



# CMFRI newsletter

Number 8

April - November 1978

## CULTURE OF SEA CUCUMBER AT ANDAMANS



*Stocking of juvenile sea cucumbers in the farm at Port Blair.*

Culture experiments on the holothurian *Holothuria scabra*, which supports the beche-de-mer industry of Andamans, are being taken up at a site at Aberdeen Jetty in Port Blair. The site is suitably enclosed on two sides by the jetties and two sides by sea walls. The area of the farm is 15,000 sq. m and on one side there is an

entrance 20 m wide which allows navigation of fishing boats which generally enter the area for the purpose of anchoring. Depending on the tide the height of water varies between 3.5 to 1 metre in the area toward the entrance side. At the other end the bottom becomes exposed during low tide.

In January 78, 500 juvenile sea cucumbers varying in len-

gth from 65 to 160 mm were collected from the nearby areas and stocked in the farm. As the sea cucumber has the habit of burying in sand when the water level goes up there is no fear of their escaping through the entrance when the farm is filled with water during high tide. During low tide they generally come

## NEW JOINT DIRECTORS FOR THE INSTITUTE

Dr. S. V. Bapat, Scientist S-2 and Officer-in-Charge of Bombay Research Centre and Dr. P. S. B. R. James, Professor and Head of Fisheries in the Fisheries College, Mangalore, have been appointed by the Agricultural Scientists Recruitment Board as Joint Directors of the Institute. Dr. Bapat has taken charge at Cochin and Dr. James at Mandapam from where they will be assisting the Director mainly in the administration.



Dr. S. V. Bapat



Dr. P. S. B. R. James

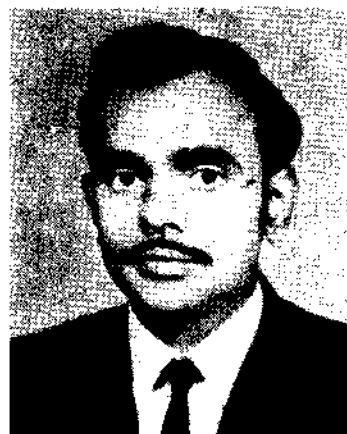
### CMFRI—trained Scientists Involve in Prawn Culture

Tiger prawn, *Penaeus monodon*, was quite successfully cultured in an experimental brackishwater pond at Madras by scientists trained by Madras Research Centre of the Institute. The pond with an area of 1.14 ha is located in the intertidal waters in Adayar estuary. The pond has an average depth of 70 cm.

Juvenile tiger prawns, 20-45 mm in size, were collected from Adayar and Cooum estuaries and transported to the farm. After necessary conditioning they were stocked in the pond initially fertilized

with urea and super phosphate at a rate of 100 kg/ha, at a density of 20,000 juveniles/ha. Later fertilizers were added

Harvesting was done at the end of 80 days and the total yield was 586.85 kg — at the rate of 514.7 kg/ha. The re-



Shri. Venkatesan



Shri. Victor Chandra Bose

#### Sea Cucumber ....

out of the sand for feeding. No artificial feed has to be provided as the animal feeds on the decaying organic matter. At the end of July the animals were found to have grown 190-290 mm — an increase of over 10 cm in 7 months.

periodically at a rate of 50 kg/ha. No feed was supplemented.

The prawns showed an interesting growth rate of 1.6 mm/day, and in 80 days the prawns attained an average length of 169.5 mm (with an average weight of 33.4 grams).

covery rate was 79.8%. The crop was sold for Rs. 32,200/-.

Thiru S. Victor Chandra Bose and Thiru V. Venkataraman, Assistant Directors of Madras Fisheries, were the Institute-trained scientists under whose supervision the culture experiments were carried out.

**'LAUGH AND LET LAUGH'**  
seems to be a maxim of Shri. G. K. Kurian, Director, CIFT, whose humour has everyone laughing, including the DG.

Photo taken during the visit of Dr. M. S. Swaminathan, Director General, to Madras on 3rd August. Seen from left: Dr. Swaminathan, Dr. Silas, Shri. G. K. Kurian.



