



CMFRI NEWSLETTER

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BREAKTHROUGH ACHIEVED IN PEARL PRODUCTION THROUGH TISSUE CULTURE



Cells liberated from the explant.
Inset: Organ culture showing shell bead and the explant

The Central Marine Fisheries Research Institute has developed the technology for *in vitro* pearl production in the Indian pearl oyster, *Pinctada fucata* and in the abalone, *Haliotis varia* through tissue culture method.

The erratic nature of wild stock of pearl oysters in the natural beds along the Indian coastline neither supported the production of natural pearls nor the supply of enough oysters for cultured pearl production. In the context of the dwindling pearl production, the Institute entered into the arena of biotechnological research in tissue culture in 1996 by establishing a marine invertebrate tissue culture laboratory at the Tuticorin Research Centre to carry out basic research in *in vitro* pearl production.

Mantle tissue culture of the Indian pearl oyster, *Pinctada fucata* and the progastrópod abalone, *Haliotis varia* was organized simultaneously. In the explant tissue culture, the cells proliferated in large numbers and produced two types of round cells, granular and agranular. These cells migrated away from the explants and multiplied *in vitro*. This resulted in the formation of a cell sheet. The round cells developed pseudopodia that later covered the entire

surface of culture plates and formed an organic matrix and pearl sac. The granular cells consisting of granules became larger and released out the granules to form a nucleus for crystal growth.

In an organ culture, the mantle tissue of the pearl oyster/abalone and a sterile shell bead nucleus were placed in the culture flask containing a nutrient rich medium. This shell bead got coated with a distinct nacreous layer with organic matrix and a pearl sac was formed within 3 months. The mantle graft produced calcite and rhombohedral crystals. Polygonal prismatic layer was formed with thick interlamellar matrix at its boundary. The nacreous layer consisted more of calcium - 56% and 51% (wt.) in the pearl oyster and in the abalone

respectively. The nacreous layers formed in *P. fucata* and *H. varia* were entirely different, indicating species specificity. The twin success achieved in these two animals at a time indicated the validity of the procedures. The present research in *P. fucata* and *H. varia* production is highly significant in view of the fact that culturing the mantle tissue in nutrient rich medium and achieving crystallization of nacre have not been reported hitherto.

The conventional method of production of cultured pearls involves huge sum of money for the collection and maintenance of oysters in the farm whereas tissue culture method is mainly confined to the laboratory. The basic technology developed through tissue culture method totally eliminates the dependence on natural environment for pearl production. Production of large sized pearls as well as more number of pearls is possible through *in vitro* culture. This also provides enough scope for manipulations during pearl production so as to produce pearls of desired colours. In the light of the success gained in this frontier area, further attempts will be made to standardise the technology so as to make it viable and transferable.

Lobsters form an important group of marine animals exported from India. During 2002 about 1364 t of lobsters were landed in India. The export value through foreign exchange during 2002 was about Rs. 83.48 crores, of which live lobsters constituted 173 t valued at Rs. 13.82 crores.

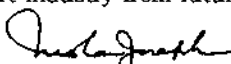
The fishery for lobsters has been showing fluctuations over the years. In Maharashtra, the landing decreased from 506 t during 2001 to 402 t in 2002 while in Gujarat, the decline was from 297 t to 241 t. Tamil Nadu, Andhra Pradesh and West Bengal showed marginal increase. The overall decreases in landing as well as lowering of average size have been causing concerns among fisheries managers and conservators.

In the recent years, lobster fattening has become a livelihood activity among coastal fisher folk. Lobster fattening initiated as a subsidiary activity to offset the reluctance of fishers to release undersized lobsters back into the sea. It was, at that point of time, a good idea to maintain them in captivity and fatten them by providing adequate feed so that they could be exported live as and when they reach marketable size. Many communities found this a lucrative activity. With support from governmental agencies and research institutions, lobster fattening spread like wild fire along the fishing villages of the southeast and southwest coasts. Many governmental agencies and NGOs are now advocating large-scale lobster fattening as a 'mariculture activity'. As a result of this, investments running to several lakhs are being made in coastal villages for grow out/fattening tanks with seawater pumping facility and recycling systems. Targeted fishing for juvenile lobsters is being carried out for stocking such large commercial ventures. Juveniles caught from the east coast are transported across the country to grow out sites in the west coast.

It is time that we realize the dangers of such massive lobster-fattening programmes. What was initially thought of as a conservation/livelihood activity, has now become a stock destructive/commercial activity. Targeted fishing for juvenile lobsters is a resource unfriendly and perhaps dangerous activity and if such targeted fishery is continued, then the wild stock and their reproductive activity and replenishment capacity will be adversely affected. It is likely that the stock of lobsters in the wild may be completely eliminated in course of time.

The Minimum Legal Size for export for four species of lobsters has been implemented by Ministry of Commerce. However, in the absence of a Minimum Legal Size for capture, which is to be introduced by respective State government, exploitation of undersized lobsters will continue. In the case of *Panulirus homarus*, the major species of lobster along the southwest and southeast coast, export of < 200 g is prohibited. However, catching and trading for less than the MLS are still continuing. Operation of trammel net, a destructive gear for lobster fishing, needs to be banned as more than 50% of the catch consists of undersized lobsters not suited for export.

Perhaps it would be necessary to ensure that fishing for lobsters below the above legal size should be banned forthwith. Lobster fattening can be promoted as a livelihood activity, but the minimum size for initiating the fattening programme should be the same as the legal export size. Higher values can be realized by fattening lobsters beyond the minimum size and only this kind of activity should be promoted in lobster fattening. It is high time that the concerned agencies take appropriate action to prevent the lobster export industry from future collapse.


