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AGRICULTURE MINISTERS VISIT CMFRI



Director CMFRI, Prof. (Dr.) Mohan Joseph Modayil welcomes the guests of honour

The Institute was honoured by the visit of the Honourable Union Minister for Agriculture, Shri Ajit Singh, the Honourable Minister of State for Agriculture, Shri Hukumdeo Narayan Yadav, a six member Parliamentary Panel and the Director General of ICAR, Dr. Panjab Singh on 2nd July.

A traditional welcome was accorded to the visiting dignitaries at the Institute. The distinguished guests were taken round the laboratories by Dr. Mohan Joseph Modayil, Director, CMFRI. Scientists of CMFRI and CIFT explained the programmes and activities of the respective Institutes. Models displaying the ongoing research projects in Mariculture were demonstrated to the visiting dignitaries. They were also

apprised of the achievements made on the research front by the CMFR Institute.

Addressing the staff, the Union Agriculture Minister called upon the researchers to translate their research results into practical use for the benefit of the fishermen and further stressed the need for commercialization of research works by the Institutes. The Minister also called for better use of Information Technology in the sector. In his address, the Union Minister of State for Agriculture, Shri Hukumdeo Narayan Yadav, said that traditional knowledge of farmers in the country should be updated for achieving better results in the agriculture sector. Dr. Panjab Singh lauded the contribution of the scientists in the overall development of marine fisheries sector.

RESEARCH HIGHLIGHTS

Mussel Farming: Techno-economic feasibility in coastal villages

The coastal fishers were reluctant to adopt the open sea mussel farming technology for fear of losing the farm structure due to unpredictable oceanic phenomena and poaching of farm stock. Under the situation, the Institute decided to test the feasibility of mussel farming in the calm and biologically productive estuarine ecosystem. With advantages like ready availability of seed, cheap farm materials and short grow out period, the people of Kerala tried to adopt this technology in their villages.



Harvest Mela of farmed mussels

The CMFR Institute through constant interactions with the state fisheries officials, local planners and aquaculture developmental agencies made this farming system popular in the coastal districts of Kerala. Financial assistance was given to women Self Help Groups (SHG's) which presently is under the SGRY (Swarnajayanti Gramaswa Rosgar Yojana) scheme. Agriculture loans from farmers cooperative banks have also helped the farmers. The amount sanctioned for mussel farming by the banks range between Rs. 8,000 and Rs.9,000 per member with 40 to

50 % subsidy and a repayment period of five years at 12.5% interest per annum. Equipped with financial aid, the women SHG's have contributed significantly to the development of mussel farming in the state.

The number of mussel ropes per farm vary between 300 and 900 with the yield ranging from 28 to 40 tonnes depending upon the initial stocking. Stocking starts during December- January when the salinity in coastal waters vary from 25 to 28 ppt. Initially the entire stock was harvested by the beginning of June before the onset of monsoon forcing the farmers to sell the product at a very low price. The farmers

were mainly depending on government agencies for marketing their produce. To solve the marketing problems, they have phased out the harvesting to a longer period from April till the onset of monsoon in June, with the farmers harvesting 5 to 10 ropes per day and selling it to women vendors who sell it in the local markets. The farmers feel that the government should help them by providing deep freezing facility to store the mussel and sell it more profitably during the monsoon period.

The Institute has set up eight demofarms and conduct trainings in

selected villages every year. The Institute also offer training programmes for state fisheries and bank officials so that they are well equipped to process the applications of farmers seeking financial assistance. All the efforts put in has been fruitful and the state today produces more than 800 tonnes of farmed mussels annually. More than 250 families in Kasargod, Kannur, Kozhikode, Thrissur, Malappuram, Tellicherry and Ernakulam districts are now the proud owners of mussel farms. In the serene coastal regions of Kerala, mussel farming has established itself as a part time avocation earning the trust of the villagers.

Technology implementation in the backyard

The Central Marine Fisheries Research Institute, Cochin has trained farmers of Chettuva (Trichur District in Kerala) in edible oyster and green mussel farming right from 1996. Since then few farmers were practicing small scale farming of mussels in the estuary. This year a farmer from Chettuva collected mussel seeds from the Light House Beach of Anjangadi and released 125 ropes of 1 meter seeded length in racks erected in the estuarine creek behind his house in 50 sq. km area in December 2001 investing Rs. 15,000 for rack materials, seed cost and labour charges. The tended stock harvested from April upto early June came to a total of 1 tonne mussels fetching around Rs. 40,000. For selling the mussels, he has adopted a novel way of hanging the harvested mussel ropes on the side of the National Highway so as to attract consumers. Another farmer has also sold 800 kg of farmed mussels at the same area. Many farmers intend to take up mussel farming in the next season.

On the way to larger pearls

Broodstock of pearl oyster reached a maximum size of 80-90

mm under captivity at Visakha-patnam Regional Centre and the stock is ready for implantation with 6-8 mm beads.

Breeding and culture of sea horse

The first generation baby sea horse produced at the Mandapam Regional Centre of the Institute during January and February 2001 reared in 5 t FRP tanks and fed on mysids and *Artemia* has grown to sizes between 123 and 128 mm and attained maturity after one year. In January 2002 more than 50% of the above F1 generation sea horse spawned under captivity. The second generation sea horse babies fed on *Artemia* juveniles progressed from 37 to 46 mm in 3 months.

TRANSFER OF TECHNOLOGY

Training for practicing farmers and rural youth

Krishi Vigyan Kendra of the CMFR Institute at Narakkal imparted training to 771 participants through conducting 31 courses under four disciplines. The number of courses and beneficiaries are as follows: Fisheries - 10 : 281; Agriculture - 10 : 278; Home Science - 8 : 163; Animal Science - 3 : 49.

KVK organised 5 collaborative training courses in association with different agencies as indicated: (1) Shrimp farming with Brackishwater Fish Farmers Development Agency on 3rd January; (2) Medicinal plant cultivation and their uses with Tapovanam, an NGO for youth development on 18-19 January; (3) Vegetable cultivation with Krishi Bhavan on 28-29 January; (4) Kitchen gardening with Krishi Bhavan on 30-31 January; (5) Coastal bio-resource development with Central Institute of Fisheries Education, Mumbai from 17th to 19th April.

Under the Institute Village Linkage Programme (IVLP), KVK conducted ten training courses through which 50 male and 46 female farmers were trained in the disciplines of Fisheries, Agriculture and Animal Sciences. The programme was implemented during January-March for 50 families on five interventions namely (1) Monoculture of shrimp in tided ponds; (2) Polyculture of fin fishes in tided ponds; (3) Freshwater ornamental fish culture in tanks; (4) Performance of hybrid breed of poultry and (5) Nutrient management in coconut farms. In a coastal village of Narakkal two immunisation camps were arranged (i) on 4th June for the prevention of foot and mouth disease in cattle and (ii) on 28-29 June for the prevention of *Rantket* disease in poultry.