A vast deposit of subfossil molluscan shells has been found occurring in the Vaigai estuary at Athankarai in Tamil Nadu. The deposit, consisting mainly of shells of *Meretrix casta*, is 0.15-0.45 m thick covering an area 2.2 km wide, below a layer of mud of 0.6-0.9 m thickness. The deposit is being mined for the manufacture of lime and other products. The dislodging of the deposit is done with the aid of poles during the low tide, and during the period March-December an estimated quantity of 3995 tonnes of shells fetching a revenue of Rs. 11,985/- by way of licensing to the Government have been removed, dried and transported. Over a thousand people are employed

## Subfossil shell deposit found at Athankarai



The excavated shells are dried in sun prior to shipping to other places. in this industry. According to Shri D. B. James, who reported the finding, a detailed study of this resource is in progress.

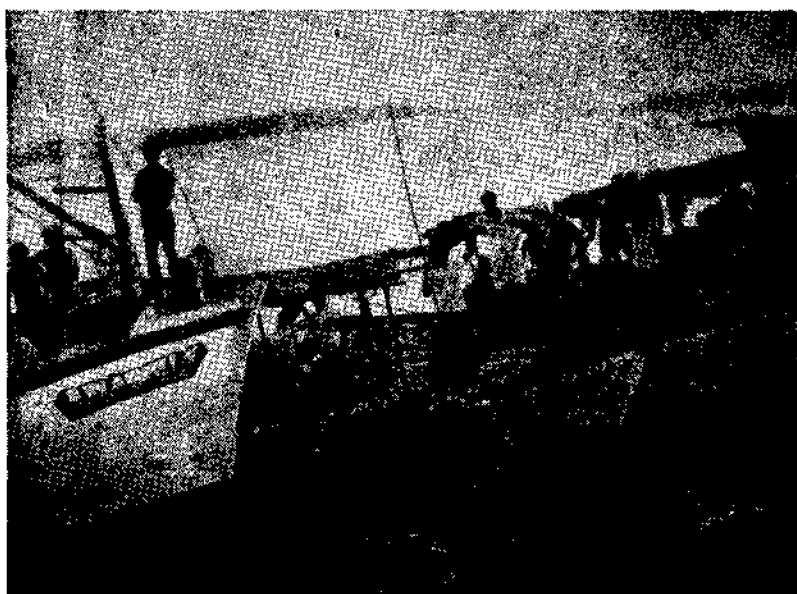
## Dr Kuthalingam participated in international symposium at Aberdeen

Dr. Kuthalingam, Scientist and Officer-in-Charge of Vizhinjam Centre, participated in the international symposium on the Biological Basis of Pelagic Fish Stock Management held at

Aberdeen, Scotland, during 3-7 July 1978. The Symposium was organised by the International Council for the Exploration of the Sea, in collaboration with the Food and Agri-

cultural Organisation of the United Nations and the International Commission for the Northwest Atlantic Fisheries. The Symposium was held at the University of Aberdeen.

## Purse-seine fishery of South Kanara Coast



*Purseseiners at the jetty waiting to unload the day's catches.*

The newly introduced purse-seine fishery along the South Kanara coast, though intended primarily for the traditionally captured pelagic shoaling fishes like sardine, mackerel and catfishes, account for large catches of *Pomadasys hasta*,

*Caranx ignobilis*, *Megalaspis cordyla* and *Plectorynchus*. Although sardine, mackerel and catfishes were forming the bulk of the catches of this coast, the above species were seldom caught in such large quantities before the introduction of purse-seine.



*Catches are sorted out on landing.*

### SHARK WITH FOREIGN TAG RECOVERED

A female shark with an indelible marking as shown below on the back near the dorsal fin has been netted off Nattika 95 km north of Cochin on 8-5-1978. The shark was approximately 2.4 m long and had the maximum width (at dorsal) of 0.4 m. The weight was 150 kg.

: 3 MHEEFES. T. C. :

It is, however, regrettable that no more accurate measurements on the morphometry of the animal could be obtained as the information was received after the actual disposal of the fish, said Dr. P. Vijayaraghavan, who reported the recovery.

### Statisticians trained at IASRI

Shri K. Narayana Kurup and Shri Varughese Jacob of F.R.A. Division underwent a course of training on computer programme held at Indian Agricultural Statistics Research Institute, New Delhi, during 24.7.78-19.8.78.

Shri K. Balan, Scientist, F.R.A. Division joined back the Institute having successfully completed the Professional Statistician Certificate Course of one-year duration at IASRI, New Delhi.