Mohan Joseph Modayil

RESEARCH HIGHLIGHTS

Cephalopod stocks under exploitation pressure

Investigation carried out under the Institute project on the resource characteristics of cephalopods from 6 centres along the west coast and 5 centres along the east coast of India conducted during 1997-2002, indicated that some of the stocks are under heavy exploitation pressure. The Indian squid, *Loligo duvauceli* stocks at Vishakhapatnam, Kakinada, Mumbai, Mangalore and Calicut are under heavy exploitation pressure. Similarly, the cuttlefish, *Sepia aculeata* stock in Rameswaram and *S. pharaonis* stock in Vizhinjam are also being exploited above the optimum level, whereas *S. pharaonis* stock in Cochin and *S. aculeata* stock in Visakhapatnam are underexploited. In general, octopuses are lightly exploited along both the coasts.

Good news from cephalopod culture front

The Vizhinjam Centre of CMFRI has achieved a breakthrough in the rearing and breeding of the commercially important big finned squid *Septoteuthis lessoniana*. A methodology was evolved for the mass collection of egg capsules from the wild by providing artificial substrata. The collected egg capsules were incubated and spawned under captivity. The hatchlings were reared using live food organisms in the initial stages and slowly weaned to trash fish. They showed good growth rate and attained more than 100 g in three months. These squids attained maturity and started laying egg capsules on the 105th day of rearing. They showed repeated spawning at an interval of 7-8 days. Spawning of the squid *S. lessoniana* under captivity is reported for the first time in India. The technology developed can be further refined for commercial production as well as for sea-ranching them in their natural habitat for stock enhancement.



Adult cuttle fish, *Sepia pharaonis*
produced at Vizhinjam R.C.

Rearing of Cuttlefish was also accomplished at the Vizhinjam Research Centre of the Institute. The Cuttlefish *Sepia pharaonis* was reared from egg to marketable size of more than 500g under captive condition.

Prospects of using *Ulva fasciata* extract in diet as an immunostimulant for shrimp

Laboratory and farm trials were undertaken on the use of *Ulva fasciata* for disease management and growth enhancement in *Penaeus monodon*. Crude extract of *U. fasciata* incorporated in feed @ 1g/kg shrimp using geltain as binder improved the total haemocyte count, agglutination titre, bacterial clearance, bacterial activity and phagocyte rates. In the farm trial, shrimps fed *ulva*-incorporated diet showed improved growth rate, an increase of about 9g average body weight compared to control shrimp.

Record size oil sardine landed



Sardinella longiceps TL 272 mm

The largest oil sardine (*Sardinella longiceps*) ever recorded from Indian waters was netted by a purseseliner off Malpe at 30m on 8th September. The fish

measured 272 mm in total length and weighed 159 g in wet condition.

Mullet harvest from IVLP farms

Results obtained from the demonstration farms carrying out scientific monoculture of *Mugil cephalus* under the IVLP programme clearly showed that scientific culture yield more profit than the traditional methods. The gross return per hectare is estimated to be around Rs. 4,65,000 with an average yield of 4,050 kg/ha. The fish attained an average weight of 450 g in 10 months.

Campaign launched on 'Responsible Fisheries'

A campaign conceived as a series of co-learning workshops to make the fisherfolk aware about responsible fisheries management, undertaken under the NATP/CGP project 'Designing and validation of communication strategies for responsible fisheries - A co-learning approach' has been initiated. The first workshop in the series was conducted for 48 persons representing different stakeholders from the fisheries sector at Kozhikode during 12-14 August. The workshop in which scientists from

CMFRI and CIFT acted as facilitators was organized in association with the NGO, MCITRA.

Damselfishes bred



Dascyllus aruanus

Broodstocks of the three spot damsel, *Dascyllus trimaculatus* and the humbug damsel *D. aruanus* were developed at the Vizhinjam Research Centre. Both species are dioecious. Spawning was noted during morning hours and eggs were attached either to the sides of the tank or on the earthen pots provided inside the broodstock tanks. The average length of newly hatched larva of *D. trimaculatus* was 2.5mm and that of *D. aruanus* was 2.4 mm.

TRANSFER OF TECHNOLOGY

Training for practicing farmers

Krishi Vigyan Kendra of CMFRI at Narakkal imparted training to 501 persons by conducting 26 training courses. The number of courses and beneficiaries are as follows: Fisheries: 6- 120; Agriculture: 9-169; Home Science: 11-212.

Collaborative training programmes were conducted in association with three *grama panchayats*, two co-operative societies and two government agencies in preparation of shrimp pickle, cleaning powder, integrated pest management in vegetables, kitchen gardening and jasmine cultivation.

Training for rural women

Molluscan Fisheries Division conducted a one-day training course on 'bivalve farming' for the benefit of *Sthree Sakthi* groups at Kottuvallikkadu of Ernakulam District on 2nd August. 105 women attended the programme.

Brackishwater Fish Farmers Development Agency, Kollam and Molluscan Fisheries Division of the Institute jointly conducted a one day training course on 'edible oyster farming' at Kollam for the benefit of 120 women representatives of various *Sthree Sakthi* groups of Kollam corporation area on 20th August.

A three day training programme on 'Post harvest management of clam and shrimp products' was organized by the Socio-Economic Evaluation and Technology Transfer Division of the Institute from 28th to 30th August at Aroor and Anjilikkad under the NATP project on 'Studies on fisher women in coastal ecosystem of Andhra, Karnataka, Tamil Nadu and Kerala'.

Income generating unit established

The Self-Help Group of Edavanakad Grama Panchayat *Kariokonna Kudumba Shree* unit which was imparted training and technical guidance by KVK, Narakkal in the preparation of value added products from shrimp and fruits has started a small scale unit. Sales of the pickles and jam prepared by the unit was inaugurated by Shri. T.A. Asokhan, Vice-President of the *Grama Panchayat* on 31st July.

