



CMFRI

NEWSLETTER



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NATIONAL SEA TURTLE RESEARCH PROGRAMME



Sea turtles inhabit all along the coasts of India including the Lakshadweep and Andaman & Nicobar Islands. Five species of sea turtles which inhabit the Indian waters in the order of abundance are the olive ridley *Lepidochelys olivacea*, famous for its spectacular mass nesting, the highly priced and relished green turtle *Chelonia mydas*, the small sized hawksbill *Eretmochelys imbricata*, the reddish brown loggerhead *Caretta caretta* characterized by a large head and the large sized leatherback *Dermochelys coriacea* occurring only in Little Andaman and Nicobar Island. None of the five species are endemic and may undertake long distance migration to feeding and breeding grounds often across international boundaries. Some of the marine habitats such as coral reef areas in the Gulf of Mannar, Andaman & Nicobar Islands and Lakshadweep form the feeding grounds for turtles. One of the most spectacular activities is the mass nesting or *arribada* of the olive ridley along the north Orissa coast which is the largest concentration of sea turtles anywhere in the world. This unique phenomenon occurs almost regularly every year during January-April. It is estimated that, on an average, about 2,40,000 female olive ridleys nest every year in the Gahirmatha beach in Orissa. Tagging experiments and observations by the coast guards suggest northward mass migration of the olive ridleys off Sri Lankan waters in November to reach the mass nesting beach in Orissa coast during January.

In India, directed turtle fishery existed in Orissa, West Bengal coasts, in Gulf of Mannar and Palk Bay in Tamil Nadu. Turtle exploitation/predation could be categorized as that for meat, shell, eggs and hatchlings. The Forest Department of Orissa issued license for collection of eggs and it was estimated that 1.5 million eggs were legally removed during 1973 *arribada* season. Great interest was focused on the development of proper conservation and management measures of the sea turtles. The turning point has been the promulgation of the Indian Wildlife (Protection) Act 1972, wherein all species of marine turtles have been included as endangered species in Schedule I and are thereby completely protected. To pro-

tect the sea turtles, Bhitarkanika and Gahirmatha (65,000 ha) in Orissa were declared as Wildlife Sanctuaries in 1975. They are also been incorporated in the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES). In June 1981, India became a party to the Bonn Convention on the Conservation of Migratory Species of Wild Animals. From 1983, marketing the turtles and its directed fishery was totally stopped due to government intervention and adoption of conservation and management measures. Since then, turtles succumb mainly as incidental catch during fishing operations.

There is concern on the large scale mortality of sea turtles due to incidental catch in fishing operations along the Indian coast leading to conflicts between conservationists and fishing community. To reduce the mortality due to incidental catch, two options namely closure of fishing during mass nesting period and attachment of Turtle Excluder Device (TED) to the trawl nets are suggested. The TED is a specialized form of Bye-catch Reduction Device (BRD) designed to eliminate the turtle. Incidental catches in gill nets can be avoided by reducing the immersion time of the net and hauling it at frequent intervals. Awareness building measures may be taken up by the maritime state Governments. A proper assessment of the total stock is also required for formulating fishery management measures without affecting the livelihood of marine fishermen.

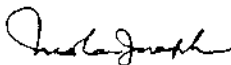
The CMFR Institute has developed a national sea turtle research programme for (1) surveying and demarcating nesting grounds of marine turtles along the Indian mainland coasts and the bay islands, (2) monitoring incidental catch of turtles in fishing operations and finding ways and means of minimizing the same, (3) developing hatchery and implementing hatchling release programme, (4) investigating biological aspects and behavior of turtles and (5) strengthening the National Marine Living Resources Data Centre (NMLRDC) for the acquisition and dissemination of data on marine turtles from the Exclusive Economic Zone of India.

In spite of our recent strides in the field of bivalve mariculture, we are still in square one when it comes to marine finfish culture. The hatchery technology for Seabass has been developed and commercialized outside CMFRI. Except in the case of a few marine ornamentals, we have not made any perceivable progress in this field, although our scientists have been 'at it' for a long time. My frequent interaction with scientists in the past gave me an impression that we have pioneered certain aspects of brood stock development and induced breeding but in the field of larval rearing we have difficulties. The understanding of the scientists was that 'right sized' live larval feed is the main constraint in early larval development. Much has been talked about the super small *Brachionus* and its unavoidable role in early larval food.

My understanding of the problem has changed considerably after I chanced upon certain recent publications. One of these was by Marino *et al.* on 'Induction of ovulation in Dusky Grouper *Epinephelus marginatus* using a sustained release delivery system loaded with gonadotropin releasing hormones'. Two other important publications were by Yeh *et al.* on 'Induced sex change spawning and larval culture of *Epinephelus tukula*' and on the 'Effect of exogenous androgens on *Epinephelus coioides*'.

Further search revealed many interesting aspects of grouper research. Mavit *et al.* have studied 'Effect of feeding grouper larvae with Omega-3 HUFA enriched rotifer'. At the end of my search, I chanced upon the report of the grouper hatchery

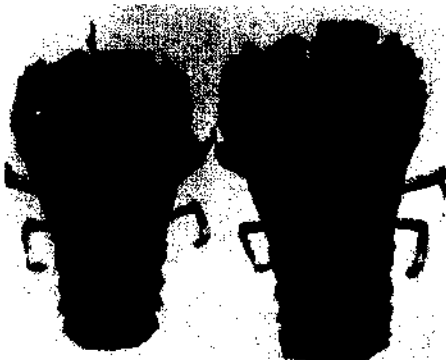
training carried out at the Gondol Research Institute for Mariculture in Indonesia. The trainees have succeeded, back home, in breeding *E. coioides*, *E. fuscoguttatus* and many more. I also chanced upon another paper by Sugama *et al.* on the 'Larval technique for hump back grouper *Cromileptis*'. I was also pleasantly surprised to read the advancement achieved in live transport of grouper larvae. Estudillo and Duray have described the techniques for transport of hatchery and wild grouper larvae. All these and many more publications clearly demonstrate that grouper larval research has gone much upstream than what we are aware of. If larval food is the constraint, then we need to look at alternate live feeds. Certainly, in nature the grouper larva do not subsist on super small *Brachionus* alone. On the other hand, many small sized live organisms must be forming its natural food. Alternates like ciliates, nauplii, molluscan trochophore larvae, egg suspensions of bivalves, copepods etc. can be tried as larval food. Perhaps more important than larval food could be issues related to water quality. All these points deserve review and targeted efforts are needed on a continuous basis as a team work if we have to achieve the much awaited success in our laboratory. I am confident that researchers in the field of grouper breeding in India will wake up and address these issues adequately.