Smt. V. P. Annam, Computer, F.R.A. Division, has been deputed to I.A.S.R.I., New Delhi, for undergoing the Professional Statistician Course.

## BREEDING EXPERIMENTS ON SILAGO



Above: Injecting the pituitary extract in silago.

Below: The dilated genital opening of the female after the injection has taken effect.



Preliminary experiments taken up at Coondapur (Ganguli), South Kanara, on induced breeding of *Silago sihama*, a cultivable estuarine fish, yielded encouraging results. The females, which generally appear in maturity stage scienti-

fically denoted as 'Stage V' wherein the ovary contains eggs which are fairly well developed yet not ready for spawning out, a stage beyond which the fish seldom mature in captivity, were made to spawn by hormonal treatments.

But these eggs could not be fertilized due to paucity of mature males.

Silago is a relished and high-priced fish occurring though not in large numbers round the year in the Karnataka estuaries. This has since been proven to be a fish viable for cultivation and is liable to attain a marketable size of 20-22 cm in about 4 months. The youngones occurring wildly during November-March form the seed, but, like those of most of the other cultivable fishes, are most undependable owing to deep fluctuations.

Pituitary extract of catfish was injected in different doses at different intervals. In a few cases the females showed positive reactions 10-12 h after the treatment. The area surrounding the genital opening became blood-shot and dilated. Later, a few spawned ripe healthy eggs. Attempts to fertilize these eggs were, however, met with no success. The experiments are continuing under the supervision of Shri M. H. Dhulkhed of Mangalore Centre.

### Possibilities for oyster culture at Mulky

At Mulky estuarine system, formed by the confluence of rivers Pavanje and Shambhavi, 30 km north of Mangalore, where the Karnataka State Fisheries maintain a farm stretching about 12 hectares, there appear good possibilities for culturing the edible oyster, *Crassostrea madrasensis*. On the boulders forming the embankment of the farm was noticed the settlement of spat of this oyster in fairly good numbers. Noticing this natural settlement of spat an attempt is being made to assess this spat resource by suspending lime-coated tiles as cultches. The results so far obtained have been very favourable.

## Good aquaculture possibilities in Gulf of Kutch

A recent survey conducted along certain segments of coral reefs and mangrove swamps in the Gulf of Kutch has shown that the area offers good scope for taking up culture of fin-fish, prawns and molluscs. The islands of Piroton, Paga, Ooni and Boria were surveyed.

Till a couple of decades ago in some of these islands dense mangrove growths were said to have been serving as nesting place for large numbers of aquatic birds. But today the condition is not the same. Owing to large-scale cutting down of these shrubs for firewood and fodder the vegetation has greatly thinned down and the avian fauna is nearly disappearing. The mangroves at present are seen in patches except in places north of Bedi point.

The mudflats in all these areas are usually exposed during low tides. Found in abundance in the creeks are juveniles of cultivable fishes, such as mullet, and prawns. The creeks

near Dwarka and Mitapur are already serving as collection centres for mullet fry.

The coral in these islands are in patches on eroded surfaces, and reefs in the strict sense are not developed. In Port Okha, nevertheless, there is a raised reef composed of massive corals indicating a geological upheaval in the recent past. Many of the coral colonies in these islands have died down due to heavy silting and several of them today are covered with mud. In some of the island banks are found rich deposits of calcareous sand mixed with shell fragments and coral skeleton, which if judiciously exploited could be utilised as industrial raw material for calcium carbonate. Shri M. S. Rajagopalan and Dr. C. S. Gopinatha Pillai were involved in the survey in which Prof. N. D. Chhaya, Officer-in-Charge of Marine Biological Station, Port Okha, and his staff were of immense help.

## Zonal Workshop for Field Staff

The following zonal workshops were held by the Fisheries Resources Assessment Division for the field staff engaged in fishery survey.

1. At Head Quarters, for the field staff engaged in survey in Kerala and Cape Comorin Zone in Tamil Nadu, 14-15.7.78.
2. At Karwar Research Centre for the field staff engaged in Karnataka and Goa, 28-29.7.78.
3. At Bombay Research Centre for the field staff engaged in Maharashtra and Gujarat, 26-27.8.79.
4. At Madras Research Centre for the field staff engaged in the region between Ongole in Andhra and Cape Comorin in Tamil Nadu, 15-16.11.78.
5. At Waltair Research Centre for the field staff engaged in that part of Andhra north of Ongole, Orissa and West Bengal, 21-22.11.78.

