



# CMFRI newsletter

Number 19

January-March 1983

## Lab-to-Land Programme Enters Phase-II

The Harijan Society of Ajantha Maranananthara, Sahaya Fund (AMSF) at Valappu, near Cochin consisting of 135 families has come again under the fold of Phase-II of the Lab-to-Land Programme of CMFRI. During the earlier phase implemented from 1979 to 1982, the technology of prawn culture was transferred

to the Harijan Society and a total area of 1.94 ha was developed into viable prawn culture farm bringing economic benefits. Since the poor farmers were not in a position to continue prawn culture on their own at the end of phase-I without the assistance from CMFRI, the Indian Council of Agricultural Research has approved continuance of the programme during phase-II as a special case in the light of the emphasis given for the upliftment of Harijan families through intro-

duction of proven technologies.

Dr E. G. Silas, Director, CMFRI invited the members of the Society to the Institute on 16 March to discuss the strategy and plan the implementation of the programme. The meeting was attended by S / Shri P. K. Hariharan (President), P. K. Balan (Vice-President), N. A. Velayudhan (Secretary), C. P. Appu (Treasurer), P. K. Sreenivasan (Joint Secretary), P. K. Asokan, T. K. Bharathan, T. K. Pushpangadan, P. K.



*Integrated farming involving prawn, fish, plantation and horticultural crops*

Chandran and K. K. Kochappan  
(Members of Executive Com-  
mittee) of AMSF, Valappu.

The AMSF farmers desired to take up integrated farming and wanted the assistance of the Institute. It was decided that the following items would be taken up as a package of transfer of technology programme in integrated farming.

1. Intensive prawn culture
2. Finfish culture
3. Duckery/Poultry
4. Paddy (Pokkali) cultivation
5. Vegetable cultivation on on farm bunds
6. Coconut cultivation on farm bunds

It was also felt that kitchen gardens may be developed at the homesteads. The CMFRI would provide the technology



*Members of the Society meeting with the Director, CMFRI and the Scientist-in-Charge of the Programme*

and critical inputs in kind as per approved list and would help the farmers to monitor and manage the programme. A bench-mark survey will be conducted and farm plans will be prepared shortly. It was deci-

ded that the womenfolk may be involved in the programme and the grown-up children may be taught to tend the kitchen gardens. Currently intensive prawn culture is in progress at AMSF.

### **Training in SCUBA Diving**

An eight-week training programme in SCUBA diving was started at Tuticorin Research Centre on 21 February. Five candidates from Tamil Nadu State Fisheries Department and CMFRI are being trained in swimming, skin diving and snorkelling.



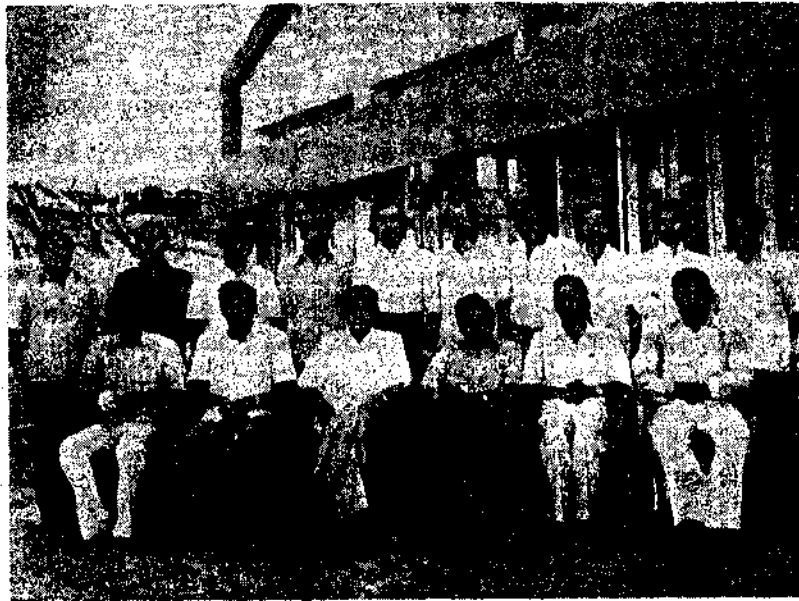
*A trainee is being fitted up with the apparatus*