Training on seaweed farming for fisherfolk

FEM Division of CMFRI and KVK, Narakkal imparted training on the cultivation, processing and industrial utilization of the seaweed, *Gracilaria edulis*. Seaweed recipes were also taught to 15 male and 10 female fisherfolk from the local village who attended the programme from 25th to 27th February.

Mandapam Regional Centre organised trainings on Agar production for 10 fisherfolk of Kunjarvalasai (27 December 2001- 2 January 2002) and two programmes on seaweed culture for 25 fisherfolk each of Ramasamimadam (25 February - 1 March) and Nalupanai (15-20 April).

Trainings for nominated Government and non-Government officials

Short term courses were organised by the Trainers' Training Centre of the Institute on the following topics:

Ornamental fish culture -

Three courses of 6 days duration in January, March and June conducted at Calicut imparted training to 48 participants in the following aspects: (i) breeding and rearing; (ii) scientific aquarium management; (iii) live feed culture (iv) disease diagnosis and curing; (v) packing and transportation.

Mussel farming - Two courses of 2 days duration in March and April at Calicut imparted training to 17 male and 23 female participants on the rope, raft and rack culture methods.

Crab culture - A six day programme in Cochin trained fourteen participants in (i) handling techniques, (ii) crab fattening and (iii) transportation of both live and processed forms.

Training for Scientists Probationers

As part of the 74 FOCARS Training of National Academy of Agricultural Research Management (NAARM), Hyderabad, 9 ARS scientists probationers underwent their Field Experience Training (FET) at the Institute for 21 days (4 - 24 March).

Exhibitions

- CMFRI along with the other ICAR Institutes participated in the 'Swadeshi Vigyana Mela Industrial Fair, 2002' at the Durbar Hall Ground, Cochin from 10th to 19th January.
- The Institute participated in the '3rd All India Aquarium Show 2002' at Marine Drive, Cochin from 29th January to 4th February and won the First prize for the best stall under scientific institutions.
- The Institute put up an impressive stall and bagged the Second prize for the Government stalls at 'Thrissur Pooram Exhibition' held during the period from 5th April to 19th May.

INTERACTION AND EVALUATION

Research Advisory Committee Meeting

The RAC meeting of the Institute was held on 13th February under the chairmanship of Dr. T.J. Pandian of Madurai Kamaraj University. Members of the Committee, Dr. Mohan Joseph Modayil, Dr. R. Alfred Selvakumar, Dr. S.D. Tripathi, Dr. V.C. George, Dr. K.R. Prasad, and Dr. V. Sriramachandra Murty, Member Secretary attended the meeting.

Management Committee Meeting

The Institute Management Committee meeting was held on 8th March at the Headquarters. The Chairman, Dr. Mohan Joseph Modayil, Members - Dr. N. Gopalakrishna Pillai, Dr. K.K. Apukuttan, Shri S. George and Shri Charles Ekka, Member Secretary attended the meeting.

Staff Research Council

The 9th reconstituted Staff Research Council meeting of the Institute was held on 27-28 June at Cochin. The progress of work done in the ongoing research projects of the Institute, research projects sponsored by funding agencies and consultancy and contract research projects was reviewed. The heads of divisions, officers-in-charge of Regional/Research Centres and all principal investigators attended the meeting.

Eighth Meeting of the IJSC

Eighth meeting of the Institute Joint Staff Council of CMFRI was held on 11th February at the Mumbai Research Centre. Dr. Mohan Joseph Modayil, Chairman, IJSC presided over the meeting. Representatives from official and staff side attended the meeting.

NATP Projects Reviewed

Peer Review Team headed by former Directors of CMFRI, Dr. E.G. Silas (Chairman) and Dr. M.

Devaraj and the members of the Scientific Advisory Panel, Dr. Alfred Selvakumar and Dr. T.C. Santiago visited CMFRI, Cochin and reviewed the progress and achievements made in all PSR mode and IVLP projects funded under the Coastal Agro Ecosystem Directorate (20-21 May). The team members visited IVLP sites at Elankunnapuzha. Dr. E.G. Silas inaugurated two Women Self Help Groups involved in the preparation of value added products.

Site Committee Meeting

The second Site Committee Meeting of the IVLP and ATIC was held under the chairmanship of Dr. Mohan Joseph Modayil, at this Institute on 18th June. Dr. Chandra Gowda, Senior Scientist represented the Zonal Co-ordination Unit, Bangalore. The annual progress achieved was reviewed and the second phase of interventions to be implemented was presented. The committee approved the interventions of the second phase of IVLP.

Institute Seminars

Seminars were conducted at the Headquarters on various subjects as indicated:

- Ecopath Modelling - Dr. M. Srinath
- Sea Turtle Conservation and Management: Present Status - Dr. M. Rajagopalan
- Visit to Islamic Republic of Iran - Dr. L. Krishnan
- Captive breeding and larval rearing of cephalopods - Dr. V. Kripa
- Surplus production models and their applications - Dr. Somy Kuriakose

In the discussions that followed, scientists, technical staff and students actively participated and the suggestions which emerged recorded for identifying prospective researchable issues.

Seminar on Mussel Culture

A seminar on 'Mussel culture in Malabar - Prospects and Constraints' was jointly organised by TTC and Calicut Research Centre of CMFRI at Calicut on 14th May. The

seminar inaugurated by Shri A. Sujanapal, MLA was attended by officials of state fisheries departments, grama panchayat presidents and members, mussel farmers and researchers on molluscan mariculture. Apart from scientific presentations, there were discussions on the problems faced by the farmers and issues related to mussel farming. A booklet on 'Mussel Culture in North Kerala' prepared by Dr. P.K. Asokan was released by Shri A. Sujanapal.

National Workshop on Field Data Collection

A three day workshop was held for the field staff engaged in resources data collection of Fishery Resources Assessment Division posted at the different Regional Centres, Research Centres and Field Centres of the Institute at the Headquarters from 4th to 6th June. All staff members of the Division at Headquarters, representatives of other divisions of the Institute and 90 field staff participated. The workshop was formally inaugurated by Dr. Mohan Joseph Modayil on 4th June. Field staff was divided into three separate groups and three simultaneous sessions were conducted. These groups discussed in detail, the fishing activities in each zone, introduction of new craft/gear, formation of new landing centres in their zone, non-existence of earlier landing centres, methods of improving data collection and recording and other related issues. A separate session was particularly arranged for updating their knowledge in field level identification of marine species and a field trip was made to Cochin Fisheries Harbour and Fort Cochin. Decisions were made on all vital information on data collection, processing and dissemination of processed results.