## Demonstration on seaweed utilisation

The algologists at Mandapam Camp, under the leadership of Shri C. V. S. Krishnamurthy Chennubhotla, gave a demonstration on how to prepare the various recipes from ordinary seaweeds, to over a dozen ladies of the RC campus. Some of the items, like jelly, pickles, wafers and jam prepared during the demonstration were well admired.



*The seaweed-recipe demonstration.*

## CONSULTANCY

The following government departments, institutions, agencies and persons received our services by way of technical consultancy:

1. Director of Fisheries, Government of Andhra Pradesh, Hyderabad.
2. Member Secretary, State Planning Board, Trivandrum.
3. Director of Fisheries, Government of Tamil Nadu, Madras.
4. Director of Fisheries, Government of Karnataka, Bangalore.
5. Assistant Inspector of Fisheries, Kavali, Andhra Pradesh.
6. Bureau of Economics and Statistics, Government of Andhra Pradesh, Hyderabad.
7. Shri G. Jawaharlal, Research Associate, S.I.E.T., Hyderabad.
8. Director, Kodiyal Foods and Fats Pvt. Ltd., Mangalore.
9. Superintendent, Canara Bank, Agricultural Finance Section, Credit Wing, Bangalore.
10. Director of Instruction, U.A.S., College of Fisheries, Mangalore.
11. General Manager, State Fisheries Development Corporation, Calcutta.
12. Director, Marine Products Export Development Authority, Cochin.
13. Project Coordinator, CFT-RI, Mangalore.
14. Managing Director, Mermaid Marine Products Pvt. Ltd., Tellicherry, Kerala.
15. Director, Great Asiatic Lines Ltd., Delhi.
16. Development Officer, State Financial Corporation, Andhra Pradesh, Hyderabad.
17. Manager Esmario Export Enterprises, Quilon, Kerala.
18. Dilip Biwalkar, 2/16 Madan Kunj, Bombay.
19. Director, Government of India Pelagic Fisheries Project, Cochin.
20. Director of Fisheries, Government of Orissa, Cuttack.
21. Assistant Director of Fisheries, Government of Karnataka, Honavar.
22. Joint Director, C.S.O., New Delhi.
23. Director, Bureau of Economics & Statistics, Government of Orissa.
24. Shri K. P. Cherian, Executive Engineer, Harbour Engineering Unit, Quilon.
25. Prof. U. K. Srivastava, Institute of Management, Ahmedabad.
26. Dr. C. V. Kulkarni, Dadar, Bombay.
27. Manager, United Bank of India, Cochin.
28. The President, Kutch Marine Product Development Co-operative Society, Kutch, Gujarat.

### AT AGRI EXPO 77



*Sir. John Crofford, Adviser, World Bank, listens engrossingly to Dr. M. M. Thomas, who explained to him the Institute's recent progress in the field of mariculture, at the Agri Expo 77 exhibition at New Delhi where the Institute opened a pavilion.*

## VISITORS

The following distinguished persons visited the Institute:

1. Mr. J. A. Lawrence, First Secretary (Science), British High Commission, New Delhi.
2. Dr. George Reiner, British Consul, Madras, on 3-8-78.
3. Dr. T. V. R. Pillai, Senior Fishery Resources Officer (Aquaculture), FAO, Rome, on 22-8-78.
4. Dr. J. G. Kaker, Aquacultural Attache, Royal Netherlands Embassy, New Delhi, on 28-8-78.
5. Shri S. S. Dhanoa, Secretary, ICAR, on 1-9-78.
6. Dr. D. E. S. Truman, Department of Genetics, University of Edinburg, on 15-11-78.
7. Dr. C. Prasad, Assistant Director General (Cdn.), ICAR, New Delhi, on 18-11-78.
8. Dr. Furnio Yamazaki, Faculty of Fisheries, Hokaido University, Hakodate, Japan, on 30-11-78.

## GENERAL

Dr. E. G. Silas, Director, has been nominated as a Member in the Sub-Committee of the Indian Board of Wild Life (Protection) Act, 1972.

\* \* \* \* \*

Dr. E. G. Silas has been nominated as representative of the Department of Agricultural Research and Education on the Marine Products Export Development Authority.

