. of research papers/books published: 9
Special training undergone (inside the country/abroad): Organic farming for sustainable Agriculture
Areas where consultancy services can be offered:
Soil and sediment analysis; aquachemistry and water analysis; environmental monitoring.
Name: E.V. RADHAKRISHNAN
Date of birth: 01-02-1950
Present position: Sr. Scientist
Educational Qualification: Ph. D.
Field of specialization: Fish & Fishery Science
Total service in ICAR: 22 years

Brief professional career:
- Sr. Scientist: 16 years
- Scientist: 6 years

Experience: Fishery, biology, stock assessment, management of lobster resources; captive maturation of shrimps by environmental manipulation and feed management; hatchery production and farming; captive breeding of spiny lobsters; eyestalk extirpation experiments to promote growth in Panulirus homarus; transportation of live lobsters; faculty of PGPM in M.Sc and Ph. D programmes.

No. of research papers/books published: 32

Special training undergone (inside the country/abroad):
- Foundation course for agricultural research scientist at NAARM, Hyderabad for 3 months.
- Advanced training in Lobster Culture at Tulane University, New Orleans, USA, under FAO/UNDP programme from 10-01-1985 to 09-07-1985.
- Visiting Fellow to Research Institute for Marine Biological Science, Science University of Tokyo, Japan from 04-8-97 to 04-11-97 to conduct collaborative research on spiny lobster breeding and hatchery development.

Areas where consultancy services can be offered:
- Shrimp, lobster and crab management; lobster farming/fattening; hatchery development and farming technology for shrimps.
Name: P. N. RADHAKRISHNAN NAIR
Date of birth: 02-05-1947
Present position: Sr. Scientist
Educational qualification: Ph. D.
Field of specialisation: Fish & Fishery Science
Total service in ICAR: 29 years

Brief Professional career
Sr. Scientist: 14 years
Scientist: 8 years

Experience: Systematics, biology, population characteristics, stock assessment, conservation and management of pelagic finfishes; conventional and non-conventional pelagic finfish identification.

No. of research papers/books published: 28

Special Training undergone (inside the country/abroad): Training in fish stock assessment

Areas where consultancy services can be offered:
Stock assessment, conservation and management of pelagic finfish resources of the seas around India.
Name : M. RAJAGOPALAN
Date of birth : 06-09-1946
Present position : Sr. Scientist
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 30 years

Brief Professional career

Sr. Scientist : 14 years
Scientist : 9 years

Experience : Fishery biology; EIA studies of coastal waters; biodiversity; coastal zone management studies; conservation and management of endangered marine turtles and mammals.

No. of research papers/books published : 35

Special Training undergone
(inside the country/abroad) : Nil

Areas where consultancy services can be offered:
Fish biology (deep water fishery resources); EIA studies of aquaculture systems and coastal waters; biodiversity; coastal zone management; conservation and management of marine turtles and mammals.
Name : M. RAJAMANI
Date of birth : 08-05-1948
Present position : Sr. Scientist
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 22 years

Brief Professional career

Sr. Scientist : 12 years
Scientist : 10 years

Experience : Brine shrimp, Artemia - biology, ecology and culture; Artificial reefs and coastal zone improvement.

No. of research papers/books published :

Special Training undergone :
(inside the country/abroad) : Culture of live feed organisms with special reference to Artemia culture at CAS in Mariculture, CMFRI.

Marine Ranch (marine farm) system at Usa Marine Biological station, Kochi University, Kochi, Japan from 31-8-97 to 10-12-97, under the Colombo Plan.

Areas where consultancy services can be offered :
Artemia culture, artificial reef for coastal zone improvement.
Name : K.N. RAJAN
Date of birth : 13-05-1941
Present position : Sr. Scientist
Educational Qualification : M.Sc.
Field of specialization : Fish & Fishery Science
Total service in ICAR : 35 years
Brief professional career :
  Sr. Scientist : 12 years
  Scientist : 9 years

Experience : Fishery biology, stock assessment, conservation and management of penaeid prawn resources; monsoon prawn fishery, experimental trawling, artisanal prawn fishery, deep sea crustacean resources.

No. of research papers/books published : 25
Special training undergone : Nil
(inside the country/abroad)
Areas where consultancy services can be offered :
Prawn biology and fishery; identification of marine prawns
Name: K. RAMASOMAYAJULU
Date of birth: 14.08.1944
Present position: Technical officer (T-5)
Educational Qualification: M.Sc.
Field of specialization: Fish & Fishery Science
Total service in ICAR: 28 years
Brief professional career:
  Technical officer: 3 years

Experience: Stock assessment of bivalves and gastropods of Kakinada Bay; open sea pearl culture; onshore pearl culture and edible oyster and green mussel culture.

No. of research papers/books published: 9

Special training undergone (inside the country/abroad):
  Post graduate Diploma in Co-operation and Rural Studies
  Entrepreneurship Development course in Marine pearl culture at Tuticorin conducted by TTC.

Areas where consultancy services can be offered:
  Pearl culture, edible oyster, mussel, clam culture and environmental data monitoring.
Name: RANI MARY GEORGE
Date of birth: 13-05-1953
Present position: Sr. Scientist
Educational qualification: Ph. D.
Field of specialisation: Fish & Fishery Science
Total service in ICAR: 21 years

Brief Professional career:
- Sr. Scientist: 16 years
- Scientist: 5 years

Experience: Planktonology with special reference to cladocerans, ichthyoplankters and chaetognaths; culture of microalgae and microinvertebrates (rotifers, cladocerans and copepods); taxonomy of gorgonids and ornamental fishes.