## Oyster Culture Training for Fisheries Personnel

The first training course in edible oyster culture for fisheries personnel was conducted at Tuticorin Research Centre of CMFRI from 19 January to 15 February. Eight trainees representing the States of Gujarat, Maharashtra, Karnataka, Kerala, Tamil Nadu and West Bengal attended the course. Training in culture of marine organisms is one of the components of the extension education programme of CMFRI and this training was organised at the request of fisheries departments of the maritime states. The curriculum included various aspects of oyster culture such as biology, culture methods, post harvest technology and quality control. Besides the scientists of the CMFRI who worked as faculty members of the training course under the leadership of Shri K. Nagappan Nayar, Scientist S-3, guest lectures were given by Shri G. Samuel, Deputy Director, Integrated Fisheries Project, Cochin and Shri Jose Joseph, Scientist, Central Institute of Fisheries Technology, Cochin.

A display of the different stages of growth of edible oyster, pearl oyster and prawn in the culture system was also arranged, in connection with the training.

The training programme was inaugurated by Shri K. A. Sundaram, IAS, Chairman, Tuticorin Port Trust who stressed the need to popularise oyster meat as wholesome food through proper extension and enlarge the consumer base



*Participants with the members of the faculty*

for the product. The meeting was presided over by Shri K. Nagappan Nayar, Officer - in-charge of Tuticorin Research Centre.

A valedictory meeting was held on 15 February with Dr K. Alagarwami, Head of Molluscan Fisheries Division, CMFRI in the chair. Shri Ben Motha, Managing Director of Sahaya Matha Salterns, Tuticorin delivered the valedictory address and presented the certificates to the trainees. Shri N. G. Akolkar, speaking on behalf of the trainees, enumerated the benefits of the training course and thanked the organisers for the same.

The following persons attended the training programme:

1. Shri N. G. Akolkar, Senior Research Assistant, Aquatic science Research, Institute, Department of Fisheries, Gujarat.

2. Shri Jaysingh B Charan, Junior Research Assistant, Marine Biological Research Station, Konkankrishi Vigyan Peeth, Ratnagiri, Maharashtra.

3. Dr N. Ramachandran, Scientist S-1, Karwar Research Centre of CMFRI, Karwar.

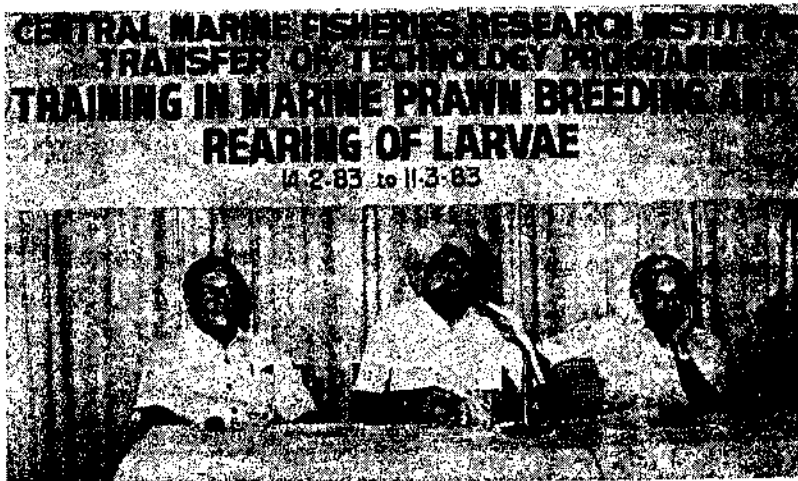
4. Shri Francis Mascarenhas, Superintendent of Fisheries, Department of Fisheries, Mangalore, Karnataka.

5. Dr P. K. Martin Thompson, Senior Training Assistant, Krishi Vigyan Kendra, CMFRI, Narakkal.

6. Shri M. Abdul Jaleel, Inspector of Fisheries, Department of Fisheries, Tamil Nadu, Tuticorin.

*(Continued)*

## Transfer of Technology Programme in Prawn Culture



*Inauguration by Shri Niranjan Singh, IAS*

The scientific prawn farming technology developed in the country is gradually replacing the low-yielding traditional farming practices in the coastal areas particularly in Kerala and West Bengal. Presiding over the concluding session of the short term training course on Marine prawn breeding and larval rearing conducted by CMFRI at their Narakkal Prawn Culture Laboratory, Dr E. G. Silas said that the low-cost technology developed at the Institute for production of marine prawn was better suited to local conditions than the sophisticated techniques developed elsewhere in the world. He added that import of technology and expertise in this field to India was no longer necessary. This training course on the latest methods of seed production using dry compounded feed was organised by the CMFRI for the benefit of experienced fishery officers of the maritime states of India.

