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CMFRI
NEWSLETTER

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MANGROVES FOR LIVELIHOOD AND COASTAL PROTECTION

The ecotones between aquatic and terrestrial environments are unique habitats. The ecosystem includes mainly mangroves, estuaries and other wetlands. Mangroves dominate the coastal areas in tropical countries, they also represent rich and diverse living resources and are essential to both economy and protection of coastal areas. Mangroves have a world wide circum-tropical distribution, the highest concentration being located in the Indo-pacific region. These wetlands dominate almost 1/4 of world's tropical coastline. The total mangroves in the world span thirty countries including various island nations with an area of about 18.15 million ha. In 1960, the total area of the Indian mangroves was estimated as 6,81,976 ha in which nearly 45% was in Sunderbans in West Bengal. A recent survey shows the total area of Indian mangroves as 4,37,400 ha which include the Andaman and Nicobar islands. Despite the benefits that they provide, deforestation and over exploitation have resulted in the formation of open marshy lands and shrinkage of this wetland ecosystem throughout the world.

Recent survey on the biodiversity of selected Indian mangroves revealed depletion and almost extinction of several economically important species especially among finfish and crustaceans. The existing biota comprised 153 species of plants which include 36 true mangroves and rest associates, 77 species of micro-algae dominated by diatoms, 125 species of zooplankton including larvae/spawn/fry of ichthyofauna, 242 species of finfish, 98 species of crustacea, 70 species of shell fish, 10 species of reptiles, 4 species of amphibia, 57 species of birds and 30 species of mammals.

The uses and advantages which mangroves provide are varied. The heterogenous assemblage of flora and fauna are highly tolerant to the vagaries of nature, especially the fluctuations of abiotic parameters in the ecosystem. The macrophytic vegetation is the pivotal component of the mangrove biota. The gregarious growth of true mangroves and other bio-invasive plants substantially provide cool shade, stable and humid conditions that are favourable for arborial, epifaunal and infaunal organisms. Though belonging to various families, the mangrove vegetations possess discernible similarity in their physiological characteristics and structural adaptations. The vegetation comprises of species such as *Sonneratia*, *Avicennia* with widest trunk and spreading crown and *Bruguiera* and *Rhizophora* along with less spreading crown that together covers the top canopy of the forest. The shrubs and small trees such as *Aegiceras*, *Aegilotis*, *Acrostichum* etc. and the saline tolerant terrestrial species like *Calophyllum* sp. *Thespesia*, *Pandanus*, *Casuirina* etc. contribute to the diversification of mangrove forest. These halophytes exhibit wide tolerance to salinity and possess thick cuticle layered leaves, large mucilage cells, salt glands, viviparous germination, pneumatophores, buttress, silt, prop and knee roots as adaptations to survive in the most inhospitable and un-predictive environment. The tangled mass of roots provides safe havens and refuge for spawn, fry, fingerlings and juveniles of many species of finfish, shellfish and crustaceans. Rich productivity is achieved by these plants by a huge amount of litter fall, algal colonization besides derivation of detritus. Thus the mangrove forests perform multiple ecological functions.

Mangroves are the breeding, nursery, feeding and refuge ground for a wide array of ichthyofauna. To sum up, these wetland ecosystems are among the most productive and diverse in the world and more than 80% of the marine catches are directly or indirectly dependent on mangroves and other coastal aquatic ecosystems. Many artisanal fisheries thrive on mangroves and estuaries in several parts of the world.

Mangroves serve as natural barriers against the intrusion of the sea and dissipate wave action, mitigate the impact of storms, cyclones and prevent soil erosion. The network of root system helps in binding the nutrient laden soil from the uplands, which otherwise find their way to the sea. Probably, the mangroves are the best bio-shield for coastal stabilization by preventing sea encroachment and definitely it can reduce the impact of natural calamity such as the devastating tsunami waves, besides accretion of sediments to form mud banks and new lands to meet the challenge of sea level rise due to global warming.

Mangrove forests have survived natural phenomena such as storms, cyclones, tsunamis but not the destructive greed of man. Anthropogenic activities have been increased manifold in the mangroves and coastal zone is home for 65% of the global population. It provides native population with a seemingly endless variety of derived products such as timber, thatching materials, charcoal, medicine, animal fodder, besides bird's egg, honey, edible fruits, tuber crops from forest and fish in addition to other similar edible organisms from the aquatic areas. They not only strengthen the economy of coastal population but also provide the habitats for the diverse marine and terrestrial biota. It has great resilience with the ability to rejuvenate and restore itself after wanton destruction, as long as seeds are available and tidal flow maintained. The population pressure and the lack of awareness over the alarming depletion of the mangroves (Contd...)

From the Director's Desk

Quantification of fishing effort (***g***) is one of the very basic measures in fish population dynamics, perhaps next in importance only to the measurement of length of fish. However, the scientific effort spent for characterisation and quantification of fishing effort in our research has been dismally inadequate. As a result of this inadequacy, many of the conclusions on population dynamics continue to be lopsided and inferences drawn remain incomparable.

We reckon that in a multi-gear situation like that in India where we have such a vast diversity in gear, tackle, variabilities and uncertainties in fishing durations and number of persons engaged in the operations, it is rather difficult to approach this problem with a reasonable level of accuracy. But then, since many of the significant conclusions on fundamental measures like catch per unit effort and estimates of fishing mortality (**F**) are dependant on **g**, there is urgent need to address the issue of standardising our estimates of fishing effort. Fishing mortality **F = *qf*** where ***f*** is the fishing intensity and ***q*** the coefficient of catchability. Fishing intensity is a measure of fishing effort, ***g***, per unit area ***A***. Therefore, if we are to assess the intensity of fishing in a given area, we need to look into quantification of the value of the fishing area **A**. But our concerns are presently with the stock and not the area fished. Therefore, our interests revolve around the value of fishing effort *per se*, which is understandable because of its importance in the estimates of Catch per Unit of Effort (**CPUE**). The focus must be for characterisation and quantification of the value of ***g*.** Fishing effort can be broadly stated as the number of hours spent in fishing. Since fishing vessels are of various sizes, the index must be reduced to a standard size or more correctly to the power of the fishing vessel as proposed by Gulland. Where non-mechanised crafts are used or when fishing is by shore seines, this approach will not be useful. Therefore, we need to generate a *standard fishing effort unit* taking into consideration the diversity of our crafts, gear and tackle so that one such unit could be a basic measure of effort and as the craft, gear and tackle get more and more complex, the quantification becomes easy in terms of multiples of the basic unit value.