Mohan Joseph Modayil

NEWS FROM THE RESEARCH FRONT

Breakthrough achieved in captive breeding of scyllarid lobsters

The scyllarid lobsters, *Thenus orientalis* and *Scyllarus rugosus* have been successfully bred in captivity at the Kovalam Field Laboratory of C.M.F.R.I. at Chennai. This success in captive breeding of these commercially important species is an important milestone in the development of hatchery technology for lobsters.



Male and Female *Thenus orientalis*

Captive breeding and complete larval rearing are major impediments in the development of a successful technology for commercial production of hatchery-raised seed. While there

has been a lot of research and success in breeding and larval rearing of Nephropid and Palinurid lobsters in different parts of the world, there is little information on breeding of the commercially important sand lobster *Thenus orientalis*, except that in Australia. These lobsters are known to have a shorter impregnation time span and brief larval phase.

Experiments conducted at the Kovalam Field Lab reveal that *T. orientalis* and *S. rugosus* do not require a pre-mating moult. Animals in the late intermoult stages have successfully mated producing fertilized eggs. In both the species, the spermatophoric mass was seen adhering to the post-ventral sternite and anterior abdominal region of the female in the form of a longitudinal white jelly-like mass.

Two adult females of *T. orientalis* (75 mm and 70.5 mm Carapace Length) which got berried under captivity released viable phyllosoma larvae. They re-mated in captivity after 13 and 30 days respectively and the second batch of larvae from the first animal was released after 19 days. One adult female (70 mm CL) was maintained in captivity for more than 70 days, after which it mated and released fertilized



T. orientalis with the egg mass

eggs. On anatomical examination, four juvenile females (30 mm - 66 mm CL) raised to adult sizes (65 mm to 75 mm CL) revealed development of ripe ovaries. The adult males (60 mm to 70 mm CL) that mated with the females were raised from juvenile sizes (33 mm - 55 mm CL). In *S. rugosus*, adult-sized males (19 mm and 18.5 mm CL) and females (17 mm - 25.2 mm CL) mated in captivity. Mating generally occurred in the night and egg extrusion started a few hours after this. Oviposition was completed within 6 - 8 hours. The impregnation was lost in about 12 hours after mating. In both species, males are smaller than females.

The animals were fed *ad libitum* with fresh clams - *Meretrix casta*. Berried *T. orientalis* were maintained in FRP tanks with *in situ* filter and under low light conditions. 50% water exchange was given daily. The adult-sized female *T. orientalis* which matured in captivity, was maintained in a closed re-circulatory system with a water exchange of 5% and under a photoperiod with 12 hours alternating spells of light and dark. Light coloured tanks were used for *S. rugosus* broodstock. The eggs produced after the first and second matings were fertilized and viable. Larval rearing experiments are progressing.

Minimum Legal Size for export of lobsters enforced

Based on the recommendations of CMFRI, the Ministry of Commerce and Industry, Govt. of India has issued orders specifying the MLS of four species of lobsters. The Minimum Legal Weight fixed for four species of lobsters below which they are prohibited from being exported are as follows: *Panulirus homarus* (whole) - 200g, *P. polyphagus* - 300g, *P. ornatus* - 500g and *Thenus orientalis* - 150g.

Resource friendly fishing gear for lobsters popularised

Consequent to the encouraging feed back information obtained from the fishermen of Khadiyapatnam village where lobster traps were distributed earlier under the project on the Participatory Management and Conservation of Lobster Resources, 30 numbers of lobster traps were distributed free of cost to the lobster fishermen of Enayam fishing village, Kanyakumari District on 16th November. The objective of the programme is to encourage the fishermen to use lobster traps and to wean them away from operating destructive gears such as gill nets and trammel nets in which more of juvenile lobsters are entangled.

Pearl oyster stock enhanced

Intense spat settlement was obtained in the spat collectors placed in the pearl farm at Kollam. About 2500 pearl oyster

spats were collected during November-December.

A good stock of the pearl oyster, *Pinctada fucata* of dorso-ventral measurement above 70mm was developed at Vizhinjam in 13 months.

Feasibility studies on seaweed culture at Vizhinjam



Frond of the seaweed, *Kappaphycus alvarezii* growing at the Vizhinjam Bay

Seed material of the carrageenan yielding seaweed *Kappaphycus alvarezii* put in small net bags and hung from the oyster culture raft at the Vizhinjam Bay showed significant growth and registered a monthly increment of about 300% indicating feasibility for its mariculture along the coast.

Probiotic microbes enhance growth of pearl oyster spat

Beneficial effect of probiotic feeding was recorded in the survival of the spat of the pearl oyster, *Pinctada fucata*. In a study carried out at the Vizhinjam Research Centre of the Institute. Results of replicated trials revealed that addition of the bacteria, *Lactobacillus acidophilus* in the live feed (*Isochrysis galbana*) for the spats, enhanced the survival of *P. fucata* spats to the tune of 79.5 to 89.0% compared to 64.0% survival obtained in the control group. The dorso-ventral growth of the experimental group also increased compared to the control spats.

Advances made in live feed culture

A technique for mass production and storage of the dormant cysts of the live

feed *Moina* (a cladoceran) has been standardized at the Mandapam Regional Centre. The cysts preserved in closed dark glass containers at 5-10°C had a viability of 20-25% upto one year and 10-15% between 12 and 36 months. The dormant cysts can be transported easily besides reducing stock maintenance and labour costs involved in routine live feed culture works.

Cyclical immigration of oil sardine at Cochin

Oil sardine young ones of 80-90 mm have been found to enter the Cochin backwaters during November and were a regular occurrence in the Chinese dip nets near the bar mouth. The catch, which varied from 0.5 to 1 kg per haul, was thrown out. The species migrated to the southern region of the Vembanad lake and were caught in the cast nets operated from the western side of Thripunithura. An examination of the gut of these juvenile oil sardines indicated that their stomachs were empty.

