CMFRI newsletter

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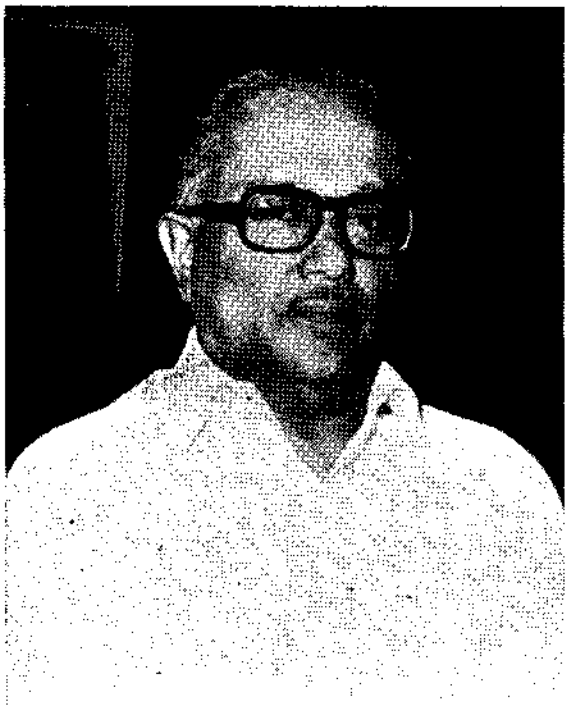
January - June 1985

Dr Silas Completes Tenure

Dr E. G. Silas laid down his office as Director of the Central Marine Fisheries Research Institute on 24 June, 1985 after completing two successful tenures. During this period CMFRI experienced phenomenal growth and gained stature as a pemier institute in marine fisheries research primarily due to his dynamic and farsighted leadership.



Dr Silas took charge as Director of CMFRI in June 1975, setting aside the lucrative and much sought after service in an international organisation offered to him almost simultaneously.

Setting priorities, he reoriented the R & D programmes of the Institute into mission-oriented projects to accomplish the objectives of the Institute and the needs of the nation and the fishing industry. These programmes were formulated at different levels and categories to deal with operational-adaptive research, tactical/strategic research of regional importance and supporting-fundamental/basic research to expand the frontiers of knowledge. These programmes were elaborated in the existing five Divisions and four new Divisions formed for the purpose. Here, he provided the type of leadership that encouraged relevant, incisive and definite research outputs. While enlarging and intensifying the research base of the capture fisheries, he foresaw the great growth potential of coastal aquaculture and initiated technology development - oriented research projects. This paved way for several breakthroughs, within a short period, in marine prawn culture, hatchery production of seed mussel, edibile oyster and pearl oyster culture; pearl culture and seaweed culture. The progress made in this sector led him later to organise and excellently manage the Centre of Advanced Studies in Mariculture, which now serves as the postgraduate education and research wing of the Institute, training candidates at M. Sc. and Ph. D. levels in mariculture.

It is during his tenure that the much needed research vessels, permanent building at Cochin, farm facilities at various centres, major laboratory equipments including a Tran - scan Electron Microscope, to mention only a few, were added to the asset side of the Institute. In fiscal terms, the growth of the Institute has been phenomenal, the operational annual budget now standing at about 30 million rupees as against 2.5 million rupees a decade ago.

Dr Silas continues to serve the cause of the marine fisheries of India and has now been called upon to set up and organise a new Brackish Water Fish Culture Research Institute proposed by Indian Council of Agricultural Research.

Prawn Farmers Welcome Indigenous Technology

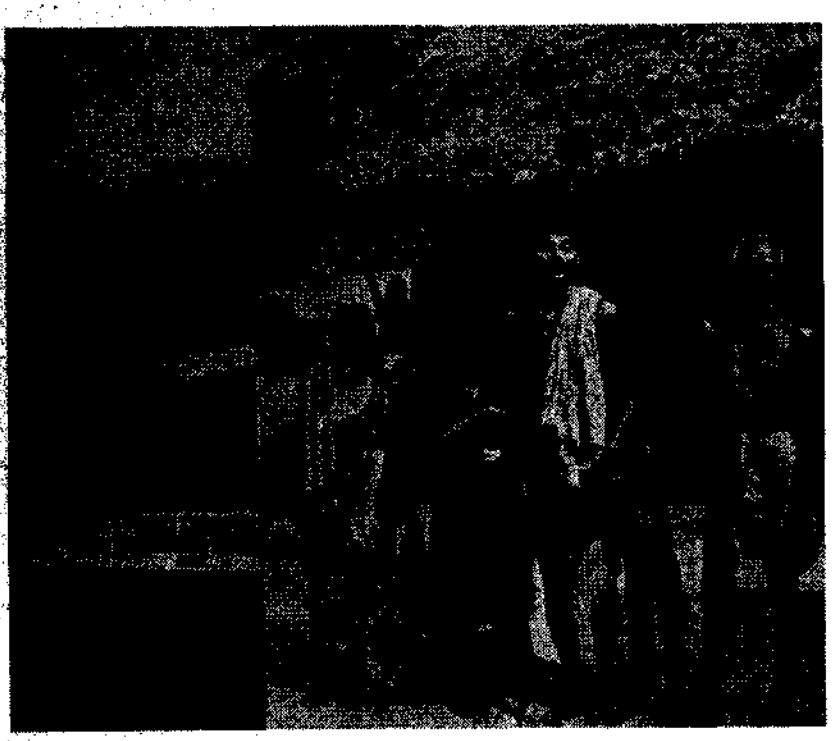
The traditional prawn farmers of Orissa and Gujarat have shown interest in the low cost technology for prawn culture developed by CMFRI. The feed back on the training programme on hatchery production of prawn seed held at Narakkal Prawn Hatchery Laboratary for the officials of maritime states and union territories during 14 April 4 May was suggestive of the favourable response the fish farmers of these states have towards the improved practice. The major constraint in taking up prawn culture has been the scarcity of prawn seed and with the introduction of hatchery technique it is hoped that the farmers will be able to reap the benefits of the technology soon. According to the officials of Orissa who attended the training, the efforts of Brackishwater Fish Farmers' Development Agency (BFDA) in popularising the technologies in the state were quite fruitful and a few clusters of 100-200 easily approachable confined rain - fed tanks where sol-salinity is high, have become operational. Two crops of 90-100 days, one in monsoon and one in winter are taken at present. Technology for prawn culture is gaining attention of the fish farmers and agriculturists and there is a rapid conversion of agricultural fields into prawn culture ponds. There is a mini hatchery at Paradweep developed by state fisheries staff trained at CMFRI where success has been achieved in breeding *P. monodon* and there is a proposal to set up another hatchery at Gopalpur. In Gujarat, technique developed by CMFRI is followed at the Okha hatchery and the officials representing the state felt that using this simple technology prawn culture in salt pans can be developed in a big way. Officials from other states and union territories were also optimistic about the success of the practice in their areas.