No. of research papers/books published: 20

Special Training undergone:
(inside the country/abroad): Fishery Science at Split, Yugoslavia

Areas where consultancy services can be offered:
Planktonology with emphasis on cladocerans and ichthyoplankters; live feed culture (rotifer, cladocerans and copepods); taxonomy of gorgonids (sea fans).

Live feed - rotifer culture
Name : REETA JAYASANKAR
Date of birth : 23-06-1960
Present position : Scientist (SS)
Educational qualification : Ph. D.
Field of specialisation : Plant Physiology
Total service in ICAR : 12 years

Brief Professional career
Scientist (Sr. Scale) : 5 years
Scientist : 7 years

Experience : Seaweed culture by vegetative and reproductive method, seaweed physiology, phytoplankton culture, rotifer culture.

No. of research papers/books published : 15

Special Training undergone (inside the country/abroad) : National Academy of Agricultural Research and Management, for 5 months, Hyderabad.
Tissue culture of plants at Sugarcane Breeding Institute, Coimbatore
Phytoplankton culture at Tuticorion Research Centre of CMFRI

Areas where consultancy services can be offered :
Vegetative and reproductive method of seaweed culture, phytoplankton culture, rotifer culture and seaweed physiology.
Name : K. RENGARAJAN
Date of birth : 20-02-1940
Present position : Sr. Scientist
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 34 years

Brief Professional career

Sr. Scientist : 16 years
Scientist : 7 years

Experience : Quantitative assessment of marine plankton, secondary production; Siphonophore taxonomy; fish seed resources surveys, seed transportation; Transmission and Scanning Electron Microscopy; editing of scientific publications.

No. of research papers/books published : 25
Special Training undergone:
(inside the country/abroad) : Operation and maintenance of Electron Microscope (TEM, SEM and STEM) and specimen preparation techniques in Electron Microscopy in Japan.

Specialised specimen preparation techniques in Electron Microscopy at AIIMS, New Delhi.

Areas where consultancy services can be offered:
Siphonophore taxonomy, identification and quantitative estimation of marine zooplankton; TEM, SEM and STEM, teaching and training Electron Microscopy; editing of scientific publications.
<table>
<thead>
<tr>
<th>Name</th>
<th>K.P. SAID KOYA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>25-09-1958</td>
</tr>
<tr>
<td>Present position</td>
<td>Scientist (SS)</td>
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<tr>
<td>Educational Qualification</td>
<td>M.Sc. (Industrial Fisheries)</td>
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<td>Field of specialization</td>
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<td>Total service in ICAR</td>
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<td>Brief professional career</td>
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<tr>
<td>Scientist (Sr. Scale)</td>
<td>4 years</td>
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<tr>
<td>Scientist</td>
<td>8 years</td>
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</tbody>
</table>

**Experience**: Fishery, biology and stock assessment of pelagic finfishes (tunas, seerfishes, billfish, sardines, mackerels, ribbon-fish, bombay duck, pomfrets); marine mammals; survey, exploitation and management of marine ornamental fishes; craft and gear development; extension - transfer of technology, trainings, broodstock development of finfishes, ornamental fish; crab fattening, brackishwater finfishes and prawns culture.

**No. of research papers/books published**: 16

**Special training undergone**: Nil

**Areas where consultancy services can be offered**: Fishery, biology, stock assessment of finfishes, conservation/management of marine mammals, ornamental fish, craft gear development; extension; culture of brackish water finfish, prawns and crabs.
Name : K. N. SALEELA
Date of birth : 21-04-1966
Present position : Scientist
Educational qualification : M. Sc.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 6 years

Brief Professional career
Scientist : 6 years

Experience : Fishery biology, crustacean hatchery and farming.

No. of research papers/books published : 3

Special Training undergone: Nil
(inside the country/abroad)

Areas where consultancy services can be offered:
Crustacean fishery biology; shrimp and crab culture; shrimp seed production.
<table>
<thead>
<tr>
<th>Name</th>
<th>P.E. SAMPSON MANICKAM</th>
</tr>
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<tbody>
<tr>
<td>Date of birth</td>
<td>02-03-1943</td>
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<tr>
<td>Present position</td>
<td>Sr. Scientist</td>
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<td>Educational Qualification</td>
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<td>Field of specialization</td>
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<td>Total service in ICAR</td>
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<tr>
<td>Sr. Scientist</td>
<td>12 years</td>
</tr>
<tr>
<td>Scientist</td>
<td>9 years</td>
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</tbody>
</table>

**Experience**: Shrimp stock assessment and biology, shrimp maturation, hatchery culture, shrimp nauplii production and their high density and long distance transfer; live feed culture.

**No. of research papers/books published**: 25

**Special training undergone (inside the country/abroad)**: Nil

**Areas where consultancy services can be offered**: Shrimp hatchery and seed production; maturation and hatchery for *P. monodon*; site selection for hatchery and farms.
Name : N.K. SANIL
Date of birth : 21-12-1962
Present position : Scientist
Educational Qualification : M.Sc.
Field of specialization : Veterinary Parasitology
Total service in ICAR : 6 years

Brief professional career :
Scientist : 6 years

Experience : Fish pathology, parasite disease of animals; faculty member of PGPM in M.Sc and Ph.D programmes.

No. of research papers/books published : 2

Special training undergone (inside the country/abroad) : One month training on Electron Microscopy at AIIMS, Delhi.

Areas where consultancy services can be offered :
Fish pathology, parasite diseases in fishes and shell fishes.
Name: P. T. SARADA
Date of birth: 20-05-1961
Present position: Scientist (SS)
Educational Qualification: M.Sc.
Field of specialization: Fish & Fishery Science
Total service in ICAR: 12 years
Brief professional career:
- Scientist (Sr. Scale): 4 years
- Scientist: 8 years

Experience: Fishery biology, stock assessment; environment monitoring, primary and secondary production.

