



CMFRI newsletter

Number 2

October - December 1975

NATIONAL PROGRAMME ON FISH AND PRAWN TAGGING

Large-scale tagging of oil sardine and mackerel, which together form a third of our country's exploited marine fish wealth, and prawn, our prime marine product for export, has been successfully started as envisaged. The shoals of oil sardine and mackerel, almost the entire catch of which is sold on the domestic markets, appear along the coast every year during the post-monsoon months. But the harvest is subject to almost unpredictable quantitative fluctuation the cause of which is still not fully known to scientists. The recovery of a fairly reasonable fraction of these mark-released fishes is expected to provide the much-wanted information on the size and composition of their stocks, growth rates and migration patterns.

The National Programme on Tagging, which would cost over 1.5 lakhs of rupees, is at present centred at Cochin, with Dr. P. Vijayaraghavan, Jr. Fishery Scientist as its Leader and Shri A. Noble and Dr. M. M. Thomas, Asstt. Fishery Scientists as Associate Leaders. All the scientists at Headquarters are actively participating in the programme which is likely to be extended

to other centres, if found necessary.

The tags are indigenously made coloured, flat plastic bits attached to thin nylon threads. The tag which is used to mark

ndling from landing place until it reaches the hands of the housewife, the success of the project is determined by the cooperation of the public as well as the maritime State

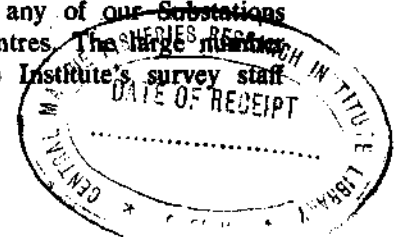


Tagged mackerel (above), oil sardine (below left) and prawn

the fishes is the Loop Tag which is fastened on the back of the fish. The Disc Tag, by which the prawns are marked, consists of two round discs and is fixed like a button to the anterodorsal end of the abdomen. Each tag bears a number. Over 2,000 fish have been tagged and further tagging is in progress. As the recovery of the tagged fish could be while capture at sea or at any of the stages of ha-

Governments, the fishing industry and organizations involved in exploratory and experimental fishing.

A reward of Rs. 3/- is offered for the return of each recovered fish with the tag intact and Re. 1/- for the return of tag alone either to our Headquarters at Cochin or to any of our Substations or Centres. The large number of the Institute's survey staff



OUR STEP FORWARD

Experiments on mass production of prawn seeds for commercial farming have been initiated at Narakkal under the ad hoc Scheme on Marine Prawn Culture and Propagation. Mature females collected from the sea have spawned in the laboratory tanks and the eggs were successfully mass-cultured up to last Mysis stage by feeding them with plankton collected from the culture-ponds. Experiments to further their growth up to the stage at which they can be stocked in culture-ponds are under way.

Pamban and Athankarai Estuary were surveyed to assess the available stock of fish and prawn seeds. A total of 35,000 m² was surveyed during November-December 1975. The results indicate a potential ground for mullet and prawn seeds at Chinnappalam creek at Pamban.

Eelers of cultivable eels of the genus *Anguilla* were re-

posted all along the coasts are also authorised to receive the tags. The cooperation of the public, the State Governments, the fishing industry and other organizations is solicited to make this important national venture a success which will be a breakthrough in our knowledge of these important sea-resources.

We thank the Central Institute of Fisheries Technology, Cochin, for the generous offer of the boat facilities for carrying out the tagging programme.

corded in abundance from Athankarai Estuary of River Vaigai, since the implementation of the 'Elver Resources Survey' at Mandapam in December 1975.

The Institute has presented two papers viz. "Standardization and Intercalibration Trials with ¹⁴C Carbon Isotope" by P.V. Ramachandran Nair & K.J. Joseph and "Application of Carbon Isotope Technique in Fishery Research in the Seas around India" by E. G. Sitas, P. V. Ramachandran Nair and C. P. Gopinathan at the Symposium on 'Use of Radiation and Radioisotopes in Studies of Animal Production' held at Izatnagar

during December 16-18, 1975. The Symposium was organised by Food and Agriculture Committee, Department of Atomic Energy, Government of India.