Training for entrepreneurs and officials

Three short term courses were conducted by the Trainers' Training Centre of the Institute on the following topics:

Ornamental Fish Culture: A six-day programme was conducted at Calicut for 14 entrepreneurs and 2 officials from

Sate Fisheries Department on the breeding, rearing and management practices of ornamental fishes. The demand for the programme is by and large increasing as ornamental fish culture offer employment opportunity with limited expenditure and little land holding ensuring quick returns.

Live Feed culture: A ten-day training was conducted at the Mandapam Regional Centre of the Institute for 7 personnel from Madurai Kamaraj University and one shrimp farmer. Training was imparted on all aspects of culture practices and maintenance of phytoplankton and zooplankton organisms commonly used as live feed for shrimps and fish.

Histopathology of finfish and shellfish: A ten-day course was conducted at the Institute Headquarters by the Physiology, Nutrition and Pathology Division for 4 officials from MPEDA and one entrepreneur in fixation, processing and staining of fish and shrimp tissues. The participants were trained at international standards to identify and differentiate normal tissues and tissues from disease affected organisms.

Training for scientist probationers

As part of the 76th FOCARS Training of National Academy of Agricultural Research Management (NAARM)

Hyderabad. 6 probationers underwent their Field Experience Training (FET) at the Institute from 28th June to 12th July.

Exhibitions

- ▶ CMFRI, participated in the exhibition

in connection with the 'International Symposium on Freshwater Prawns' organized by Kerala Agriculture University during 21-23 August at Cochin. Dr. Michael B. New, OBE and consultant to FAO inaugurated the stall.

- ▶ The Institute participated in the exhibition conducted in connection with the 'International Conference on Disease Management for Sustainable Fisheries' organized by Department of Aquatic Biology and Fisheries, University of Kerala at Trivandrum from 25th to 28th August.

INTERACTION AND EVALUATION

Farmers meet

Mariculture technologies developed by the Institute were taken to the farmers through organizing *kisan melas* at different centres:

At Polyva fish farm in Thrissur District, 'special fish farmers' day was organized by the Institute in collaboration with CIFT, ADAK and State Department of Fisheries on 15th July. The participants were briefed about fish diseases, use of antibiotics, management aspects and quality control measures. The Director and scientists from the Institute interacted with the farmers and clarified their doubts.

Krishi Vigyan Kendra of the Institute, in association with *Krishi Bhavans* of Malipuram, Poothrikad and Kunnathunad conducted farmers' meets on Jasmine (3) and mushroom (2) cultivations during July-August. Of the 254 jasmine and 196 mushroom farmers who participated in the meet, 111 and 81 members respectively were women.

Farmers' day programme was arranged on 16th August at Puthuvyppe by KVK of the Institute in collaboration with Thapovanam, an NGO for youth development, on the occasion of the *Karshaka Dinam*, which falls on the new year day according to Malayalam calendar. The function was inaugurated by Shri. C.M. Devassy, Panchayat President, Vypeen Block. An interactive session on cultivation of medicinal plants and its uses was held for 35 farmers who participated of whom 20 were women.

At Vizhinjam Research Centre of the Institute, 40 people including farmers and officials from government agencies participated in the *mela* conducted on 29th September. The meeting was inaugurated by Dr. K. Shobana Kumar, DGM, Matsyafed, Trivandrum. Prof.(Dr.) Mohan Joseph Modayil, Director CMFRI presented the recent developments in mariculture made at the Institute and highlighted the technologies which could be adopted at artisanal/commercial/industrial scale. Various schemes earmarked for mariculture ventures were presented by Smt. Annie Alexander, Manager, NABARD and Shri. Mano Thangaraj, Chairman, District Planning Cell. The farmers presented their experiences on

lobster fattening, fish aggregating devices and diseases free shrimp farming. The possibility of taking up the production of mabe (image) pearls as a cottage industry by a Self-Help Group and the Institute on a 50% investment-profit sharing basis is being explored.

Seminars

Divisional Seminars were held at the Institute Headquarters on the following topics:

- ▶ Artificial neural network and its application in fisheries - Smt. Mini K.G.
- ▶ Clam culture techniques - Dr. Shoji Joseph
- ▶ Development of technology for *in vitro* pearl production - Shri. S. Dharmaraj and Smt. C.P. Suja
- ▶ Role of DNA in ratification of taxonomic status in fishes - Dr. P. Jayasankar

The points which emerged during the interactive sessions following the seminars were recorded for identifying researchable issues.

Dr. Rafael D. Guerrero III of PCAMRD, Philippines delivered a lecture on 'Philippine Fisheries' at the Institute Headquarters on 1st September.

- ▶ Dr. A. Laxminarayana gave a seminar on his deputation to Iran to render technical guidance in shrimps and hatchery development programmes.
- ▶ As part of 76th FOCARS Training, six ARS scientists from NAARM who have undertaken their field experience training at the Institute presented seminars on the experiences of their participation in the rural appraisal at Edavanakkad Village of Ernakulam District.

Projects evaluated

A peer review team constituted by Dr. Alfred Selvakumar (Retd. ADG, ICAR), Dr. M. Devaraj (Retd. Director, CMFRI) and Dr. T.C. Santiago (Principal Scientist, CIBA) visited the Tuticorin Research Centre of the Institute on 7th and 8th August and reviewed the research activities under the NATP-NRM 'Coral reef

ecosystem' and the progress made in the project on 'Breeding and culture of pearl oysters'.

At the Institute Headquarters, a workshop on 'Studies of fisherwomen in coastal ecosystem of Andhra Pradesh, Tamil Nadu, Karnataka and Kerala' was held during 7-8 August. Prof. (Dr.) Vijaya Khader, Dean ANGRAU, Hyderabad and the Co-operation Centre Principal Investigators from 4 centres reviewed the activities hitherto undertaken and planned the programme for the next 6 months.