Trainees carrying out hatchery operations

Evaluation of the Training Programme

Fourteen officials drawn from Andhra Pradesh, Orissa West Bengal, Gujarat and Union territory of Pondicherry were trained in induced breeding of marine prawns and hatchery production of prawn seed. two officers from Andhra Pradesh were trained under this programme in January.

Prawn Culture in Confined Tanks - CMFRI takes up baseline studies



BFDA beneficiaries

A village selected for ERRP

A team of Scientists from CMFRI has taken up base line studies for improving prawn farming technique in Puri and Ganjam districts of Orissa. This programme was aimed at providing technical help to Brackishwater Fishfarmers Development Agency (BFDA) for investigating environmental parameters in areas identified for prawn culture. In these areas prawn culture will be done in confined tanks using rainwater taking advantage of the high soil salinity. The team also carried out a bench mark study on the socio-economic status of the BFDA beneficiaries who are identified for taking up prawn culture.

The CMFRI team consisted of Shri K. K. P Panikkar, (Economist), Shri M. Vijayakumar (Biologist), Shri R. V. Singh (Technical Officer), Shri L. R. Khambadkar (Technical Assistant) and Shri P. Raghavan (Photographer). Dr. P. Vedavyasa Rao, was the coordinator of the programme.

The Prawn Farming Programme

During the Sixth Five Year Plan the government of India sanctioned a new centrally sponsored scheme in Orissa for brackishwater farming with the concept of area development. The project site is at Mudiratha in the periphery of Chilka lake. During 1982-85 an amount of Rs 14 lakhs was allotted to the State Department of Fisheries for this project. This massive programme aims at rehabilitating 3000 families of rural poor through prawn culture under the project, Economic Rehabilitation of Rural Poor (ERRP). Each selected family is provided with a pond of 0.2 ha area for a period of 10 years. The State Government fully subsidises the construction cost of the pond and meets the input cost, excepting labour, for the first two crops. So far about 32 clusters consisting of 1,000 ponds covering a gross area of 264 ha and water area of 160 ha have been developed. The ERRP beneficiaries have so far raised four crops of *P. monodon* from their ponds with yields of 170-500 kg and net income of up to 12500 per ha. The stocking density was 10,000 - 20,000 seed per ha.

Remote Sensing for Resource Assessment

The technology for Remote Sensing is fast finding its application in resource assessment. In India remote sensing was first applied in1965 with aereal photography for forestry and land-use planning. What is the present status of remote sensing in India and the world? What kind of role institutes like CMFRI can play in the application of remote sensing? Will space-based observations put an end to ground truth collection? These were some of the questions which could find answer in the Seminar on Remote Sensing held at CMFRI during 17-18 April under the joint auspices of the ICAR, Ministry of Agriculture and Department of Space. Fifty scientists drawn from Government institutes and universities attended the seminar.

This feature is based on the inaugural address by Dr K. Gopalan, Vice Chancellor, University of Cochin, key note address by Prof. P. Bavazar, Chairman, Remote Sensing Agency of Space Application Centre and the group discussions with the remote sensing experts specially arranged for the Newsletter, papers presented at the seminar and expert views of Dr. E. G. Silas, Director, CMFRI, the technology user Institute.

Shri K. Gopalan, Vice-Chancellor of Cochin University inaugurating the seminar. Seated are Dr E. G. Silas and Prof. Bavazar.

Present Status

Remote sensing is an effective and quick way of assessing the resources in agriculture, forestry, geology and environmental studies. In countries like India with vast resources, timely information is an important pre-requisite for planning suitable management programmes. Space-borne remote sensing techniques promise such timeliness.

Forestry and land use are the areas in which the technology has found effective application. The study on the impact of Idukki Project has perhaps influenced the giving up of the Silent Valley Project. A forest vegetation mapping done by NRSA in 1972 showed 3.35 per cent reduction in the forest cover in the project area. Assessment of coconut wilt was another experiment of the NRSA which met with great success. Remote sensing has also proved its application in afforestation, town and country planning and ecological environment management.

In fisheries remote sensing technique is used in mapping and monitoring ocean features such as thermal fronts, upwelling and sediment and biomass concentration which have direct bearing on the concentration of fish population.

Remote sensing technique is in experimental stage in India and other countries and the effort is going on to perfect techniques and equip the satellite with sensors which would gather relevant data.

Indian Remote Sensing Satellite Programme

The Indian remote sensing satellite IRS-1 to be launched in-1986 represents the first of a series of operational satellites that would serve the user needs. The space segment of the first space craft in this series, designated as IRS-I A is configured with adequate potential in terms of weight, power and telemetry so that incorporation of payloads with higher spatial resolution and more number of spectral channels are feasible. IRS-I B will fly a camera with higher resolution of 15-20m and in the next variant the capabilities could be augmented to include new spectral bands. The IRS mission envisages planning and implementation of a satellite-based remote sensing system

for earth resources survey and dissemination of the information to the users. The data will be used in conjunction with supplementary and complementary information from other sources of survey like ground truth and sea truth with the user agencies that will enable characterization of an operational system for the country. A set of sixteen applications in the field of agriculture, hydrology, geology and environment have been selected on priority basis jointly with user agencies.