### ENGAGEMENTS

Director Dr. Silas has attended the following:

Special Meeting of the Faculty of Marine Fisheries, University of Cochin, on 28-6-78.

64th Executive Committee Meeting of the Kerala Agricultural University, at Vellanikara, 29-6-78.

65th Executive Committee Meeting of the Kerala Agricul-

tural University held at Vellayani, 22-7-78.

14th Meeting of the General Council of the Kerala Agricultural University held at Vellanikara, 29-7-78.

Regional Workshop on Aquaculture Development Strategies for Asia held at Manila, 6th to 13th August 78.

Symposium on Prawn Culture sponsored by the Marine Products Export Development Authority, CMFRI, CIFT and CIFRI, at Bomaby, 16th-18th August 78.

66th Meeting of Executive Committee of the Kerala Agricultural University at Vellanikara, 28-8-78.

The discussions with the World Bank Team regarding fisheries development in Andhra Pradesh, at the request of the Government of Andhra Pradesh, in September.

Meeting convened by the Ministry of Agriculture & Irrigation to review the Schedule on Wildlife Protection Act, in September.

ICAR Directors' Conference, at Coimbatore, September 78.

Management Committee Meeting of K. V. K. of Tamil Nadu Agricultural University, at Pondicherry on 3-11-78.

First Meeting of the Management Committee of Central Staff College for Agriculture, Hyderabad, on 6-11-78.



*A 'clean' catch of the perch the purseseiners at Gangulli.*



## STAFF NEWS

### Appointments

- Dr. P. V. Ramachandran Nair, Scientist S-2 as Scientist S-3 at Cochin, 29-4-78.
- Dr. K. Alagarwami, Scientist S-2, as Scientist S-3 at Tuticorin, 8-5-78.
- Shri K. Nagappan Nair, Scientist S-2, as Scientist S-3 at Tuticorin, 8-5-78.
- Dr. B. Krishnamoorthy, Scientist S-2, as Scientist S-3 at Waltair, 6-5-78.
- Dr. S. V. Bapat, Scientist S-2, as Scientist S-3 (Joint Director) at Bombay, 15-5-78.
- Shri T. Tholasilingam, Scientist S-2, as Scientist S-3 at Madras, 20-5-78.
- Dr. T. Jacob as Scientist S-3 at Cochin, 22-6-78.
- Dr. P. S. B. R. James as Scientist S-3 (Joint Director) at Mandapam Camp, 23-6-78.
- Dr. P. Vedavyasa Rao, Scientist S-2, as Scientist S-3 at Head Quarters, 14-7-78.
- Shri G. Venkataraman, Scientist S-2, as Scientist S-3 at Head Quarters, 30-9-78.
- Dr. S. Ramamurthy, Scientist S-2, as Scientist S-3 at Bombay, 18-10-78.
- Shri K. N. Rasachandra Kartha, T. A. (T-II-3), as Training Assistant (T-4) at K. V. K., Narakkal, 24-4-78.
- Shri A. N. Mohanan as Training Assistant (T-4) at K. V. G., Narakkal, 26-4-78.

### New Scientists of S-3 Grade



*Dr. T. Jacob  
(Fishery Resources Assessment  
Division)*



*Dr. B. Krishnamoorthi  
(Fishery Biology Division)*



*Shri. K. Nagappan Nayar  
(Molliscan Fisheries Division)*



*Dr. K. Alagarwami  
(Molliscan Fisheries Division)*



*Dr. P. V. Ramachandran Nair  
(Fishery Environmental Division)*



*Shri. T. Tholasilingam  
(Fishery Environmental Division)*

Shri Vijayarangan as Supporting Staff, SS Grade-I, (Safaiwalla) at Madras, 12-5-78.

Shri K. Asokakumaran Unnithan, J. T. A. (T-2), as Training Assistant (T-4) at K. V. K., Narakkal, 1-5-78.

Shri V. Edwin Joseph as Junior Library Assistant (T-2) at Mandapam Camp, 24-5-78.

Shri R. Sathidas as Scientist S-1 at Cochin, 8-5-78.

Shri K. M. Surendran, Stenographer (ad hoc), as Stenographer on regular basis, 20-6-78.