Workshop on Sea Turtles

Under the GOI-UNDP Sea Turtle Project, the Central Marine Fisheries Research Institute, Cochin conduct-

ed a Workshop on 'Capacity Building Training for the front line staff of wildlife, fisheries and research organization of the west coast of India and Lakshadweep' during 19-21 June at Cochin, jointly with Wildlife Institute of India, Dehradun. The workshop was sponsored by the Ministry of Environment and Forests, Government of India. Prof. (Dr.) K.V. Peter, Vice Chancellor, Kerala Agricultural University inaugurated the Workshop. Dr. Mohan Joseph Modayil, Director, CMFRI, presided over the function. Dr. N.R. Menon, Director, C-IMCOZ, Cochin University of Science & Technology offered felicitation. The workshop imparted training by the resource personnel from CMFRI, CIFT, MPEDA, WII & Coast Guard to 50 frontline and field staff of wildlife, fisheries and research organization of west coast of India and Lakshadweep in the protection of sea turtle, fishery interface problems, monitoring breeding/nesting grounds, community participation and educational programming towards sea turtle conservation. The workshop also provided a forum to share and exchange experiences in the area of sea turtle conservation and management.

Workshop on Impact of Dams

Technical review of the NATP project on 'Impact of dams on the river run off into the sea and change in the nutrient and productivity profile of coastal waters' was conducted at Mangalore Research Centre of CMFRI on 14th and 15th of May. Results of the work done for one year on water quality, sediment chemistry, phytoplankton, zooplankton and benthos was presented followed by discussions including suggestions for improvement.

Working Group Meeting and Workshop on Mangrove Ecosystem Biodiversity

A working group meeting (WGM) on NATP project 'Mangrove Ecosystem

Biodiversity' was conducted at CMFRI, Cochin from 16th to 18th April. During the meeting, common minimum programmes for physico-chemical and biological parameters has been formulated in order to generate uniform data on the mangroves of Kerala, West Bengal (Sunderbans) and Andaman-Nicobar Islands for better comparison. In connection with the WGM, the project personnel from Kerala and West Bengal visited the mangrove ecosystem at Chettuva on 18th April.

Under the project, CMFRI sponsored a workshop at Vidyasagar University, Midnapur, West Bengal during 8-9 June. During the workshop, a manual on 'Research Methodology for Mangrove Ecosystem Biodiversity' has been released. In connection with the workshop, the participants from CARI, Port Blair; CMFRI, Cochin and Vidyasagar University, Midnapur visited the Sunderbans mangrove ecosystem during 10-12 June.

National Project Proposed on Elasmobranchs

In view of the ban imposed on the exploitation of Elasmobranch species and the consequent issues raised by several interest groups, the Ministry of Environment and Forests, Government of India called a meeting of all the stakeholders. The problems of implementing such a ban in view of the lacunae in the knowledge on these resources were discussed by the Institute. The Ministry agreed to fund a Research Project on Elasmobranchs. The Demersal Fisheries Division of the Institute prepared a project proposal and the project finalization meeting funded by the Ministry was held on 17-18 February at CMFRI. Shri S.C. Sarma, Additional Director General of Forests (WL) and experts from ZSI, FSI, MPEDA, CIFT, NGO's and CMFRI participated. Based on the deliberations, the proposal for a

research project was finalised.

Entrepreneurs and Industrialists Meet

Meeting of Entrepreneurs and Industrialists in Marine Fisheries was conducted at the Institute Headquarters on 13th March. The meeting discussed the research needs of the stakeholders in marine fisheries and mariculture, identified areas of mutual interests and explored the possibilities of investments in marine fisheries sector. A team of scientists from the Institute interacted with the farmers and industrialists.

Crab Harvest Mela

A Harvest Mela of the farm grown crabs under the IVLP Project implemented at Elankunnapuzha Village of Vypeen Island was inaugurated by Dr. Mohan Joseph Modayil, on 25th January. Crab farming technology adopted was assessed in 10 farmers' ponds with an area of 30 cents each. The initially stocked crabs weighing 250 grams each and fed on trash fish attained a weight of 1 to 1.3 kg, within a period of 5-6 months. The farmers realised an income of Rs. 41,000/- from the pond.

Dr. S.D. Tripathi, member, Research Advisory Council made a visit to IVLP Sites at Elankunnapuzha on 14th February and appreciated the work done by the IVLP team and the progress made.

NEW HEIGHTS

New Sponsored Projects

- Studies on the biology, captive spawning, breeding and sea ranching of sea horse *Hippocampus* spp. sponsored by the Ministry of Environment and Forests, Govt. of India with a total outlay of Rs.15,53,020 at Vizhinjam Research Centre of CMFRI with Dr. A.P. Lipton, Principal Scientist as the Principal Investigator.

- Development of a National referral laboratory for marine fish and shellfish microbial diseases sponsored by the National Agricultural Technology Project CGP with a total outlay of Rs.18,23,780 at CMFRI, Cochin with Dr. K.C. George, Principal Scientist as the Principal Investigator.

ICAR sanctions Winter School

A 21 day Winter School on 'Recent Advances in Diagnosis and Management of Diseases in Mariculture' is to be held from 7th to 27th November at CMFRI Headquarters.

Scholastic Achievements

- Shri S. Kalimuthu, Technical Officer (T-6) of Mandapam Regional Centre of CMFRI was awarded Ph.D. Degree for his thesis entitled "Studies on some Indian members of the Rhodymeniales" by Bharathidasan University.
- Under the **Post Graduate Programme**, seven scholars were awarded Ph.D. degrees by Central Institute of Fisheries Education and Cochin University of Science and Technology as follows:
- a. CIFE
- Shri K.J. Abraham for his thesis entitled "Studies on taxonomy, some aspects of biology and population dynamics of the silver bellies (Pisces: Leiognathidae) exploited along the Kerala coast, India" under the guidance of Dr. V.S.R. Murty, Principal Scientist and Head, Demersal Fisheries Division.
 - Shri M.K. Ram Mohan for his thesis entitled "Annual reproductive cycle of sea cucumber, *Holothuria (Holodeima) atra* Jaeger (Holothuroidea : Aspidochirota) at Tuticorin, South East Coast of India" under the

guidance of Dr. D.B. James, Principal Scientist (Retd.).

- Smt. Jasmin K. Jose for her thesis entitled "Studies on White Spot Syndrome (WSS) in penaeid prawns from culture ponds at Cochin, India" under the guidance of Dr. G. Sudhakara Rao, Principal Scientist (Retd.).
 - Ms. A. Priyalakshmi for her thesis entitled "Heavy metal loading and its impact on *Villorita cyprinoides* (Hanley) along the estuaries of South West Coast of India" under the guidance of Dr. V.K. Pillai, Principal Scientist (Retd.).
 - Shri N. Soniraj for his thesis entitled "Studies on the reproductive biology of two species of brine shrimp under different ecophysiological conditions" under the guidance of Dr. M. Rajamani, Principal Scientist.
 - Ms. Sherly Zacharia for her thesis entitled "Studies on ovarian maturation and larval development of *Penaeus mergutensis* De Man in captivity" under the guidance of Dr. V.S. Kakati, Principal Scientist.
- b. CUSAT
- Ms. Bindhu Paul for her thesis entitled "Population genetics structure of the marine penaeid prawn *Penaeus indicus* H. Milne Edwards, 1837" under the guidance of Dr. M.K. George, Principal Scientist (Retd.).