Another important unit, which is of concern to us, is the CPUE, which of course, is related to the quantification of the value of effort. Theoretically, CPUE is defined as the weight of fish caught in unit time when the craft and gear are similar in **all respects**. (*emphasis mine*). How can all craft and gear be similar in all respects? Therefore, a measure of CPUE without recourse to the similarity (or rather dissimilarity) of the craft and gear has little value from the point of comparison. Although the present thinking is that CPUE cannot be used as an unbiased index of stock abundance (FAO, 2005), it must be reckoned that the value of CPUE has some relevance in certain stocks and we may still be able to use it with certain degree of relevance and caution.

All these point towards the need for revisiting, understanding, defining, quantifying, analysing and interpreting some of the very basic measures in fish population dynamics in our research. As I mentioned earlier, our research must be relevant, right, responsive and respected (the four **R**s) in order to be useful. Time is ripe for a fresh look at the basic measures which are relevant in our capture fisheries research and at a time when we are planning to reorient our capture fisheries research, these thoughts and insights should prove productive.

Mohan Joseph Modayil

(Mangroves.....Contd. from page 1.)

through gratuitous deterioration have led to the apprehension that, whether these seashore forests, which provide a green belt protection for coastal areas and vital habitat for a multiple biocoenosis, would soon become extinct. The shrinking of mangroves is a cause of serious environmental and economic concern to many third world countries. Nevertheless, there is growing awareness among coastal inhabitants, especially due to severe cyclonic storms, tsunamis and also because of the linkages between the mangrove forest and sustainable fisheries. Therefore, the mangrove ecosystem security has to be linked with the livelihood security of people around the mangroves.

Reclamation of degraded mangroves by afforestation and other rehabilitation/restoration procedures and application of proper management measures for conservation of this productive natural wealth must be taken urgently with the active participation of coastal communities before these wetland ecosystems disappear from the face of the earth.

RESEARCH HIGHLIGHTS

Impact assessment made of tsunami hit Andaman islands

Scientists from the CMFR Institute assessed the impact of the December 26 tsunami on the coral reef ecosystem of Andamans. Wandoor, the entry point to Mahatma Gandhi Marine National Park, North Island and the Havelock Island were the sites visited by the team in January 2005. Water levels across the islands were several feet higher than during normal high tides. Salination, water logging, soil erosion, sedimentation and siltation were found to be major water related problems of the affected areas in the Andaman Island. The intrusion of seawater through creeks has caused severe damage to mangroves and paddy fields in and around Port Blair and other parts of Andamans. Beaches have been eroded and shrunk. However, the Radha Nagar beach in Havelock Island is virtually untouched.

Corals were observed and survey work was carried by snorkeling to assess the damage to corals. At North Bay, the water was very clear and corals of varied shapes and colours belonging to the genera *Porites* spp., *Acropora* spp., *Fungia* spp., *Pocillipora* spp. and *Favia* spp., were visible. The reef was alive with fish of exquisite diversity such as blue

***Porites* sp. (boulder coral)**

***Ctenactis* sp.**

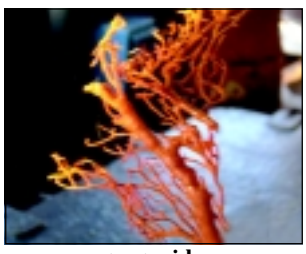
***Fungia* sp.**

(mushroom corals)

and black damsels, butterfly fishes, rabbit fishes etc. Giant clams, *Tridacna maxima* and *Lambis* sp. were observed amidst the corals. It was clear that the corals around the islands have survived the tsunami. However, a slight tilt of the massive corals was observed in some areas.

Tsunami has also spared Havelock and Neil islands renowned for its biodiversity. Divers were able to collect the black lip pearl oyster, *Pinctada margaritifera*, *gorgonids*, soft corals, shells belonging to the genera *Lambis*, *Trochus* and *Nautilus*. The blue

Soft coral



gorgonid

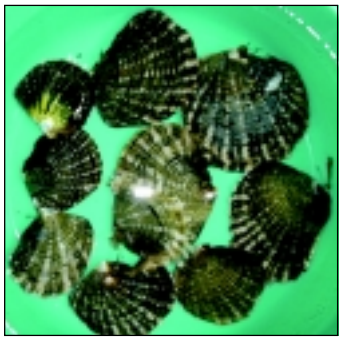
coral, *Heliopora* sp. which is characteristic of Andaman waters was observed at the Neil Island. The investigations revealed that the corals in the Andamans were largely unaffected by the tsunami. However, the damage to corals of the Nicobar Island could not be assessed due to inaccessibility to these islands.

***Heliopora* sp. (blue coral)**

Progress made in Black lip pearl oyster farming at Port Blair

Under the DOD funded project on farming and pearl production of *Pinctada margaritifera* being operated from Port Blair, Andaman and Nicobar Islands, significant progress was made in the collection of brood stock and spawning experiments.

Survey was undertaken at Havelock and at South Bay during February 2005 to locate and collect brood stock of black lip oysters. 50 oysters ranging from 80 to 115 mm were collected and brought to the farm for further experiments. One wooden raft of 4x4 metre was fabricated and moored at the sea at Marine Hill, Port Blair to stock the broodstock and to keep spat collectors. During March, more than 500 numbers of healthy spats ranging between 5-9 mm in DVM and 5-12 mm in Hinge Length were collected from the spat settler of this raft.



Black lip pearl oysters

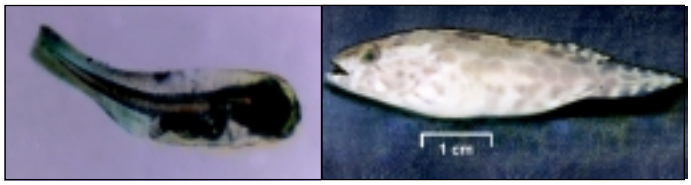
Breeding experiments were initiated and first spawning was obtained on 8th February with 11.2 million eggs. Eggs developed to late Veliger, which survived for 8 days in the hatchery. An algal culture laboratory was established at the project site. A new type of box cage has been designed, fabricated and launched at Port Blair for keeping pearl oysters in submerged condition in the natural environment. The cage has eight legs of one metre length and holds the box always above the bottom in any situation, reducing mortality. The single door of the box will help a skin diver to retrieve the stock easily.