Shri S. Mohideen Meerasa, S.S. Grade-III (Fieldman), as Deckhand, (T-1), at Cochin, 26-6-78.

Shri N. Rajamunswami, Assistant (ad hoc), as Assistant on regular basis, 30-6-78.

Shri S. Gopalakrishnan Potti as Accounts Officer, on deputation from the AG's Office, Kerala, at Head Quarters, 1-7-78.

Dr. M. J. George as Scientist S-2, on reversion from service in NIO, Goa, at Cochin, 15-7-78.

Shri N. Gopalakrishna Pillai as Scientist S-1 at Cochin, 9-8-78.

Shri V. Gandhi as Scientist S-1 at Cochin, 31-8-78.

Shri A. Raju as Scientist S-1 at Cochin, 31-8-78.

Shri A. Geethanand Ponniah as Scientist S-1 at Cochin, 21-8-78.

Shri M. Srinath as Scientist S-1 at Cochin, 20-9-78.

Shri P. Radhakrishnan, J. T. A. (T-2), as Training Assistant (T-4) at K. V. K., Narakkal, 11-7-78.

Shri Sattupilli Yadevayya as Motor Driver (T-1) at Port Blair, 2-8-78.

Shri Ch. Ellithathayya as Field Assistant (T-1) at Waltair 14-8-78

Shri Bhupandra Popatlal Thumber as Field Assistant (T-1) at Bombay, 24-8-78.

Shri Dhokia Harsukhlal Kharsanbhai as Field Assistant (T-1) at Bombay, 24-8-78.

Shri Solanki Pravinchandra Dayal as Field Assistant (T-1) at Bombay, 29-8-78.

Shri K. L. K. Kesavan, Artist (T-2), as Senior Artist (T-II-3) at Head Quarters, 1-9-78.

Shri N. Narayana as Field Assistant (T-1) at Karwar, 23-9-78.

Shri K. Pandi, S.S. Grade I (Safaiwalla), as Motor Driver (T-1) at Madras, 23-9-78.

Shri K. Murali, Senior Clerk (ad hoc), as Senior Clerk on regular basis at Head Quarters, 31-7-78.

Shri P. Achayya as Supporting Staff Grade-I at Kakinada, 16-8-78.

Shri R. V. S. Subramaniam as S.S. Grade-I (Watchman) at Kakinada, 18-8-78.

Shri G. Rajappan as S.S. Grade-I (Watchman) at Narakkal, 14-8-78.

Shri V. Mohanan as Junior Clerk at Calicut, 7-8-78.

Shri V. Velayudhan as Junior Clerk at Cochin, 7-8-78.

Shri P. M. Bhaskaran as Junior Clerk at Cochin, 4-8-78.

Shri T. Sreedharan as S.S. Grade-I (Messenger) at Cochin, 16-8-78.

Shri Asiri Abubin Mehsan as S.S. Grade-I (Watchman) at Veraval, 16-8-78.

Shri Lakshman Meraman Waghele as S.S. Grade-I (Watchman) at Veraval, 17-8-78.

Shri G. Sampath Kumar as S.S. Grade-I (Watchman) at Mangalore, 25-8-78.

Shri P. Muthumalai as S.S. Grade-I (Watchman) at Tuticorin, 11-9-78.

Shri M. Samuthram as S.S. Grade-I (Watchman) at Tuticorin, 13-9-78.

Shri P. Krishna Rao as S.S. Grade-I (Watchman) at Waltair, 19-9-78.

Shri Gannath B. Naik as S.S. Grade-I (Watchman) at Karwar, 22-9-78.

Shri Vasanth D. Naik as S.S. Grade-I (Watchman) at Karwar, 16-9-78.

Shri I. P. Ebenezer, J. T. A. (T-2), as Technical Assistant (T-II-3) at Cape Comorin, 9-10-78.

Shri C. K. Krishnan, J. T. A. (T-2), as Technical Assistant (T-II-3) at Chavakkad, 9-10-78.

Smt. Koumudi Menon, J. T. A. (T-2), as Technical Assistant (T-II-3) at Calicut, 9-10-78.

Shri. K. S. Krishnan, J. T. A. (T-2), as Technical Assistant (T-II-3) at Nagapatinam, 9-10-78.

Shri. P. Ramadoss, J. T. A. (T-2), as Technical Assistant (T-II-3) at Calicut, 9-10-78.