Delivering the valedictory address Shri S. N. Rao, Chairman of Marine Products Export

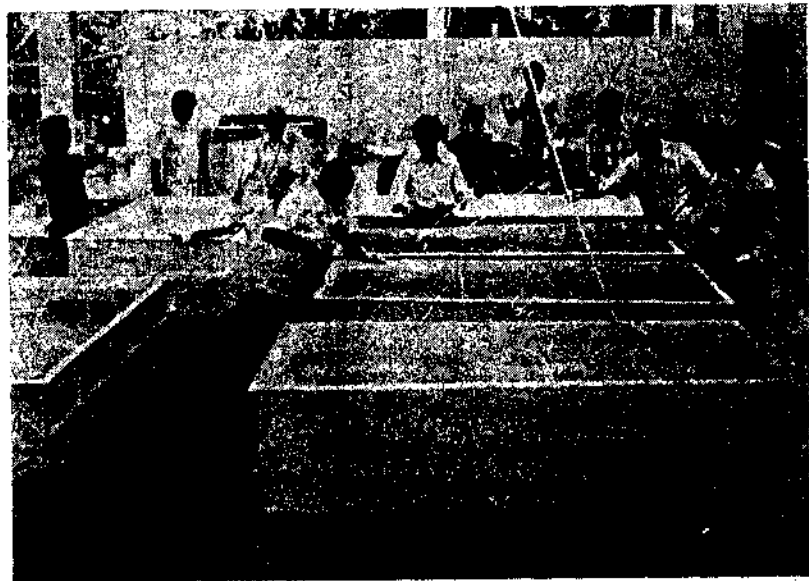
Development Authority stated that development of prawn culture in the unused coastal swamps and estuaries had been given high priority in the national plans and that it was a sure way of increasing production of the exportable varieties of prawns. He further stated that training courses of this nature have decisive role in propagating prawn culture in the coastal areas.

Shri Susil Kumar Chakraborty, District Fishery Officer of the Government of West Bengal said that the experience gained by him and other participants during the training would help to develop scientific prawn culture methods in their States.

This course was meant for transfer of technology developed by CMFRI to the maritime state governments for promoting scientific prawn culture. The course which commenced on 14 February was inaugurated by Shri Niranjan Singh, IAS, Secretary to Government of Gujarat.

*(Continued from page 3)*

7. Shri P. Leonard Moral, Inspector of Fisheries, Department of Fisheries, Government of Tamil Nadu, Tuticorin.
8. Shri C. P. Chatterjee, Junior Project Officer, Alampur Fisheries Project, The State Fisheries Development Corporation Ltd, Government of West Bengal, West Bengal.



*Trainees in the prawn culture laboratory*

## Mariculture Possibilities in the Coromondal Coast

To study the ecosystem along the coast and its suitability to mariculture and sea-farming, the scientists and technical personnel of the Fishery Environment Management Division conducted a special survey, using the mobile laboratory, along the Coromondal coast in a phased manner. The first survey was conducted in January in the area between Devipattanam and Nagore in the following estuaries:-

The Kottakkarai estuary at Karangad, the Vedaranyam canal running from Nagapattanam to Thopputhurai, the Vellayar Estuary at Velanganni, the Kudu-vaiyar estuary at Nagapattanam, the Vettar estuary at Nagore and the Muthupet mangrove swamps. Surveys were conducted from the head to the bar-mouth and these estuaries showed immense possibilities for fish culture as evidenced from the physico-chemical characteristics of the water and sediments, primary and secondary productions and benthic faunal abundance and distribution.

Mangrove vegetation and availability of natural fish seed for the purpose of mariculture operations were also studied. Most of the estuaries were found to be very productive. The organic carbon in percentage dry weight was found to vary from 0.069 to 2.859. The reservoirs of M/s Mettur Chemicals Ltd at Point Calimere and M/s Wimco near Vedaranyam were studied in great detail. It was observed that these reservoirs comprising about 1000 acres each can be brought under fish culture if

salinity is controlled. Most of the salt pan reservoirs of Mettur Chemicals Ltd, showed very high values of salinity. The salinity in these reservoirs ranged from 49.91 to 91.52 ppt. In fact, M/s Wimco reported that prawn culture on experimental basis in about 7 ha of reservoir by stocking prawn seeds from the wild showed encouraging results in about 3 months. Regulated fishing by annual lease was observed in the Muthupet swamp area. In the lagoon area of the swamps very rich clam and oyster beds were observed. Rich clam beds were also observed in the Vellayar and Vettar estuaries.