Achievers

- Dr. (Smt.) V. Kripa, Sr. Scientist received the non-Hindi speaking region 'Rajbhasha Award' in the All India Scientific and Technical Essay Competition conducted by the Kendriya Hindi Sachivalay Parishad, New Delhi. The angvestra and certificate was awarded by Shri Arun Jaitely, Union Minister for Law and Justice on 24th of June.

- Shri Joice Abraham and Ms. Sandhya Sukumaran, Ph.D students of CMFRI won the 1st Prize of the First Dr. S. Jones Memorial Quiz on "Marine Life" conducted by the Marine Biological Association of India at CMFRI, Cochin on 28 February in connection with the 'Science Day' celebration.

CMFRI staff bagged four prizes in the 'Kalasangamam' cultural competitions organized by the Central Government Employees Welfare Co-ordination Committee, Cochin during 5th-6th February. The winners in different events are:

- Dr. P. Jayasankar, First prize in classical music and second prize in light music.
- Shri K. Anandan, second prizes in Fancy dress and *Badal* story telling.
- Shri P. Livingston, Sr. Scientist got prizes for Hindi translation and elocution in joint Hindi competitions of TOLIC conducted by All India Radio, Tuticorin.
- Shri P. Livingston, Sr. Scientist, M. Manickaraja and K. Diwakar, Technical Assistants obtained prizes in Hindi essay writing, elocution and noting & drafting at the Hindi day celebrations at Tuticorin Port Trust.

OFFICIAL LANGUAGE IMPLEMENTATION ACTIVITIES

Parliament Committee Inspection

The second sub-committee of the Committee of Parliament on Official Language inspected the Official Language Implementation activities of the Mandapam Regional Centre on 15th January and expressed their happiness over the Hindi implementation activities at the Centre.

Notification of Offices

Visakhapatnam Regional Centre and Minicoy Research Centre have

been notified under Rule 10(4) of Official Language Rule 1976 for acquiring working knowledge in Hindi by more than 80% of the staff of the Centres.

Committee meetings

54th, 55th and 56th meetings of Official Language Implementation Committee of the Institute were held on 24 January, 16 March and 25 June respectively and the progress made in the propagation of Official Language was reviewed.

Trainings

Two training programmes were conducted at Headquarters for imparting working knowledge in Hindi: (1) A ten days training programme in *Leap Office* for 15 selected employees who have passed the Hindi typing and stenography courses during 5-16 February. (2) Intensive Hindi *Pragya* training course for 15 days in March to impart obligatory training to staff working at remote centres. Out of the 21 participants who attended and successfully completed this course, 9 employees were from the Institute.

Four **workshops** were organised on official Hindi correspondence at different centres as indicated:

At CMFRI, Cochin, for 20 ministerial staff (23 March).

At Calicut Research Centre, for 30 officers and employees (18-20 March).

At Vizhinjam Research Centre, for 31 officers and employees (26 March).

At Minicoy Research Centre, for 15 officials from 8 Central Govt. offices (6-8 May).

Official Language Inspection

The Assistant Director (O.L.) of the CMFR Institute inspected the Official Language implementation activities of Minicoy Research Centre on 9 May. The progress of follow up action taken on the assurance given to the Parliament Committee during their inspection on 9 November 2001 was also reviewed.

INSTITUTE PUBLICATIONS

Management of Scombroid Fisheries

ISBN: 81-901219-1-X

(Editors: N.G.K. Pillai, N.G. Menon, P.P. Pillai and U. Ganga)



This edited volume of The National Workshop on Scombroids organised and conducted by CMFR Institute at Kochi in September 2000 brings together contributions by the country's foremost experts on scombroids. The comprehensive publication includes basic information like field identification of scombroids, status of fishery in the Indian Ocean region and the 32 papers presented at the Workshop dealing with status of exploitation of the scombroid stocks, their stock assessment, harvest, post harvest technologies, trade and a bibliography on scombroids. The collective knowledge in this volume is intended to empower our capture fisheries subsector with information and data support and would definitely serve as a reference book for students, researchers, policy planners, entrepreneurs and industrialists.

The publication is in Demy 1/8 size, 280 pages. Hardback with case binding. Price : Inland Rs. 300; Overseas US \$ 100.

Marine Ornamental Fish Resources of Lakshadweep

CMFRI Special Publication Number 72.

March 2002. ISSN : 0972-2351

V. Sriramachandra Murty

This is the first publication on the subject from India consisting of data and information on different species, the biology and stock assessment of major ornamental fishes of the Lakshadweep islands based on a devoted survey. Colour photo-

graphs of over hundred species are included. Relative abundance of different families and species, length data and growth curves of major species in



the islands are incorporated in colour graphics. Stock sizes and catch quotas of 165 species along with suggestions for developing the ornamental fish fishery and management in the Lakshadweep are given. The publication is of reference value to the researchers, policy makers, fishery development organisations, exporters, importers, teachers and students.

The publication is in 1/4 crown size, 134 pages, Print in multicolour on imported art paper, Binding perfect with laminated cover. Price: Rs. 600.

Elasmobranch Fisheries of India - An Appraisal

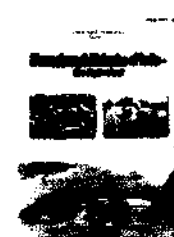
CMFRI Special Publication Number 71,

February 2002.

ISSN : 0972 - 2351

S.G. Raje, Grace Mathew, K.K. Joshi, Rekha J. Nair, G. Mohanraj, M. Srinath, S. Gomathy and N. Rudramurthy

CMFRI being the nodal Institution for research on exploited marine living resources realised the need for a concerted research effort into



the various aspects of elasmobranchs so as to generate the type of basic data which will facilitate advice to the government and other interested groups. Research workers involved in the collection of landing data and estimation of production and on various aspects of fishery and biology have consolidated and brought out this com-

prehensive publication. The bibliography section gives all the references pertaining to taxonomy, biology, distribution and fishery of elasmobranchs from the seas around India.

The publication is in ¼ crown size, multicolour paperback. Total pages 76. plates VI. Price: Rs.70.

IN-HOUSE EVENTS

The Institute celebrated the **Republic Day** on 26th January and observed the **Martyr's Day** on 30th January.

Foundation Day

The birthday of CMFR Institute falling on 3rd February was celebrated with great enthusiasm and spirit at the Institute campus on 4th February in a befitting manner. The Institute was open for the public on the day. Students of local schools and colleges were invited and were familiarized with our activities. Dr. K. Gopakumar, Deputy Director General (Fy.), ICAR was the chief guest of the public meeting held on the occasion. The function, presided over by Dr. Mohan Joseph Modayil, our Director and followed by cultural programmes presented by the staff and their family members was graced by former Directors, retired staff members and dignitaries from all walks of the society. Dr. E.G. Silas, former Director, CMFRI released the first issue of the in-house magazine "Tharangam" and Dr. P.S.B.R. James, former Director, CMFRI launched the CMFRI website www.cmfri.com. Dr. M. Devaraj and Dr. V.N. Pillai, former Directors and Dr. P.V. Rao, former Director-in-Charge of CMFRI offered felicitations.