A mixed-culture raft has been moored in the open sea at a depth of 5 m, off the Institute Substation at West Hill beach, Calicut, under the Institute's Project for investigating the possibilities of industrializing the composite culture of mussels, oysters and seaweeds in the open sea. Ropes on which the mussel seeds were transplanted were suspended from the raft in December. Observations at the end of a fortnight shows encouraging results.



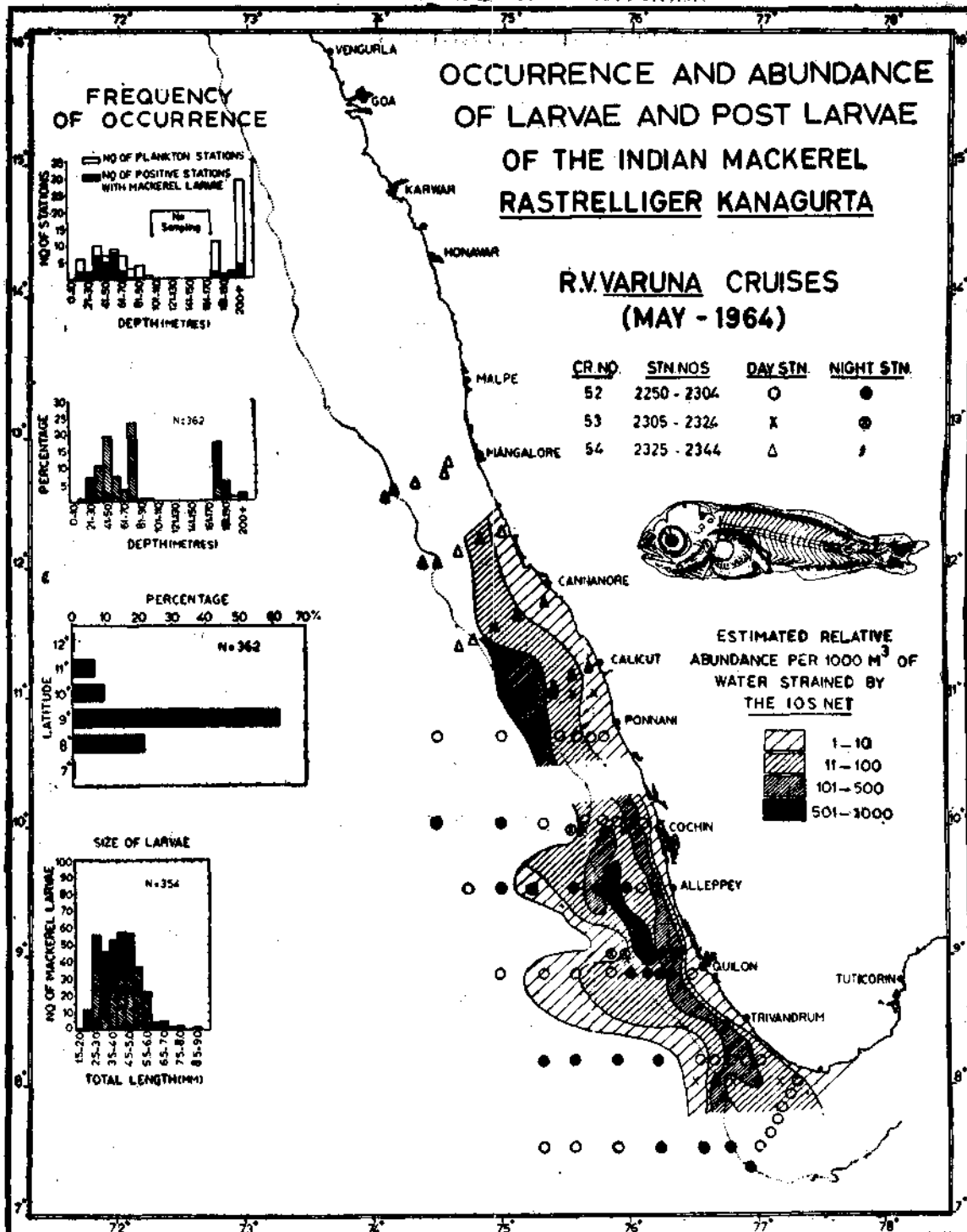
The mixed-culture raft moored off West Hill Calicut.