Database generated on fisherwomen

Under the NATP funded studies on Fisherwomen in the Coastal Ecosystem of Andhra Pradesh, Karnataka, Tamil Nadu and Kerala, the Institute has generated a database of the socio-economic and nutritional status of fisherwomen of about 1000 households in five coastal villages of east and west Godavari districts of Andhra Pradesh.

Training acquired in GIS software

A one week training programme in the use of GIS software in connection with the implementation of the in-house research project 'GIS based atlas on potential mariculture sites along Indian coasts' was conducted at the Computer Centre of the Institute Headquarters. 12 Scientists from four Divisions of the Institute participated in the training held from 6th to 10th October. The Fishery Resources Assessment Division coordinated the training programme with the assistance of IES Geospatial Systems India Pvt. Ltd., Trivandrum.

TRANSFER OF TECHNOLOGY

Training for practicing farmers, youth and rural women

Krishi Vigyan Kendra of CMFRI at Narakkal imparted training to 655 persons by conducting 32 training courses during October-December. The number of training courses and beneficiaries are as follows - Fisheries:9-231; Agriculture : 9-168; Home Science:14-256. Eight of

the training courses were conducted in collaboration with different agencies: Farming of shrimp and crab (BFFDA, Ernakulam), Cultivation of mushroom (Krishi Bhavan, Thripunithura) and Jasmine (Mazhuvanoor and Kunnathunad grama panchayats), Preparation of shrimp pickle (Elamkunnappuzha grama panchayat) and mixed fruit jam (Edavanakad and Kunnathunad grama panchayats).

An awareness campaign to popularise vermi technology was arranged by KVK, Narakkal in association with Vikas Trust an NGO at Elamkunnappuzha on 18th December. The thirty participants from Self Help Groups were made to understand stages in vermi compost making and the advantages of the compost. Four terracotta vermi compost tanks with the compost containing

earthworms sponsored by Vikas Trust were distributed to four *Kudumbashree* units.

On-site training in farming technologies

Mussel farming technology was disseminated in Northern Karnataka by scientists from the Socio-Economic Evaluation and Technology Transfer and the Molluscan Fisheries Divisions of the Institute through organizing two training programmes. Two sites in Karwar were identified for **mussel farming**, one for raft culture in the open sea at Majali of Dandebag and another for rack culture at Sunkeri of Kali estuary. Training and practical demonstration of mussel culture in the open sea was given on 4th and 5th and in the estuary on 6th and 7th December for three Self Help Groups comprising of 45 beneficiaries at each site. In the open sea, a raft of 5 x 5 m was fabricated by the trainees and 25 ropes of 4m length were tied over the raft. In the estuary, a rack 5 x 5 m was constructed which accommodated 15 ropes of 4 m length horizontally. The trial initiation was widely covered by Kannada newspapers and Udaya TV news channel every half an hour throughout the training days. The progress of both trials is being systematically monitored.

The SEETT Division of the Institute conducted a training programme on **crab fattening** in collaboration with the State Department of Fisheries, Mangalore, KVK (UAS), Brahmavar and BFDA, Uduppi at Mangalore on 4th November. More than fifty farmers attended the programme. Consequently, two on-farm demonstrations on crab fattening has been started in Mangalore.

Molluscan Fisheries Division of the Institute in association with BFFDA, Kollam organized a one day training course on **edible oyster and mussel farming** for 45 members of *Sthreesakhti* groups of Mayyanad grama panchayat on 5th December.

Kudumbashree units launch edible oyster farming

Following the onsite training given in the scientific method of oyster farming by the Institute, 30 women of three

Self Help Groups of Sathar Island, Ernakulam District, Kerala, set up **Demonstration Farms** on December 4th and stocked ren strings in the water front under the supervision and guidance of CMFRI scientists.

Training in post harvest techniques

A three day training programme on **Post harvest processing - value addition of fish, fruits and vegetable processing and fine arts** was organized for 67 fisherwomen of Chennai by the Madras Research Centre of the Institute at the Kovalam Field Laboratory from 2nd to 4th December. Twenty two women who attended the programme on **fish processing and value addition** were trained in making fish pappad, fish murrukku, fish cutlets and in pickling oyster, prawn and fish. 20 participants were given training in paintings on pottery, fabric and glass. The third group of 25 participants attending fruits and vegetable processing were trained in toffee making and in the preparation of mixed fruit jam, squash, sauce and pickles.

Three one-day training programmes were organized by Kakinada Research Centre of the Institute for 78 fisherwomen on **hygienic handling of fish, value added fish products and natural calamities/disaster management**. A set of 10 flash cards depicting the principles of good health, nutrition and sanitation was prepared in the form of a story and conveyed to the trainees. Five pamphlets prepared in English and Telegu on the themes were distributed to the trainees.

The SEETT Division also organized a four day training for women fisherfolk at Thekkumbagam, Kollam District in Kerala on **Post Harvest Management of shrimp and clam products** for 40 beneficiaries from 20th to 23rd December.

Income generating unit formed

The Self Help Group *Archana Kudumbashree* unit of Elamkunnappuzha grama panchayat which was imparted training and technical guidance by KVK, Narakkal in preparation of cleaning powder has started a small scale unit. Shri. A.S. Benny, Vice President of the grama panchayat inaugurated the sale of this product on 18th October.

Training for entrepreneurs

The Trainers' Training Centre of the Institute conducted a 6 day training programme on **Ornamental Fish Culture** for the benefit of 9 entrepreneurs from 20th to 27th October.

Training for scientists

Institutional training was given to six newly recruited scientists at the Physiology Nutrition and Pathology Division for a six week period during October-November.

The PNP Division of the Institute organized a training programme on **Histopathological Techniques in Disease Diagnosis** at the Institute Headquarters for four officers of MPEDA and an entrepreneur during September - October.

Winter School held

The Physiology, Nutrition and Pathology Division of the Institute organized a Winter School on **'Recent Advances in Mariculture Genetics and Biotechnology'** from 4th to 24th November, sponsored by the Education Division of the Indian Council of Agricultural Research. A total of 21 participants comprising of scientists and teachers from various ICAR Institutions and Universities belonging to 9 different states successfully completed the programme.

The programme consisted of theory and practical sessions on various aspects of Mariculture Genetics and Biotechnology intended to bring out qualitative improvement in the knowledge of the participants on the recent developments in this frontier area and to develop the skills in some of the important platform technologies in Genetics and Biotechnology.