Epinephelus merra reared to juvenile stage

Juveniles and sub adults of honey comb grouper *Epinephelus merra* was collected and successfully maintained in the outdoor RCC tanks at the Mandapam Regional Centre of the Institute.

The work was carried out under the National Agricultural Technology Project on 'Shrimp and fish brood stock development and breeding under captive conditions'.

Two sets out of the three stocked brood fishes responded and spawned naturally during Aug-Oct. 2004. Early embryo with eye vesicle within the eggs shell developed within



3 day old larva **60+ day old juvenile**

11 hr 30 minutes and hatched out between 24-27 hrs. On 48th day, the larvae reached fry stage and subsequently developed colour patterns and were transformed into juveniles by 60 + days. A survival rate of 0.4% was achieved.

Antibacterial activity detected in *Hypnea musciformis*

Methanol extracts of the red seaweed, *H. musciformis* (collected from Mandapam/Rameswaram coast) exhibited broad spectrum antibacterial activity to fish and shrimp pathogenic bacteria in the *in vitro* conditions. The medicated feed prepared from low concentrations of the extract was administered along with feed to experimental group of shrimps, *P. monodon* in the laboratory at Vizhinjam. High rate of bacterial clearance in the *in vivo* condition in shrimps administered with *Hypnea* extract was recorded when challenged with pathogenic *Vibrio alginolyticus* and *V. fischeri* compared to the control groups.

Low cost reef aquarium developed

An indoor all glass tank reef aquarium was developed at the Institute's Vizhinjam Marine Aquarium with re-circulation seawater systems using mechanical, biological and chemical filtration methods. Display tank, stand, sump tanks, pumps,

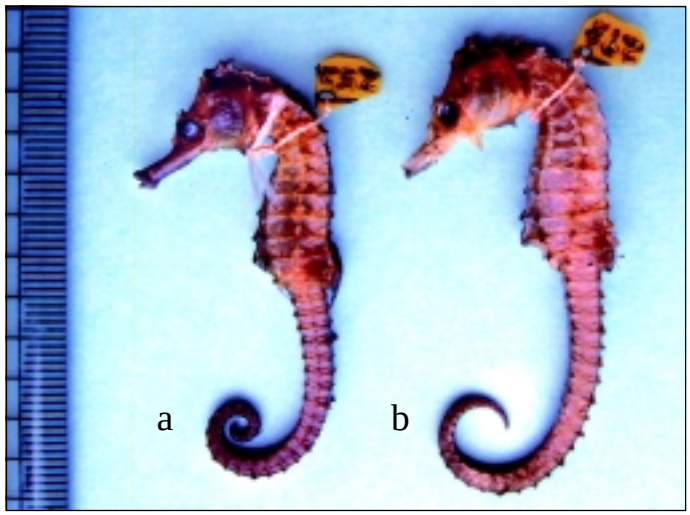
protein skimmer, power filter and power heads were the main components used for the reef tank. In addition to natural light, fluorescent lamps were used as light source. The reef aquarium is useful to study the coral ecology and can be maintained for ornamental purposes.

Clove oil proved as an effective anaesthetic agent in aquaculture

Large grouper fishes weighing 2.8 kg and 6.5 kg maintained in a one tonne glass tank in the marine aquarium of Vizhinjam Research Centre of CMFRI were successfully transferred to 10 tonne capacity FRP tanks using clove oil as an anaesthetic agent. The fishes lost balance and assumed a lateral recumbent position in 40 to 50 seconds at an ambient 50 ppm clove oil and recovered after 2 minutes of introduction into the FRP tank. Normal swimming activity was resumed calmly after 4 minutes. Use of anaesthetics in fisheries and aquaculture is essential for facilitating transport, weighing, tagging and other experimental works. Considering the efficacy, cost, availability, ease to use and side effects, clove oil could be one of the best anaesthetic agent in aquaculture.

Tagged seahorses recaptured

Two of the tagged seahorses (*Hippocampus kuda)* released during June 2004 off Puthupattinam area in Palk Bay were recaptured. One female seahorse recaptured after five months off Karangadu village (a) had attained a growth of 25 mm and migrated to about 4 km south of the place of its releasing. The second female recaptured after eight months off Mullimunai (b) attained 27 mm of growth after its release and was caught 3 km south of the site of its release.



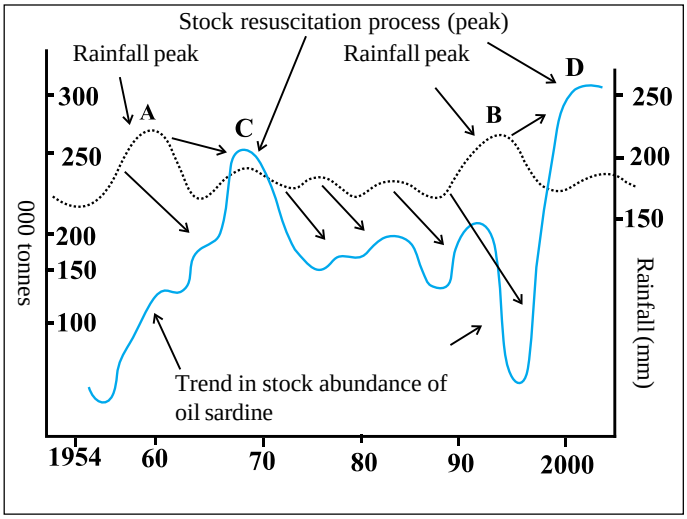
The initial results of tagged and recaptured seahorses indicated an average growth of 4.15 mm in length per month in natural habitat. These two seahorses were caught at 5-6m depth at places endowed with the sea grass *Halophila* sp. and *Thalassia* sp.

Mussel seed settlement along Malabar coast

A survey was conducted on mussel seed availability and abundance from Malappuram, Kozhikode, Kannur, Kasaragod and Mahe coasts. The mussel seed settlement during the year 2004 was significantly higher due to good rainfall and sustained over a period of five months beginning from August. The total biomass of mussel seed along the coast ranged from 4,399 t in September to 14,474 t in December. The average mussel biomass in an estimated mussel bed area varied from 8,672 g per sq.m. during September to 34,181 g per Sq.m. during November and 29,794 g per sq.m. in December. The average number of seed per kilogram was 2228 in September, 1565 in October and 1114 during November and December. Adequate quantities of seed were available to the mussel farmers compared to the previous year.