Annual Subscription of Indian Journal of Fisheries

The annual subscription of Indian Journal of Fisheries is raised to Rs. 45.00 from volume 21 (1974) onwards. An additional Rs. 10.00 for inland, and Rs. 15.00 for foreign, will be charged for packing and postage per volume.

MACKEREL SPAWNING GROUNDS LOCATED

The spawning ground of Indian Mackerel, the commercially important pelagic fish occurring along the southwest coast of India, from Quilon to Ratnagiri, was till recently a matter of conjecture among scientists for want of direct evidence on the occurrence of eggs and early larval stages. The Institute has recently collected sufficient number of graded



series of larva to establish the spawning grounds, which is a break-through in the knowledge on the biology of this fish. On the basis of this evidence, the spawning grounds have been illustrated in detail in a recent publication, a reproduction of which is shown above.

**MINISTER OF AGRICULTURE &
IRRIGATION, GOVERNMENT
OF INDIA, NEW DELHI-110001**

24TH SEPTEMBER, 1975

APPEAL

After the adoption of Hindi as the national link language, its development is a national cause and is the responsibility of all Indians. This objective cannot be achieved if only a few officials use Hindi in official work. It would only be accomplished by the goodwill and concerted efforts of all officials at all levels.

2. The Prime Minister has, time and again, reiterated the urgency of increasing the use of Hindi for official purposes at various meetings of the Central Hindi Committee and elsewhere. On the solemn occasion of the birthday of the Father of the Nation, Mahatma Gandhi, let us resolve that all members of the Ministry of Agriculture and Irrigation, at the headquarters as well as in the subordinate and field offices, will start doing at least some of their official work in Hindi from now onwards.

Sd/-
(JAGJIVAN RAM)

CONSULTANCY

The following Government Departments, Institutions, Agencies and persons were benefited by our services by way of consultation:—

1. Shri S. Pati, Reader in Zoology, Ravenshaw College, Cuttack.
2. Messrs Grindlay's Bank, Calcutta.

3. Director of Fisheries, Government of Goa, Panaji.
4. Deputy Director, Government of India, Exploratory Fisheries Project, Calcutta.
5. Director, Integrated Fisheries Project, Cochin-16.

6. Town Planner, Ernakulam Region, Cochin-20.
7. Shri P.P. Gupta, Consultant, Consultancy Service Division, 19 Nethaji Subhas Road, Calcutta-1.
8. The Director of Fisheries, Government of Andhra Pradesh, Hyderabad.
9. The Deputy Director of Fisheries (Regional), Government of Tamilnadu, Tuticorin.
10. The Deputy Commissioner of Fisheries, Government of Gujarat, Ahmedabad.
11. The Director of Fisheries, Government of Tamilnadu, Madras.
12. The Director of Statistics, Government of Tamilnadu, Madras-6.
13. Member-Secretary, State Planning Board, Government of Kerala, Trivandrum.
14. Dr. M.J. George, Scientist, National Institute of Oceanography, Cochin.
15. Shri R. R. Prasad, Sub-divisional Fisheries Officer, Muzattarpur, Bihar.
16. The Project Coordinator, Fish Technology Experiment Station of Central Food Technological Research Institute, Mangalore-1.
17. Shri Dat Pethe, XXII/286, M. G. Road, Cochin-11.
18. Shri Achuthan Pillai, M/s. Achuthan Pillai & Co., Cochin.