Tuna scientists meet

Nine scientists from Pelagic Fisheries Division of the Institute attended the 'Annual Tuna Scientist Meet' organized by the Fishery Survey of India at its Cochin zonal base during 26-27 September. The participants from the institute presented 12 scientific papers at the meet which discussed the status of coastal and oceanic tuna resources and fisheries of India.

Programme Announcement

Seaweeds - 2004

National Symposium and Exposition

A national symposium on seaweeds will be organized by the Seaweed Research and Utilization Association during 22-24 January 2004 at Cochin. Research papers are invited on Resources, Distribution, Morphology, Taxonomy, Biology, Chemistry, Physiology, Culture, Biotechnology and Utilization of marine algae. A special session will be held on problems of the seaweed-based industry, export policy and legal issues involved in seaweed cultivation and utilization. Intending participants may contact the Convener, Dr. M. Rajagopalan, Head, Fishery Environment Management Division, C.M.F.R.I., Kochi-682014, for further details.

Mega project proposed on mariculture of seaweed

With the aim to develop seaweeds as a cash crop, a round table conference was organized by NAAS and ICAR on 12th September at New Delhi. The confer-

ence inaugurated by Dr. S. Z. Gasim and presided over by Dr. S.N. Dwivedi was attended by scientists from CSMCRI, NIO, CMFRI, CIFT, various universities

and entrepreneurs from seaweed based industries. An integrated approach involving mariculture, biotechnology and post-harvest technology was the topic

for discussion. CMFRI is to take up a big budget Mission Mode project on mariculture of seaweeds along the Indian coasts.

ACADEMIC NEWS

Ph. D. Awards

Scholar	Guide	Title of Theses
Ms. Rachel Fernandez	Dr. E.V. Radhakrishnan Principal Scientist	Neuroendocrine control of vitellogenesis in the spiny lobster <i>Panulirus homarus</i> (Linnaeus, 1758).
Ms. I. Sandhya Rani	Dr.(Smt.) V. Chandrika Principal Scientist	Ecophysiology of pathogenic Vibrionaceae from cultured <i>Oreochromis mossambicus</i> .
Smt. Girjakumariamamma	Dr. A.P. Lipton Principal Scientist	Influence of detritus on the physiology and growth of <i>Penaeus monodon</i> and <i>Etroplus maculatus</i> .

OFFICIAL LANGUAGE IMPLEMENTATION

Translation training course

The Institute under its quinquennial Hindi training programme organized a training course in translation for 23 officers of the Institute in association with Central Translation Bureau, New Delhi from 18th to 23rd August. The objective was to provide a positive knowledge in the official language implementation and promote the art of translation and writing. Shri. Nandakishore Chawla and Shri. M.M. Bhandekar, training officers of Central Translation Bureau, in association with CMFRI Hindi wing conducted the sessions.

Winners of Rajbhasha competitions

- * Shri. M.M. Vanvi -Best performance in Hindi works by TOLIC, Veraval.
- * Shri. G. Subramanya Bhat -First prize in Hindi translation by TOLIC, Mangalore and Second prize in Hindi essay writing by Airport Authority of India, Mangalore.
- * Smt. Alli C. Gupta -Third prize in Hindi essay writing, TOLIC, Mangalore.

Inspection

The official language implementation activities of the Tuticorin Research Centre of the Institute were inspected by Shri. Vijayakumar, Research Officer for south west zone of the Official Language Department at Cochin under the Ministry of Home Affairs on 23rd September.

Hindi Week 2003

With the aim to accelerate the official transactions in *Rashtrabhasha*, 'Hindi Week' was observed during 15-20 September at the Headquarters, Regional and Research Centres of the Institute by conducting various literary activities and competitions in fine arts.

At Headquarters, the week long programme was initiated with a Hindi poster competition on **Hindi day** for the dissemination of agricultural technologies. All the 16 posters conveyed the theme on the technologies developed by the Institute beautifully. The poster with the caption *Sagar sada bahar-Hamari rakhwali apkikushhali* won the first prize. A **Hindi workshop day** was held on 16th September, wherein 29 officers voluntarily participated in the workshop and in the test conducted thereafter. A **lab to land day** was observed by conducting essay competitions in all the major Indian languages on the proven technologies developed by the Institute with the aim to disseminate the same to the end users in their mother tongue. The prize winning essays were sent to reputed agricultural magazines for publication. Competitions in multi-lingual word processing conducted on the **e-governance day** proved that the information technology aids were fully accessible in Hindi. On the '**chal Hindi anubhag day**, an opinion polling was made to assess the quantum of work done in Hindi so as to streamline future programmes at the institute and individual levels.

The valedictory function of the week

long celebration chaired by Dr. Mohan Joseph Modayil was held on 20th September. The chief guest, Dr. K. Gopakumar gave away the prizes to the winners of the various competitions held during the week and for the commendable work done in Hindi for the year. The *Rajbhasha* Rolling Trophy for the overall performance in implementation of the official language was secured by the Fishery Environment Management Division.

Programme Announcement

National Official Language Seminar 2004

The V Scientific Seminar of the Institute for the dissemination of marine fisheries researches in the official language Hindi will be organized at the Institute on 30th January 2004. The topic of the seminar is **Recent Advances in Mariculture**. Papers are invited in Hindi on the following themes: *Sustainable fish farming technologies and grow out systems; Fish breeding and hatchery techniques, fish genetics, biotechnology and tissue culture; Aquaculture nutrition and health management; Mariculture economics, technology refinement and transfer and Modeling application for prediction and development*. Intending participants are requested to send articles in Hindi (in floppy) by 31st December 2003 to the Assistant Director (OL), CMFRI, Kochi-682 014, Kerala.