Since natural prawn seeds are available in plenty and the collection of the seed is easy due to the shallowness of the estuaries women and children were seen picking up prawns from these estuaries. The local people evince keen interest in starting mariculture ventures. There is a Prawn Farmers' Association in Nagapattanam with 70 members in its rolls. None of the estuaries

surveyed showed any sign of aquatic pollution.

## Turtle Egg Hatchery at Point Calimere

Under the programme of protection of endangered species, the Forest Department of the Tamil Nadu Government has set up turtle egg hatcheries at Vanavarmahadevi, Arkattuthurai and Kodyakkarai in the Point Calimere area. Cages measuring 7.5x6x1 m made of 10 cm wire meshes are placed on the sea shore where the turtles are expected to lay and bury their eggs for hatching. Pot-shaped pits are made with 17 cm mouth and 45 cm bottom on the sand inside the cage. The eggs are collected from the natural grounds by *mazdoors* of the Forest Department. In addition, those collected by local people are purchased at the rate of 15 ps per egg. The eggs are kept separately buried for 45 to 60 days and the young ones when hatched out, are released into the sea. About 5000 eggs were collected and buried in January. The hatcheries are under the supervision of a forester.



Survey team collecting samples

## Studies on Estuarine Resources of Malabar Coast

The physico-chemical characteristics of the water and sediments, biological productivity and benthic biomass of Valappattanam, Mahe and Kadalundi estuaries of the Malabar coast was also studied by the team between 16-20. March. Sampling in each estuary was done from its head to the bar-mouth and various parameters were analysed in the mobile laboratory. These estuaries were found to support a good fishery of prawns, mullets, *Etroplus*, *Megalops Cyprinoides*, *Gerres*, *Sillago* and clams. The primary productivity and the biological data on secondary producers showed that these estuarine ecosystems have good potential for mariculture. No source of aquatic pollution was seen in these estuaries.

### Toxic Clam Claims Life

The death of one person as a result of consuming clam meat was reported from Pareekad, near Kasargod.

A team of scientists and technical personnel from the FEM Division visited the place for an on-the-spot study of the physical, chemical and toxicological parameters of the Pareekad river mouth from where the clams were collected. The data showed no abnormal values. But the symptoms of the patients admitted to the hospital and the one who died showed that they were affected by neurotoxin, as reported by the medical authorities.



Water samples being analysed in the mobile lab

x x x x

Pearl oyster spats numbering 5.17 lakhs have been produced from an experiment in the CMFRI's hatchery at Tuticorin.

x x x x

In a larval-rearing experiment conducted in February total of 60,000 numbers of spat of oyster *Crassostrea madrasensis* were produced in the hatchery at Tuticorin.

### Research Project Meetings

The meetings of the Research Project Leaders, Division Heads and Scientists-in-Charge of the regional and research centres of CMFRI, was conducted from 5 to 8 February at Cochin. The progress of work in different projects were examined and future plans of work and new proposals were discussed and finalised. The programmes of Crustacean and Molluscan Divisions laid emphasis to the hatchery production of seed. Investigations on resource characteristics of major species and their biology will be reoriented towards fully utilising the research vessel facility available through the cruises of R. V. Skipjack.

#### CMFRI's Expenditure for 1981 - 1982

Non-Plan : Rs. 1,15,00,502.28

Plan : Rs. 1,16,35,935.41

Total : Rs. 2,31,36,437.69

## Consultancy in Tissue Culture

Tissue Culture is an emerging field and is increasingly applied in recent years in the investigations in agriculture, medicine, physiology, pathology, animal husbandry and aquaculture. Dr Akira Machii, Head of the Second Technological Laboratory, National Research Institute of Japan visited CMFRI during 22 December 1982 to 19 January 1983 to give advise in research and education at CAS. Dr Machii is one of the few eminent experts in tissue culture of invertebrates and has carried out extensive research on tissue culture of pearl oyster and other marine invertebrates. His work on pearl sac formation and *in vitro* culture of mantle tissue of pearl oyster is renowned. During his visit Dr Machii worked principally at the Shellfish Hatchery Laboratory at Tuticorin. Dr Machii held 15 group discussions with a team of scientists headed by Shri K. Nagappan Nayar, Scientist S-3. During the discussions Dr Machii explained and demonstrated various aspects and application of tissue culture. He also gave seminars on subjects of topical interest at Tuticorin as well as at Cochin. Dr Machii stressed the need for tissue culture laboratory with properly trained scientists for improving the technologies for culture of commercially important shellfish and finfish evolved at CMFRI.