Management Committee Meets

The First Meeting of the Management Committee of the Central Marine Fisheries Research Institute consisted of the following was held on 20th December at the Headquarters:—

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|--|----|------------------|
| 1. The Director, CMFRI Cochin | .. | Chairman |
| 2. Dr. R. Raghu Prasad, Asst. Director General (Fisheries), ICAR New Delhi. | .. | Member |
| 3. Director of Fisheries, Govt. of Kerala. | .. | Member |
| 4. Director of Fisheries, Govt. of Tamilnadu. | .. | Member |
| 5. Director of Research, Kerala Agricultural University, Trichur. | .. | Member |
| 6. Deputy Director, CMFRI Cochin (Vacant). | .. | Member |
| 7. Dr. K. V. Sekharan, Sr. Fishery Scientist, CMFRI Cochin. | .. | Member |
| 8. Dr. G. Seshappa, Fishery Scientist, CMFRI Calicut | .. | Member |
| 9. Dr. S. V. Bapat, Jr. Fishery Scientist, CMFRI Bombay. | .. | Member |
| 10. Accounts Officer, Indian Institute of Horticultural Research, Bangalore. | .. | Member |
| 11. Administrative Officer, CMFRI Cochin. | .. | Member Secretary |

JAPANESE FISHERIES RESEARCH VESSEL VISITS COCHIN

"SHOYO-MARU", a 65-m Research Vessel, belonging to Fishery Agency, Government of Japan, called at Cochin Harbour in October 1975 on her way to Karachi. The vessel, which is commissioned for resource survey of tuna and other pelagic species in the tropical and temperate regions, is equipped with most modern scientific contrivances for biological and oceanographic observations and has five scientists on board. "Shoyo-Maru" was open to scientists of the various research institutions while her sojourn at Cochin.

INDUCTION OF THE EXISTING SCIENTIFIC PERSONNEL TO THE AGRICULTURAL RESEARCH SERVICE

All the Institute's eligible scientific staff were screened by the Agricultural Scientists Recruitment Board for induction into the Agricultural Research Service, at Bombay on 28th & 29th November '75.

GENERAL

The Director General, Indian Council of Agricultural Research, has nominated Dr. E. G. Silas, Director, as a Member of the 'Programme Priorities and Cruise Committee' for the National Institute of Oceanography, Goa, as representative of ICAR.

The Executive Committee of the Kerala Agricultural University, Trichur, at its

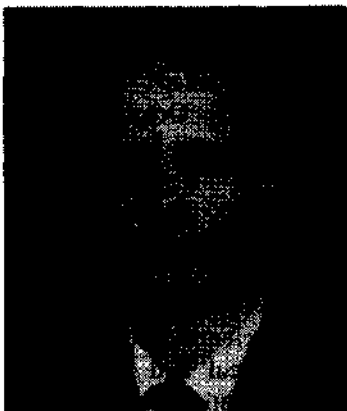
meeting held on 10th November 1975 nominated the Director as Member of the Research Advisory Committee of the University.

Dr. Silas is elected as a Member of the Central Government Employees Coordination Committee, Cochin. He is also elected as Member of the Central Services Regional Sports Board, Cochin.

Government of Kerala have ordered continuance of the Kerala State Fishery Advisory Board, in which the Director is a Member.

Government of Kerala have ordered the reconstitution of the Kerala Fisheries Research Committee, in which the Director is a Member, for a period of three years.

Shri K.H. Mohamed, Fishery Scientist of the Institute has taken charge as FAO



Fishery Biologist at Bahrain on 8th December.

Shri Mohamed's new address is:

Shri K. H. Mohamed,
FAO Fishery Biologist,
Bureau of Fisheries,
P. O. Box No. 251, Bahrain.

Engagements

The Director attended the First Meeting of the Kerala Fisheries Research Committee at Calicut on 18th November.

Director attended the General Council Meeting of the Kerala Agricultural University, Trichur, on 19th November.

The Director also attended the Executive Committee Meeting of the Kerala Agricultural University on 24th December.

Director attended a joint meeting of the Department of Fisheries, Tamil Nadu, Central Salt and Marine Chemicals Research Institute and CMPRI

on 2nd December to discuss the progress of work on the cooperative seaweed resources survey programme being jointly undertaken by these bodies.