Exhibitions

Researchers at the Institute have succeeded in *in-situ* setting of mabe pearl as a pendant in silver casket. The product was sent for display at 2nd Ghana International Food & Agriculture Trade Fair (**AGRIFEX-2003**) at Accra during 11th-17th November.

The Minicoy Research Centre participated in the **MAERIZ-2003** exhibition organized by the Govt. High School, Minicoy on 20th and 21st October. The activities of the Institute were explained to the students and the public with the help of charts and models.

INTERACTION AND EVALUATION

Seminars held

The World Food Day 2003 was celebrated by conducting a seminar on the theme **'International Alliance against Hunger'** at Krishi Vigyan Kendra, Narakkal on 16th

October. Dr. K.S. Purushan, Associate Professor of Kerala Agricultural University gave the key note address. In the interactive session the participants comprising of members of the farming community, women Self Help Groups, rural youth and

village extension workers aired their views about combating hunger with global alliance. Of the 62 participants, 48 were women and 14 belonged to SC/ST.

Krishi Vigyan Kendra of the Institute

conducted two seminars for **empowering rural women**. In the *mahila* meets conducted at Elamkunnappuzha on 7th November and at Narakkal on 12th December, 90 rural women who participated were enlightened on the formation of SHGs, starting income generating units and the technical guidance given by the KVK for the same.

- ▶ A one day seminar on various aspects of **ornamental fish culture** was organized by entrepreneurs who have undertaken the Institute training course on ornamental fish culture at Calicut on 16th November. These farmers have registered a society, the National Aquaculture Society (NAS), under the Societies Registration Act, to work for the socio-economic and technological upgradation of ornamental fish farmers in the country.
- ▶ Dr. N. Gopalakrishnan Pillai and Dr. M. Srinath gave a **seminar on their deputation to WorldFish Centre**, Penang, Malaysia to participate in the Technical Workshop on 'Fisheries Resources Information System and Tools' (FIRST) at the Institute headquarters.

Projects Reviewed

- ▶ The first workshop of the DOD funded project **Studies on Marine**

Mammals of Indian Exclusive Economic Zone was conducted for a period of 4 days from 15th to 18th October at the Institute Headquarters at Cochin. Dr. V. Ravindranathan, Advisor, CMLRE, DOD, Cochin inaugurated the workshop.

- ▶ The final workshop of the National Agricultural Technology Project **Mangrove Ecosystem Biodiversity** was held at CARI, Port Blair, Andamans during 27-31 October. The project personnel from the lead centre CMFRI, Cochin and co-operative centres of CARI, Port Blair and Vidhyasagar University, Midnapur, Calcutta participated. Papers on medicinal mangrove plants, biodiversity in mangroves, humic acids in the mangrove soils of Kerala and other related aspects connected with the project were presented. The progress of the project programmes in the co-operating centres was reviewed and the preparation of the final report discussed.
- ▶ The final review workshop of the NATP on **Impact of dams on river run off into sea and changes in the nutrient and productivity profile of coastal waters** was held in the GSI Auditorium at Mangalore from 22nd to 24th December. Staff members of CMFRI and senior research fellows

associated with the project from Cochin, Mangalore, Visakhapatnam and Veraval attended the workshop, presented the results of the studies undertaken and discussed the findings for drafting the project completion report.

Impact of training for fisherwomen evaluated

An assessment of the Knowledge, Aptitude and Perception (KAP) of 78 trainees of three training programmes conducted under the NATP funded studies on **Fisherwomen in the Coastal Ecosystem of Andhra Pradesh, Karnataka, Tamil Nadu and Kerala** has revealed that there was a significant positive change in the attitude of the trainees on the different aspects of the training after the programme.

Harvest mela

A harvest mela of the organically farmed *Pokkali* paddy was conducted by KVK, Narakkal in association with the NGO Vikas Trust, Elamkunnappuzha at the demonstration fields belonging to Panampilly Samajam and Kattakal Samajam on 23rd October. The harvest was inaugurated by Smt. R.C. Rosilin, President of Elamkunnappuzha grama panchayat.

NEW HEIGHTS

Achievers

Winners of ICAR Tournament

Three I prizes, four II prizes and six III prizes were won by the CMFRI contingent at the Inter-Institutional ICAR Tournament (Zone-III) hosted by National Academy of Agricultural Research Management, Hyderabad from 3rd to 7th November. The prize winners of the events are as follows:

- * A.K. Shaji and team (I- Football)
Members: Joseph Mathew, V.A. Narayanan Kutty, P.B. Jeeva Raj, T.K. Antony, P. Satheesh Kumar, Baby Mathew, Rajesh Babu, P. Jaiganesh, Mendonza Xavier, V. Rajendran, P.M. Girish, P.V. Sunil, Rishikesh Andi.
- * A.K. Shaji (I-Javelin & III - High Jump)
- * Puranthara Shetty (I-Shotput & II - Discuss)
- * Jerald Raja (II-100m & III-200m Dash)
- * Joseph Mathew (II - 200m Dash)
- * Balasubramanian alias James (II-1500m, III-400 m & 800m Dash)
- * K.P. Salini (III-100 & 200 m Dash)

OFFICIAL LANGUAGE IMPLEMENTATION

Kudos for excellence in Hindi implementation

The Institute won the **Rajeshri Tondon Rajbhasha Award**, second position under ICAR Institutes on 25th November and first position of the **Kochi TOLIC Award 2001-2002** on 26th December. The Vizhinjam Research Centre received the fourth position during 2002-2003 from **Thiruvananthapuram TOLIC** on 17th November.

Hindi workshop

A Hindi workshop was organized at the Headquarters for 23 ministerial employees identified as undertaking less than 10% official work in Hindi during 19th and 20th December. Classes were organized by experts on administration translation and structural aspects of the

official language so as to improve the employees' working knowledge in Hindi.

OLIC Meeting

The 61st meeting of the Official Language Implementation Committee chaired by the Director was conducted on 22nd December to review the progress made in the propagation of Hindi at the Institute and to chalk out future programmes.