Role of Research Institutes

The development of techniques depends on the users' requirement and one of the main objectives of the Joint Experiment Programmes by NRSA, SAC and agricultural organisations has been to develop methodologies to extract relevant information from the remotely sensed data for resource estimation and modelling. The user organizations like CMFRI and FSI have to play a very important role in defining the type of information required by them in the specific areas related to marine living resources. This would help identify and develop suitable sensors and define parameters such as optimum spectral bands, sensitivity and spatial resolution which can be integrated in the satellite user programme. The main sensor that needs to be developed for the purpose is one similar to coastal zonal colour scannar of NASA which has six spectral bands, invisible, near IR, thermal infrared region, very high sensitivity and courser resolution. The auxilliary information from microwave altimeter, passive microwave sensors and thermal sensors to obtain information on topography of sea, ocean currents, sea state, salinity, sea surface temperature etc. will help in modelling the precise location of fish shoal

Recommendations of the Seminar

In the light of the sensor requirements projected the seminar made the following recommendations.

Development of suitable sensors for measuring parameters such as sea surface temperature.

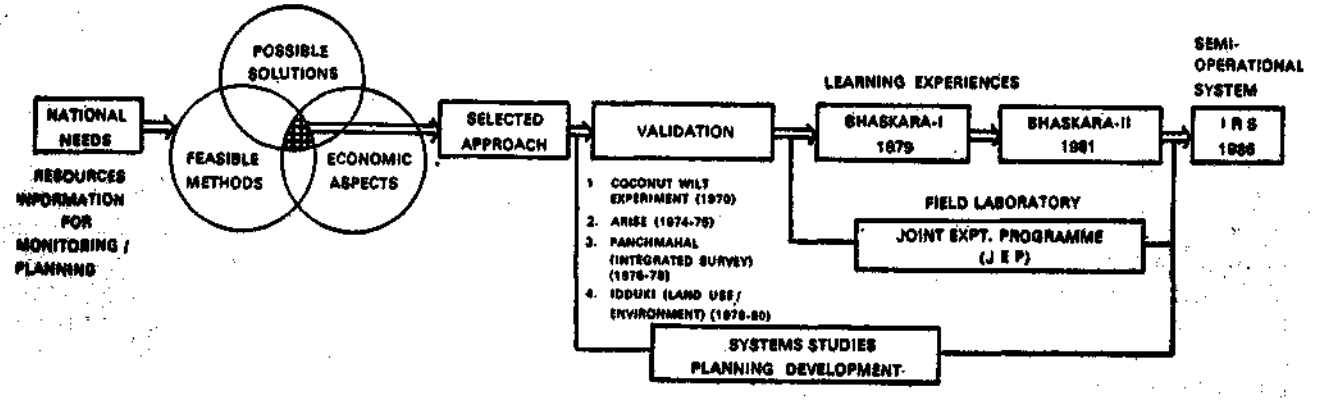
Development of advanced sonar survey and detection systems for locating fish shoals along with other sea truth data to be incorporated in the unattended data collection platform working with INSAT to acquire and process these data for models.

Development of a separate satellite payload for marine living resources.

Conduct of more experimental studies to arrive at technical parameters of spaceborne optical scanner systems and near real time data processing and information extraction schemes relevant to management of fish resources.

Training of personnel from user organisations to participate in the Indian Remote Sensing Utilization Programme.

Standardisation in sea truth data acquisition and coordination among various agencies for proper documentation and dissemination to user agencies through a central data base for effective utilization of remotely sensed data.



Satellite Remote Sensing — Indian Experience (Courtesy - Prof. P. Bavazar)

and estimation of fish resources. Since this is a dynamic phenomenon enough repetivity and statistics are required to arrive at specific conclusions. Hence there is a need to conduct investigations supplemented with the ground truth for some more time to arrive at an understanding of the migratory patterns of fish schools and quantification of fish resources through mapping of chlorophyll concentration. In India, especially in places like Cochin cloud cover has been an important obstacle in obtaining good imageries and at present microsensing techniques are being tested to overcome such difficulties.

Operation Application in Marine Fisheries

The following are the areas in marine fisheries which require an overall assessment from space.

- Sea surface temperature which affects fish shoaling, to help fishery forecast.
- Freshwater influx, river run off and man-made changes in the sea and riverine systems.
- Upwelling, divergence, convergence and thermal fronts for mapping and location of shoals and tracing the aggregation of oceanic resource like tunas.
- Specialised ecosystems like coral reefs and mangroves to estimate the damages by human interference and delineate areas of submerged vegetation and ecological zonation.
- Satellite tracking of endangered species such as dugong, sea turtles and whale shark to study their migratory behaviour.
- Areas of pollution and monitoring its deliterious effect.
- Potential areas for coastal aquaculture by demarkating coastal lagoons, swamps and brackishwater bodies.
- Phenomenon of mudbank by assessing the sediment load.
- Mass blooming of bluegreen algae and their role in the food cycle.

CMFRI has taken early initiative to utilise space technology in marine fisheries research and there are plans to build up the information for application of remote sensing and other techniques in mapping and location of fishery resources. The vessel facilities available with different organisations including FORV Sagar Sampada will be utilised in the programme.

FAO Working Party on Fishery Statistics Meet

The Working Party of Experts on Indian Ocean and Western Pacific Fishery Statistics met at Mauritius during 6-10 May 1985. Shri T. Jacob, Scientist S-3, CMFRI was deputed by ICAR to represent India, in the group. Experts from eight countries belonging to Indo-Pacific region attended the Working Party. The Working Party held discussions on the system of data collection followed in different participating countries, need for standardization of sampling methods and proformae listing of various species landed giving scientific and common names, classification of crafts and gears, demarkation of fishery statistical areas and improvement of national fishery statistical system in general.