Changing scenario of oil sardine fishery

Large-scale abundance of young oil sardines in estuaries, bays and backwaters has been a regular phenomenon ever since the year 2000. Migration of young sardines into backwaters has been reported earlier in 1968, a year in which peak abundance of the stock was reported. In 1972, the species has been found to enter the Chandragiri Estuary in Kasaragod, the estuary and bay at Karwar, Ashtamudi Lake in 2000 and in the Cochin backwater during 2002-2005. Large-scale exploitation of young sardines by ring seines has been reported since the year 2000 and is still continuing.



Studies on long-term trends in rainfall have revealed a drought phase in Kerala since the year 2000. The dry spell has a negative impact on the productivity of the sea as well, mostly due to decrease in river runoff. Analyses indicated that rainfall for the past few years had been low by 14 to 39% during 1999-2002. The year 2004 received 22% less rain than the long-term average during June-September. This trend could be seen all over India. The IMD has also given an indication of this drought phase to continue in 2005. The fishermen have also reported that the coastal sea had been warm during the past 2-3 years. This has a negative impact on young sardines, its feeding, growth, maturation, survival and distribution. Young sardines noticed in the backwaters appear small even after a lapse of five months. From the warm inshore areas, most of the fishes like mackerel may migrate off shore unlike sardine. The sole catch in the inshore areas therefore is constituted of sardines. It is interesting to note in this context that the mud bank formation as in the past, accompanied by the exploitation of a variety of fin and shellfishes, have failed to materialise during the last 3-4 years. Whatever that could be exploited during the mud bank season in the last few years mostly consisted of young sardines with sporadic catch of other finfishes and shellfishes. The drought spell appears to have a negative impact on coastal fisheries. The exploitation of the small oil sardine has become uneconomical in the absence of other co-occurring quality fishes like mackerel. Hence, the stock remains under exploited. Consumer demand is also down because of the small size, low fat content and continued availability. The only option is sun drying the huge catch during times of glut. This is possible only at selected places like Alleppey and Calicut and therefore there is no effective mechanism to fully utilize this resource.

TRANSFER OF TECHNOLOGY

Training programmes conducted for practicing farmers, rural youth and rural women

Krishi Vigyan Kendra of CMFRI at Narakkal conducted 15 training courses imparting training to 324 persons. The number of training courses and beneficiaries in each discipline were as follows: Fisheries 4-65; Agriculture 7-171 and Home Science 4-88. Out of these, five collaborative training programmes were conducted in association with different agencies namely Krishi Bhavan of Valakam and Elamkunnapuzha Grama Panchayat for mushroom cultivation; Krishi Bhavan, Choornikara for jasmine cultivation; Fertilizer Association of India, Chennai on balanced fertilization and integrated nutrient management for the benefit of fertilizer dealers of Kerala and Matsyafed, Paravoor for the preparation of shrimp pickle.

Krishi Vigyan Kendra, Narakkal and Central Integrated Pest Management Centre, Ernakulam jointly organized a weekly training programme on 'Integrated Pest Management in Coconut' for 30 coconut farmers and five agricultural officers from the Krishi Bhavans in Vypeen. The training course was conducted for a period of 9 weeks since 20th January. A field day programme was organized on 11th March at the Krishi Vigyan Kendra campus.

Smt. M. Sreedevi, Assistant Director of Agriculture, Krishi Bhavan, Narakkal inaugurating the Field Day

KVK also organised a **farmers meet** at Narakkal in association with Krishi Bhavan, Thiruvaniyoor. Method of making vermin compost and its uses were discussed during the meet held on 15th February.

Training for officials

Training course on seaweed cultivation and post harvest technology of seaweeds was held for two personnel from the Department of Fisheries, Andhra Pradesh at the Regional Centre of the Institute at Mandapam from 14th to 19th March.

Training for scientists and teachers

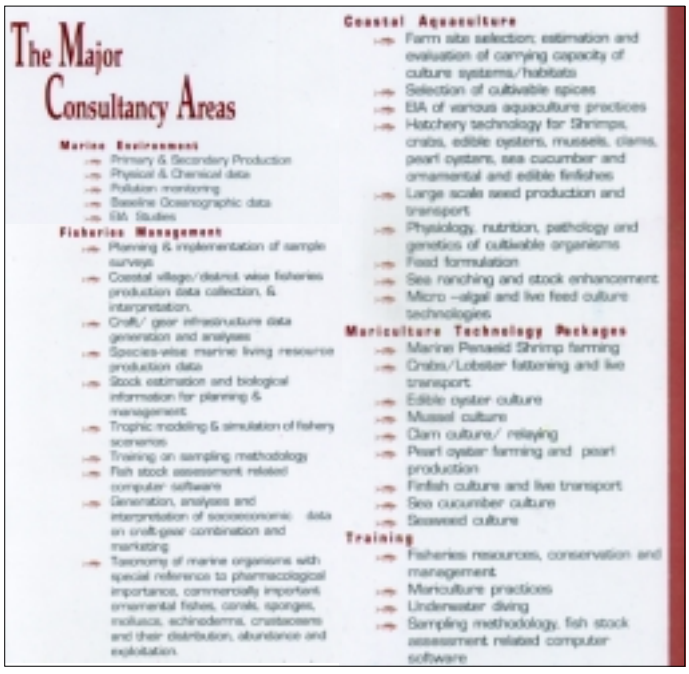
The Central Marine Fisheries Research Institute has been focusing much of its research attention on the development of viable technologies for farming marine molluscs. During the past two decades, the Institute has been able to develop several eco-friendly technologies for the farming of edible bivalves like oysters, clams, mussels and production of high quality marine pearls from pearl oysters. Besides, hatchery technologies for pearl oysters, edible oysters, mussels, clams, cephalopods, edible and ornamental gastropods have also been developed. The

Institute has also carried out cutting edge research to further refine these technologies. Technologies now exist for the production of tissue cultured pearls, *mabe* and make up pearls, triploid oysters and remote setting of oyster larvae. The capital investment costs for mussel farming was reduced with the development of a semi-automatic mussel seeder making the technology more farmer-friendly.

The CMFR Institute was able to transfer many of these technologies to coastal fishers through setting up of multi-location demonstration farms. Further, with close interaction with maritime state fisheries development agencies, the Institute was able to help farmers in procuring loans and subsidies. As a result, the country now produces more than 4,000 tonnes of farmed mussels and oysters every year. With many maritime states advocating bivalve farming, the country appears poised for a further increase in production.