Kum. S. Lakshmi, J. T. A. (T-2), as Technical Assistant (T-II-3) at Cochin, 9-10-78.

Shri R. Dias Johnny as Field Assistant (T-1) at Bombay, 6-10-78.

Shri B. F. Kharat as S.S. Grade-I (Watchman) at Bombay, 3-10-78.

Shri A. L. Jadhav as S.S. Grade-I (Watchman) at Bombay, 17-10-78.

Shri S. Appa Rao as S.S. Grade-I (Watchman) at Waltair, 13-10-78.

Shri Pookoya as S.S. Grade-I (Watchman) at Minicoy, 17-10-78.

Shri S. Chandrasekar as Field Assistant (T-1) at Madras, 15-11-78.

Shri B. K. Velukutty as S.S. Grade-I (Watchman) at Vizhinjam, 4-11-78.

Shri M. Ahmed Kannu as S.S. Grade-I (Watchman) at Vizhinjam, 6-11-78.

Shri Jagadishchandra Nathakal Jambudiya as Junior Clerk at Veraval, 18-11-78.

### Transfers

Smt. P. Swarnalatha, F.A., from Cochin to Calicut.

Shri J. Narayanasamy, F.A., from Calicut to Cochin.

Shri Mascarenhas Robert, F.A., from Karwar to Goa.

Shri M. Balram, F.A., from Karwar to Goa.

Shri M. Ibrahim, Deckhand, from Cochin to Mandapam Camp.

Shri P. K. Mahadevan Pillai, T.A., from Chavakkad to Cochin.

Shri J. P. Karbari, F.A., (T-6), from Veraval to Bombay.

Shri Chennappa Gowda, F.A., from Mangalore to Bhatkal.

Shri D. B. James, Scientist S-1, from Port Blair to Madras.

Dr. K. Alagarwami, Scientist S-3, from Tuticorin to Cochin.

Dr. L. Krishnan, Scientist S-1, from Cochin to Narakkal.

Shri A. R. Thirunavukkarasu, Scientist S-1, from Cochin to Narakkal.

Shri Syed Ahamedali, Scientist S-1, from Cochin to Narakkal.

Dr. K. Satyanarayana Rao, Scientist S-1, from Mandapam Camp to Mangalore.

Shri M. Vijayakumaran, Scientist S-1, from Cochin to Kovalam.

Shri H. Mohamed Kasim, Scientist S-1, from Cochin to Veral.

Kum. R. Padmini, Scientist S-1, from Cochin to Mangalore.

Smt. S. Lalitha Devi, Scientist S-1, from Cochin to Kakinada.

Shri S. Muthusamy, Scientist S-1, from Madras to Karwar.

Smt. T. S. Naomi, Scientist S, from Madras to Karwar.

Shri K. S. Sundaram, Scientist S, from Madras to Bombay.

Dr. P. A. Thomas, Scientist S-1, from Goa to Vizhinjam.

Shri G. Surendranath, J.T.A., from Porto Novo to Chavakkad.

Shri S. Seetharaman, J.T.A., from Bombay to Port Blair.

Shri D. Vincent, J.T.A., from Calicut to Cochin.

Shri Mery Naraiya, Watchman, from Cochin to Madras.

Shri V. Gandhi, Scientist S-1, from Cochin to Mandapam Camp.

Shri A. Raju, Scientist S-1, from Cochin to Mandapam Camp.

Shri N. Gopalakrishna Pillai, Scientist S-1, from Cochin to Mandapam Camp.

Shri Ch. Ellithathayya, F.A., from Waltair to Kakinada.

Smt. Mery Rayalamma, Safaiwalla, from Cochin to Madras.

Dr. S. V. Bapat, Joint Director, from Bombay to Cochin.

Shri Y. V. Venkatachala Murty, F.A., from Mangalore to Bhalkal.

Shri A. Gopinathan, Safaiwalla, from Calicut to Cochin.

#### Reliefs

Shri D. Raghava Kurup, Accounts Officer, on repatriation, 1-7-78.

Shri Dharambir Singh Sehra, Scientist S-1, on transfer to CAZ RI, Jodhpur, 13-7-78.

Shri M. Gopala Prabhu, J.T.A., on resignation, 27-6-78.

Dr. M. Devaraj, Scientist S-1, to take up appointment in C.I. F.E., Bombay, 4-11-78.