National Science Day

The Institute observed the 'National Science Day' on 28 February and conducted a quiz competition on Marine Life under the auspices of The Marine Biological Association of

India. Students from the Institute, NIO, Industrial Fisheries and Marine Science Departments of CUSAT participated. Dr. P.G. Kurup, Director, School of Marine Sciences, CUSAT gave away the 'Dr. S. Jones Memorial Prize' to the winners.

Farewell Bid to Dr. K. Gopakumar

A farewell meeting was held at the Institute on 16 April in honour of Dr. K. Gopakumar, DDG (Fy.), ICAR retiring on superannuation in April 2002.

Publications Released

- Shri P.V. Jayakrishnan, IAS, Secretary, MoE & F released the publication *Elasmobranch Fisheries of India - An appraisal* (CMFRI Special Publication No. 71) on 17th February.
- Shri K. Jose Cyriac, Chairman, MPEDA, Cochin released the publication *Marine Ornamental Fish Resources of Lakshadweep* (CMFRI Special Publication No. 72) on 6th April.
- Prof. (Dr.) K.V. Peter, Vice-Chancellor, Kerala Agricultural University released the book entitled *Management of Scombroid Fisheries* on 19th June.

Research Centre upgraded

The Veraval Research Centre of CMFRI has been upgraded to the status of Regional Centre from 1st April 2002.

Infrastructure Developed

- Construction of 5th and 6th floors of Headquarters building has commenced.
- A Central Instrumentation Facility has been established at Visakhapatnam Regional Centre.

Video Film Produced

A Video film was made on R&D activities of CMFRI. Information on capture fisheries, mariculture activities and infrastructure facilities at

Headquarters, Mandapam Regional Centre, Tuticorin and Vizhinjam Research Centres was filmed from 2nd to 14th June.

Human Resource Developed

A leadership training programme was conducted by the Institute for 25 technical and administrative staff members from 25th February to 2nd March. The training enabled the participants to get an understanding of the basic concepts of leadership and the areas where their skills are required to be developed.

OICs Assumed Charge

- Dr. K.V. Somasekharan Nair, Principal Scientist joined the Veraval Regional Centre on 9th January.
- Dr. (Mrs.) S. Sivakami, Principal Scientist joined the Kakinada Research Centre on 11th June.

PERSONALIA

Guests

Headquarters, Cochin

Mrs. Neeraja Rajakumar, IAS, Joint Secretary, Fisheries, Dept. of AH&D, Ministry of Agriculture, New Delhi.

Mr. A.S. Sethi, Under Secretary (Fy.), ICAR, New Delhi.

Mrs. Tinku Biswal, IAS, Managing Director, Matsyafed, Thiruvananthapuram.

Prof. (Dr.) Vijaya Khader, ANGRAU, Hyderabad.

Mandapam Regional Centre

Shri P. Mohanan, Member of Parliament and Shri N. Nanmaran, M.L.A. of Madurai Constituency.

Total visitors at this Centre was 7,626 of which 5,613 were students from 132 educational institutions.

Tuticorin Research Centre

Dr. Robert B. Grubh, Director, Institute of Restoration of Natural Environment.

Kakinada Research Centre

Prof. (Dr.) Vijaya Khader, Director, PF Research Centre, Acharya N.G. Ranga Agricultural University, Hyderabad.

Visits Abroad

Dr. L. Krishnan, Principal Scientist was deputed to Islamic Republic of Iran to carry out Mullet culture project from 4th December 2001 to 3rd March 2002.

Programme participation

Prof. (Dr.) Mohan Joseph Modayil, Director

- Inaugural session of the MPEDA's Ornamental Fish Breeders Training at Fisheries College, Panangad (9 January)
- Visit to Mandapam Regional Centre of CMFRI with the Parliamentary Committee on Official Language (13-16 January)
- NBDB-DBT programme at CIFE, Mumbai and delivered a lecture "Coastal Bioresource Development and Management" (29 January)
- SOFTI Award ceremony to Dr. K. Gopakumar, DDG (Fy.), ICAR at CIFT, Cochin and delivered felicitations (5 February)
- Inaugural ceremony of the National Workshop on Breeding, Farming and Management of Ornamental Fishes by Prof. K.V. Thomas, Hon'ble Minister for Fisheries, Govt. of Kerala and gave felicitations at School of Marine Sciences, Cochin (7 February)
- VIII IJSC of CMFRI at Mumbai Research Centre of CMFRI, Mumbai (11 February)
- Project finalization meeting on Elasmobranchs inaugurated by Shri P.V. Jayakrishnan, IAS, Secretary, Ministry of Environment & Forests, Government of India at CMFRI, Cochin (17 February)
- 27th meeting of the Board of Management of CIFE, Mumbai (16 February)
- 58th meeting of the Project Screening Committee (PSC) and Scientific Panel for Fisheries, New Delhi (5-7 March)
- Chaired the Industry-Institution-Farmers' Meet at CMFRI (13 March)
- Chaired the function of releasing Special Publication "Marine Ornamental Fish Resources of Lakshadweep" by Shri. Jose Cyriac, IAS, Chairman, MPEDA (6 April)
- Fisheries Divisional Committee meeting for Zero Based Budgeting at ICAR Headquarters under the Chairmanship of DDG (Fy.) (11 April)
- Inaugural function of "Capacity Building Training Workshop on Sea Turtle Conservation & Management" at CMFRI and chaired Session 1 - Sea Turtle Identification and Biology (19 June)

Dr. V. Sriramachandra Murty, Head, Demersal Fisheries Division

- Consultative Group of Fishery Survey of India, Mumbai (18 April)
- Director General's meeting, ICAR to review the progress of implementation of Vision 2020 of CMFRI (21 May)
- First meeting of the Sagar Sampada Cell - Scientific and Technical Advisory, Cochin (3 - 5 June)

Dr. N.G.K. Pillai, Head, Pelagic Fisheries Division

- Project Finalisation Meeting on Elasmobranchs organised by CMFRI (17-18 February)
- Meeting of Entrepreneurs and Industrialists in Marine Fisheries organised by CMFRI (13 March)
- Releasing ceremony of the CIFT house magazine 'Jaladhi' in Hindi and made a critical review of the contents in the meeting (19 March)
- National Workshop on Profile of People Technologies and Policies in Fisheries Sector of India organised by National Centre for Agricultural Economics and Policy Research, New Delhi and presented a paper on Technologies in Marine Fisheries and Coastal Aquaculture in India (1-2 May)
- Chaired the Session Fisheries Interface Issues at the Capacity Building Training Workshop on Sea Turtle Conservation and Management at CMFRI (19-21 June)

Dr. M. Rajagopalan, Head, Fishery Environment and Management Division

- Workshop on 'The operation of TED' organized by Department of Fishery, Govt. of Andhra Pradesh at Kakinada (24-25 January)
- National Workshop on Breeding, Farming and Management of Ornamental Fishery organized by the School of Industrial Fisheries, Cochin (8 February)
- Project finalization meeting on Elasmobranchs sponsored by the Ministry of Environment & Forests, Govt. of India, New Delhi (17-18 February)
- Meeting of Entrepreneurs and Industrialists in Marine Fisheries organized by CMFRI (13 March)