In view of these developments, the ICAR sanctioned a 21-day Winter School to CMFRI on **Recent Advances in Mussel and Edible Oyster Farming and Marine Pearl Production**. The course was conducted by the Molluscan Fisheries Division of CMFRI at Kochi from 11th to 31st January. The course-included lectures by expert scientists in the relevant field and extensive hands on sessions was designed to transfer the latest technologies in molluscan mariculture. 17 scientific personnel/ teachers from all over the country attended the training programme.

A brochure on **Consultancy Services rendered at CMFRI** was released by Dr. P.V. Dehadrai, former Deputy Director General (Fisheries), ICAR, New Delhi and Chairman, Research Advisory Committee on 24th February



NEW HEIGHTS

New Projects Approved

AP Cess Funded Projects

- **Impact of tsunami on coastal fish stocks** - Dr. E. Vivekanandan, Principal Investigator. Duration - one year, total outlay - Rs. 21.50 lakhs
- **Rapid assessment of the impact of tsunami on the coral reef ecosystem of Andamans** - Dr. (Mrs.) Rani Mary George, Principal Investigator. Duration - one year, total outlay - Rs. 10.26 lakhs
- **Impact of tsunami on the socio-economic conditions of coastal communities in peninsular India** - Dr. R. Sathiadhas, Principal Investigator. Duration - 2 years, budget - Rs. 20.40 lakhs.
- **Assessment of post-tsunami microbial and chemical hazards of public health significance in seafoods** – Dr. C.P. Gopinathan, Co- Principal Investigator. Duration - one year, total outlay - Rs. 6.00 lakhs

DOD Sponsored Project

- **Tuna resources of the Indian EEZ – An assessment of growth and migratory pattern** - Dr. N.G.K. Pillai, Co-Principal Investigator. Duration - 3 years, CMFRI share – Rs. 38.05 lakhs.

Commendable performance in sports

CMFRI Sports Team stood on fourth position out of 21 participating Institutes at the ICAR Zonal Sports at Hyderabad held during 3-7 January.

The proud winners are:

- ★ Shri A.K.Shaji-Javelin throw(I), Discuss throw(II), High jump(II) & Shot put (III)
- ★ Ms. K. Smitha - High Jump (I), Long Jump (III) & Badminton, doubles (I)

- ★ Dr. Ashaletha S. - Badminton, doubles (I)
- ★ Shri Balasubramanian alias James - 800m (II) & 400m (III)
- ★ Shri Jerald Raja - 100 m (III), 200 m (III) & 4 x 100m Relay (III)
- ★ S/Shri V. Rajendran, Joseph Mathew, Mendonza Xavier - 4 x 100m Relay (III)

ACADEMIC NEWS

Ph.D. Award

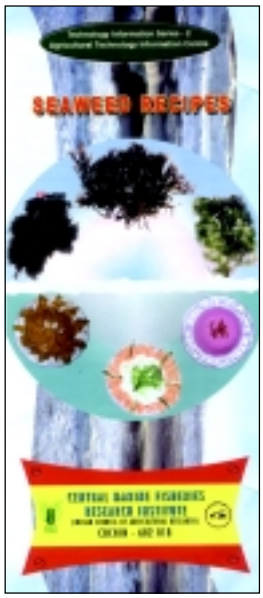
Scholar	Guide	Title of Thesis
P.M. Aboobaker	Dr. (Mrs.) Kusuma Neelakantan, Department of Marine Biology, Karnatak University, P.G. Centre, Karwar	Studies on the culture of *Penaeus indicus* juveniles in re-circulatory sea water system in relation to environmental parameters.

INSTITUTE PUBLICATIONS

Technology Information Series 1: **Marine Pollution** (English and Hindi version)

Dr. P.K. Krishnakumar

The pamphlet gives in simple language notes on Sewage Pollution, Heavy metal toxicity, Pesticides, Oil Pollution, Radioactivity Thermal Pollution etc.



Technology Information Series 2: **Seaweed Recipes** (English and Hindi Version)

Dr. Reeta Jayasankhar

The pamphlet gives the recipes for a variety of products made out of sea weeds like jelly, cocktail, jam, soup, salad, chutney, pickle, cookies, seaweeds in chicken fried rice and seaweed chapathi.

Technology Diffusion: **Training Programmes under IVLP**

The Special Publication No. 81 of CMFRI entitled ***Technology Diffusion – Training Programmes under IVLP*** edited by Dr. R. Sathiadhas is a compilation of training notes in Malayalam imparted to the farmers on various farming practices. The areas of training include monoculture, polyculture, biculture and integrated farming practices in aquaculture, processing of value added fish products, livestock related training programmes including rabbit farming, poultry farming, organic farming of vegetables, conservation of mangroves and marine fish resources.

The publications were released by Dr. P.V. Dehadrai, Chairman, Research Advisory Committee, CMFRI by handing over the copies to Dr. K.H. Alikunhi, FAO Fisheries Expert and former Director, CIFE, Mumbai.

INTERACTION AND EVALUATION

RAC Meeting held

The 10th Research Advisory Committee Meeting of Central Marine Fisheries Research Institute was held at the Headquarters, Kochi on 25th & 26th February under the chairmanship of Dr. P.V. Dehadrai, Former Deputy Director General. Honourable members of the Committee, Dr. P. Kumar, Dr. P. Natarajan,

Shri K.V. Soman and Dr. A.D. Diwan, Assistant Director General (M.Fy.), ICAR, New Delhi and Heads of ten research divisions of the Institute attended the meeting. The document CMFRI Vision 2020 was presented by Prof. (Dr.) Mohan Joseph Modayil, Director. Dr. R. Paul Raj, Member Secretary, co-ordinated the RAC meeting.

QRT visits

The Quinquennial Review Team with Dr. E.G. Silas, Former Vice Chancellor, Kerala Agricultural University and Former Director, CMFRI as Chairman alongwith the members: Dr. Amalesh Choudhary and Dr. G. Subramanian visited the Visakhapatnam

Regional Centre on 19th January, Kakinada Research Centre on 20th January and the Madras Research Centre on 22nd January to review the progress of research work, institutional activities and other developments undertaken during the period 1999 to 2004.The Honourable Chairman along with Dr. Amalesh Choudhary also visited the Minicoy Research Centre of the Instititute on 25th February.