No. of research papers/books published: 3
Special training undergone: Nil
Areas where consultancy services can be offered:
Fishery biology, stock assessment and fishery environment monitoring.
Name : R. SARVESAN
Date of birth : 14-12-1943
Present position : Sr. Scientist
Educational qualification : M. Sc.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 31 years

Brief Professional career
Sr. Scientist : 16 years
Scientist : 7 years

Experience : Survey of molluscan resources in the EEZ and coastal areas; taxonomic studies of the cephalopods, gastropods and bivalves of Indian seas; stock assessment and management of cephalopod resources in the coastal seas; studies on spat production and settlement of spats of edible oyster and green mussels; rearing and larval development of cephalopods.

No. of research papers/books published : 30

Special Training undergone (inside the country/abroad) : Sampling survey of Fishery resources. Fisheries statistics and population Dynamics conducted by ICAR/CMFRI; Experimental cephalopod fishing along South West Coast using Japanese Squid jigging equipments (ICAR/CIFT)

Areas where consultancy services can be offered :
Stock assessment and management of cephalopod resources; culture of edible oyster and green mussels; identification of squids, octopuses and cuttlefishes and ornamental gastropods and bivalves.
<table>
<thead>
<tr>
<th>Name</th>
<th>T.V. SATHIANANDAN</th>
</tr>
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<tbody>
<tr>
<td>Date of birth</td>
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<td>Brief professional career</td>
<td>Scientist</td>
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<td></td>
<td>9 years</td>
</tr>
<tr>
<td></td>
<td>Computer (NRCC)</td>
</tr>
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</table>

**Experience**: Fishery statistics, fish stock assessment, statistical design and analysis of research experiments; time series modelling; development of computer softwares in C and FORTRAN; faculty member for teaching statistics and computer programming for M.Sc. and Ph.D.

**No. of research papers/books published**: 14

**Special training undergone** *(inside the country/abroad)*: Foundation Course on Research Project management for five months at National Academy for Agricultural Research Management, Hyderabad.

Advanced statistical methods for 6 months at Indian Agricultural Statistics Research Institute, New Delhi.

Data Base Management Systems conducted by the National Remote Sensing Agency at Hyderabad.

Optimality and robustness of designs conducted by Indian Agricultural Statistics Research Institute, New Delhi.

**Areas where consultancy services can be offered**: Fishery statistics, fish stock assessment, univariate and multivariate time series modelling; design and analysis of experiments, sample surveys; computer software development.
Name: K. S. SCARIAH
Date of birth: 20-08-1939
Present position: Sr. Scientist
Educational qualification: Ph. D.
Field of specialisation: Agricultural Statistics
Total service in ICAR: 34 years
Brief Professional career
Sr. Scientist: 14 years
Scientist: 8 years
Experience: Evaluation of relative breeding of cattle; cost of production of poultry, egg and pigs; least cost combination of feeds; estimation of marine fish landings, stock assessment; teaching and guidance of M. Sc, Ph. D and MCA; management of computer centre.

No. of research papers/books published: 15
Special Training undergone (inside the country/abroad): Agricultural Statistics, Fishery Statistics, Computer programming, Computer application and management
Areas where consultancy services can be offered:
Fishery survey; fish stock assessment; planning and execution of sample survey; training in fish stock assessment and computer application in fishery research.
Name : SHEELA IMMANUEL

Date of birth : 25-12-1965

Present position : Scientist

Educational Qualification : M.Sc.

Field of specialization : Agricultural Extension

Total service in ICAR : 7 years

Brief professional career :

Scientist : 7 years

Experience : Fishery extension, Social research methodologies, transfer of technology, Research studies in Extension, group implementation of Rural Development programmes.

No. of research papers/books published : 11

Special training undergone :

(inside the country/abroad)

Areas where consultancy services can be offered :

Social research, methodology, various extension methods to be applied in T O T programmes; communicational behaviour aspects; administration and management.
Name : M. SIVADAS
Date of birth : 28-10-1957
Present position : Scientist (SS)
Educational Qualification : M.Sc.
Field of specialization : Fish & Fishery Science
Total service in ICAR : 16 years
Brief professional career :
Scientist (Sr. Scale) : 8 years
Scientist : 8 years
Experience : Fishery biology, pelagic fish stock assessment; fishery environment monitoring and biodiversity.
No. of research papers/books published : 13
Special training undergone : Nil
Areas where consultancy services can be offered :
Fishery biology, stock assessment and biodiversity.
<table>
<thead>
<tr>
<th>Name</th>
<th>S. SIVAKAMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>07-01-1946</td>
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<tr>
<td>Present position</td>
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<td>Educational qualification</td>
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<td>Field of specialisation</td>
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<tr>
<td>Total service in ICAR</td>
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**Brief Professional career**

<table>
<thead>
<tr>
<th>Position</th>
<th>Years</th>
</tr>
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<tbody>
<tr>
<td>Sr. Scientist</td>
<td>16 years</td>
</tr>
<tr>
<td>Scientist</td>
<td>6 years</td>
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</table>

**Experience**: Reservoir fisheries, cage/pen culture of major carps; fishery, biology, stock assessment, population dynamics of carangids; lizard fishes, sciaenids, bulls eye; faculty member for PG courses under CIFE, Mumbai.

**No. of research papers/books published**: 38

**Special Training undergone**
(inside the country/abroad)

- Workshop on Water Quality Management organised at CMFRI, Cochin by Dr. C. E. Boyd of Auburn University, Alabama, U. S. A. during December 1984.
- Summer Institute on Stock Assessment of Marine Fisheries at CMFRI, Cochin during June-July 1995.