Indian Methodology Appreciated

During the discussions India emerged as the leading nation among the developing countries in the field of marine fishery stastistics and expertise developed by CMFRI in this field was appreciated by the FAO and other participating countries. FAO was also keen that CMFRI organise a training programme on the methodologies and procedures in collection and processing of marine fishery statistics for the benefit of other developing countries in the region.

The Indo-Pacific Fishery Council (IPFC), the Indian Ocean Fishery Commission (IOFC) Working Party of Experts in Indian Ocean and Western Pacific Fishery Statistics came into existence following the recommendations of IPFC and IOFC for the establishment of a Joint Working Party to stimulate the development of fishery statistics in the Indo-Pacific region. A series of meetings were held in different countries in the region and this session held at Mauritius was the sixth and the last one in the series.

Focus on Artisanal Fisherfolk

For Kalyani, wife of Velayudhan, a sea-going fisherman, the day breaks at 2 a.m. Velayudhan owns an *anchalum vanchi* (canoe crewed by five) and it is customary for Kalyani to serve breakfast in such early hours for those who contribute labour to her husband's fishing craft. This is besides their share in the catch. It is monsoon and Velayudhan being adventurous ventures into the sea and she spends the rest of her day in prayers and tears. How do these fisherfolk, cope up with this extraordinary profession which is full of risk and uncertainties? It is perhaps their unflinching faith - 'Mother Sea Betrays Not'.

Velayudhan who too has unlimited hope in the seemingly limitless bounties of the sea struggles in the sea for eight hours to get his share and one each for his craft and gear, together making up about Rs 100-150. This has to feed six members in the family, perhaps for a week. No one knows when his next fishing trip will take place. There are not many fishermen who are prepared to take risk as Velayudhan does. Even if Velayudhan is willing to venture in the rough sea the other four who have to accompany him may not dare to do so. On the inverted canoes on the barren sand wait another group of fishermen, the fishing labourers who do not own craft, looking forward to the master fishermen to drive out his canoe into the sea. Monsoon is a period of lull in the artisanal fishery industry and distress for those who depend on it. Paradoxically, this is also the season which presents most valuable of ocean resources like prawn and anchovies. But what little has been saved during such seasons goes to pay back the debts incurred during lean season. Rest of the money is used to fight the hunger and the battle is often half-won.

Sorting of backwater fish is a family affair

Prawn peeling is a job almost entirely done by women

The marine fish production during the last 3 decades has shown considerable increase, the export figures having touched Rs. 389 crores. This has been possible through the modernization of fishing crafts and methods and the consequent exploitation of new fishing grounds. Though mechanization of fishing crafts has brought about beneficial change in the standard of living of the progressive fishermen its development has been keeping a slow pace among the poor fishermen. This situation may be attributed to the indebtedness of the fishermen which pulls them back from picking up the benefits of the development programmes.

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Forty per cent of the marine fish produced in India is landed by artisanal fishermen. There are about 2500 fishing villages in India with a total population of 20 lakhs, of whom 23% are engaged in actual fishing. The small fishermen with his traditional implements puts in an

One of the important programmes of Fishery Economics and Extension Division of CMFRI has been conducting socio-economic investigations on the fisherfolk which include studies on impact of mechanization, cost benefit analysis, market structure and the role of women in small scale fisheries.

effort of 8-12 hours a day in the sea to earn an income of Rs. 10-20 or even less. Of this he spends about Rs. 2 in the seashore tea shop and perhaps a portion in the local toddy shop and for a few *bidis*. Whatever is left has to feed six or seven mouths in the house. The maximum age he can put in his effort in the sea is about 55 years. He enters the profession at the age of 15. Lack of employment opportunities is bringing in more youths, educated too, into the profession.

Net making during leisure time also serves as a good forum for communication

The Role of Fisherwomen

In the course of International Decade for Women the women in Indian coastal villages too gained the attention of the social scientists and number of case studies came out as a result which could pin point the status and problems of women and suggest measures for finding out better ways of living for them. One of the important programmes of Fishery Economics and Extension Division of CMFRI has also been conducting socioeconomic investigations on the fisherfolk which include studies on impact of mechanization, cost benefit analysis, market structure and the role of women in small scale fisheries.

Woman in the fisherman's house does not spare any effort to supplement the family income. She earns money through fish trade, curing and drying of fish and handbraidin of fishing nets. Prawn peeling is almost entirely done by women.

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Thappai — Pulaya women of Cochin are trained fishers. They fish in the canals for prawn and pearl-spot by searching with hands.

fishing nets. Prawn peeling is almost entirely done by women. The employment in peeling sheds and curing yards are generally casual and the income earned from these activities are low (about Rs 10/- day which is seasonal). Women also earn money through clam shell collection which in certain seasons are carried out throughout night. They also do cast-netting, beach-seining and fishing in the canals by searching with hands. Net making is a leisure time activity. Net repairing is done by men during the leisure. The participation in these activities depends on the nature of fishery and the infrastructure available in the village.

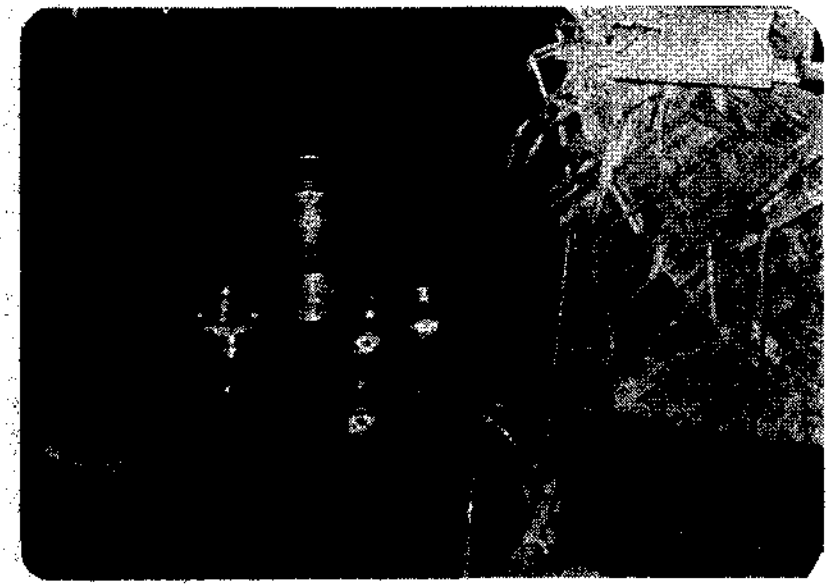
They play two kinds of roles in the post harvest operations, one as the managers of the entire post harvest operations, with substantial role in marketing and the other as labourers in the fishing industry. All these activities are often carried out in disorganised and decentralised manner. The employment is usually casual, and not covered by any act or regulation which provides regular income or job security.