Dr. R. Paul Raj, Head, Physiology, Nutrition and Pathology Division

- Chaired the Session "Novel Aquaculture Drugs" at the National Workshop on Aquaculture Drugs organised by CPDDM, CUSAT (17-19 January)
- Delivered a lecture on 'Advances in Aquaculture Nutrition' in the UGC sponsored refresher course in Life Sciences organized by the School of Marine Sciences, CUSAT (6 May)
- Chaired the Session 'Community Based Conservation' at the Capacity Building Training Workshop on Sea Turtle Conservation and Management at CMFRI (19-21 June)

Dr. E.V. Radhakrishnan, Head, Crustacean Fisheries Division

- NATP (CGP) workshop at HAU, Hissar (Haryana) (1-2 March)
- Symposium on Seafood Safety: Status and Strategies organised by Society of Fisheries Technologies (India) & Central Institute of Fisheries Technology, Cochin (28-30 May)
- "Capacity Building Training Workshop on Sea Turtle Conservation & Management" at

CMFRI and chaired the Session West coast and Lakshadweep Status Report (19-21 June)

Dr. K.C. George, Principal Scientist

- National Workshop on Aquaculture Drugs organized by the Centre for Fish Disease Diagnosis and Management, School of Environmental Studies, CUSAT, Cochin (18-20 January) and presented a paper on "Metabolism of α , 1-3 glucons in finfish and shellfish"
- Expert Consultation on Rapid Diagnosis of Shrimp Viral Diseases held at CIBA organized by NACA/CSIRO, Australia, AICAQ, Australia, MPEDA and ICAR (12-14 June)

Dr. P. C. Thomas, Principal Scientist

- National Workshop on Aquaculture Drugs organized by the Centre for Fish Disease Diagnosis and Management, School of Environmental Studies, CUSAT, Cochin (18-20 January)

Dr. (Mrs) K.S. Sobhana, Scientist

- National Workshop on Aquaculture Drugs organized by the Centre for Fish Disease Diagnosis and Management, School of Environmental Studies, CUSAT, Cochin (18-20 January) and presented a paper on "Role of vitamin C in aquaculture health management"

Dr. R. Sathiadhas, Head, SEETTD, Dr. S. Ashaleta, Scientist and Dr. Femeena Hassan, Technical Officer

- National Symposium on 'Seafood Safety Status and Strategies' organized at CIFT, Cochin and presented a paper on 'Seafood safety norms and marketing management of marine fisheries sector in India' (28-31 May)

Dr. R. Sathiadhas, Head, SEETTD and Mrs. Sheela Immanuel, Scientist

- Annual Workshop on TAR-IVLP organized at CTCRI, Trivandrum and presented the annual progress of IVLP for the period 2001-2002 (19-21 June)

Dr. V.P. Vipinkumar, Scientist

- 'Capacity Building Training Workshop' under the GOI/UNDP Sea Turtle Project at CMFRI, Cochin and presented a paper 'An overview of extension issues in the paradigm of conservation and management of sea turtles and endangered marine animals' (19-21 June)

Dr. C. Ramachandran, Scientist

- National Project Review Workshop of the NATP at the Punjab Agriculture University, Hissar and presented the Annual Report of the project entitled 'Designing and validation of communication strategies for responsible/ sustainable fisheries - a co-learning approach' (1-2 March)

Dr. G. Syda Rao, Principal Scientist & Officer-in-Charge, Visakhapatnam Regional Centre

- "Conference on Eco-friendly development of the coastal regions" organized by Indian Meteorological Society, Visakhapatnam chapter (14 -15 March)

Dr. G. Syda Rao, Principal Scientist and **Dr. A.K.V. Nasser**, Senior Scientist

- Consultative group meeting of FSI, Visakhapatnam (3 February)

Dr. G. Syda Rao, Principal Scientist, **Dr. G. Maheswarudu**, **Dr. A.K.V. Nasser**, Senior Scientists, **Shri K. Vijayakumaran**, Scientist (SG) and **Dr. U. Rajkumar**, Scientist

- Meeting on 'Popularization of V-farm otter boards' organized by CIFT at Visakhapatnam (13 April) and 'Institute-Industry Meet' organised by CIFT at Visakhapatnam (14 April)

Dr. G. Syda Rao, Principal Scientist, **Dr. A.K.V. Nasser**, Senior Scientist and **Dr. U. Rajkumar**, Scientist

- Fishermen meet organized by Forum of Fisheries Professionals of India, Visakhapatnam (24 May)

Dr. A.K.V. Nasser, Sr. Scientist and **Dr. U. Rajkumar**, Scientist

- 'Fishermen Week' celebrations organized by Dept. of Fisheries, Govt. of A.P./BOBP at Gangavaram fishing village of Visakhapatnam District

Dr. P. Kaladharan, Sr. Scientist

- Training programme at CIFE, Mumbai on Integrated Coastal Zone Management, sponsored by the National Bioresource Development Board of DBT, Govt. of India (12 February - 4 March)

Shri K. Vijayakumaran, Scientist (SG)

- Annual review work of NATP project 'Impact of dams on river runoff into sea and changes in the nutrient and productivity profile of coastal waters' (14-15 May)
- 'Capacity Building Workshop on Conservation of Sea Turtle' organized by CMFRI-WII at Cochin and made a presentation of 'Conservation of sea turtles - the registration and trade issues' (19-21 June)

Dr. K.V. Somasekharan Nair, Principal Scientist & Officer-in-Charge, Veraval Regional Centre

- Consultative Group Committee meeting of FSI at FSI Base, Porbandar (4 May)

Dr. V.D. Deshmukh, Principal Scientist & Officer-in-Charge and **Shri S.G. Raje**, Scientist (SG), Mumbai Research Centre

- National training course on Taxonomy, Genetics and Gene banking sponsored by NBDB/DBT at CIFE, Mumbai (17 January)
- Brainstorming session on WTO and Fisheries at CIFE, Mumbai (7 February)
- Brainstorming session on Fisheries Legislation at CIFE, Mumbai (12 February)

Shri S.G. Raje, Scientist (SG), Mumbai Research Centre

- Challenges, opportunities and constraints faced by women in Agriculture and allied Industries at CIFE, Mumbai (11-12 March)
- Workshop on Fisheries Forecasting organised by CIFE, Mumbai (22 April)

Dr. V.V. Singh, Sr. Scientist, Mumbai Research Centre

- Working group meeting for apprenticeship training modules in marine fisheries and fish processing technology at PSS, Central Institute of Vocational Education (CIVE), Bhopal (11-15 February)
- Delivered lectures as invited faculty for DBT/NBDB sponsored training programme on the topics: (i) Integrated Coastal Zone Management in the context of Indian scenario, (ii) ICRZ Act in the context of ICZM at CIFE, Mumbai (25 February)
- Workshop on Fisheries Forecasting organised by CIFE, Mumbai (22 April)
- Dr. Hiralal Chaudhari Fisheries Foundation and CIFE lecture series at CIFE, Mumbai (27 June)