## Consultant in Fish Genetics

Dr V. J. Bye, Head of Fish Cultivation Group, Fisheries Laboratory, Lowestoft, U. K. visited CAS in Mariculture as an



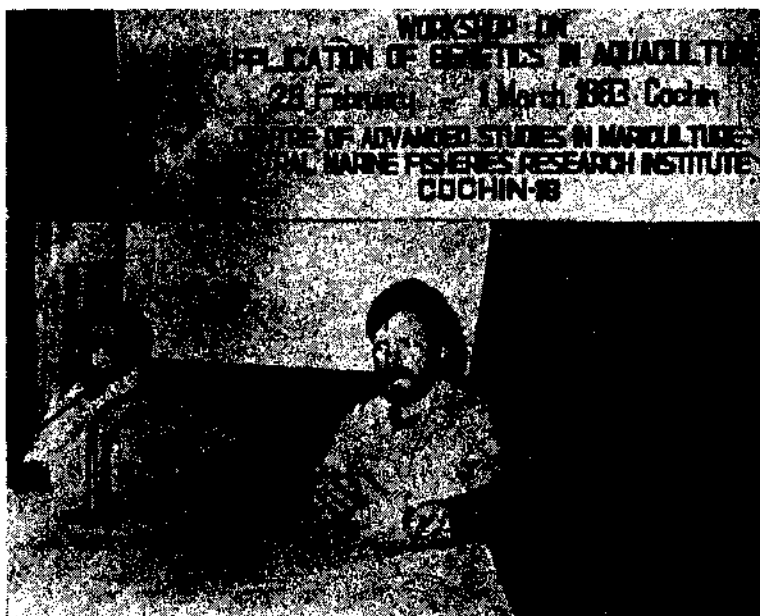
*Two experts, Dr Machii and Dr Munro meet. Dr Silas, Director, CMFRI looks on*

expert consultant in fish genetics from 10 February to 5 March.

Dr Bye led several group discussions covering a wide range of aspects of marine fish genetics and cytogenetics. Besides, he organised seminars on the topics such as application of genetics in aquaculture, control of sex and its application in aquaculture and environmental

control of reproduction.

A Workshop on Application of Genetics in Aquaculture was organised under his leadership. A manual entitled Application of Genetics in Aquaculture (CMFRI Special Publication No. 13) prepared by Dr Bye and Dr A. Geethanand Ponniah, Scientist, CMFRI, who was the counterpart to the consultant, was released on the occasion.



*Dr Bye giving a lecture*

Dr A. L. S. Munro, an expert in fish pathology from the Marine Laboratory, Department of Agriculture and Fisheries, Aberdeen was at CMFRI from 3 January to 17 February, to give expert consultancy. Dr Munro is the Principal Research Officer of the Marine Laboratory, Aberdeen and the leader of the microbiology and parasitology team which conducts investigations on the causes of diseases in both farmed and wild fish in fresh and seawaters. Born in 1937 at Edinburgh, Dr Munro took his Ph. D. in microbial ecology with special reference to energy flow in marine food chains.

Dr Munro gave consultancy in research and teaching programmes in finfish and shellfish pathology which is a priority area identified under the programmes of the CAS in Mariculture. Dr Munro led discussions with different groups of scientists and held seminars. A two-day Workshop on Approaches to Finfish and Shellfish Pathology Investigations was also held under his leadership. CMFRI's Special Publication Number 11, Approaches to Finfish and Shellfish Pathology Investigations was brought out on the occasion.

Dr Munro during an interview with Shri S. Mahadevan, Scientist and his counterpart at CMFRI said that he was quite impressed by the progress made in mariculture activities in India and expressed the hope that this would be maintained. He

further emphasised the need for developing a full-fledged pathology team to monitor the mariculture systems from disease hazards.