**Areas where consultancy services can be offered**:
Fishery and biology of marine fishes; cage/pen culture of marine, brackishwater and freshwater fishes.
<table>
<thead>
<tr>
<th>Name</th>
<th>K.S. SOBHANA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>25-05-1966</td>
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<td>Present position</td>
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<td>Educational Qualification</td>
<td>Ph. D.</td>
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<td>Field of specialization</td>
<td>Fish &amp; Fishery Science</td>
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<td>Total service in ICAR</td>
<td>4 years</td>
</tr>
<tr>
<td>Brief professional career</td>
<td>4 years</td>
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</table>

**Experience**: Fish pathology and immunology; training and extension activities in marine fisheries; faculty member of PG Programme in mariculture.

**No. of research papers/books published**: 1

**Special training undergone**

*Inside the country/abroad*: Participated in the training programme on Hybridoma Technology for Aquaculture Health Management, sponsored by the Department of Biotechnology, Govt. of India, College of Fisheries, Mangalore, 2nd to 22nd May 1998.

**Areas where consultancy services can be offered**: Fish and shellfish pathology and immunology.
Name: K. V. SOMASEKHARAN NAIR
Date of birth: 18-02-1945
Present position: Sr. Scientist
Educational qualification: Ph. D.
Field of specialisation: Fish & Fishery Science
Total service in ICAR: 32 years
Brief Professional career
Sr. Scientist: 14 years
Scientist: 9 years

Experience: Taxonomy, fishery, biology, population dynamics and management and conservation of demersal finfish such as threadfin breams, lizard fishes and sciaenids; fattening of groupers; abundance and availability of finfish seed resources.

No. of research papers/books published: 27

Special Training undergone
(inside the country/abroad): Summer Institute in coastal aquaculture conducted by CMFRI, Cochin.

Training in finfish breeding in CIFA, Bhubhaneswar.

Areas where consultancy services can be offered:
Identification of commercial fin fishes in the EEZ of India; demersal finfish management; survey for spatial and temporal distribution and abundance of fish seed resources.
Name : N. SRIDHAR  
Date of birth : 18-07-1957  
Present position : Scientist (SS)  
Educational Qualification : Ph. D.  
Field of specialization : Animal Biochemistry  
Total service in ICAR : 13 years  
Brief professional career :  
Scientist (Sr. Scale) : 8 years  
Scientist : 5 years  
Experience : Biochemistry and endocrinology of finfish and shellfish; enzymes in shrimp digestion, metabolism; factors inducing maturation in shrimp; tissue culture of crustacean neuroendocrine centres; instrumentation methodologies; maturation and sex reversal in groupers.  
No. of research papers/books published : 14  
Special training undergone (inside the country/abroad) : Tissue culture training at National centre for Cell Science, Pune. Biotechnology in Aquaculture at CIFA, Bhubaneswar. Department of Biotechnology Overseas Associateship at the Department of Ecology Evolution and Ornamental Biology, Tulane University, New Orleans, USA for 6 months, February to August, 1997 on Thoracic ganglion involvement in protein synthesis in the ovary of Procambarus clarkii.  
Areas where consultancy services can be offered :  
Analysis of biochemical constituents; protein separation and purification procedures; isolation of enzymes and bioactive compounds; Purification of enzymes.
Name: M. SRINATH
Date of birth: 01-06-1948
Present position: Senior Scientist
Educational Qualification: Ph. D.
Field of specialization: Agricultural Statistics
Total service in ICAR: 20 years
Brief professional career:
  Sr. Scientist: 15 years
  Scientist: 5 years

Experience: Fishery Statistics, fish population dynamics including fish stock assessment, resources data management and computer software.

No. of research papers/books published: 32

Special training undergone:
(inside the country/abroad): Fish stock assessment conducted by the ICAR/FAO/DANIDA held at CMFRI, Cochin; National Follow up training course in Fish Stock Assessment conducted by DANIDA/ICAR/FAO at CMFRI.

"UNIX" and "C" course conducted by the C.M.C. Ltd held at Cochin.

Data communications and networking conducted by the C.M.C. Ltd. held at New Delhi.

"SOLARIS UNIX Server Configuration" conducted by the FUJITSU/ICIM held at Sugar Cane Breeding Institute, Coimbatore.

Areas where consultancy services can be offered:
Fishery statistics, mathematical/statistical modelling applied to fisheries, sample surveys, computer software, resource data management.
Name : P. V. SREENIVASAN
Date of birth : 08.05.1944
Present position : Sr. Scientist
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 30 years

Brief Professional career
Sr. Scientist : 14 years
Scientist : 9 years

Experience : Fishery biology and taxonomy of carangids; resources survey of molluscs of coastal waters; culture of pearl oysters, edible oysters, mussels and clams; hatchery production of bivalve seeds.

No. of research papers/books published : 51

Special Training undergone
(inside the country/abroad) : Polyculture of Laminaria with molluscs at Qing Dao, People’s Republic of China conducted by NACA/FAO

Areas where consultancy services can be offered : Culture of bivalves (Pearl oysters, edible oysters, mussels and clams) and hatchery production of bivalve seeds.
<table>
<thead>
<tr>
<th>Name</th>
<th>V. SRIRAMACHANDRA MURTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>19-01-1943</td>
</tr>
<tr>
<td>Present position</td>
<td>Head, Demersal Fisheries Division</td>
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<td>Educational qualification</td>
<td>Ph. D.</td>
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<td>Head, DFD</td>
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<td>2 years</td>
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<td></td>
<td>Sr. Scientist</td>
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<tr>
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<td>14 years</td>
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<tr>
<td></td>
<td>Scientist</td>
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</tr>
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</table>

**Experience**: Fishery, biology, taxonomy, population dynamics of demersal and ornamental fishes; resources survey, assessment; marine biodiversity; research management and teaching.