Black lip pearl oyster culture at Andamans reviewed

Prof. (Dr.) Mohan Joseph Modayil alongwith the Advisor, Department of Ocean Development, Government of India had a formal meeting and discussion with the Chief Secretary (Fisheries) and Director of Fisheries, Andaman and Nicobar Administration on 7th March. The project site at Port Blair was visited and the on-going research activities were evaluated and guidance imparted to the associates for carrying out the project work. The project on the black lip pearl oyster culture will be of great benefit to the people of Andaman and Nicobar Island in the long run.

Seminar held on Seaweed Resources of Tamil Nadu

A Seminar on 'Untapped potential of seaweed resources of Tamil Nadu and the scope for gainful employment of self help women groups of the coastal poor in seaweed farming' organized by the Aquaculture Foundation of India in collaboration with CMFRI, Kochi and CSMCRI, Bhavanagar, Gujarat was held at the CMFRI, Mandapam Camp, Tamil Nadu during February 21-23. Three

Prof. (Dr.) Mohan Joseph Modayil joining to light the lamp and inaugurate the Seminar on Seaweed Resources of Tamil Nadu

technical sessions namely seaweed resource potential, technology of cultivation and environmental issues, problems of seaweed industry and socio-economic issues and stakeholders meet were covered during the seminar. A Handbook on seaweed cultivation technology, use of seaweed in food and medicines, post-harvest processing, environment issues and markets in different countries was also released during the seminar. A 23 member Expert Committee on seaweed cultivation comprising of scientists, administrators and industrialists discussed various issues on seaweed cultivation and marketability of products and recommended to take up commercial cultivation of marine algae as a national priority to be taken as a mission mode project.

58th Annual Conference of ISAS held

The 58th Annual Conference of the Indian Society of Agricultural Statistics (ISAS) was held at CMFRI, Kochi during 20-22 January. The conference was organised under the dynamic stewardship of Prof. (Dr.) Mohan Joseph Modayil, Director, CMFRI with

Dr. S. Ayyappan, Deputy Director General (Fy) inaugurating the 58th Annual Conference of ISAS

necessary logistic support provided by CMFRI, CIFT, CIFNET, IFP and NIO.

Two symposia along with poster sessions on salient research findings were conducted. Dr. M. Srinath, Head, Fishery Resource Assessment Division of CMFRI and Dr. H.V.L. Bathla, Head, Sample Survey Division, IASRI were the conveners of the first symposium entitled 'Fishery Statistical Systems in India'. Lectures showcasing the latest developments and challenges on a whole gamut of issues like marine fisheries, inland brackishwater fisheries, fisheries policy at the state and central levels etc. were delivered by the experts in the respective fields. Topics on status of fisheries statistics including stock assessment, marketing, trade, modeling and loss assessment pertinent to fisheries was discussed. The second symposium entitled 'Use of Emerging Statistical Techniques in Agriculture' was convened by Dr. V.K. Bhatia, Principal Scientist, IASRI, New Delhi with the emphasis on the newly available computer intensive and application oriented statistical techniques.

The prestigious *Sankhyiki Bhushan* award was conferred on Dr. B.N. Singh, former Director General, Bureau of Indian Standards (BIS) (formerly ISI), New Delhi and Dr. K.C. Seal, former Director General, C.S.O., New Delhi for their contributions in the field of Agricultural Statistics. A technical address on 'Contributions of the National Sample Survey to Indian Agricultural Statistics' was delivered on the opening day by Dr. S. Ray, Sessional President and Director General & C.E.O., National Sample Survey Organization, New Delhi. Dr. Rajendra Prasad memorial lecture was delivered by Dr. S. Nagarajan, Director, Indian Agricultural Research Institute (IARI), New Delhi on 'Implications of Changing Global Economic Situation and Need to Have Data Based Intelligence System'. Dr. V.G. Panse, Memorial Lecture was delivered by Shri. M. Neelakantan, Former Additional Director General, National Sample Survey organization (NSSO), New Delhi on 21st January. An invited lecture on 'Crossover Designs' by Prof. Aloke Dey, Indian Statistical Institute (ISI), Delhi Unit and a luminary in Design of Experiments was another added feature on the second day.

National Science Day observed

To commemorate the **National Science Day**, a seminar entitled 'Applications of Electron Microscopy' was held at the Institute Headquarters on 28th February.

OFFICIAL LANGUAGE IMPLEMENTATION

National Scientific Seminar held

A national scientific seminar in Hindi was organized on 'Issues in Aquatic Biodiversity' at the Institute Headquarters at Kochi on Ist February.

Prof. (Dr.) Mohan Joseph Modayil, Director, CMFRI presided over the inaugural session of the seminar. Commodore M.K. Murthy, Chairman & Managing Director of Cochin Shipyard Ltd., inaugurated the function. The chief guest in his speech highlighted the role of word power in development of languages. Shri P. Vijayakumar, Research Officer, Regional Implementation Office, Department of Official Language gave the felicitation address. A Special Publication of CMFRI No. 84 entitled '*Jaleeya Jaivividhatha ke pahal*' was released on the occasion. The

Cmde. M. K. Murthy releasing the special publication in Hindi on 'Issues in Aquatic Biodiversity'

publication contains 15 research papers arranged under the following three sections: Conservation and Management of Aquatic Biodiversity, Effects of Human Interference in Aquatic Biodiversity and Aquatic Biodiversity in the context of Mariculture and Biotechnology.

The recommendations made in the plenary session of the seminar has been forwarded to all ICAR Institutes, State Agricultural Universities and other Fishery Institutes for their suggestions.

Leap Office Workshop

A training in Leap Office 2000 a LAN based Hindi software was organized from 22 to 24 March. Subjects such as Multilingual word processing, Powerpoint presentation and LAN oriented options were dealt in the workshop with faculty assistance from authorized C-DAC Centre, Kochi. 17 members including ministerial and technical staff attended the workshop.

OLIC Meeting

The quarterly meeting of the Official Language Implementation Committee of the Institute was held on 11th March. The progress made in the activities to implement the usage of Hindi at Headquarters and outstations was reviewed during the meeting.

IN-HOUSE EVENTS

New Auditorium inaugurated

Dr. S. Ayyappan, Deputy Director General (Fisheries), ICAR, New Delhi, inaugurated the new Auditorium in 6th floor of Office-cum-Lab building of Institute Headquarters on 19th January.

Open House held

The Foundation Day of the Institute falling on 3rd February was not celebrated as in the previous years due to national tsunami catastrophe. However, an Open House was arranged on the day wherein the visitors were familiarized with the research

programmes undertaken by the Institute. 670 persons including students from nearby schools, colleges, university departments and general public visited the Headquarters campus.