Shri M. Balaram, F.A., on termination of service, 23-5-78.

Shri K. B. Aravindakshan, Bosun, on resignation, 30-11-78.

Smt. N. Sarada, Safaiwalla, on termination of service, 20-11-78.

#### Retirement

Shri C. Ebenezer, Carpenter (F-2), retired from service on 30-6-78.

#### Training

Shri D. Vincent, Junior Technical Assistant, underwent training in marine chemistry in U.K. during January-July 1978.

Shri V. Kunjukurishna Pillai, Scientist S-1, is deputed for a training in marine chemistry in Southampton, U.K., for 1 year from 27-9-78.

Dr. P. Parameswaran Pillai, Scientist S-1, under went a training in Biological Oceanography sponsored by UNESCO/IOC at Karachi between 4-11-78 and 30-11-78.

Dr. M. D. K. Kuthalingam, Scientist S-2, attended a Symposium on Biological Basis of Pelagic Fish Stock, at Scotland, during 3-7-78.

Shri K. Balan, Scientist S, and Kum. V. P. Annam, Computer (T-II-3), have undergone the P.S.C. Course at IASRI, New Delhi, during 1-10-77 - 30-9-78.

The following ministerial staff had a training course on Administrative Procedure & Financial Rules conducted at CTCRI, Trivandrum during 14 - 28-8-78

Shri S. Subramaniam, Supdt.;

Shri M. P. Lakshmanan, Supdt.;

Shri A. K. Balakrishna Pillai, Asst.;

Shri K. Arumugam, Senior Clerk;

Smt. M. O. Leela, Senior Clerk;

Shri P. Ganesan, Asst.;

Kum. C. Kamalakshi, Sr. Clerk;

Shri M. Selvadas, Asst.;

Shri M. Velu, Sr. Clerk;

Shri P. Muthu, Asst.

Shri M. Ramakrishnan, Sr. Clerk;

Shri S. Nagarajan, Sr. Clerk;

Shri M. Subbiah, Supdt.;

S/Shri Koragu Naik, Asst.;

K. M. Abdulla, Sr. Clerk;

G. M. Kudalkar, Asst.;

B. Devidoss Puthran, Sr. Clerk;

G. V. Pedne-

kar, Asst. and M. R. Wadadekar, Jr. Clerk completed a training course on Administrative Procedure and Financial Rules held at Cotton Technological Research Laboratory, Bombay, between 25-9 and 9-10-78.

Shri R. Appa Rao, Sr. Clerk, underwent the training course on Administrative Procedure and Financial Rules, at Staff College, Hyderabad, during 26-6-78 and 8-7-79.

S/Shri K. M. Karupiah, Sr. Clerk; S. Balasubramaniam, Sr. Clerk; S. R. Narayanan, Asst.; D. Gnanjebamani, Sr. Clerk; and J. M. Vaz, Sr. Clerk, had training on Administrative Procedure and Financial rules, at NDRI, Bangalore, between 24-7-78 and 5-8-78.

Shri S. Technical Assistant obtained Diploma on completion of the Course in Fishery Science at CIFE between 24-7-78 and 5-8-78.

Shri K. Chittibabu, J.T.A., obtained the Diploma on completion of the Course in Fishery Science at CIFE between 1-7-77 and 8-9-78.

#### Weddings

Kum. D. Geetha, Stenographer, is married to Shri Gokulan, at Siva Temple, Ernakulam on 1st May 1978.

Shri R. Soundararajan, Scientist, married Sow. S. Hema, at Mannargudi on 26th May.

Dr. S. Kufasekhara Pandian, Scientist, married Selvi: Rukmani, at Madras on 6th July.

Shri A. R. Thirunavukkarasu, Scientist, married Selvi: Dhanaamani, at Pattukkottai on 21st August.

Dr. L. Krishnan, Scientist, married Kum. Santa, at Trivandrum on 30th August.

Shri E. V. Radhakrishnan, Scientist, married Kum. Suprabha, at Payyanur on 9th September.

Kum. Ambika, Jr. Clerk, is married to Shri Kochukrishnan, at Siva Temple, Ernakulam, on 9th September.

Kum. K. Santhakumari, Computer, is married to Shri Vijayanathan, at Shri Krishna Temple, Thodupuzha on 14th September.

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