A few excerpts from the interview:

*His impressions:* While commending the mariculture research in India Dr Munro expressed the hope that the research would continue to develop need-based commercially viable culture systems. He felt that commercial prospects at present seemed to be favourable for the culture of prawn and pearl oyster. Fish cultivation, particularly of *Etroplus*, *Chanos* and mullets showed considerable promise either in monoculture or polyculture with prawn.

*Role and structure of pathology team:* The pathology team plays an important role in identifying the disease and developing strategies for prevention or for treatment, should they occur. The pathology team consists of personnel who are trained or have gained experience of local problems. "You are at an initial stage with these mariculture systems; this is an ideal time to form and develop a research team. It should be multidisciplinary in nature and the team should have general acquaintance with all the activities of the culture system so that there is effective interaction with the other teams working in the culture systems".

*Service to farmers:* "The principal objective of the team is to help the com-

mercial fish farmers. This can be done by running a 'field officer service' being a component of the team". This Dr Munro said, was the system they had in their country. "This service should reach the farmer at the shortest possible time. The field officers should be able to carry out initial investigations of the problem and in many cases manage to achieve an early diagnosis. The samples need be brought to the laboratory for confirmation of the diagnosis. In case they could not diagnose, the assistance from the other components in the pathology team should be sought for an early diagnosis.

The farmer should be told as much as possible about the disease and the methods for its treatment and control. In case a new or novel disease occurs the team should incorporate it in its research programme to study it in its entirety.

The other area the team can assist the farmer is when he presents himself for further training in government-run courses. The farmer can be advised and taught how to recognise the commonly occurring diseases and the methods for their control. Thus there is a three-way system involved wherein the farmer will be educated by formal training course, he will be advised by a field service and the third and probably the most important of all, is that the farmer himself will come to recognise the diseases and diagnose them without recourse to the pathology team."



## Science Congress on Ocean Resources

The Seventieth Session of the Indian Science Congress with the theme 'Man and The Ocean, Resources and Development' was held at Tirupati from 3-8 January. Dr E. G. Silas, Director, Shri T. Jacob, and Dr K. Alagaraja, Scientists of FRAD Division participated and presented papers.

## Island Vikas Mela

The Minicoy Research Centre participated in the Island Vikas Mela conducted by the Lakshadweep Administration from 3-13 February. The Vikas Mela was inaugurated by Hon'ble Member of Parliament Shri P. M. Syeed. Minicoy Research Centre also arranged exhibition highlighting various aspects of research and the display won a consolation prize. Smt. Uma Pillai, IAS, Director for Lakshadweep Administration, Ministry of Home Affairs, and Shri Baldev Singh, Member, Planning Commission were among the distinguished visitors.

## Symposium on Shrimp Seed Production and Hatchery Management

The Marine Products Export Development Authority organised a National Symposium on Shrimp Seed Production and Hatchery Management in association with the CMFRI, CIFRI and CIFE during 21-22 January. The Symposium was attended by representatives of maritime

states union territories, agricultural and other universities, having fisheries faculty, and the industry. The participants were taken to the CMFRI's Prawn Culture Laboratory at Narakkal. CMFRI presented three lead papers and held six poster sessions.

## Training courses conducted at KVK since inception

Duration	number of courses	number of trainees		Total
		Men	Women	
1 month	11	135	—	135
20 days	3	54	—	54
15 days	4	75	—	75
10 days	42	490	294	784
5 days	28	205	282	487
2 days	1	39	—	39
<b>Total</b>	<b>89</b>	<b>998</b>	<b>576</b>	<b>1574</b>

KVK conducted three training courses of five-days duration each on prawn and fish culture and one refresher course of five-days duration during March. Ninety-one farmers (38 farm women and 53 farm men) were trained in integrated

farming system. Women trainees were given lectures in child care, health and nutrition with the help of the local NES Block. The services of a specialist in animal husbandry were also made available to the trainees.



*Smt Uma Pillai is being taken round the exhibition*

## Visitors

Dr C. W. Powell Fuakure, Soil and Plant Research Station, Hamilton, New Zealand visited CAS and gave a talk on Fisheries in New Zealand, 24 January.

Professor P. Kochukuttan Menon, Retired Professor of Zoology, Presidency College, Madras visited the Institute on 6 January and gave a talk on Life in mariculture, 6 January.

Dr M. A. Ali, Professor, University of Montreal, Canada visited and gave a special lecture on Vision in fish, 24 January.

Professor R. Nagabhushanam, Head of the Department of Zoology, Marathwada University, Aruangabad and U G. C. National Lecturer visited and gave a series of special lectures on Invertebrate endocrinology, 30-31 March.