International Women's Day observed

Ms. R. Sreelekha IPS, DIG of Police (Ernakulam Range) addressed the staff and students at Headquarters on 10th March, in connection with the International Women's Day.

Prof. (Dr.) Mohan Joseph Modayil, Director CMFRI presided over the function and called upon the women to change their mindset, which alone would solve their problems and improve their status. The Director expressed immense satisfaction over the cordial relationship among the staff members and the fact that there has not been any case of harassment reported. He also emphasized the importance of the role the women employees should play for the betterment of the organization.

Ms. R. Sreelekha, the chief guest of the day, gave a thought-provoking speech on why women have not achieved what they ought to have. She analysed the circumstances, which would

give women the respect they deserve in their families and opined that a woman has to be assertive in her attitude and behaviour. She pitied the fact that even now girls are not treated on par with boys. Unfortunately in most of our families girls are trained to be docile and subservient suppressing their inherent talents. She wondered when our society will stop indulging in such double standards and hoped that women of the coming generation will come up and stand shoulder to shoulder with men. The DIG asserted that a woman is capable of doing any work as efficiently as a man.

The DIG found time to hold a lively interactive session with the audience. To a question on who she would like to be, if given a chance to be born again, she boldly replied that she would like to be born as a girl in a poor family and come up in life. On questioned, why women are harassed in public, she answered that it is simply because women feel shocked and 'freeze' on such occasions without reacting properly. Summing up, Ms. R. Sreelekha called upon the staff members to be different, be innovative and leave a mark behind for the posterity.

Recreation Club activity

The Staff Recreation Club of Headquarters arranged a one-day picnic to Vagamon near Erattupetta on 12th February.

PERSONALIA

Guests

Headquarters, Kochi

- Dr. Ali Kunhi, Former Director CIFE and FAO expert.
- Dr. A.R. Kidwai, Governor of Haryana.
- Board of Regents of the University of Agricultural Sciences, Bangalore: Dr. H.L. Harish, Dr. B.N. Krishnaiah, Shri. H.R. Chandregowda, Dr. T.K. Prabhakara Shetty and Dr. H.R.V. Reddy.

Mandapam Regional Centre

- 537 Students from 13 colleges.

Visakhapatnam Regional Centre

- Dr. Rama K. Raju, Senior Manager – QHSE, Reliance Industries Limited, Mumbai.

Tuticorin Research Centre

- Shri Dhanushkodi Athithan, Member of Parliament from Tirunelveli.

Vizhinjam Research Centre

- Dr. A.K. Jain, Assistant Director General (ARIS), ICAR, New Delhi.
- Major General K.M. Bhat, Addl. Director General (Army Edn.), New Delhi.
- 14,576 people visited the Marine Aquarium of the Centre during January-March.

Minicoy Research Centre

- Dr. V. Rajagopal, Director, CPCRI, Kasaragod.
- Dr. M.E. John, Zonal Director, Fishery Survey of India, Goa.

Calicut Research Centre

- Dr. V.S. Korikanthimath, Director, ICAR Research Complex, Goa.

Programme Participation

Prof. (Dr.) Mohan Joseph Modayil, Director and **Dr. M. Rajagopalan**, Principal Scientist & Head, Fishery Environment Management Division

Participated in the Seminar on 'Untapped potential of seaweed resources of Tamil Nadu and the scope for gainful employment of self help women groups of the coastal poor in seaweed farming' organized by the Aquaculture Foundation of India in collaboration with CMFRI, Kochi and CSMCRI, Bhavanagar, Gujarat at CMFRI, Mandapam Camp, Tamil Nadu (21-23 February)

Prof. (Dr.) Mohan Joseph Modayil, Director; **Dr. N.G.K. Pillai**, **Dr. R. Sathiadhas**, **Dr. G. Gopakumar**, Principal Scientists; **Dr. K. Sunil Kumar Mohamed**, **Dr. P.K. Krishnakumar**, Senior Scientists, **Dr. P.U. Zacharia**, Scientist (SG), **Shri Joe Kizhakudan**, **Smt. U. Ganga**, Scientists (Senior Scale) and **Dr. N. Aswathy**, Scientist

Participated and presented research papers in the International Symposium 'Sustain Fish 2005' organized by School of Industrial Fisheries, CUSAT, Kochi and University Grants Commission, New Delhi (23 - 25 March)

Dr. M. Rajagopalan, Principal Scientist

Brain Storming Session on Disaster Management held at CIFT, Cochin (21 January)

Meeting at Lakshadweep Development Corporation Cochin to consider Sea Cucumber Project at Agathi, Lakshadweep (27 January)

Dr. E.V. Radhakrishnan, Principal Scientist & Head, Crustacean Fisheries Division

Workshop-cum-training programme on 'Priority setting, monitoring and evaluation (PME) in ICAR research institutes' organized by National Centre for Agricultural Economics and Policy Research' at New Delhi (17 - 18 March)

Dr. J.P. George, Principal Scientist

Workshop on 'Strategic linkages between local governments and R&D Institutions' sponsored by Kerala State Planning Board and Centre for Environment and Development at Thiruvananthapuram (Ist March)

Dr. J.P. George, Principal Scientist and **Dr. P. Kaladharan**, Senior Scientist

National Seminar on Wetlands of India organized by Limnological Association of India at Chalakudy and presented a research paper (2 – 4 February)

Dr. L. Krishnan, Principal Scientist

Meeting for reviewing an ongoing project of FIRMA, Cochin (10 January)

Dr. P.N. Radhakrishnan Nair, Principal Scientist and Scientist-in-charge, Calicut Research Centre

Meeting for preparing a Disaster Management Plan for the State Committee (7 January)

Sensitization programme on business opportunities in Biotechnology at Calicut organized jointly by Small Industries Service Institute, Thrissur, IISR, Kozhikode and District Industries Centre, Kozhikode (19 January)

Seminar on 'CRZ Rules and coastal protection' organized by MICTRA at Calicut (22 January)

Meeting of the 35th TOLIC at Calicut (28 January)

Dr. P. Jayasankar, Senior Scientist

16th Institute Management Committee Meeting of NBFGR at Lucknow (11 March)

Dr. N. Kaliaperumal, Principal Scientist & Scientist-in-charge Mandapam Regional Centre