**No. of research papers/books published**: 60

**Special Training undergone (inside the country/abroad)**: Fish stock assessment training in U. K. in 1988.

**Areas where consultancy services can be offered**: Taxonomy, biology and stock assessment of marine finfish; teaching and guiding postgraduate and doctoral students in marine fisheries; marine ornamental fishes of India; evaluation of research and development projects in marine fisheries.

Resources survey, catch analysis on board FORV Sagar Sampada
Name : G. SUDHAKARA RAO
Date of birth : 01-07-1940
Present position : Head, Crustacean Fisheries Division
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 35 years

Brief Professional career
- Head, C F D : 2 years
- Sr. Scientist : 14 years
- Scientist : 7 years

Experience : Marine capture fisheries; shrimps crabs lobster, taxonomy, biology, population dynamics, stock assessment, management and conservation; crustacean culture fisheries research and management

No. of research papers/books published : 40

Special Training undergone :
(inside the country/abroad) : Orientation course in agricultural Research management in the NAARM, Hyderabad; Marine prawn culture at CMFRI.

Areas where consultancy services can be offered :
Biology and stock assessment of crustacean and demersal fishery resources; shrimp and crab farming
**Name** : SUJITHA THOMAS  
**Date of birth** : 28-10-1968  
**Present position** : Scientist  
**Educational qualification** : M. Sc.  
**Field of specialisation** : Fish & Fishery Science  
**Total service in ICAR** : 2 years  

### Brief Professional career

| Scientist | 2 years |

**Experience** : Small scale hatchery operation, development of homestead ponds, training farmers, cage culture.

**No. of research papers/books published** : Nil  

**Special Training undergone**  
*(inside the country/abroad)* : Training in aquaculture in Auburn University, Alabama, USA.

**Areas where consultancy services can be offered** : Fish culture, cage culture; molluscan aquaculture.
Name : K. SUNILKUMAR MOHAMED
Date of birth : 02-04-1958
Present position : Scientist (SS)
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 12 years

Brief Professional career
Scientist (Sr. Scale) : 7 years
Scientist : 5 years

Experience : Fishery, biology, population dynamics, stock assessment of cephalopods; ecosystem based fisheries; production modelling; molluscan aquaculture - mussels and clams; shrimp endocrine control of reproduction, larval probiotics.

No. of research papers/books published : 30

Special Training undergone
(inside the country/abroad) : Biotechnology National Associateship at the Centre for Biotechnology, Anna University, 1 year, 1992-93; Biotechnology Associateship at the IFREMER, Centre de Brest, FRANCE on larval probiotics, 3 months, 1994.

Areas where consultancy services can be offered:
Larval probiotics, molluscan aquaculture, analysis of fisheries data & modelling.
Name : C. SUSEELAN  
Date of birth : 07-01-1940  
Present position : Sr. Scientist  
Educational qualification : Ph. D.  
Field of specialisation : Fish & Fishery Science  
Total service in ICAR : 34 years  
Brief Professional career  

Sr. Scientist : 16 years  
Scientist : 7 years  

Experience : Systematics, biology, fishery, stock assessment, management and conservation of crustacean and demersal resources; shrimp and crab farming; teaching - guiding research at M. F. Sc./ Ph. D. levels  

No. of research papers/books published : 60  
Special Training undergone : Nil  
(inside the country/abroad)  

Areas where consultancy services can be offered : 
Biology, fishery, biodiversity, stock assessment, management and conservation of coastal, offshore and deepsea crustaceans; training on above aspects; preparation of research and development projects on crustacea; planning / guiding academic programmes in mariculture/coastal aquaculture/marine fisheries and related disciplines.  

Deep Sea lobster - a prospective resource from SW and SE coast
Name: P. S. SWATHI LAKSHMI
Date of birth: 30-05-1971
Present position: Scientist
Educational qualification: M. Sc.
Field of specialisation: Agricultural Extension
Total service in ICAR: 1 year

Brief Professional career:
Scientist: 1 year

Experience: Transfer of technology in crop development programmes, implementation of agricultural schemes, their monitoring and evaluation; the socio-economic status of the agricultural scenario in rural areas; transfer of technology in mariculture.

No. of research papers/books published: 5

Special Training undergone (inside the country/abroad):
Video production for farm programmes
Mixed farming (as agril. officer)
Four months training for ARS probationers at NAARM, Hyderabad
Computer course in office automation

Areas where consultancy services can be offered:
Transfer of technology in agriculture; extension research in agricultural science.
Name : G. SYDA RAO
Date of birth : 01-08-1951
Present position : Sr. Scientist
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 21 years

Brief Professional career
Sr. Scientist : 15 years
Scientist : 4 years

Experience : Fishery, biology, stock assessment of bivalves and cephalopods; molluscan culture: clam, oyster, mussel, pearl oysters; on-shore pearl culture technology

No. of research papers/books published : 35

Special Training undergone (inside the country/abroad) : Fisheries training in Yugoslavia & Italy; Pearl culture training in CMFRI.

Areas where consultancy services can be offered : On-shore pearl culture.

Pearl oyster hatchery
Name: V. THANGARAJ SUBRAMANIAN

Date of birth: 11-01-1941

Present position: Sr. Scientist

Educational qualification: Ph. D.

Field of specialisation: Fish & Fishery Science

Total service in ICAR: 27 years

Brief Professional career

Sr. Scientist: 12 years
Scientist: 10 years

Experience: Crustacean biology, stock assessment; Prawn culture.