ACADEMIC NEWS

Best Thesis Award

Shri. G.S. Govindaraju, M.F.Sc. student (2000-2002) was awarded the Dr. N.R. MENON AWARD for the best

M.F.Sc. thesis for the year 2003 for his dissertation entitled 'Genetic profiling of groupers of the genus *Epinephelus* (Family:Serranidae) using DNA-level

markers by Professional Fisheries Graduates Forum. The research work was carried out under the guidance of Dr. P. Jayasankar, Senior Scientist of the Institute.

Ph. D. Awards

Scholar	Guide	Title of Thesis
S. Dharmaraj	Dr. N. Sukumaran, Dean, Manonmaniam Sundaranar University	Conventional and biotechnological aspects and cultured pearl production in the Indian pearl oyster <i>Pinctada fucata</i> (Gould).
Mary Asha Antony	Dr. M. Vijayakumaran Principal Scientist (Retd.) and Dr. R. Paul Raj Head, PNPD	Carotenoid profiles in relation to maturation, moulting, food and habitat in the Indian spiny lobster <i>Panulirus homarus</i> (Linnaeus, 1758).
Soumya Haldar	Dr. M. Vijayakumaran Principal Scientist (Retd.)	Studies on some aspects of <i>Vibrio parahaemolyticus</i> and <i>V. cholerae</i> isolated from the shrimp culture systems.
Thampi Raj	Dr. A.P. Lipton Principal Scientist	Studies in microbial diseases of sea horse reared in captivity and their management.
Aldous J. Huxely	Dr. A.P. Lipton Principal Scientist	Studies on the non-specific immunomodulation in <i>P. monodon</i> with special reference to protection against common bacterial pathogens.

IN-HOUSE EVENTS

Vigilance Awareness Week was observed from 31st October to 6th November at the Institute. Staff members took the pledge to bring about transparency in all spheres of activities and to work for the eradication of corruption. The National Integration pledge was taken by the staff members and the **Quami Ekta Week** was observed at the Institute from 19th to 25th November.

Distinguished visitors at the Institute

Honourable Members of Parliamentary Standing Committee on Agriculture, Dr. A.K. Patel, Smt. Jamana Devi Barupal and Shri. Chintaman Wanaga visited the Institute Headquarters on 22nd November. A warm welcome was accorded to the visiting dignitaries. The members of the Parliamentary Standing Committee and the representatives of the Department of Agricultural Research and Education held discussions with the scientists on the 'Role of the Institute in Development of Fisheries'.

His Excellency Mr. Mahmood Hojjati Najafabadi, Minister of Jihad-e-Agriculture, Islamic Republic of Iran alongwith ten member ministerial delegation visited the Institute Headquarters at Cochin on 19th December and held discussions on the areas in capture and culture fisheries where the two countries could co-operate.

Winners felicitated

The sports team members of the Institute who won laurels in the ICAR Inter-Institutional Tournament held at Hyderabad and the staff members of the Hindi Cell whose commendable efforts won for the Institute several awards for excellent performance in the propagation of Hindi including the second position of Rajershi Tondon Rajbhasha Award were congratulated. As a token of appreciation, Director, Prof. (Dr.) Mohan Joseph Modayil, presented bouquets to the winners at a function organized by the CMFRI Recreation Club at the Institute Headquarters on 2nd December.

Programme on the 'Art of Living'

The 'Navachetna Sibiram' course, an HRD programme of Vyakhti Vikas Kendra was conducted by Ms. K. Smitha for the benefit of CMFRI staff at Cochin. Two courses of one hour duration were held from 10th to 14th November and 1st to 5th December at the Institute campus for 80 participants including students. The participants were enlightened on mind energising exercises like Pranayama and meditation and given a general awareness on health, hygiene and human values.

Charity at Home

In a humanitarian gesture, the Director and the staff members of the Institute contributed a substantial sum to procure an imported wheel chair which was gifted to Shri. M. Thayalan who was disabled following a road accident. The Chair has enabled Shri. Thayalan, who was paralysed, to resume his duties as Lab Attendant at the Mandapam Regional Centre of the Institute.

PERSONALIA

Visits Abroad

Dr. M. Srinath, Principal Scientist & Head, Fishery Resources Assessment Division

► World Fish Center, Penang, Malaysia for the 'Development of Biomass calculation module of FIRST software and review of new version of FIRST' (1-5 December).

Dr. (Ms.) Laxmilatha P., Senior Scientist, **Dr. (Ms.) Josileen Jose**, Scientist (SS) **Dr. C. Ramachandran**, Scientist

- ▶ Training programme on 'Alternative Approaches to Fisheries Management' at International Agricultural Centre (IAC), Wageningen, The Netherlands (Under Netherlands Fellowship Programme (NFP)) (5 October - 21 November).

Dr. (Ms.) K.S. Sobhana, Senior Scientist

- ▶ Advanced training in 'Shrimp and Grouper Virology' at SEAFDEC, Iloilo, Philippines (5-21 November).

Guests

Headquarters

- ▶ Dr. A.G. Sawant, ASRB Member.
- ▶ Shri. Sudhir Mankad, IAS, Additional Secretary and Financial Advisor, Ministry of Agriculture.
- ▶ Committee on Private Members Bills and Resolution of the Kerala Legislative Assembly.
- ▶ 736 students from various universities visited the Museum at the Institute Headquarters during October-December.

Veraval Regional Centre

- ▶ Smt. Bhavanaben Devaraj Chikhaliya, Hon'ble Minister of State for Tourism and Culture, Govt. of India.
- ▶ Shri. Govindbhai Parmar, MLA - Talala (Gujarat).
- ▶ Shri. Madhabhai Boricha, MLA - Keshod (Gujarat).

Mandapam Regional Centre

- ▶ Ms. M.P. Nirmala, I.A.S., Director of Fisheries, Chennai.
- ▶ Dr. S.D. Sharma, Director, IASRI, New Delhi.
- ▶ Dr. O.P.S. Sharma, Principal Scientist & Head (CP), ICAR Unit-IGFRI, Jhansi.
- ▶ Total visitors at the Regional Centre was 1461, out of which 1122 were students from 26 educational institutions.

Tuticorin Research Centre

- ▶ A total of 398 students from different educational institutions of Kerala, Tamil Nadu and Maharashtra.

Vizhinjam Research Centre

- ▶ Dr. M. Lakshmanan, Former Vice-Chancellor of Madurai Kamaraj University, Madurai.
- ▶ Shri. S.T. Kharcha, Judge Bombay High Court.
- ▶ Mr. Martin Scharugel from Germany travelling around the world on motorbike.