In India the upliftment of rural women has ushered in a new era with more emphasis and investment laid on science and technology for women. The most important requirement for bringing the fisherwomen standing in the periphery of development into the gamut of progress is to organise them and help them recognise their needs.

Living Condition

Men, women and children live in closely-knit units and women consider caring for the family as the most important responsibility. Man is the head of the family and home management is woman's job. She does not expect the man to help her in the daily chore as she feels that he will not be fit to work after a strenuous day in the sea. She views even his drinking habit with consideration as she feels it will help him relieve fatigue, but at the same time she does not want to end the day in a brawl. When it comes to serving food the major and better share goes to the man and the children in the house. A square meal a day is a dream for many artisanal fishermen. A study conducted in Vypeenkara indicated that the diet consists mainly of fish and rice which meets about, 75% of the calorie and 50% of the protein needs. Educational status of the community is low and drop outs are found both among boys and girls. Difficulty in providing breakfast is one of the reasons for discontinuing education.

Children helping their mothers in clam shell collection in Vypeenkara.



The kitchen in a fisherman's hut.

The standard of living of the traditional fishing community is generally low. The villages are remote with little transport, communication and sanitation facilities, and are exposed to the fury of nature. These villages fall victim to gastro-enteritis due to unhygienic conditions and faulty food habits, especially during monsoon. Worm infestation and allergic bronchitis are the common diseases found among

children. Unemployed youth, has been a matter of concern in the fishermen community.

Why do fishermen not save money?

The fishing villages are caught in a vicious circle of borrowing and paying back money. Men and women borrow amounts from rich fishermen and local money lenders. The borrowed sum is spent on buying food, fuel, treatment of diseases, marriage and purchase or repair of crafts and gears. When they get good catch the money goes back to the money lenders often with interest. It also becomes obligatory for them to sell the catch to the agent who lends the money. Such agents are considered beneficial as they extend timely help. The business is quite often transacted purely on mutual trust but with high rate of interest. The lean season is usually a period of scarcity and when good income is earned the tendency, naturally, is to eat and enjoy and help the fellow folk. It is interesting that in certain places the fisherfolk can even pledge his neighbour's gold during emergency. Pledging of assets which often includes ration card is a source of drain of income.

Of late, the artisanal fishermen seem to realize that mechanization is not totally harmful to them. This may be due to the growing trend of motorization and the resultant growth in the mobility and productivity of the country crafts.

There also used to be a feeling among the artisanal fishermen that their existence has been merely a fight with the increasing tempo of mechanization. But of late, they seem to realize that mechanization is not totally harmful to them. This may be due to the growing trend of motorization and the resultant growth in the mobility and productivity of the country crafts. The spite is mostly against the mechanized crafts violating the rules and regulations and a single boat operating in near-shore areas taking away what a few artisanal fishermen could have caught, depriving them of their subsistence.

Aspirations and needs

The fisherfolk has his dreams and aspirations too. He wants to posses improved fishing implements, build his own house and educate his children. There are also programmes from the government to help him achieve the goal. But poverty and ignorance have been working against his motivation to reach the benefits of the programmes. The most important step in helping the fisherfolk is to educate him and make him aware of the programmes available for him. One of the major constraints in the development of artisanal fishing industry has been the lack of a broad net work of extension service with trained man power capable of reaching the fishermen at large and motivating them. Now with greater emphasis given to the education of the rural masses and application of science and technology for rural development the fisherfolk can be buoyed up with the hope of brighter days.

One of the major constraints in the development of artisanal fishing industry has been the lack of broad net work of extension service with trained man power capable of reaching the fishermen at large and motivating them.

Special Survey on the *Hilsa ilisha* along West Bengal Coast

The upper Bay of Bengal region comprising India, Bangladesh and Burma is well known for its commercial fishery of *hilsa shad*. *Hilsa ilisha* which is popularly known as 'ilish' in West Bengal occupies a proud and prominent place in the local economy. Although a great deal of work has been done on the estuarine phase of life of this fish in India, comparatively very little is known of the marine phase of the species. The decrease in *Hilsa* catch punctuated by fluctuation in the catch trends during recent years causes anxiety to all concerned. Therefore CMFRI has undertaken a preliminary project, during 1984-85, to investigate the marine stocks of *Hilsa* and the dynamics of its exploitable population in order to understand the interaction and inter-dependence of the marine and estuarine stocks and to help in the formulation of management and conservation policies for rational exploitation.

The winter survey was carried out during October-December, 1984. Three teams of scientific and technical personnel were deployed to cover several major landing centres namely Digha, Junput, Fraser Gunj, Kalistan, Namkhana, Kakdweep and Diamond Harbour. Each landing centre was covered at least twice in a cluster of 15 days. Gearwise data on catch, fishing effort, species composition and size composition of the catches along with length and weight

were collected. Fish samples were also collected for further examination for sex, maturity, food and feeding habits. Scales and otoliths were also collected for growth studies.