Dr. M. S. Prabhu, Fishery Scientist and Shri S.K. Dharmaraja, Asst. Fishery Scientist attended the Third Zonal Survey Staff Meeting of the Institute Survey Staff of the region, Ongole to Tuticorn, on 11th and 12th November at Madras. The field staff were also given a refresher course on fishery statistics.

Dr. M. V. Pai, Officer-in-charge of the Institute Substation, Karwar, inaugurated a course on peeling and grading of prawns, conducted by the Marine Products Export Development Authority, Cochin, on 8th October at State Fisheries Department, Karwar.

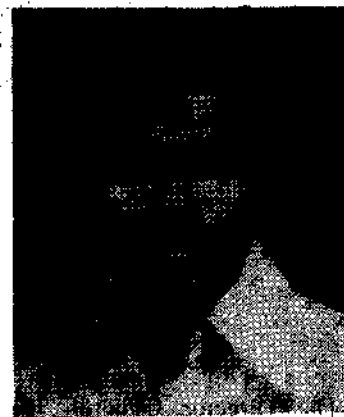
Dr. P. V. Ramachandran Nair, Jr. Fishery Scientist, has participated in the 5th Meeting of the Panel for Marine Disposal of Effluents held at the Indian Standards Institution, New Delhi, on 25th November.

TRAINING OFFERED

Shri Ahmed Latheef of the Government of Maldives, the Colombo Plan Trainee who was undergoing an eight-month training course in Fishery Statistics in the Institute since May 1975, has completed his training in December. The training included statistics as applied to Fisheries Management, collection of survey data at landing centres and other allied aspects. He also got familiarised with the various projects of the Institute. In consultation with the Institute's experts, he has devised a sampling design suitable for his country for the estimation of marine fish production. Shri Latheef visited the various Substations and Centres of the Institute.

Shri Latheef left India on 31st December. While departing, he expressed his thanks to the Institute, particularly to the Survey & Statistics Division

for their very kind cooperation. He said the training would be of immense use in



his future programmes of fishery development which he would be formulating in his country soon.

Facilities were provided for training and to conduct experiments on basic productivity to Shri Krishnakumar Diwakar of Central School, Ernakulam, in October.

VISITORS

Dr. Salim Ali the renowned Ornithologist and President of Bombay Natural History Society visited the Institute on 11th December. He met the scientific staff of the Headquarters in the Museum Hall. The Director introduced the distinguished visitor as a great naturalist who, with his 40 years of dedicated service in the field of Ornithology, is an inspiration to the younger people. This is well evident in the number of pupils Dr. Ali is guiding at present. Dr. Ali, in his reply, has touched upon the various aspects of the present-day knowledge of Indian birds and said that he was glad that there was perceptible improvement in the past twenty years in our knowledge in this field of study which was a neglected subject before. However, he pointed out, that the information we have on sea birds is very little and, therefore, he called upon the fishery scientists, who have opportunity to go out to sea frequently, to keep their eyes open to help enhance this knowledge.

Dr. Ali who was accompanied by three of his research students has earlier gone round the laboratories.

Dr. Salim Ali has been recently awarded the 50,000-dollar J. Paul Getty Wild Life Conservation Prize of the World Wildlife Fund, to give recognition to the world's outstanding wildlife conservationist.

Dr. Hajime Yamanaka, Chief of the Section of

Environment, Division of Oceanography, Far Seas Fisheries Research Laboratory, Shimizu, Japan, who is also the Chief Scientist on board the Fishery Research Vessel, Shoyo-Maru, visited the Institute on 28th October.

The following Press representatives from New Delhi, accompanied by Shri K. E. Sankaran and Shri S. K. Sharma of the Indian Council of Agricultural Research, have visited the Institute in November. The Press Representatives were taken round the various Laboratories and were acquainted with the different research activities of the Institute. They were also taken to the Field Laboratory at the Prawn Culture Farm at Narakkal, and the mussel and pearl oyster farm at Vizhinjam.