Programme Participation

Prof. (Dr.) Mohan Joseph Modayil, Director

- ▶ First Directors' Management Workshop on 'Transience in Organizations' (Change Management) held at NAARM, Hyderabad (27-30 October).
- ▶ ICAR Revolving Fund Project Meeting at KAB-II and meeting with DG, ICAR along with DDG (Fy.) at New Delhi (3 November).
- ▶ National Workshop on 'Methodologies for Prioritization of Fisheries Research in India' at NAARM, Hyderabad and presented the lead paper (10 November).

- ▶ Received the Rajbhasha Award (2nd place) for the excellent work done in Hindi under the ICAR Institutes during the year 2003, at New Delhi (25 November).

- ▶ DOD's Sagar Sampada Scientific & Technical Advisory Committee Meeting at Hotel Avenue Regent, Ernakulam (3 December).

- ▶ ICAR Regional Committee Meeting at IVRI, Bangalore (29 and 30 December).

Dr. N.G.K. Pillai, Principal Scientist & Head, Pelagic Fisheries Division

- ▶ Training programme organized by Staff Training Centre, State Bank of India and delivered the inaugural lecture (13 October)

- ▶ Symposium on Indian Marine Fishing Industry - Challenges and Opportunities at Le Meridien, Cochin (22 October).

Dr. K.K. Appukuttan, Principal Scientist & Head, Molluscan Fisheries Division

- ▶ Mussel culture launching programme of Govt. of Goa, State Fisheries Department at ICAR Complex Campus, Mudgoa (21 October)

- ▶ Discussion with DDG (Fy.), ICAR regarding Evaluation of ICAR Revolving Fund Programmes of the Institute' at ICAR, New Delhi (3rd November)

Dr. R. Sathiadhas, Principal Scientist & Head, Socio-Economic Evaluation and Technology Transfer Division

- ▶ Inaugural address in the NATP Training Programme on 'Post Harvest Processing - Value Addition of Fish, Fruits and Vegetable Processing and Fine Arts' conducted by Madras Research Centre of CMFRI at Kovalam Field Laboratory (2-4 December)

- ▶ IVLP Annual Review Workshop and presented the progress report at CRIDA, Hyderabad (22-24 December)

Dr. R. Sathiadhas, Principal Scientist, **Smt. Sheela Immanuel**, **Dr. Ashaletha**, Senior Scientists **Dr. C. Ramachandran**, **Dr. Vipin Kumar** and **Smt. N. Aswathy**, Scientists

- ▶ Review Workshop on 'Prioritization of Fisheries Research in India' at NAARM, Hyderabad (10-11 November)

Dr. (Ms.) S. Sivakami, Principal Scientist & Head, Demersal Fisheries Division

- ▶ Symposium on 'Indian Marine Fishing Industry - Challenges and Opportunities' at Le Meridien, Cochin (22 October)

Dr. L. Krishnan, Principal Scientist

- ▶ Task Force Meeting on 'Biotechnology based programme for SC/ST & Rural Population' at New Delhi (22-23 October)

Dr. J.P. George, Principal Scientist

- ▶ Guest speaker in the National Seminar on 'Biodiversity Conservation and Participatory Forest Management' and presented a paper on 'Biodiversity and conservation of mangrove forests' at St. Josephs' College, Devagiri, Calicut (11 December)

Dr. (Ms.) D. Prema, Senior Scientist

- ▶ Winter school on 'Product Development and Seafood Safety' at CIFT, Cochin (11 November to 10 December)

Dr. (Ms.) D. Prema and **Dr. P. Kaladharan**, Senior Scientists

- ▶ Final Review Workshop for the NATP Project on 'Impact of dams on river run off to the sea and changes in the nutrient and productivity profile of coastal waters' at Mangalore (22-24 December)

Dr. (Ms.) S. Ashaletha, Senior Scientist and **Dr. C. Ramachandran**, Scientist

- ▶ Agricultural Consultative Committee Meeting of District Co-operative Bank on 'Planning & Formulation of Fisheries Micro Enterprise Projects' at District Co-operative Bank Auditorium, Kakkanaad (29 November)

Shri. P.K. Jayasurya, Senior Research Fellow

- ▶ Presented a paper entitled 'Medicinal and biotechnological approaches on mangroves of India' in the National Seminar on 'Biodiversity Conservation and Participatory Forest Management' held at St. Josephs' College, Devagiri, Calicut (11 December)

Dr. A.C.C. Victor, Principal Scientist & Scientist-in-charge Tuticorin Research Centre

Workshop on 'Sustainable Management of Marine Biosphere Reserve' organized by M.S. Swaminathan Research Foundation at Mandapam Camp and delivered a lecture on 'Pearl culture as an alternative income generating activity for poor fishing families' (3 December)

Dr. M. Rajamani, Principal Scientist

- ▶ Workshop on 'Sustainable Management of Marine Biosphere Reserve' organized by M.S. Swaminathan Research Foundation at Mandapam Camp and delivered a lecture on 'Artificial reef as a tool to enhance the bioresources and biodiversity of the coastal environment' (4 December)

Dr. K.V.S. Nair, Principal Scientist & Scientist-in-charge, Veraval Regional Centre and **Ms. Rekha Devi K.**, Scientist

- ▶ Workshop organized by World Wide Fund for Nature - India on 'Marine Fisheries Certification' at Veraval (31 December)

Dr. V.D. Deshmukh, Principal Scientist & Scientist-in-charge, Mumbai Research Centre and **Dr. V.V. Singh**, Senior Scientist

- ▶ Inaugural session of the National Hindi Seminar on 'Present and future perspective of the fish processing industry' at C.I.F.E., Mumbai (19 December)

Dr. G. Maheswarudu, Senior Scientist

- ▶ Meeting on 'Research needs in fisheries' at Hyderabad organized by the Commissioner of Fisheries, Govt. of Andhra Pradesh (18 October)

Dr. G. Maheswarudu, **Dr. A.K.V. Nasser**, Senior Scientists and **Dr. U. Raj Kumar**, Scientist

- ▶ Seminar on 'Opportunities in Marine Biotechnology' organized by Department of Industries and