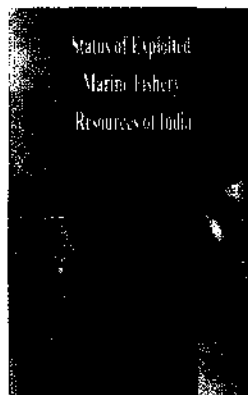
INSTITUTE PUBLICATIONS

Status of Exploited Marine Fishery Resources of India

M. Mohan Joseph, A.A. Jayaprakash
(Eds.)

This publication is the result of research carried out by CMFRI during the past several decades and attempts to bring out all relevant and up-to date information pertaining to the exploited marine fishery resources. The book in-

cludes 34 chapters on various pelagic and demersal finfishes, crustaceans, molluscs, seaweeds, marine turtles, mammals, sectorwise production trends, environment, fisheries forecasting, economics and marketing. This compendium, profusely illustrated with 25 colour plates, would serve as a valuable reference book to resource managers, fishery scientists, developmental orga-



nizations, fishing industry and faculty and students of fishery science in India and neighbouring countries.

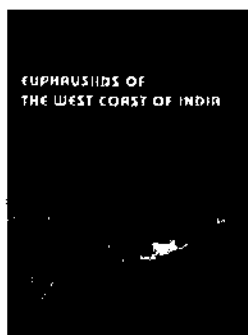
The publication is in Demy 1/8 size, 308 pages, case binding with laminated cover. Price : Inland - Rs. 800 ; Overseas- US\$ 200.

Euphausiids of the West Coast of India

CMFRI Special Publication No. 78

K.J. Mathew, Gisha Sivan,
P.K. Krishnakumar and Somy Kuriakose

The book contains 22 chapters encompassing research results on Euphausiacea, a planktonic group of crustaceans, collected during the cruises of FORV *Sagar Sampada* from the Exclusive Economic Zone of the west coast of India. Being an important link in the food web be-



tween the phytoplankton and higher organisms including fishes, the euphausiids play a vital role in the marine economy. The publication which with ample illustrations gives an account of the distribution, ecology and some aspects of the biology of 17 species of euphausiids will be an authentic reference for the planktologists of the tropical seas and a valuable addition to any research library.

The book is in ¼ crown size, 155 pages, printed on art paper. Price: Inland - Rs. 250; Overseas - US \$ 80.

CMFRI Personnel Directory 2003

N. G. K. Pillai and U. Ganga (Eds.)

The directory, a handy aid in facilitating communication gives the list of personnel of all categories in CMFRI as on August 2003 along with useful numbers of other ICAR Fisheries Research Institutes in India.



IN-HOUSE EVENTS

The Institute celebrated the Independence Day on 15th August and observed the National *Sadbhavana Divas* on 21st August.

Documentary films screened

The animation film in Malayalam entitled *Kunjumeenum Kothuvalayam* (Tiny fish and mosquito net) produced by the Institute in collaboration with C-DIT, Trivandrum under the National Agricultural Technology Project 'Designing and validation of communication strategies for responsible/sustainable fisheries - A co-learning approach' was telecasted in the Doordarshan Malayalam channel on 1st July.

The documentary film on CMFRI entitled *Our Fish Our Wealth* was screened for the staff members at Headquarters on 22nd July. The film of 45 minutes duration covers the gamut of activities pursued at CMFRI concerned with marine fishery resources management, fishery environment monitoring and mariculture.

Publications released

Dr. A.M. Krishnappa, Hon'ble Vice

Chancellor of University of Agricultural Sciences, Bangalore released the following publications of the Institute in a function held at the Headquarters on 25th August: (i) The white paper on Status of Exploited Marine Fishery Resources of India (ii) Special publication on Euphausiids of the West Coast of India (iii) CMFRI Personnel Directory 2003 and (iv) Video film 'Our Fish our Wealth'.

The guest of honour of the day, Prof. (Dr.) Pandurangalah, Co-ordinator, World Bank Project on Watershed Management addressed the staff members on the importance of natural resource management.

HRD programme organised

FEEL Leadership training was conducted for 20 young scientists of the Institute at Headquarters from 18th to 20th September. The participants were guided to realize 'Self' and to develop and manage interpersonal relationships.

Dr. P. Parameswaran Pillai, Retd. Principal Scientist has joined the Vizhinjam Research Centre as ICAR Emeritus Scientist to work on the

topic 'Resources of tunas and related species and their fisheries in the Indian ocean - an update'.

Onam celebrated

The CMFRI family celebrated Onam on 5th September under the auspices of the Staff Recreation Club at the Headquarters. A competition was held in the traditional floral carpet laying *Pookalam* followed by a sumptuous *Onasadhya*. Games held for the staff members included a variety of novel group activities such as blind folded block building, dumb charade - proving communication skill without words, quiz - checking general awareness and dart throwing - testing aiming skill.

Women's Complaints Committee constituted

A committee has been constituted under the Chairpersonship of Dr. (Smt.) Mary K. Manisserry to redress the complaints of women employees working in CMFRI. The committee will hear the grievances, conduct time frame investigations and provide counsel, medical and legal aid maintaining confidentiality.

PERSONALIA

Guests

Headquarters

Dr. Mali Boonyaratpalin, Fisheries Resource Management specialist and Dr. Supis Thongrod, Senior Fisheries Biologist from Department of Fisheries, Thailand.

Mandapam Regional Centre

- Prof. T.J. Pandian, Madurai Kamaraj University, Madurai.
- Dr. V. Sampath, Director, Department of Ocean Development, Chennai.
- Dr. M.K. Srivastava, Director, DAC, Ministry of Agriculture, Govt. of India, Krishi Bhavan, New Delhi.
- Total visitors at this centre were 2328 of which 2054 were students from 37 educational institutions.