Dr M. M. Hanumante, Research Student, Tulane University, New Orleans, visited and gave a lecture on Neuroendocrinology.

The following also visited CMFRI during this period.

Professor S. R. Pawar, Head of Zoology Department, G. - M. Khalsa College, Bombay.

Professor K. N. P. Kurup, Department of Zoology, N. S. S. College, Ottapalam

Professor A. G. Karnik, Department of Zoology, M. J. College, Jalagaon.

Dr K. R. Ramanathan and Dr M. S. Mathew, Central Pollution Control Board, New Delhi.

Professor A. B. Dandakar, Department of Zoology, Modern College, Pune.

## Estimates Committee

Study Group 2 of the Parliament Estimates Committee consisting of 19 Members visited CMFRI during 10-13 January.

## Language Implementation Cell

The Second Sub Committee for the Language Implementation Cell visited Minicoy Research Centre.



*Professor M. A. Ali*

Shri C. Ramakrishna, Deputy Director, MPEDA, Cochin

Shri M. R. Nair, Director-in-Charge, CIFT, Cochin

Dr K. Gopakumar, Head of Processing Division, CIFT, Cochin

Shri H. P. C. Shetty, Director of Instruction (Fisheries) UAS, College of Fisheries, Mangalore

Shri P. K. Sallian, Professor of Fishery Engineering, UAS, College of Fisheries, Mangalore

Shri K. C. Jayaraman, Joint Director, Zoological Survey of India, Calcutta.

Zay Hta Aung, FAO Fellow, Peoples Pearls and Fisheries Corporation, Burma.

Admiral R.K.S. Gandhi, Vice Chairman, Shipping Corporation of India, Bombay.

Professor S. V. Jacob, (Retd) Coordinator and Head of School of Biological Sciences, Madurai Kamaraj University, Madurai.

Shri R. G. Dandekar, Deputy General Manager, National Bank for Agriculture and Rural Development, Bombay.

Shri V. Chidambaram, Chief Manager, M/s SPIC, Tuticorin.

Mr Raymond Brede from SIMROD, Norway gave a talk on Recent developments in acoustic instrumentation in fisheries.

*Mr. Brede*



## Fish Industry Delegation from Spain

The Marine Products Export Development Authority, Cochin and India Trade Centre, Brussels in close cooperation with the Embassy of India, Madrid, have organised a Spanish Delegation of fishing companies for joint venture in tuna fishing, squid fishing and deep-sea trawling. The team consisting of the following members visited CMFRI during 17-19 February.

Mr. Miguel Oliver  
Subsecretario of Fisheries,  
Ministry of Agriculture and  
Fisheries, Government of  
Spain, Madrid.

Mr. Miguel Maiza Esnaola,  
President, Spanish National  
Association of Shipowners,  
Madrid.

Mr. Jose Maria Barreno Bas,  
Director of Naval Invest-  
ments, Nogar Group,  
Madrid.

Mr. Manuel Fernandez  
de Sousa Faro,  
Director-General,  
PESCANOVA, Vigo,  
Spain.

Mr. Jose Manuel Mugica  
Mendizabal,  
Director-General,  
AMASUA Group,  
Huelva, Spain.

Mr. Juan Ramon Egana  
Zulueta,  
President, ANABAC,  
National Tuna Shipowners  
Association, Bermeo,  
Spain.

Mr. Placido Echevarria,  
President, INPESCA, Ber-  
meo, Spain.



*The Delegation in a meeting with the Director, CMFRI  
and joint Director, MPEDA*

## Engagements

Dr E. G. Silas, Director  
attended the following meet-  
ings.

Seventieth Session of the  
Indian Science Congress at  
Tirupati.

Meeting of the ICAR Regional  
Committee No 8 at Bangalore.

The State Level Committee  
for Development Plan on  
Marine National Park at Madras.

The Annual General Body  
Meeting at ICAR Headquarters,  
New Delhi.

The Quinquennial Review  
Team meeting at Madras

Shri G. Sudhakara Rao, Sci-  
entist S-1 attended the meet-  
ing of Second Consultative  
Group of Porbandar Base of  
Exploratory Fisheries Project,  
Porbandar, 11 March.

## Deputation and Training

Shri N. Neelakanta Pillai,  
Scientist S-1 is deputed for  
Fellowship Training under FAO/  
UNDP programme at Honolulu,  
USA for a period of 3 months  
from March.