VISITORS

Cochin

Union Minister Visits KVK

Union Minister of State for Rural Development Shri Chandulal Chandrakar accompanied by Shri P. K. Velayudhan, Minister of Community Development, Kerala State visited CMFRI on 24 May 1985. The Ministers visited the Lab-to-Land Programme of CMFRI at Valappu where the phase I and II of the programme have been successfully completed. The Ministers also visited the Krishi Vigyan Kendra and noted the vocational training given to the farm women of the area. While addressing the staff and trainees of KVK the Ministers stressed the importance of 'learning by doing' in the context of rural development. Hon'ble Ministers viewed the film 'Mariculture' depicting the mariculture activities of CMFRI.

The Union Minister also visited the Mandapam Regional Centre on 12 June where he was received by Dr E. G. Silas, Director. The Minister showed keen interest in culture of fish in pens and cages and seaweed culture and said that he was quite impressed with what he saw. The Minister also expressed his happiness over the efforts of the Institute in reaching the fish farmers.

The following dignitaries also visited CMFRI during the period.

Dr Albert C. J. Tacon, Fish Feed Technologist, Aquaculture Development Coordination Programme, FAO visited and gave a lecture on Nutritional aspects of finfish and shellfish.

From left: Prof. K. V. Thomas, MP, Hon'ble Minister Chandulal Chandrarkar, State Minister for Rural Development Sri P. K. Velayudhan & Dr M. J. George, Jt. Director, CMFRI

Ms Dina Vakil, Regional information Officer for Asia and Pacific, UNDP, New York.

The FAO Evaluation Mission.

Dr E. Bo jadziski, FAO representative in India and Shri Radhakrishnan, Programme Assistant, UNDP, New Delhi.

Mr. M. J. Priestly, UNDP representative in India.

Miss Marie - Helene Durand, Agro-Economist, Orstom, Paris.

Cmde K. M. V. Nair, Tata Oil Mills Co. Ltd., Madras.

Shri S. Seshadri, Branch Manager, State Trading Corporation of India Ltd, Tuticorin.

Shri Joy Ipe Kurian, Marine Products Export Development Authority, Tuticorin.

Shri M. R. Krishna, Chairman, National Shipping Board. Govt. of India, Madras.

Col Iqbal Singh, Group Cdr, NCC, Madurai.

Captain Mathew, Naval Base, Cochin.

Shri K. N. Narayanaswami, Processing Manager, Madura Coats, Ambasamudram and the 100 staff members of the Unit.

Dr A. Sasidharan, M. G. College, Trivandrum.

Dr R. Jindal, Department of Zoology, Punjab University, Chandigarh.

Mr. E. G. Sagoy, FAO Research Fellow, Federal Department of Fisheries, Lagos, Nigeria.

Shri R. G. Nair, Scientist, Central Institute of Fishery Technology, Cochin.

Capt. K. A. Ponnappa, Barber Ship Management, Hong Kong.

Shri C. R. Arasaraturam, Technical Manager, Indian Oil Corporation Ltd., Tuticorin.

Shri S. K. Venkataraman, Assistant Director of Fisheries, Staff Training Institute, Madras.

Shri R. Varadachari, Regional Manager, Press Trust of India, Madras.

Mandapam:

Shri R. K. Trivedi, Chief Election Commissioner, Govt. of India.

Shri M. Krishnan, Cunsultant, Tamil Nadu National Wildlife Action Plan.

Veraval

Shri M. R. Nair, Director, Central Institute of Fishery Technology.

Students on study tour from the following colleges visited CMFRI.

Fergusson College, Pune.

College of Fisheries, Mangalore

St. Albert's College, Cochin

U. C College, Alwaye

Sri Sarada College, Salem

Shri R. N. Nair, Station Director, All India Radio, Madras.

Dr R. Sreedharan, Science Officer, All India Radio, Madras.

Smt K. Pushkala, Emerald Heights College, Ooty.

Shri M. P. Vinabhah and R. Pandian, Department of Zoology, K. G. S. Arts College, Srivaikuntam.

Shri N. Arirthalengan, Deputy Director (Information) Govt. of Tamil Nadu.

Dr D. M. Thampy, Professor and Head of Department of Aquaculture, College of Fisheries, Cochin.

Engagements

Dr. E. G. Silas, Director attended the following meetings.

International Conference on Fisheries Development 2000 AD sponsored by the Ministry of Agriculture. Govt. of India, MPEDA and the Association of Indian Fishery Industries (AIFI) at New Delhi, 4-6 February.

33rd Meeting of the MPEDA at Bangalore, 7 February.

Meeting of the Research Advisory Panel of the Bombay Natural History Society and the Seminar on the Society's research projects at Indian Institute of Science, Bangalore, 11-12 March.

Meeting of the National Committee for SCOR at the Indian National Science Academy at New Delhi, 18 March.

12th Meeting of the Project Working Committee of the ICAR/ UNDP aided projects at New Delhi, 26 April.

Dr K. Radhakrishna, Scientist S-3 participated in the Sixth Course on Designing Projects for Agricultural Development at Indian Institute of Management, Ahmedabad, 18 November - 19 January.

Shri Y. Appanna Sastry, Scientist S-1 underwent Eighteenth Agricultural Research Management Orientation Training at NAARM, Hyderabad, 19 January to 19 April.

Smt. Krishna Srinath Scientist S-1 participated in the Expert Group Meeting on Programmes for Women in Coastal Areas convened by the Department of Science and Technology at New Delhi, 18 January.

The Scientists of the Tuticorin Research Centre of CMFRI participated in the Science Festival organised by All India Radio, Madras at Tuticorin during 27-28 January. The Scientists also attended the Seminar and Science Sammelan arranged at SPIC Ltd., Tuticorin in this connection. The delegates of the science festival visited the research centre to see various activities relating to hatchery programme.

Shri V. D. Deshmukh, Scientist S-1 attended IV meeting of Consultative Group of Porbandar Base of Fishery Survey of India, Porbandar held at Veraval, 21 March.

Deputation abroad

Shri K. K. Prabhakara Panikkar, Scientist S-1 underwent training in Aquaculture Economics at University of Pertain, Malaysia, Kolalampur for five months from January.