Vizhinjam Research Centre

- Dr. S. Ayyapan, Deputy Director General (Fy.), Indian Council of Agricultural Research, New Delhi.
- Shri. G. Chandrasekhar, Under Secretary, DARE, New Delhi.
- Lt. Gen. Narendra Aul, COS, HQ Northern Command.

Programme Participation

Prof. (Dr.) Mohan Joseph Modayil, Director

- FAO sponsored National Workshop on 'Best practices in financial support for women in coastal fishing communities' and presented a paper (1-4 July).
- Discussion regarding the outstanding advances and audit paras pertaining to CMFRI at New Delhi (11 July).
- 'Special Fish Farmers Day' organized by CIFT, CMFRI, Kerala State Fisheries Department and private agencies at Polyva fish farm in Mala (Trichur Dist.) and delivered keynote address on fish culture, fish diseases, their prevention and control (15 July).
- Discussion with NGOs and visits at Porayar, Chidambaram and Marine Biodiversity Centre, Annamalai University in connection with TIFAC Project of Department of Science and Technology (16-18 July).
- Discussion on research programmes with the Chairman, RAC of CIBA and Director, CIBA at Chennai (19 July).
- Meeting on entrusting the work related to recruitment/examination of administrative category posts on uniform pattern to ASRB, organized by ASRB at Project Directorate of Biological Control (PDBC), Bangalore (23 July).
- ICAR Institute's Directors' Meeting at New Delhi (29-31 July).
- Inaugural ceremony of the International Symposium on 'Freshwater

prawns' at Cochin and chaired the session 'Biology and Capture Fisheries' (20 & 21 August).

- Book releasing ceremony of 'Seafood Safety' by Prof. K.V. Thomas, Hon'ble Minister for Fisheries & Tourism, Govt. of Kerala at CIFT, Cochin (22 August).
- Valedictory function of the International Conference on 'Fish Diseases' organized by Department of Aquatic Biology, Kerala University and gave felicitations (28 August).
- Round Table Conference on Seaweed at National Academy of Agricultural Sciences, New Delhi (12 September).
- Inaugurated the ICAR sponsored short-term course on 'Taxonomy and biodiversity of fishes and crustaceans' at College of Fisheries, Panangad and gave inaugural address (17 September).
- Presided over the *Kisan Mela* organized by CMFRI in order to understand the problems and issues facing the sector at Vizhinjam Research Centre of CMFRI (29 September).

Dr. N.G.K. Pillai, Principal Scientist & Head, Pelagic Fisheries Division and **Dr. M. Srinath**, Principal Scientist & Head, Fishery Resources Assessment Division

- Technical Workshop of the Fisheries Resource Information System and Tools (FIRST) at Worldfish Centre, Penang, Malaysia (10-15 August)
- Dr. N.G. K. Pillai**, Principal Scientist and **Dr. T.V. Sathianandan**, Sr. Scientist
- Review meeting of the NATP Project 'Integrated National Agricultural Resources Information System' (INARIS) at CMFRI, Cochin (30 September)

Dr. R. Paul Raj, Principal Scientist & Head, Physiology Nutrition & Pathology Division

- Chaired the session 'Nutrition, feeds and feed additives' in the International Symposium on Freshwater Prawns organized by College of Fisheries, Panangad (21 - 23 August)
- Dr. R. Paul Raj**, **Dr. A.P. Lipton**, Principal Scientists and **Dr. P. Jayasankar**, Senior Scientist
- Workshop organized by NAAS on 'Priorities of Research and HRD in Fisheries Biotechnology' at CCMB, Hyderabad (24-27 August)

Dr. R. Sathiyadas, Principal Scientist & Head, SEETD and **Dr. S. Ashaletha**, Scientist (SS)

- Project Co-ordination Committee Meeting organized by District Co-operative Bank, Kakkannad (30 August)

Dr. L. Krishnan, Principal Scientist, Demersal Fisheries Division

- Served as the Facilitator for the three-day training programme on 'FEEL Leadership' conducted at CMFRI, Cochin (18-20 September)
- Meeting on 'Current Trends in Telecom Scenario' conducted by BSNL at Kochi (24 September)

Dr. P.C. Thomas, **Dr. K.C. George**, **Dr. A.P. Lipton**, Principal Scientists, **Shri. N.K. Sanil** and **Dr. K.S. Shobhana**, Scientists (SS)

- Participated and presented papers related to various aspects of fish and shellfish diseases in the International Conference on 'Disease Management for Sustainable Fisheries (ICON-DMSF, 2003)' at Trivandrum (25-28 August)

Dr. K.S. Shobhana, Scientist (SS)

- International Symposium on 'Freshwater Prawns' organized by College of Fisheries, Panangad (21-23 August)

Dr. P. Kaladharan and **Dr. Reeta Jayasankhar**, Sr. Scientists

- Round Table Conference on 'Seaweed' at National Academy of Agricultural Sciences, New Delhi (12 September)

Dr. P. Kaladharan, Sr. Scientist

- Network Project Meeting on 'Seaweed as Fodder' and presented a project proposal at Krishi Anusandhan Bhavan (II), New Delhi

Dr. Shoji Joseph, Scientist (SS)

- National Seminar on 'Reef Ecosystem Remediation' and presented a paper on 'Conservation and management of reef associated molluscs for sustainable utilization' at SDMRI, Tuticorin (24-26 September)

Smt. Sheela Immanuel, Scientist (SS)

- Annual Review Meeting at IISR, Kozhikode and presented the Annual Report of the IVLP Project (22-24 September)