No. of research papers/books published: 20

Special Training undergone: Nil

(inside the country/abroad)

Areas where consultancy services can be offered: Culture of prawns and crabs; assessment of shrimp stock.
<table>
<thead>
<tr>
<th>Name</th>
<th>R. THIAGARAJAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>15-04-1943</td>
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<tr>
<td>Present position</td>
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<td>Educational qualification</td>
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<td>Field of specialisation</td>
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<td>Total service in ICAR</td>
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</table>

**Brief Professional career**

Sr. Scientist : 14 years
Scientist : 10 years

**Experience** : Fishery survey, fishery biology, stock-assessment and fishery management.

**No. of research papers/books published** : 30

**Special Training undergone**
(inside the country/abroad) : FAO/DANIDA/Fish Stock Assessment training.

**Areas where consultancy services can be offered**:
Fish biology, stock assessment and management
<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>P. C. THOMAS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date of birth</strong></td>
<td>02-03-1952</td>
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**Brief Professional career**

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<td>Scientist</td>
<td>10 years</td>
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**Experience**: Biotechnology, fish genetics, animal genetics and breeding; teaching/guiding: genetic engineering, quantitative genetics, cytogenetics, biological genetics and immunology.

**No. of research papers/books published**: 42

**Special Training undergone (inside the country/abroad)**: Techniques in Molecular biology, Cell biology and Immunology at ICMR Institute for Research in Reproduction, Bombay; Molecular methods for rapid detection of sea food associated pathogens at UNESCO - MIRCCEN Centre for Marine Biotechnology at UAS, Fisheries college, Mangalore; Application of Tissue culture in genetic studies at NDRI, Karnal. FAO/UNEP International training in Animal Genetic Resources Conservation and Management at the University of Veterinary Sciences, Budapest.

**Areas where consultancy services can be offered**: Biotechnology, fish genetics, animal genetics, breeding, immunology.
<table>
<thead>
<tr>
<th>Name</th>
<th>P. A. THOMAS</th>
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**Brief Professional career**

<table>
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<th>Role</th>
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<tr>
<td>Sr. Scientist</td>
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<tr>
<td>Scientist</td>
<td>7</td>
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</table>

**Experience**: Fishery survey; fishery biology; taxonomy of sponges/gorgonids; bioprospecting; bioactivity, bioerosion, ecology of boring/fouling sponges; crustacean biology.

**No. of research papers/books published**: 70

**Special Training undergone**
(inside the country/abroad) : National Academy for Agricultural Research & Management, Hyderabad.

**Areas where consultancy services can be offered**: Taxonomy; bioprospecting for sponges and gorgonids; biodiversity.

![Bioactive compound producing gorgoind & sponge](image)
Name : VEERENDRA VEER SINGH
Date of birth : 10-09-1956
Present position : Scientist (SS)
Educational qualification : Ph. D.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 12 years
Brief Professional career
Scientist (Sr. scale) : 7 Years
Scientist : 5 years
Experience : Fishery environment, oceanography, fisheries hydrography, fisheries education and Integrated Coastal Zone Management (ICZM); mariculture.
No. of research papers/books published : 16/1
Areas where consultancy services can be offered : Fishery environment, oceanography, fisheries hydrography; Fisheries education and Integrated Coastal Zone Management (ICZM) including Environmental Impact Assessment and Social Impact Assessment; mariculture.
Name: T. S. VELAYUDHAN
Date of birth: 02-11-1949
Present position: Sr. Scientist
Educational qualification: M. Sc.; B.Ed.
Field of specialisation: Fish & Fishery Science
Total service in ICAR: 20 years
Brief Professional career
- Sr. Scientist: 13 years
- Scientist: 7 years

Experience: Taxonomy, histology of pearl oyster; bivalve resources, biology, fishery, conservation and management; pearl oyster farming, induced maturation, breeding, spawning, pearl oyster surgery; bivalve farming; transfer of technology; selective breeding of bivalves; teaching aquaculture/genetics at P G level; training SCUBA diving, pearl culture. Recipient of ICAR team Award (1985-86) for pearl oyster hatchery technology.

No. of research papers/books published: 48
Special Training undergone
(inside the country/abroad): SCUBA diving;
Molluscan genetics, Dalhousie University, Canada in 1985.

Areas where consultancy services can be offered: Pearl oyster hatchery, farming, pearl production; SCUBA diving and pearl culture training.

Cultured pearl - *Pinctada fucata***

![](image-url)
<table>
<thead>
<tr>
<th>Name</th>
<th>R. VENUGOPALAN</th>
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<td>Date of birth</td>
<td>01-06-1971</td>
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<td>Total service in ICAR</td>
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</table>

**Brief Professional career**

Scientist : 1 year

**Experience**

- Constructed statistical/markovian/non-linear growth models for fish production, marine products export, biometrics and fish stock assessment; working experience with statistical packages like SAS and SPSS under DOS, WINDOWS and UNIX platforms.

**No. of research papers/books published** : 9

**Special Training undergone (inside the country/abroad)**

- Four months training for ARS probationers at NAARM, Hyderabad; Ten days training for ARIS cell personnel at UAS, Bangalore.
- Summer school on Recent advances in statistical design for agricultural research at IASRI, New Delhi