Shri E. V. Radhakrishnan, S-2 is deputed for six months training in Lobster Culture at Tulane University, U. S. A.

Shri M. Kathirvel, Scientist-S1 has been deputed to undergo training in the field of Integrated fisheries farming for four months in the Regional Leed Centre for Integrated Fish Farming, Wuxi, People's Republic of China from 9 April.

Dr A. Laxminarayana, Scientist-S2 has been deputed to undergo Fellowship training on Reproductive physiology of marine prawns at Bodega Marine Laboratory Bodega, California, USA for a period of 4 months from 3 June.

Shri V. S. Rengaswamy, Scientist - S1 has been deputed to undergo fellowship training, in the field of Milkfish culture in the South East Asian Fisheries Development Centre, Ilfolio city, Philippines for a period of 3 months from 14 June.

CMFRI participated in the fisheries exhibition organised by Kerala State Fisheries Development Federation (Matsyafed) at its inaugural session at Trivandrum during 17 - 19 May and won a special prize. The scientists also participated in the seminar organised by Matsyafed in this connection.

Dr E. G. Silas, Director to serve as:

Member of the Standing Committee on Ocean Resources of Department of Space, Bangalore.

Member in the Committee constituted by the Director General, ICAR for conducting research review of the Union Territory of Andaman and Nicobar under its National Agricultural Research Project.

Appointments:

Dr A. V. S. Murthy, Scientist S-3 as Director in officiating capacity, 25 June.

The following have joined the Institute in the Grade of Scientist-S1 at Cochin.

Shri P. Kaladharan, 25 January.

Shri Asivini Kumar Roy, 25 January.

Miss. Jancy Jacob, 11 February.

Shri Mohan K. Zachariah, 29 March.

Shri N. Sridhar, 22 April.

Shri S. V. Alavandi, 29 April.

Shri Prabhakar, 8 May.

Shri T. Gopinathan as Assistant Accounts Officer, 1 July on deputation basis.

Miss. V. Jayalakshmi as Junior Clerk at Cochin, 27 May

Shri K. J. Mathew as Junior Clerk at Cochin, 1 July

Shri M. Chelladurai as S. S. Grade I (Binder) at Mandapam Camp, 28 June.

Shri M. P. Chandrasekhar as S S Grade I (Watchman), 22 April.

Shri N. K. Shanmughan as S. S. Grade I (Safaiwala) at KVK, 30 May.

Shri A. Srinivasan, as S. S. Grade I (Watchman) at Madras, 21 January.

Shri M. Shahuel Hameed as S. S. Grade I (Messenger) at Mandapam Camp, 22 February.

Shri V. A. Kuttappan, as S. S. Grade I (Messenger) at Cochin, 21 March.

Shri T. I. Soman as S. S. Grade I (Messenger) at Cochin, 21 March.

Shri M. D. Suresh as S. S. Grade I (Fieldman) at Calicut, 28 March.

Shri Chandraskhar Nagappa Jokkar as S. S. Grade I (Messenger) at Karwar, 1 April.

Shri T. P. Renil Kumar as S. S. Grade I (Fieldman) at Cochin, 16 April.

Promotions

Shri R. Sonaimuthu, S. S. Grade II (Safaiwala) as Deckhand on ad-hoc basis at Tuticorin, 17 January.

Shri A. Y. Jacob, S. S. Grade I (Fieldman) as Deckhand on ad-hoc basis at Cochin, 16 January.

Shri B. K. Velukutty, S. S. Grade I (Watchman) as Motor Driver on ad hoc basis at Bombay, 19 January.

Shri A. Rajan, S. S. Grade I (Watchman) as Motor Driver on ad-hoc basis at Calicut, 21 January.

Shri G. K. Raian, S. S. Grade I (Pump Driver) as Deckhand on ad-hoc basis at Vizhinjam, 30 January.

Shri V. Sethuraman, S. S. Grade I (Fieldman) as Deckhand on ad-hoc basis at Madras, 30 January.

Shri R. Madhusudhanan Nair, S. S. Grade I (Watchman) as S. S. Grade II (Watchman) at Vizhinjam, 14 January.

Shri G. Rajappan, S. S. Grade I (Watchman) as S. S. Grade II (Watchman) at Narakkal, 14 January.

Transfers

Dr M. D. K. Kuthalingam, Scientist S-3 from Cochin to Madras.

Shri M. P. Chandrasekharan, Assistant Accounts Officer from CMFRI to CTCRI, Trivandrum.

Shri J. C. Gnanamuttu, Scientist S-2 from Cochin to Madras.

Shri D. Sadananda Rao, Scientist S-2 from Madras to Cochin.

Dr M. Vasudev Pai, Scientist S-3 from Cochin to Mangalore.

Shri A. Noble, Scientist S-3 from Mangalore to Cochin.

Dr S. Ramamoorthy, Scientist S-3 from Bombay to Madras.

Shri G. S. Daniel Servaraj, Scientist S-1 from Kakinada to Cochin.

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

Shri K. Y. Telang, Scientist S-1 from Mangalore to Karwar.

Shri G. Nandakumar, Scientist S-2 from Karwar to Cochin.

Shri Mohamed Zafarkhan, Scientist S-1 Veraval to Bombay.

Shri S. S. Suguwekar, Field Assistant (T-1) from Ratnagiri to Veraval.

Shri K. K. Balasubramanian, Senior Technical Assistant (T-4) from Cochin to Calicut.

Shri Joseph Xavier Rodrigo, Technical Assistant (T-I-3) from Mandapam Camp to Tuticorin.

Shri J. Uthamanambi, Senior Clerk from Mandapam Camp to Tuticorin.

Dr C. Thankappan Pillai, Technical Assistant (T - I - 3) from Vizhinjam to Cochin

Shri K. Shahul Hameed, Field Assistant (T-1) from Kovalam to Madras.