Dr. Vipin Kumar V.P., Scientist

- Annual Review Meeting conducted at KVK, Pondicherry and presented the Annual Report of the ATIC (16-17 September)

Dr. C. Ramachandran and **Smt. N. Aswathy**, Scientists

- Training programme in official language on 'Post Harvest Technologies in Marine and Inland Fishes of India' at CIFT, Cochin (25 August - 4 September)

Dr. N. Kaliaperumal, Principal Scientist & SIC Mandapam Regional Centre

- Workshop on 'Coastal Vegetation' at the National Institute of Oceanogra-

- phy, Goa and delivered a special lecture on 'Seaweed culture in India - Present status and prospects' (22 August)
- ▶ National Seminar on 'Reef Ecosystem Remediation' at the Suganthi Devadasan Marine Research Institute, Tuticorin and delivered a special lecture on 'Conservation and management of seaweed resources for sustainable utilization' (25 September)

Dr. V.D. Deshmukh, Principal Scientist

- ▶ State level meeting on 'Management of Marine Fisheries and Regulation' at Department of Fisheries, Govt. of Maharashtra (29 August)

Dr. K.V.S. Nair, Principal Scientist & SIC, Veraval Regional Centre

- ▶ 'Sustainable Fisheries in Gujarat' conducted by Fishworkers Forum at Veraval (14 July)

- ▶ 18th Meeting of the ICAR Regional Committee - VI at Udaipur (25-26 August)

Dr. R. Narayanakumar and Dr. K.A. Unnithan, Senior Scientists

- ▶ Interactive Meeting of Fisheries with Stakeholders organized by the Andhra Pradesh Fisheries Department and fisheries professionals at State Institute of Fisheries Technology (SIFT), Kakinada (20 July)

Dr. P.K. Martin Thompson, SIC, KVK, Narakkal

- ▶ Annual Review Meeting of TOT projects of ICAR Zone - VIII at Indian Institute of Spices Research, Calicut (22-24 September)

Smt. P. Sreeletha, Technical Officer (T-6)

- ▶ Training programme on 'Gender Perspective and Issues' conducted by the Trainers' Training Centre,

Avinashilingam Institute for Home Science and Higher Education for Women - Deemed University, Coimbatore (5-6 September)

Shri. B. Suresh Kumar, Technical Officer (T-5)

- ▶ Training programme by District Watershed Committee, Ernakulam for the X Plan Watershed Project implementation officials at Kakkanaad (18-19 July)

Shri. M.K. Sreenivasagam, Shri. R. Athipandian and Shri. K. Shunmuga Sundaram, Technical Assistants

- ▶ Hindi *Prabodh* training at Tuticorin (July-September)

Shri. D. Sundararajan and Shri. M. Chellappa, Technical Assistants

- ▶ TOLIC meeting at Indian Oil Corporation Ltd., Tuticorin (22 August).

Promotions

Name	Designation	Promoted post	Centre	w.e.f.
Shri. N. Viswambharan	Asst. Adm. Officer	Administrative Officer	CMFRI, Cochin	15.9.2003
Shri. M. Shanmughavel	T-1-3 (Refrigeration Mechanic)	T-II-3	Mandapam Regl. Centre	01.1.1995
Shri. Vinod P. Bagayatkar	LDC	UDC	Mumbai Res. Centre	12.8.2003
Shri. M. N. Sathyan	SS. Gr. I (Messenger)	T-1 (Motor Driver)	Calicut Res. Centre	01.9.2003

Appointments

Name	Designation	Centre	w.e.f.
Shri. V. Venkatesan	Scientist	Mandapam, Regl. Centre	25.08.2003
Dr. Kajal Chakraborty	Scientist	CMFRI, Cochin	25.08.2003
Shri. Madhu V.R.	Scientist	Veraval Regl. Centre	25.08.2003
Ms. Rekhadevi K.	Scientist	Veraval Regl. Centre	25.08.2003
Ms. Paramitha Banerjee	Scientist	Mumbai Res. Centre	25.08.2003
Smt. A. Usha Rani	SS. Gr. I (Messenger)	Tuticorin Res. Centre	12.09.2003

Transfers

Name	Designation	From	To
Shri. P. Harshakumar	T-2 (Motor Driver)	Chennai Res. Centre	CMFRI, Cochin
Smt. V.K. Janaki	Sr. Tech. Assistant (T-4)	Calicut Res. Centre	CMFRI, Cochin
Shri. Baby Mathew	T-2 (Motor Driver)	Calicut Res. Centre	CMFRI, Cochin
Shri. P. Krishna Rao	LDC	Kakinada Res. Centre	Visakhapatnam Regl. Centre

Inter-Institutional transfers

Name	Designation	From	To
Dr. J. Jayasankar	Scientist (Sr. Scale)	CSWRI, Avikanagar	CMFRI, Cochin
Smt. Bindu Sanjeev	Stenographer (Gr. III)	CARI, Port Blair	CMFRI, Cochin
Shri. K.C. Gopalan	T-3 (Cook)	Vizhinjam Res. Centre	CIFT, Veraval
Shri. M.R. Bharathan	SS. Gr. IV (Deckhand)	CMFRI, Cochin	CIFT, Veraval

Retirements

Name	Designation	Centre	w.e.f.
Shri. G.S. Daniel Selvaraj	Principal Scientist	CMFRI, Cochin	31.07.2003
Shri. A. Chellam	Principal Scientist	Tuticorin Res. Centre	31.07.2003
Shri. G. Ankalah	SS. Gr. III (Safaiwala)	Mandapam Regl. Centre	31.07.2003
Shri. K. Govindan	SS. Gr. II (Khansama)	Mandapam Regl. Centre	31.07.2003
Shri. M.M. Melyappan	Principal Scientist	Chennai Res. Centre	30.09.2003
Shri. T.N. Padmanabha Kurup	Asst. Admn. Officer	Veraval Regl. Centre	30.09.2003