1. Shri B. D. Mathur, Statesman.
2. Shri Tapan Das Gupta, Hindustan Times.
3. Shri T. V. Satyanarayan, U. N. I.
4. Shri P. M. Venkatachalam, P. T. I.
5. Shri B. K. Dhosia, All India Radio.
6. Shri Surinder Sud, Financial Express.
7. Shri M. M. Sharma, Hindustan Samachar.
8. Shri N. K. Doval, Times of India.
9. Shri N. C. Anantharaman, Hindustan Standard.

Other Distinguished Visitors were—

1. Dr. T. Scharfe and Dr. Gordon C. Eddie, FAO/UNDP delegates who visited the Institute in December. They also visited our Substations at Tuticorin, Madras and Waltair and our Regional Centre at Mandapam.
2. Shri Moosa Raza, Commissioner of Fisheries, Gujarat, visited the Institute on 4th November.
3. Shri S. M. Krishnatry, Chief Commissioner, Andaman & Nicobar Islands visited the Institute on 11th December.
4. An ICAR Visiting Team including Dr. N. Gopalakrishna, Vice Chancellor, Punjabrao Krishi Vidya-peeth, Akola, visited the Regional Centre, Mandapam, on 24th October.

Issued

CMFR Institute

BULLETIN

No. 26

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STAFF NEWS

Annual Sportsmeet of the Central Services Regional Board.

The 13th Annual Sportsmeet for 1975-1976 of the Central Services Regional Sports Board, Cochin, was held in the Durbar Hall Ground on 29th and 30th of November. A team under the leadership of Shri A. Regunathan has participated in the various events. The Institute Relay Team represented by Shri M. Vijayakumaran, Shri B. Bavanandan, Shri A. P. Balakrishnan and Shri Jacob Thomas won the second place. Miss Pennamma of our Institute won the third place in the Javelin (Women).

Appointments

Shri J.K. Hegde as Laboratory-cum-Field Assistant at Karwar w.e.f. 15-10-75.

Shri K. M. Surendran as Senior Stenographer at Cochin w.e.f. 15-11-75 on ad hoc basis.

Shri Mohammad Zafar Khan as Research Assistant at Veraval w.e.f. 24-11-75, on reversion from University of Gorakhpur.

Shri A. P. Balakrishnan as Junior Clerk at Cochin w.e.f. 9-12-75.

Transfers

Shri V. Suresh, Junior Scientific Assistant from Port Blair to Madras, and later from Madras to Kozhikode.

Shri O. Muthukaruppan, Motor Driver, from Waltair to Cochin.

Shri O. M. M. J. Hameed Mohamed, Laboratory-cum-Field Assistant from Bombay to Malvan.

Shri T. Prabhakaran Nair, Research Assistant, from Calicut to Vizhinjam.

Shri T. M. Yohannan, Research Assistant, from Mangalore to Calicut.

Shri V. A. Narayanankutty, Laboratory-cum-Field Assistant, from Cape Comorin to Cochin.

Shri Mohamed Sultan, Junior Scientific Assistant, from Colachel to Madras.

Shri I. P. Ebenezer, Junior Scientific Assistant, from Pattukottai to Colachel.

Shri A. Ganapathy, Junior Scientific Assistant, from Madras to Pattukottai.

Shri P. Natarajan, Research Assistant, from Porto Novo to Mandapam Camp.

Relief

Shri J. K. Hegde, Laboratory-cum-Field Assistant at Karwar, on resignation w.e.f. 15-10-75 FN.

Shri K. Kannan, Laboratory-cum-Field Assistant at Mandapam Camp, on resignation w.e.f. 13-11-75.

Shri K. H. Mohamed, Fishery Scientist at Cochin, to take up the assignment as FAO Fishery Biologist at Bahrain on 28-11-75.

Weddings

The marriage of Shri C. Yohannan, Junior Clerk, with Miss P. V. Mary, Junior Clerk, took place at St. George New Church, Nallila on 29th December.

Shri V. S. Subramanian, Junior Clerk, married Sow. Lalitha at Madurai on 14th November.

Shri A. Kanakkan, Computer, married Sow. Janaki at Tenkasi.

Benevolent Fund

An amount of Rs. 650/- has been granted as interest-free loan from the Benevolent Fund of the Institute to four staff members.