Commerce, Govt. of Andhra Pradesh at Visakhapatnam (11-12 December)

Shri. K. Vijayakumaran, Scientist (SG)

- ▶ Colloquium on interlinking of rivers in Andhra Pradesh and delivered a talk on 'Interlinking of rivers the probable impact on coastal ecosystems and the fisheries' at Visakhapatnam (12 December)

Dr. Narayanakumar, Senior Scientist and Scientist-in-charge, Kakinada Research Centre

- ▶ Final workshop of the NATP funded Studies on Fisherwomen in the Coastal Ecosystems, entitled 'Empowerment of Fisher Women in Coastal Ecosystem of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu' and presented the findings of the project from this Centre as the Cooperating Centre, Principal Investigator at Acharya N.G. Ranga Agricultural University Auditorium, Rajendranagar, Hyderabad (13-14 October)

- ▶ 'Scientific Advisory Committee' meeting of KVK attached to CTRI, Rajahmundry as a member of the Committee at Rajahmundry (27 October)

- ▶ Workshop of the NATP study 'Prioritization of Methodologies for Fisheries Research' held at National Academy of Agricultural Research Management, Rajendra Nagar, Hyderabad (10-11 November)

- ▶ Training programme on 'Post harvest processing of fish - value addition, fruits and vegetable processing and Fine arts for the fisherwomen of Chennai coast' organized under the NATP funded studies on 'Fisherwomen in the coastal ecosystems of Andhra Pradesh, Karnataka and Kerala' as CCPI (NATP) and as a resource person at Kovalam Field Laboratory of Chennai Research Centre (2-4 December)

Dr. P.N. Radhakrishnan Nair, Principal Scientist & Scientist-in-charge, Calicut Research Centre

- ▶ 33rd meeting of 'Town Official Language Implementation Committee' at Calicut (5 November)

- ▶ Fifth meeting of the 'Scientific Advisory Committee' of KVK, under Indian Institute of Spices Research, Calicut at Peruvannamuzhi (21 November)

- ▶ One day seminar organized by Kerala Industrial Infrastructure Development Corporation (KINFRI) and Infrastructure Development Finance Company Limited (IDFC) on 'Identification of infrastructure requirements for increasing exports from Kerala' at Calicut (15 November)

- ▶ 39th meeting of STED Project Task Force Committee in the Chamber of District Collector, Calicut (18 November)

Shri. M. Sivadas, Scientist (SG)

- ▶ Seminar on 'Government Schemes in Fisheries Sector' conducted by Malabar Coastal Institute for Training, Research & Action at Calicut (21 November)

Dr. P.K. Asokan, Scientist (SS),

- ▶ Regional Workshop on 'Wetlands of Southern States' held at Kochi-Alapuzha-Kollam and presented a paper on 'Mussel Culture in Wetlands - a case study of Kadalundy estuary' (4-6 November)

Dr. P.K. Asokan, Scientist (SS) and **Shri. P.P. Manoj Kumar**, Scientist

- ▶ Seminar on 'Biodiversity Conservation and Participatory Forest Management' at St. Josephs' College, Devagiri at Calicut (11 December)

Dr. Gulshad Mohammed, Scientist

- ▶ Biotechnology and Bioinformatics Tools and Applications at IISR, Calicut (2-23 December).

Consultancy Services

Consultancy services are offered by the Institute in the following specialized areas:

- ▶ Coastal zone and marine environment monitoring, environment impact assessment and biodiversity.
- ▶ Fishing impact assessment, underwater investigations, stock assessment, fisheries forecasting, conservation and management and socio-economic evaluation.
- ▶ Shellfish and fin fish farming system, hatchery technology and sea ranching.

Training Programmes

Training programmes are also offered for a wide spectrum of clients in private, quasi government and government sectors at nominal rates on the topics of clients' interest.

Transfers

Name	Designation	From	To
Shri. K. Nagarajan	Asst. Administrative Officer	CMFRI, Cochin	Veraval Regl. Centre
Shri. K. Arumugham	Asst. Administrative Officer	Visakhapatnam Regl. Centre	CMFRI Cochin
Shri. S. Balasubramanian	Assistant	Mangalore Res. Centre	Chennai Res. Centre
Shri. Nirmal Mathew	Technical Officer (T-5)	CMFRI, Cochin	Tuticorin Res. Centre
Shri. K.K. Bose	Driver (Boat) T-4	CMFRI, Cochin	Tuticorin Res. Centre

Inter-Institutional transfers

Ms. Sandhya Sukumaran	Scientist	CIFT, Cochin	CMFRI, Cochin
Shri. V.R. Madhu	Scientist	CMFRI, Veraval	CIFT, Veraval
Shri. C.V. Jayakumar	Tech. Assistant (T-1)	IVRI, Izatnagar	CMFRI, Cochin
Shri. P. Ferozkhan	Bosun (T-5)	CMFRI, Tuticorin	CIFT, Cochin
Shri. U. Alagumalai	Bosun (T-5)	CMFRI, Chennai	CIFT, . Visakhapatnam
Shri. K.P. Vijayan	Deckhand (T-4)	CMFRI, Cochin	CIFT, Cochin
Shri. G. Kingsly	Driver (Boat) T-4	CMFRI, Tuticorin	CIFT, Veraval
Shri.A.K. Unnikrishnan	Cook (T-3)	CMFRI, Cochin	CIFT, Cochin
Shri. R. Arockiasami	Deckhand (T-3)	CMFRI, Cochin	CIFT, Cochin
Shri. K. Thnakaran	SS. Gr. I (Deckhand)	CMFRI, Vizhinjam	CIFT Veraval
Shri. M. Arockiasaji	SS.Gr.I(Deckhand)	CMFRI, Vizhinjam	CIFT, Veraval
Shri. D. Ramesh Kumar	SS.Gr.I (Deckhand)	CMFRI, Tuticorin	CIFT, Veraval
Shri. M.T. Mani	SS.Gr.IV	CMFRI, Vizhinjam	CIFT, Visakhapatnam

Promotions

Name	Designation	Promoted post	Centre	w.e.f.
Shri. N. Govindan	Assistant	Asst. Administrative Officer	Chennai Resarch Centre	04.11.03
Shri. S. Jeyachandran	Assistant	Asst. Administrative Officer	Visakhapatnam Regional Centre	27.11.03
Shri. Gangadhar B. Naik	UDC	Assistant	Karwar Research Centre	07.11.03
Shri.P.P.Chandrasekharan Nair	LDC	UDC	CMFRI, Cochin	01.11.03
Shri. J. Vinoth Prabhu Vaz	LDC	UDC	Tuticorin Research Centre	22.11.03