National Seminar on 'Present Scenario in Plant Science Research' and delivered a special lecture on 'Seaweed Research and Utilization in India-Past, Present and Future' at the Department of Botany, Annamalai University, Annamalai Nagar (19 February)

Dr. R. Narayanakumar, Senior Scientist and Scientist-in-charge, Kakinada Research Centre

Project Dissemination Workshop of the Shastri Indo-Canadian Applied Research Project entitled Assessing Environmental Management Options to Achieve Sustainability in the Shrimp-Mangrove System in the Indian Coastal Zone of Bay of Bengal held at Department of Economics, Jadavapur University, Kolkata (17 February)

Dr. V.V. Singh, Senior Scientist

GIS Software training on 'Geo media pro and geo media grid for GIS creation analysis 2D, 3D, GIS at Rotta Bhawan, Mumbai (2-4 February)

Dr.H. Mohamad Kasim, Principal Scientist

Task Force Committee Meeting at the Animal Husbandry & Fisheries Department, Secretariat, Chennai (5 January)

Discussion on Tsunami Relief and Rehabilitation – Perspectives and Challenges in the context of the Aquarium (Fishing) Economy of Tamil Nadu at the Madras Institute of Development Studies, Chennai (7 January)

Meeting of M.S. Swaminathan Research Foundataion to disucss on Tsunami relief and rehabilitation strategy to buildup livelihood enhancement opportunities to the affected families (10 January)

Consultative meeting for development of fisheries and related activities to enhance the income generation for poor fishermen in coastal areas of Tamil Nadu for both sea and inland fishing at Directorate of Rural Development, Chennai (18-21 February)

Workshop on Post Tsunami Rehabilitation and Future Prospects in Fisheries Sector in Nagapattinam at Fisheries Department, Nagapattinam (13 March)

Shri Joe K. Kizhakudan, Scientist (SS)

Symposium on 'Sustainfish 2005' organized by the School of Industrial Fisheries, CUSAT at Cochin and presented the paper 'Culture potential of the sand lobster, *Thenus orientalis* (Lund) (16-18 March)

Smt. S. Jasmine, Scientist (SG)

Winter School on Remote Sensing and GIS applications in Fisheries Research and Management organized by CIFE, Mumbai (5-25 January)

Dr. P.U. Zacharia, Scientist (SG)

Refresher Course on IPR in Biotechnology sponsored by DBT held at National Law School, Bangalore (14–19 February)

Smt. P.S. Asha, Scientist (SS) and **Shri A. Bastian Fernando**, Technical Officer (T 7-8)

Presented the scientific papers 'Sea cucumber culture' and 'Sea turtles' respectively in Hindi at a Seminar organized by Heavy Water Plant, Department of Atomic Energy, Tuticorin (10 March)

Smt. N. Aswathy, Scientist

International Symposium 'Improved sustainability of fish production systems and appropriate techniques for utilization' held at School of Industrial Fisheries, Cochin University of Science and Technology, Kochi and presented a paper entitled 'A socio-economic impact assessment of monsoon trawl ban on the marine fisheries sector at Kerala' (16-18 March)

Shri K.P. Said Koya, Principal Scientist & Scientist-in-charge, Minicoy Research Centre

Farmers Training Programme 2004-2005 conducted by the Department of Animal Husbandry & Agriculture at Agricultural Office, Minicoy (11-15 February)

Kisan Mela at CPCRI (ICAR) Regional Station, Minicoy (12 February)

Seminar and Workshop organized by the Department of Science & Technology in connection with the 'Year of scientific awareness' at Minicoy (18-19 March)

Shri V.A. Kunhikoya, Technical Officer (T-5)

Seminar Workshop on the 'Information Education and Communication on Family Welfare Programme' organized by the Dweep Panchayath (26 February)

Dr. P.M. Aboobaker, Technical Officer (T-6)

Meeting of the District Nodal Agency for the implementation of the X plan 'National watershed development programme for rainfed areas' convened by the Principal Agricultural Officer, Government of Kerala at Civil Station, Kakkanad, Ernakulam (19 March).

Promotions

Name	Centre	w.e.f.
Supporting Staff in Grade II to Grade III		
Shri S. Inbamani, Watchman	Madras R.C.	30-12-2004
Shri M. Anbu, Messenger	Madras R.C.	01-01-2005
Shri T.P. Renil Kumar, Fieldman	Calicut R.C.	11-01-2005
Supporting Staff in Grade I to Grade II		
Shri M.T. Vijayan, Fieldman	HQ, Kochi	01-01-2005
Shri P.V. Sunil, Fieldman	HQ, Kochi	11-01-2005
Shri V. Rajendran, Messenger	Calicut R.C.	11-01-2005

Transfers

Name	Designation	From	To
Shri M. Raghunathan	Assistant	Tuticorin R.C.	Vizhinjam R.C.
Shri M. Shanmughavel	Refrigeration Mechanic (T-4)	Mandapam Regl. C.	HQ, Kochi
Shri V.K. Suresh	Technical Assistant (T-3)	HQ, Kochi	Minicoy R.C.
Shri R. Balakrishnan	SSG-IV (Deckhand)	Mangalore R.C.	HQ, Kochi
Shri P.V. Joy	SSG-II (Fieldman)	HQ, Kochi	Minicoy R.C.
Shri V. Rajendran	SSG-II, Helper (Vehicle)	Calicut R.C.	HQ, Kochi
Shri P.V. Gopalan	SSG-I (Messenger)	HQ, Kochi	Minicoy R.C.
Shri K. Krishnan	SSG-I (Fieldman)	Mangalore R.C.	Mandapam Regl.C.
Inter-Institutional Transfer			
Shri G.P. Sharma	Sr. Finance & Accounts Officer	IGFRI, Jhansi	CMFRI, Kochi

Retirements

Name	Designation	Centre	w.e.f.
Retirement on Superannuation			
Smt. K.C. Karthiayini	Assistant	HQ, Kochi	31-03-2005
Voluntary Retirement			
Dr. R. Sarvesan	Principal Scientist	Madras R.C.	10-02-2005
Compulsory Retirement			
Shri V.A. Kuttappan	SSG-II (Messenger)	HQ, Kochi	3-02-2005

Resignations

Name	Designation	Centre	w.e.f.
Shri Sachidananda Nayak	Field Assistant (T-1)	Visakhapatnam Regl. C.	27-09-2004
Dr. T.T. Ajithkumar	Technical Assistant (T-3)	Vizhinjam R.C.	30-09-2004

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