**Areas where consultancy services can be offered**

- Fish stock assessment through yield models; fishery forecasting through empirical modelling; statistical modelling; statistical packages for fisheries research.
Name: A.C.C. VICTOR
Date of birth: 23-02-1944
Present position: Senior Scientist
Educational Qualification: Ph. D.
Field of specialization: Fish & Fishery Science
Total service in ICAR: 31 years
Brief professional career:
- Sr. Scientist: 16 years
- Scientist: 7 years
Experience: Pearl oyster seed production, farming, pearl production; pearl oyster breeding, larval rearing, larval food production; chemical analysis and water quality control; sea ranching of pearl oyster seed, resources survey and extension; reproductive biology of Donax sp; SCUBA diving.
No. of research papers/books published: 38
Special training undergone: SCUBA diving (inside the country/abroad)
Areas where consultancy services can be offered:
Pearl oyster seed production, farming and pearl production; training in SCUBA diving.
Name : P. VIJAYAGOPAL
Date of birth : 23-07-1959
Present position : Scientist
Educational qualification : M. Sc
Field of specialisation : Animal nutrition
Total service in ICAR : 9 years

Brief Professional career
Scientist : 9 years
Dairy Extension Officer : 5 years

Experience : Nutrition of fishes and shrimps; feed formulations for shrimps, fishes, cattle, buffaloes and goats; teaching aquaculture nutrition and animal nutrition; technical evaluation of research projects, research papers and dairy development projects.

No. of research papers/books published : 3

Special Training undergone (inside the country/abroad) : Shrimp hatchery management

Areas where consultancy services can be offered : Fish and shrimp feed production; feed formulations for fishes, shrimps, cattle, buffaloes and goats; animal and aquatic nutrition; feed analysis; curriculum development in aquaculture nutrition; evaluation and critical appraisal of research projects in aquaculture nutrition.
Name : K. VIJAYAKUMARAN
Date of birth : 14-10-1956
Present position : Scientist (SS)
Educational qualification : M. Sc.
Field of specialisation : Fish & Fishery Science
Total service in ICAR : 13 years

Brief Professional career
Scientist (Sr. Scale) : 5 years
Scientist : 8 years

Experience : Fishery biology, coastal hydrography; studies on benthos; upwelling and fisheries; environmental monitoring; biodiversity conservation; coastal zone management; artificial sea water, live feed organisms; environmental analysis; economic analysis

No. of research papers/books published : 18

Special Training undergone (inside the country/abroad) : P G Training in Applied Statistics, Operations Research and Management

Areas where consultancy services can be offered : Fisheries management; environmental monitoring; coastal hydrography; EIA studies; micro algal feed; social and environmental audit; economic analysis and feasibility studies; biodiversity.
Name: K. VIJAYALEKSHMI
Date of birth: 25-04-1946
Present position: Scientist (SS)
Educational qualification: M. Sc
Field of specialisation: Agricultural Statistics
Total service in ICAR: 29 years

Brief Professional career
Scientist (Sr. Scale): 8 years
Scientist: 15 years

Experience: Scrutiny, analysis, compilation of marine fisheries statistical data, consolidation of reports

No. of research papers/books published: 2

Special Training undergone (inside the country/abroad): Agricultural statistics, IASRI, Delhi

Areas where consultancy services can be offered:
Statistical analysis of marine fish landing data
Name: E. VIVEKANANDAN

Date of birth: 05-04-1950

Present position: Sr. Scientist

Educational qualification: Ph. D.

Field of specialisation: Fish & Fishery Science.

Total service in ICAR: 22 years

Brief Professional career

Sr. Scientist: 15 years
Scientist: 7 years

Experience: Fishery, biology and finfish taxonomy; fish stock assessment; coastal fisheries management; EIA studies in coastal areas.

No. of research papers/books published: 62

Special Training undergone
(inside the country/abroad): DANIDA/FSI training on fish stock assessment

Acoustic methods for fish biomass estimation

Areas where consultancy services can be offered:
Fish identification and taxonomy; methodology of fisheries data collection; spatial and temporal fish abundance; potential fishing areas; coastal fisheries management; EIA in coastal and offshore areas.
<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>T. M. YOHANNAN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date of birth</strong></td>
<td>24-09-1942</td>
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<tr>
<td><strong>Present position</strong></td>
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<tr>
<td><strong>Educational Qualification</strong></td>
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<td><strong>Field of specialization</strong></td>
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<tr>
<td><strong>Total service in ICAR</strong></td>
<td>31 years</td>
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<tr>
<td><strong>Brief professional career</strong></td>
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<tr>
<td>Sr. Scientist</td>
<td>16 years</td>
</tr>
<tr>
<td>Scientist</td>
<td>7 years</td>
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</tbody>
</table>

**Experience**: Biology and population dynamics of pelagic fishes, influence of environment on pelagic fisheries and the management options; changing fishing patterns and the monsoon trawl ban in Kerala.

**No. of research papers/books published**: 23

**Special training undergone** *(inside the country/abroad)*: Fishery statistics, conducted by CMFRI, Cochin, from 12-11-79 to 22-12-79.

National Training Course in Fish Stock Assessment conducted by FAO/DANIDA/ICAR at Cochin from 7-11-83 to 10-12-83.

Acoustic Methods for Fish Detection and Abundance Estimation conducted by CMFRI, Cochin, from 12th to 25th September, 1984.

Appraisal course on 'Remote Sensing Applications' conducted by NRSA at Hyderabad from 7th to 11th September, 1987.

**Areas where consultancy services can be offered**: Pelagic resources, stock assessment and status studies of marine fisheries for management strategies.
<table>
<thead>
<tr>
<th>Name</th>
<th>P.U. ZACHARIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>21-02-1960</td>
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<tr>
<td>Present position</td>
<td>Scientist (SS)</td>
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<td>Educational Qualification</td>
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<td>Total service in ICAR</td>
<td>12 years</td>
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<td>Brief professional career</td>
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<tr>
<td>Scientist (Sr. Scale)</td>
<td>4 years</td>
</tr>
<tr>
<td>Scientist</td>
<td>8 years</td>
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</table>

**Experience**: Taxonomy, biology, stock assessment of marine demersal finfishes; impact of trawling on benthic biota; exploratory surveys; use of fisheries softwares.