The Following Scientists  
attended the Tenth and Eleventh  
Orientation Courses on Agri-  
cultural Research Management  
at the National Academy of  
Agricultural Research Manage-  
ment, Hyderabad, 3 November  
to 2 December, 1982 and  
9 February to 16 March, 1983  
respectively.

### Tenth Orientation Course

Shri N. Surendranatha Kurup  
Shri K. Y. Telang  
Shri K. G. Girijavallabhan

Shri G. P. Kumaraswamy Achary  
Shri Kuber Vidyasagar

#### Eleventh Orientation Course

Shri S. Suseelan  
Dr P. A. Thomas  
Shri D. B. James  
Shri V. L. Kunjukrishna Pillai  
Shri C. P. Gopinathan

Shri V. K. Sridhar, Administrative Officer attended the training programme for the administrative officers of ICAR Institutes conducted by the National Academy of Agricultural Research Management, Hyderabad for a period of ten days from 19 January.

Shri K. N. Rasachandra Kartha, Senior Training Assistant (T-6), Shri K. V. George, Field Officer and Shri B. S. Ramachandrudu, Farm Engineer participated in Aquaculture Engineering Training (Fishpond Construction) at the IIT, Kharagpur.

Shri M. Kumaran, Scientist S-2 gave a talk on Sea and Backwater over All India Radio, Calicut.

#### Appointments

Smt. M. G. Chandramathy as Junior Clerk at Cochin, 10 February.

Smt K. K. Kowsallia as Junior Clerk at Cochin, 11 February.

Smt P. S. Sumathy as Junior Clerk at Cochin, 15 February

Kumari Subangi S. Rane as Junior Stenographer at Bombay, 8 March.

Shri C. K. Prabhakaran, as Junior Clerk at Cochin, 17 February.

Shri V. C. Subash as Junior clerk at Cochin, 28 February.

Shri K. G. Baby as grade I (Fieldman). PCL. Narakkal, 3 January.

Shri K. N. Pushkaran, as S. S. Grade I (Fieldman) at Cochin, 14 January.

Shri A. Y. Jacob as S. S. Grade I (Fieldman) at Cochin, 15 January.

Shri M. M. Bhaskaran as S. S. Grade I (Helper) Cochin, 28 February.

Shri Somi M. Jarijan as S. S. Grade I (Safaiwala) at Karwar, 19 February.

Shri Vikram K. Kharsaliya as S. S. Grade I (Safaiwala) at Bombay, 2 March.

#### Transfer

Shri Rajan, S. S. Grade II (Peon) from Cochin to Waltair.

#### Relief

Shri B. Satyanarayana, S. S. Grade III (Laboratory Attendant) on Superannuation, 31 March.

Shri K. K. Narayanan, S. S. Grade II (Field Man) on superannuation, 31 March.

#### Weddings

Shri Abdul Salam, Junior Clerk at Cochin married Kumari Fathima Beevi at Cochin, 2 January.

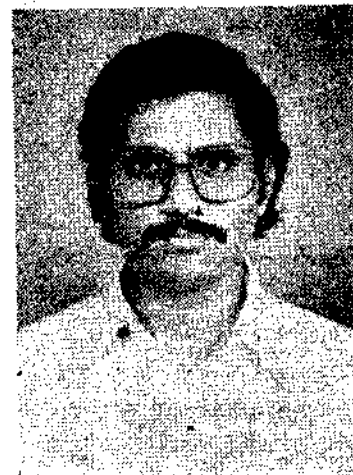
Shri V. K. Sridhar, Administrative Officer married Kumari Jaya at Cochin, 8 February

Kumari D. Kanagam, Technical Assistant at Cochin married Shri Murugesan at Thiruppuvanam, 17 January.

#### Award of Degree



Kumari Padmini R., Scientist S-1 at Cochin has been awarded Ph. D. degree for her studies on the Energy exchange between the sea and the atmosphere in the Indian seas with special reference to Arabian Sea and Bay of Bengal, by the University of Cochin.



Shri N. Jayabalan, Technical Assistant, has been awarded Ph. D. degree for his studies on Silver bellies (Pisces: Leiognathidae) and their associated bioluminescent bacteria in Proto Novo waters, by Annamalai University

#### Obituary

Shri V. Ponnuswami, S. S. Grade II Watch Man expired on 12 February.