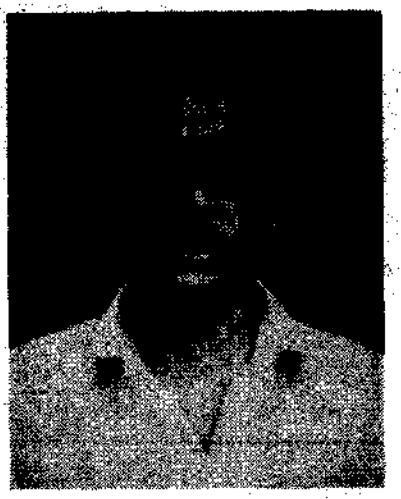
Shri A. Ramakrishnan, Junior Technical Assistant (T-2) from Kovalam to Madras.

Reliefs

Smt. A. Rajeswari Menon, Hindi Translator (T-4) on resignation, 28 January.

Shri John K. Antony, Superintendent after the deputation period 20 May.

Retirements



Shri S. M. Hussain

Shri S. M. Hussain, S. S. Grade III (Laboratory Attendant) on superannuation, 28 February.

Shri Syed Basheeruddin, Field Officer (T-7) on superannuation, 30, June.

Kumari Puthran Prathibha and Kumari V. Kripa at the CAS in Mariculture passed M Sc with distinction. All other Fellows in the Third Batch passed out with First Class.

STATEMENT ABOUT OWNERSHIP AND OTHER PARTICULARS ABOUT 'CMFRI NEWSLETTER'

FORM IV

(See Rule 8)

1.	Place of Publication	:	Cochin
2.	Periodicity of its publication	:	Quarterly
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I, Krishna Srinath hereby declare that that the particulars given above are true to the best of my knowledge and belief.

Dated 30-9-'85..... Sd/-

Weddings

Shri J. Narayana Swami, Field Assistant T-2 married Kumari Rajalakshmi at Trivandrum, 30 June.

Shri Thomas Kuruvila, S. S. Grade I married Kumari Aleyamma Thomas at Peerumedu, 28 March.

Shri J. Padmanathan, Luscar at Mandapam married Kumari Malliha, 22 May.

Shri T. Chandran, T-2 at Mangalore married Kumari P. K. Ramani, 31 March.

Shri K. Thangavel, Fieldman married Kumari Shantha, 31 May.

Training Programmes Organized by Krishi Vigjan Kendra During April 1984 March 1985

Area	Duration in days	Type of training	No. of courses	No. of trainees			No. of trainee days occupied
				FM*	FW*	Total	
Scientific Farming of Prawn and Fin Fishes	5	90% off and 10% on Campus	19	94	238	332	1660
Post Harvest Technology of Prawn and Fishes	3	On Campus	1	—	30	30	90
Prawn/Fish Seed Collection	1	Off Campus	1	—	30	30	30
Financing for Prawn and Fish Farming	1	On Campus	1	22	—	22	22
Live Stock Sterility in Cattle and Some Remedial Measures	1	On Campus	1	33	—	33	33
Calf Care	1	On Campus	1	—	35	35	35
Poultry Farming (Broilers)	2	On Campus	2	56	—	56	53
Poultry Farming (Layers)	1	On Campus	1	—	35	35	65
Vegetable Cultivation	1	Off Campus	2	—	78	78	78
Social Forestry	1	Off Campus	3	28	114	142	142
Food Preservation	1	On Campus	1	—	44	44	44
		Total	33	233	604	837	2225

*FM = Farm Men
FW = Farm Women

The Kendra also conducted study tours for the trainees. A followup survey of 150 trained farmers were conducted to identify specific training needs. A preliminary survey was conducted to identify beneficiaries for Phase III of the Lab-to-Land Programme.

Sports

Shri V. Atchutha Rao who won the gold medal in 400 m running race in the fourth ICAR Zonal Sports at Nagpur in February. Shri Rao got the Athletic Championship three times in the South Zone Sports Meet, at Coimbatore in 1980, Bangalore in 1983 and Trivandrum in 1984 and Inter-zonal Athletic Championship for two times, at Hyderabad in 1980 and Coimbatore in 1984. He also got the Best Athlete Award at Bangalore in 1983.

SOME RECENT CMFRI SPECIAL PUBLICATIONS

Pearl culture training: Long-term and short-term courses. 1977, 39 pp

Mariculture research and developmental activities. 1978, 48 pp.

Summer Institute in breeding and rearing of marine prawns. 1978, 128pp.

Economics of the indigenous fishing units at Cochin: A case study. 1978, 24 pp.

Seminar on the role of small scale fisheries and coastal aquaculture in integrated rural development. 1978, 44 pp.

Coastal Aquaculture: Proceedings of the first workshop on technology transfer. 1979, 96 pp.

Manual of research methods for crustacean biochemistry and physiology. 1981, 172 pp.

Manual of research methods for fish and shellfish nutrition. 1982, 125 pp.

Manual of research methods for marine invertebrate reproduction. 1982, 214 pp

Analysis of marine fish landings in India: A new approach. 1982, 42 pp.

Approaches to finfish and shellfish pathology investigations. 1983, 43 pp.

A code list of common marine living resources of the Indian Seas. 1983, 150 pp.

Application of genetics in aquaculture. 1983, 90 pp.

Manual of research methods for invertebrate endocrinology. 1983,114pp

Production and use of Artemia in aquaculture. 1984, 74 pp.

Manual on marine toxins in bivalve molluscs and general consideration of shellfish sanitation. 1984, 100 pp.

Handbook on diagnosis and control of bacterial diseases in finfish and shellfish culture, 1984, 50pp.

Proceedings of the workshop on sea turtle conservations, 1984, 136 pp.

Mariculture research under the Centre of Advanced Studies in Mariculture. 1984, 109 pp.

Manual on pearl culture techniques. 1984, 42 pp.

Prawn farming in Kerala, 1984

Water quality management in aquaculture. 1985, 96 pp.

Hatchery production of penaeid prawn seed: Penaeus indicus. 1985, 41 pp.

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