NATIONAL FISH FARM CENTRAL MARINE FISHERIES RESEARCH INSTITUTE,
COCHIN—682018

Estimates of Marine Fish Production in India during 1970 to 1974

(IN TONNES)

Sl. No.	Name of Fish	1970	1971	1972	1973	1974*
1.	Elasmobranchs	44,048	41,348	46,237	44,917	66,054
2.	Eels	6,983	4,056	4,509	3,869	4,011
3.	Cat fishes	50,631	48,858	42,443	52,642	76,196
4.	<i>Chirocentrus</i>	9,158	9,366	9,532	11,090	9,026
5. (a)	Oil Sardines	226,997	209,261	127,568	144,395	126,676
(b)	Other sardines	55,220	61,283	44,629	108,523	83,921
(c)	<i>Hilsa hilsa</i>	1,050	1,769	1,409	404	4,248
(d)	Other <i>Hilsa</i>	9,492	10,361	12,229	11,918	87,541
(e)	<i>Anchorella</i>	24,400	19,516	18,699	25,394	41,507
(f)	<i>Thripos</i>	14,087	10,801	11,130	13,194	11,433
(g)	Other clupeids	26,439	24,100	28,490	35,350	43,226
6. (a)	<i>Harpodon nehereus</i>	78,443	71,508	51,570	64,345	61,138
(b)	<i>Saurida & Saurus</i>	2,813	3,687	4,748	4,049	12,520
7.	<i>Hemiramphus & Belone</i>	1,814	1,018	687	1,110	4,574
8.	Flying fish	2,844	9,179	1,415	6,388	1,012
9.	Perches	13,913	12,993	15,237	21,513	36,837
10.	Red mullets	2,118	3,881	6,004	3,925	7,009
11.	Polynemids	7,168	7,252	7,100	9,248	10,637
12.	Sciaenids	41,903	36,903	40,159	87,682	79,261
13.	Ribbon fish	26,984	44,690	36,225	53,106	63,029
14. (a)	<i>Caranx</i>	18,412	20,592	27,009	25,298	19,316
(b)	<i>Chorinemus</i>	2,120	2,109	2,952	2,827	3,797
(c)	<i>Trachynatus</i>	143	17	2	189	122
(d)	Other carangids	966	304	308	129	91
(e)	<i>Coryphaena</i>	254	59	222	228	286
(f)	<i>Elacate</i>	518	347	403	529	229
15. (a)	<i>Leiognathus</i>	49,275	32,510	32,314	48,127	50,902
(b)	<i>Gnathypops</i>	154	156	78	41	338
16.	<i>Lactarius</i>	4,697	5,313	7,579	13,912	8,913
17.	Pomfrets	17,589	21,000	19,007	22,052	22,421
18.	Mackerel	139,206	204,575	108,971	79,423	37,462
19.	Seer fish	13,410	18,339	21,210	19,700	19,841
20.	Tunnies	3,015	6,032	5,760	5,678	10,839
21.	<i>Sphyræna</i>	1,530	1,271	2,367	3,415	4,862
22.	<i>Mugil</i>	2,428	3,737	1,559	3,138	4,497
23.	<i>Bregmateros</i>	2,196	4,345	5,488	4,213	1,872
24.	Soles	13,364	11,380	9,718	14,642	18,917
25. (a)	Penaeid prawns	89,857	72,109	78,361	136,514	114,934
(b)	Non-penaeid prawns	31,834	76,734	85,488	66,955	55,244
(c)	Other crustaceans	10,832	9,612	11,599	12,508	16,663
26.	Cephalopods	1,184	1,505	1,026	1,394	3,677
27.	Miscellaneous	36,118	37,513	48,598	56,266	72,718
	TOTAL	1085,607	1161,389	980,049	1220,240	1217,797

* Figures from Maharashtra are provisional.