**No. of research papers/books published**: 27

**Special training undergone**

(inside the country/abroad): ICAR Summer Institute on Stock assessment of tropical marine fishes.
Workshop on acoustic methods for marine fish stock assessment.

**Areas where consultancy services can be offered**:
Fishery biology, stock assessment, fish identification; impact of fishing on benthic biota; ecopath modelling, exploratory surveys for marine fish stock estimation.

![Fishery biology investigations & computer analysis](image)
<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of client</th>
<th>Status</th>
<th>Title</th>
<th>Period</th>
<th>Amount in Rs.</th>
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<tr>
<td>1</td>
<td>Mangalore Refinery &amp; Petrochemicals Ltd., Mangalore</td>
<td>Public sector</td>
<td>Inspection of the sub-marine portion of treated effluent pipeline</td>
<td>Feb'98-Mar.'98</td>
<td>89,000</td>
<td>Contract service</td>
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<td>2</td>
<td>Mangalore Refinery &amp; Petrochemicals Ltd., Mangalore</td>
<td>Public sector</td>
<td>Environmental monitoring in the Arabian sea off Chithraput and effluent analysis</td>
<td>Nov'97-Oct.'98</td>
<td>3,60,000</td>
<td>Consultancy service</td>
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<tr>
<td>3</td>
<td>Mangalore Refinery &amp; Petrochemicals Ltd., Mangalore</td>
<td>Public sector</td>
<td>Environmental monitoring in the Arabian sea off Chithraput and effluent analysis</td>
<td>Nov'98-Oct.'99</td>
<td>4,00,000</td>
<td>Consultancy service (2nd year continuing)</td>
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<td>4</td>
<td>SPIC Electric Power Corporation, Tuticorin</td>
<td>Public sector</td>
<td>Cooling water system design parameters</td>
<td>Feb.'97-Jul.'97</td>
<td>36,000</td>
<td>Contract service</td>
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<td>5</td>
<td>Kudremukh Iron Ore Co. Ltd., Mangalore</td>
<td>Public sector</td>
<td>Chemical parameters of the effluent and hydrobiological conditions in the effluent receiving water off Thannirbavi, Mangalore</td>
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<td>3,80,000</td>
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<td>Kudremukh Iron Ore Co. Ltd., Mangalore</td>
<td>Public sector</td>
<td>-do-</td>
<td>Aug.'98-Jul.'99</td>
<td>3,80,000</td>
<td>Consultancy service (2nd year continuing)</td>
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<td>7</td>
<td>Care India, Mumbai</td>
<td>International Agency</td>
<td>Preliminary investigation on the fishery and allied activities of some villages of Guhagar Taluk, Ratnagiri District.</td>
<td>Mar.'98-Dec.'98</td>
<td>3,30,000</td>
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<td>8</td>
<td>Hardy Exploration &amp; Production India (Inc), Chennai</td>
<td>-do-</td>
<td>Marine impact study around the oil &amp; gas field at Cauvery basin off Tamilnadu.</td>
<td>Apr.'98-Sept.'98</td>
<td>9,60,800</td>
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<td>9</td>
<td>National Environmental Engineering Research Institute, Nagpur</td>
<td>Govt. Agency</td>
<td>Initial Environmental Examination of Sethusamudhram ship canal project</td>
<td>Apr.'98-Jul.'98</td>
<td>4,59,000</td>
<td>Contract service</td>
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<td>Cochin Port Trust, Cochin</td>
<td>Public Sector</td>
<td>Monitoring the impact of reclamation of south end W. Island, Cochin</td>
<td>Jul.'98-Jun.'99</td>
<td>4,01,370</td>
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<td>11</td>
<td>Indian Tropical Agro Products Ltd., Tuticorin</td>
<td>Private sector</td>
<td>Pearl oyster farming and pearl production</td>
<td>Mar.'98-Feb.'99</td>
<td>1,50,000</td>
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<td>13</td>
<td>Bharat Heavy Electricals Ltd., Tiruchirappally</td>
<td>Public sector</td>
<td>Inspection of GRP/HDPE pipeline laid into the sea for the desalination plant at Nariyapur, Ramnad District.</td>
<td>Nov.'98-Dec. '98</td>
<td>1,00,000</td>
<td>Contract service</td>
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<td>14</td>
<td>Lakshadweep Shilpi Aquaculture Limited, Cochin</td>
<td>Private Sector</td>
<td>Marine environment study in and around fish hatchery and cage culture sites off Port Blair</td>
<td>Mar.'99-Apr. '99</td>
<td>2,56,000</td>
<td>Consultancy</td>
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<td>15</td>
<td>Suganthi Devadasan Marine Research Institute (SDMRI), Tuticorin</td>
<td>Private sector</td>
<td>Marine cultured pearl production - perfection of existing technology to increase the incidence of pearl and to improve their quality</td>
<td>Mar. '99-Feb. 2000</td>
<td>15,000</td>
<td>Contract Research</td>
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<td>Kakati, V.S.</td>
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<td>Arpita Sharma</td>
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<td>Asokakumaran Unnithan K.</td>
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<td>Balan, K.</td>
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<td>Kripa, V.</td>
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<td>Chandrika, V.</td>
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<td>Krishna Pillai, S.</td>
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<td>Chellam, A.</td>
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<td>Krishnakumar, P.K.</td>
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<td>Daniel Selvaraj, G.S</td>
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<td>Krishnamurty Chennubhoita V.S.</td>
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<td>Devaraj, M.</td>
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<td>Krupesh Sharma, S.R.</td>
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<td>Laxmilatha P.</td>
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<td>George, J.P.</td>
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<td>Laxminarayana A.</td>
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