Retirements

Name	Designation	Centre	w.e.f.
Shri. P. Ganesan	Asst. Administrative Officer	Chennai Research Centre	31.10.03
Shri. D. Gnanajebamani	Asst. Administrative Officer	Tuticorin Research Centre	31.10.03
Shri. K. Maragathavadevelu	Assistant	Mandapam Regional Centre	31.10.03
Shri. S. Radhakrishnan Nair	UDC	Vizhinjam Research Centre	31.10.03
Shri. Thakur B. Harikantra	Tech. Assistant (T-3)	Karwar Research Centre	31.10.03
Shri. A. Subramanian	SS. Gr. IV	Mandapam Regional Centre	31.12.03

Voluntary Retirement

Shri. C.M. Rajappan	SS. Gr. IV (Lab Attendant)	CMFRI, Minticoy	01.11.03
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OBITUARY

Shri. M.K. Sreenivasagam, Technical Assistant (T-3) at Tuticorin Research Centre expired on 27th October.

Shri. L.M. Waghela, SS.Gr.IV at Veraval Regional Centre expired on 24th October.

Shri. P. Muthumalai, SS.Gr.IV at Tuticorin Research Centre expired on 19th November.

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Editor : **Dr. (Smt.) Geetha Antony**, Technical Officer

Secretarial Assistance : **Smt. Bindu Sanjeev**



Prof. (Dr.) Mohan Joseph Modayil receiving the **Rajarsi Tondon Award of ICAR** from Dr. Ramesh Chandra Thomer, MP & Member of Parliamentary Committee on Official Language. Dr. Mangala Rai, Director-General ICAR is also seen.

प्रो. (डॉ.) मोहन जोसफ मोडायिल, निदेशक डॉ रमेश चन्द्र तोमर, संसदीय सदस्य एवं संसदीय राजभाषा समिति सदस्य से राजर्षि टंडन पुरस्कार स्वीकार करते हुए डॉ मंगला राय, महा निदेशक, भा कृ अनु प भी उपस्थित हैं



Dr. L. Krishnan, Principal Scientist receiving the **Cochin Town Official Language Implementation Committee Award (First Position)** from Shri B.M.Jindel, Chief Commissioner of Income Tax, Cochin

डॉ एल. कृष्णन, प्रधान वैज्ञानिक कोचीन नगर राजभाषा कार्यान्वयन समिति पुरस्कार (प्रथम) श्री. बी. एम. जिन्डल, मुख्य आयकर आयुक्त से प्राप्त करते हुए

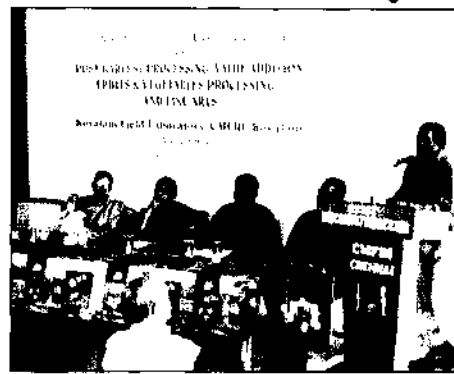


The victorious **CMFRI sports contingent** at the Inter-Institutional ICAR Tournament (Zone - III) hosted by NAARM, Hyderabad

नार्म, हैदराबाद में आयोजित अंतर संस्थानीय भा कृ अनु प टूर्नामेंट (मेखला - III) में भाग लिए गए सी एम ए ए आर आइ के विजेता खेलकूद टीम



श्री एम. दयालन वील चेयर में - पास संस्थान के कर्मचारी प्रतिनिधि गण
Shri M. Thayalan on the wheel chair with representatives of staff members



Dr. R. Sathidas, Head, SEETT Division delivering the inaugural address in the training programme on **'Post Harvest Processing'** at Kovalam Field Lab. Prof. (Dr.) Vijaya Khader, PI of the Project, Smt. M.P. Nirmala, IAS, Director of Fisheries, Govt. of Tamil Nadu, Dr. Mathew Abraham, Director, CIBA are also seen.

डॉ आर. सत्यदास, अध्यक्ष, एस ई ई टी टी प्रभाग कोवलम क्षेत्र प्रयोगशाला में संग्रहोत्तर संसाधन पर आयोजित प्रशिक्षण कार्यक्रम में उद्घाटन भाषण देते हुए। प्रोफसर (डॉ) विजया खादर, परियोजना का प्रधान अन्वेषक; श्रीमती एम.पी. निर्मला, आइ ए एस, मात्स्यिकी निदेशक, तमिलनाडु सरकार; डॉ मात्यू अब्राहम, निदेशक, सी आई बी ए और डॉ मोहम्मद कासिम, प्रपारी वैज्ञानिक, मद्रास अनुसंधान केंद्र भी उपस्थित हैं



Shri. Puranik, Assistant Director, BFDA, Uduppi inaugurating the **Training programme cum Seminar on Crab Fattening** at Uduppi

श्री पुराणिक, सहायक निदेशक, बी एफ डी ए, उडुप्पी केकडा बजन बढ़ाव पर आयोजित प्रशिक्षण एवं संगोष्ठी का उद्घाटन करते हुए



Shri A.S. Benny, Vice president, Elamkunnappuzha Grama Panchayat inaugurating the sale of cleaning powder at Archana Kudumbashree Unit, Puthyype

श्री ए. एस. बेनी, उप अध्यक्ष, एलमकुन्नपुषा ग्राम पंचायत पुतुवैप्पु के अर्चना कुटुम्बश्री एकक द्वारा तैयार किए गए सफाई पाउडर की बिक्री का उद्घाटन करते हुए



Members of women Self Help Groups at Sathar Island being trained by the Institute scientists in making shell strings for **farming of edible oyster**

सतार द्वीप के महिला स्वयं सहायक ग्रुप के सदस्यों को खाद्य शक्ति पालन के लिए रसियरों तैयार करने के लिए संस्थान के वैज्ञानिक प्रशिक्षण देते हुए