NEW ADDITIONS TO OUR LIBRARIES

Headquarters Library

Books:

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| Fertilization in Fishes and the Problem of Polyspermy. | .. A. S. Ginzburg |
| Life Activity of Pelagic communities in the Ocean Tropics. | .. M. E. Vinogradov |
| Pollution and Physiology of Marine Organisms. | .. John F. Vernberg |
| Proceedings of the Symposium on Diving and Physiological Problems at Sea. | .. H. L. Bhatia, etc. |
| Proceedings of the First Naval Medical Symposium. | .. Pinto & Abraham |
| Proceedings of the Third International Congress on Photosynthesis Vols. 1-3. | .. Mardhay Aviron |
| Temperature-Salinity Analysis of World Ocean Waters. | .. O. I. Mamayev |
| Indicators of Environmental Quality. | .. William Thomas |
| Advances in Microbiology, Vol. 1. | .. M. R. Droop |
| Suspended Solids in Water. | .. Ronald J. Gibbs |
| Bioactive Compounds from the Sea. | .. Harold J. Humm |
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| Biological Clocks in Marine Organisms. | .. John D. Palmer |
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| An Introduction to Quantitative Ecology. | .. Robert W. Poole |
| Cell and Molecular Biology; an Appreciation. | .. Eugene Rosenberg |
| Behaviour of Marine Animals, Vols. 1 & 2 | .. Howard E. Winn & Bori L. Olla |
| Proceedings of the I.E.R.E. Conference on Electronic Engineering in Oceanography. | .. I.E.R.E. Publication |
| Conference of Electronic Engineering in Ocean Technology. | .. I.E.R.E. Publication |
| Proceedings of the 1st, 2nd & 4th Annual Workshops - World Mariculture Society. | .. Avault W. James Jr. |
| Proceedings of the Symposium on Meteorological Results of the International Indian Ocean Expedition. | .. India Meteorological Department |
| Reproduction of Marine Invertebrates, Vols. 2 & 3. | .. Arthue C. Giese & John S. Pearse |
| Statistical Methods in Biology. | .. N.T.J. Bailey |
| Sets and Groups. | .. J. A. Greer |
| The Ecology of Insect Populations in Theory and Practice. | .. P. W. Geler |
| Methods of Hydrobiology (Freshwater Biology). | .. Jurgen Schworebel |
| Progress in Oceanography, Vols. 1, 3 & 4. | .. Mary Sears |
| Introduction to Ocean Engineering. | .. Hilbert Schenck Jr. |
| Chemistry of Marine Natural Products. | .. Paul J. Scheuer |
| Hydrodynamics of Oceans and Atmospheres. | .. Karl Eckart |
| Biological Conservation. | .. David W. Ehrenfeld |
| Marine Ecology, Vol. 1, Pt. 3. | .. Otto Kinne |
| Story of Pearls. | .. Shokei Shirai |
| Fragile Ecosystems. | .. Edward G. Farnworth & Frank B. Golley |
| Biology of a Marine Copepod. | .. S. M. Marshall & A. P. Orr |
| Ecology of Fresh Water. | .. Alison Leadly Brown |
| Study of Benthic Communities: A Model and Review. | .. Rober H. Parker |
| Modelling of Marine Systems. | .. Jacques C. J. Nihoul |
| Ecology of Estuaries. | .. Donald McLusky |
| Experimental Animal Physiology. | .. Arnold Dunn & Joseph Arditti |
| Microbial Life. | .. W. R. Sistrom |
| Interpretation of Echograms of Hydroacoustic Fish-Finding Instruments. | .. K. I. Yudanov |
| Man and the Ocean. | .. Brian J. Skunner |
| The Sperm Whale. | .. A. V. Yablokov |
| Annotated Bibliography on Far Eastern Aquatic Fauna, Flora and Fisheries. | .. N. S. Ramanov |
| Evolution of Paleocology of the Marine Biosphere | .. James W. Valentine |
| Estuaries; A Physical Introduction. | .. Keith R. Dyer |

Regional Centre Library

Books:

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| Experimental Marine Biology. | .. Richard N. Mariscal |
| Advances in Marine Biology, Vol. 12. | .. F. S. Russel & M. Younge |
| Modelling of Marine Systems. | .. Jacques C. J. Nihoul |