Dr. R. Narayanakumar and **Dr. K. Asokakumaran Unnithan**, Sr. Scientists, Kakinada Research Centre

- National Workshop on Restoration and Conservation of Mangroves through Participatory Mangrove Management at Rajamundry, organized by the M.S. Swaminathan Research Foundation, Kakinada and Department of Forestry, Govt. of Andhra Pradesh, sponsored by FAO (12-14 February)

Dr. R. Narayanakumar, Sr. Scientist, **Shri P. Ramalingam**, **Shri K.R. Somayajulu** and **Shri K. Dhanraju**, Technical Officers, Kakinada Research Centre

- Workshop on Responsible Brackish Water Aquaculture at Kakinada organized by MPEDA, CIFE, IFA and SPICAM (8 March)

Dr. R. Narayanakumar, Sr. Scientist

- User Interaction Workshop on Dissemination and Utilization of Fishing Zone Information organised by the Indian National Centre of Ocean Information Services (INCOIS), Abhydhaya Society and the Department of Fisheries, Govt. of A.P., Kakinada (16 March)

Shri I. Jagadish, Scientist SS and **Shri Boby Ignatius**, Scientist, Mandapam Regional Centre

- Training programme in "Under Water diving with SCUBA" at Tuticorin Research Centre (4 February - 20 March)

Smt. Sheela, P.J., Asst. Director (OL)

- Literary discussion and book release function organised by Hindi Department at Cochin University of Science and Technology (27 April)

Smt. E.K. Uma, Sr. Hindi Translator

- Hindi Workshop at Inland Waterways Authority, Cochin (25 March)

Shri K.K. Balasubramanian, Technical Officer

- One day Hindi workshop conducted by Town Official Language Implementation Committee, Calicut in February

M.V. Biju, Hindi Translator, Mandapam Regional Centre

- Translation Training Course at Central Translation Bureau, Bangalore for three months from January to March.

WEDDING

Ms. Mini, K.G., Scientist at Cochin was married to **Shri Anish, B.** on 6th February.

Shri I. Mendonza Xavier, Draughtsman at Mandapam married **Ms. G. Antony Glory Viji** on 11th February.

Shri V.H. Venu, SSG-II (Binder) at Cochin married **Ms. Leena** on 21st April.

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 systems, 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.

Appointments

	Designation	Centre	w.e.f.
Smt. Aswathy, N.	Scientist	Cochin	8-2-2002
Ms. Manjusha G. Menon	L.D.C.	Cochin	19-1-2002
Smt. N.C. Saroja	L.D.C.	Visakhapatnam	2-2-2002

Promotions

	Designation	Promoted post	Centre	w.e.f.
Shri P.K. Velayudhan (Retd.)	Tech. Officer (T-8)	Tech. Officer (T-9)	—	1-1-2000
Shri A.N. Mohanan	Tech. Officer (T-6)	Tech. Officer (T-8)	Narakkal	1-1-2001
Shri Harikumar, P.K.	Sr. Tech. Asst. (T-4)	Tech. Officer (T-5)	Cochin	1-7-1998
Shri V. Mohan	Sr. Lib. Asst. (T-3)	Sr. Lib. Asst. (T-4)	Cochin	2-3-2000
Shri A. Kajendran	Assistant	Asst. Adm. Officer	Mandapam	1-1-2002
Shri R. Appa Rao	Assistant	Asst. Adm. Officer	Visakhapatnam	1-2-2002
Shri A. Yagappan	U.D.C.	Assistant	Cochin	1-2-2002
Shri S. Erishikesan	U.D.C.	Assistant	Vizhinjam	1-5-2002
Shri P.P. Anilkumar	L.D.C.	U.D.C.	Cochin	1-2-2002
Shri C. Jayakanthan	L.D.C.	U.D.C.	Cochin	1-5-2002
Smt. T. Mahalakshmi	L.D.C.	U.D.C.	Tuticorin	2-5-2002
Shri K. Lakshminarayana	SSG.I	Motor Driver (T-I)	Cochin	5-3-2002

Transfers

	Designation	From	To
Dr. (Mrs) S. Sivakami	Principal Scientist	Cochin HQ.	Kakinada Res. Centre
Dr. (Mrs.) Rani Mary George	Principal Scientist	Vizhinjam Res. Centre	Madras Res. Centre
Dr. M. Vijayakumaran	Principal Scientist	Madras Res. Centre	Mandapam Regl. Centre
Shri P. Vijayagopal	Scientist (Sr. Scale)	Cochin HQ.	Mandapam Regl. Centre
Smt. S. Jasmine	Scientist (SG)	Vizhinjam Res. Centre	Karwar Res. Centre
Dr. Vipin Kumar, V.P.	Scientist	Calicut Res. Centre	Cochin HQ
Smt. Bindu Sulochanan	Scientist	Cochin HQ	Mandapam Regl. Centre
Shri D. Anandan	Deckhand (T-3)	Tuticorin Res. Centre	Mandapam Regl. Centre
Shri B. Thangaraj	Jr. Tech. Assistant (T-2)	Pattukottai F. Centre	Tuticorin Res. Centre
Shri P. Ganesan	Asst. Adm. Officer	Visakhapatnam Regl. Centre	Madras Res. Centre
Shri A. Yagappan	Assistant	Cochin HQ	Mandapam Regl. Centre
Shri Pl. Koya	SSG-IV	Cochin HQ	Minicoy Res. Centre
Shri M.P. Devadasan	SSG-I	Cochin HQ	Calicut Res. Centre

Inter-Institutional transfers

Shri M. Feroz Khan	Scientist (SG)	CMFRI, Calicut	CICFRI, Bangalore
Shri P. Chithamparam	Librarian (T-5)	NBFGR, Lucknow	CMFRI, Cochin
Shri P. Krishnakumaran	Stenographer Gr. III	SBI, Coimbatore	CMFRI, Cochin
Shri K. Faisal	Stenographer Gr. III	CMFRI, Cochin	IISR, Calicut
Shri C.R. Mohanan	SSG-II	CPCRI, Kannara	CMFRI, Cochin

Deputation

Shri R.T. Thakar	Asst. Adm. Officer	NRCG, Junagadh	Veraval Regl. Centre
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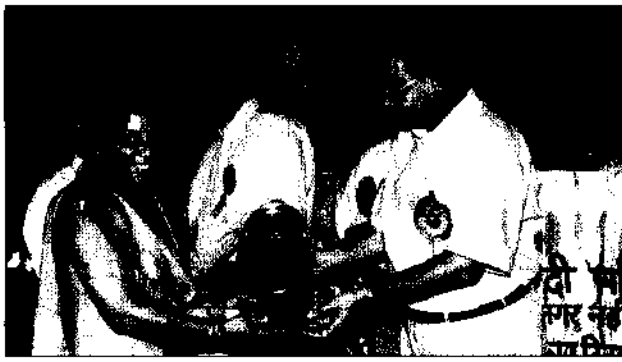
Retirements