Voluntary Retirement

Shri. P.I. Koya	SS. Gr. IV (Lab Attendant)	CMFRI, Minicoy	01.08.2003
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TRAINING PROGRAMME SCHEDULE (KRISHI VIGYAN KENDRA)

Month	Topic	No. of Courses	No. of Trainees
November 2003	Shrimp farming	1	20
	Transportation and conditioning of shrimp seed for stocking	1	20
	Mushroom cultivation	1	20
	Coconut cultivation	1	20
	Grape squash preparation	1	20
	Fish wafer preparation	1	20
December	Poultry farming	1	20
	Feed management in shrimp farming	1	20
	Transportation and conditioning of shrimp seed for stocking	1	20
	Nutrient management in coconut farms	1	20
	Banana cultivation	1	20
	Orange squash preparation	1	20
January 2004	Fish pickle preparation	1	20
	Shrimp farming	1	20
	Water quality management in shrimp farms	1	20
	Kitchen gardening	1	20
	Jasmine cultivation	1	20
	Clam pickle preparation	1	20
February	Mango squash preparation	1	20
	Feed management in shrimp farming	1	20
	Crab farming and fattening	1	20
	Jasmine cultivation	1	20
	Coconut cultivation	1	20
	Pineapple squash preparation	1	20
March	Shrimp wafer preparation	1	20
	Dairy farming	1	20
	Disease management in shrimp farms	1	20
	Crab farming and fattening	1	20
	Mushroom cultivation	1	20
	Kitchen gardening	1	20
	Cleaning powder preparation	1	20
	Mango squash preparation	1	20

In addition to the above training programme, need-based training programmes will be conducted in collaboration with Vypin block, *grama panchayaths* and *krishi bhavans* in Ernakulam District and Brackishwater Fish Farmers Development Agency for farmers sponsored by Agriculture Department, *Mithra Kisans* under the National Water Shed Development Programme and trainees sponsored by non-government organizations.

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Glimpses of Events



◀ हिंदी अनुवाद प्रशिक्षण कार्यक्रम के समापन कार्यक्रम में श्री नन्द किशोर चावला, प्रशिक्षण अधिकारी, केंद्रीय अनुवाद ब्यूरो, नई दिल्ली सभा का संबोधन करते हुए
Shri. Nandkishore Chawla, Training Officer, CTB, New Delhi addressing the staff at the valedictory function of the **Translation Training Course in Hindi**

प्रोफसर डॉ. सी. जी. राजगोपाल, प्रधानाचार्य, सस्कृत ▶ कालेज एवं डीन, केरल विश्वविद्यालय (सर्वान्वित) विषिजम अनुसंधान केंद्र में आयोजित हिंदी दिवस में सभा का संबोधन करते हुए

Hindi Week Celebrations:

At Vizhinjam, Prof. (Dr.) C.G. Rajagopal, Principal of Sanskrit College & Dean of University of Kerala (Retd.) addressing the staff

वेरावल क्षेत्रीय केंद्र में आयोजित हिंदी सप्ताह ▶ समारोह - में डॉ. के.वि.एस. नायर श्री एम.एम. वानवी को प्रतियोगिताओं का प्रथम पुरस्कार प्रदान करते हुए

At Veraval, Dr. K.V.S. Nair giving away the prize to Shri. M.M. Vanvi who secured First Prize in six competitions held during Hindi Week



हिंदी सप्ताह - 2003 का समापन कार्यक्रम में डॉ. एम. राजगोपालन, डॉ. के. गोपकुमार, भूतपूर्व उप महानिदेशक, भा.कृ.अनु.प.से. राजभाषा रोलिंग ट्रॉफी स्वीकार करते हुए
Dr. M. Rajagopalan receiving the **Rajbhasha Rolling Trophy** secured by FEM Division from Dr. K. Gopakumar, former DDG(Fy.) ICAR on the valedictory day of the Hindi Week celebrations at Headquarters



श्री जी. सुब्रमण्य भट (ऊपर) श्रीमती अल्ली सी. गुप्ता (नीचे) मंगलूर न रा का स द्वारा आयोजित हिंदी निबंध लेखन प्रतियोगिता में पुरस्कार स्वीकार करते हुए

Shri. G. Subramanya Bhat (Top) and Smt. Alli C. Gupta (Bottom) receiving prizes for **Hindi essay writing competitions** conducted at Mangalore by Airport Authority of India and TOLIC respectively



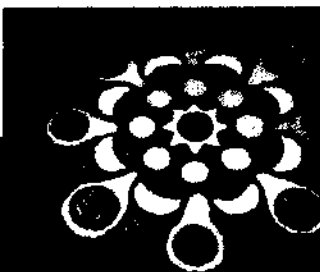
प्रोफसर (डॉ.) मोहन जोसफ मोडायिल **पूकलम** के विजेताओं को पुरस्कार प्रदान करते हुए, प्रोफसर (डॉ.) शांता जोसफ और डॉ. के. गोपकुमार भी उपस्थित हैं

◀ Prof. (Dr.) Mohan Joseph Modayil giving away the First Prize to the winners of the **floral carpet** competition. Prof. Dr. (Smt.) Santha Joseph and Dr. K. Gopakumar are also seen



जोगसघा

Onasadhya



पुरस्कार प्राप्त फूल सजावट
1st Prize winning floral carpet



लक्ष्य कुशलता प्रतियोगिताओं का दृश्य
Aiming skill competition in progress

श्री. ए. एस. सेठी, अवर सचिव (मा.) पुरस्कार वितरण करते हुए
Shri. A.S. Sethi, Under Secretary (Fy.) giving away the prizes to the winners