	Designation	Centre	w.e.f.
Shri K. Thulasidas	Tech. Officer (T-5)	Cochin HQ	31-1-2002
Shri K. Nandakumaran	Tech. Officer (T-6)	Calicut Res Centre	31-3-2002
Shri K.M. Karuppiyah	Asst. Adm. Officer	Madras Res. Centre	31-3-2002
Shri R. Reghu	Tech. Officer (T-6)	Cochin HQ	30-4-2002
Shri V. Chandran	Assistant	Mandapam Regl. Centre	30-4-2002
Shri K.J. Mathew	U.D.C.	Cochin HQ	30-4-2002
Shri K.P. Viswanathan	Tech. Assistant (T-4)	Calicut Res. Centre	30-6-2002
Shri V. Mohana Rao	Tech. Assistant (T-2)	Visakhapatnam Regl. Centre	30-6-2002

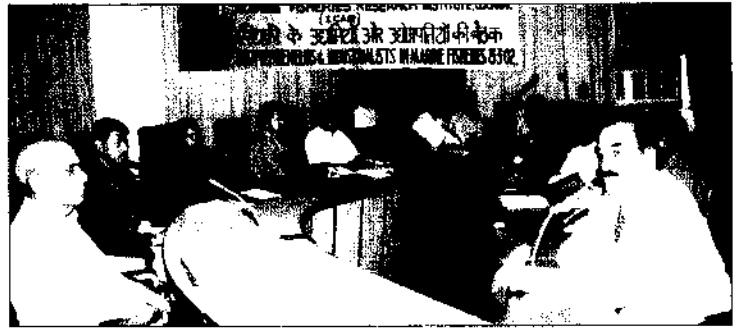
Voluntary Retirement

Shri K.V.S. Seshagiri Rao	Tech. Officer (T-5)	Ongole F.C.	31-1-2002
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Glimpses of Events



डॉ. (श्रीमती) वी. कृपा माननीय श्री अरुण जेटली, विधि और न्याय मंत्री भारत सरकार से राजभाषा पुरस्कार स्वीकार करती हुई
Dr. (Smt.) V. Kripa receiving the **Rajbhasha Award** from Hon'ble Union Minister for Law and Justice, Shri. Arun Jaitley



सी एम एफ आर आइ में आयोजित समुद्री मात्स्यिकी संगम में उपस्थित उद्योगियों और उद्योगपतियों का दृश्य
Entrepreneurs and Industrialists in Marine Fisheries Meet at CMFRI



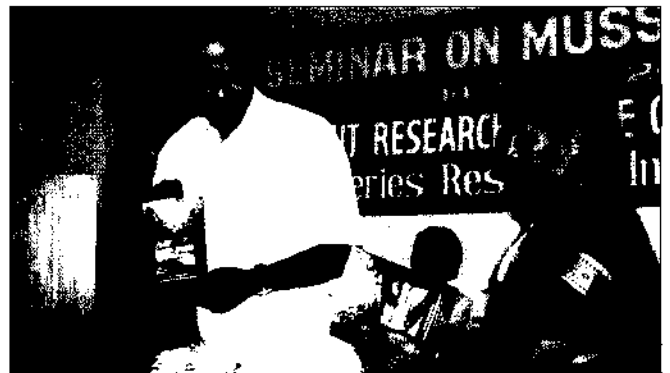
माननीय रेल मंत्री श्री ओ. राजगोपाल स्वदेशी विज्ञान मेला इन्डस्ट्रियल फेयर - २००२ में हमारे स्टॉल की प्रशंसा करते हुए
Hon'ble Union Minister for Railways, Shri O. Rajagopal appreciates our stall at the **Swadeshi Vigyana Mela Industrial Fair 2002**



प्रोफसर (डॉ.) आनन्द देव मुखोपाध्याय, कुलपति, विद्यासागर विश्वविद्यालय पश्चिम बंगाल मेंग्रोव आवास तंत्र जीव विविधता पर अनुसंधान रीति पर मैनुअल का विमोचन कर रहे हैं
Prof. (Dr.) Anand Dev Mukhopadhyaya, V.C., Vidyasagar University, W. Bengal, releasing the manual on **Research Methodology for Mangrove Ecosystem Biodiversity**



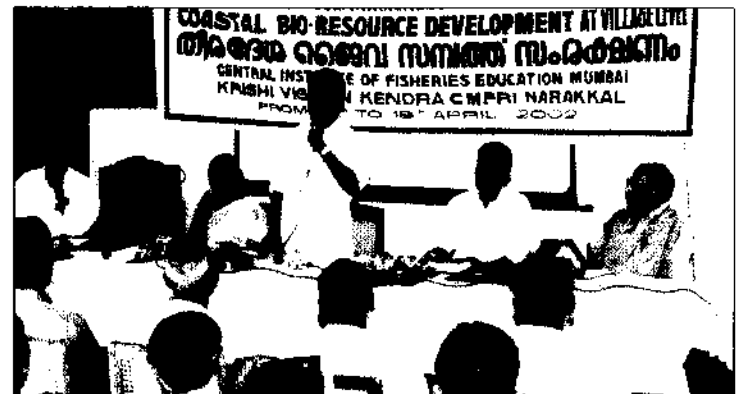
अखिल भारतीय जलजीवशाला प्रदर्शन - २००० में हमारे स्टॉल में माननीय श्री ए.के. आन्टोनी, मुख्य मंत्री, केरल सरकार, श्री के.वी. तोमस, मात्स्यिकी एवं पर्यटन मंत्री और श्री जॉर्ज ईडन, संसदीय सदस्य
Hon'ble Shri A.K. Antony, Chief Minister of Kerala and Shri K.V. Thomas, Minister for Fisheries and Tourism alongwith Shri George Eden, M.P. visit our stall in the **All India Aquarium Show 2002**



श्री ए. सुजनपाल, एम एल ए शंबु पालन पर पुस्तिका का विमोचन करते हुए. श्रीमती एम.एस.पद्मावती, भूतपूर्व मेयर, कालिकट पुस्तिका की प्रति स्वीकार करती है
Shri A. Sujanapal, MLA releasing the booklet on **Mussel Culture** by giving a copy to Smt. M.M. Padmavathy, former Mayor of Calicut



श्री तेरमिल रामकृष्णन, एम एल ए तृश्शूर पूरम प्रदर्शनी - २००२ में सी एम एफ आर आइ द्वारा जीती ट्रॉफी डॉ. (श्रीमती) एस. आशालता को प्रदान करते हुए
Shri. Therampil Ramakrishnan, MLA, giving away the trophy secured by CMFRI at the **Thrissur Pooram Exhibition 2002** to Dr. (Smt.) S. Ashalatha



श्री मुनम्बम संतोष, ब्लोक पंचायत अध्यक्ष, वैपीन तटीय जैव संपदा विकास पर प्रशिक्षण कार्यक्रम का उद्घाटन करते हुए
Shri Munambam Santhosh, Block Panchayat President, Vypeen inaugurating the training programme in **Coastal Bioresource Development**