Inauguration ceremony of SAFARI

see page 3
The focus of ICAR-CMFRI has been to reach out and effectively extend the results emanating from its various research programmes to the fishermen community and other stakeholders. In this context, the platform provided by the International Symposium on societal applications in Fisheries and Aquaculture using Remote Sensing Imagery (SAFARI) organised by the institute on the occasion of its Platinum Jubilee year played an effective role. Meaningful discussions and interactions took place with researchers and other stakeholders including fishermen and policy makers to effectively utilise space technology to minimise damage during natural calamities. In a move to further skill the fishermen community in open sea cage farming, the institute has taken up the task of skilling at least five thousand fishermen which will see a rise in their income and boost marine fish production further. The scientists of the institute were also involved in the international training in fisheries and aquaculture through the African Asian Rural Development Programme (AARDO) and Ministry of Rural Development, Government of India. The Open House at the institute headquarters and various regional research centres organised as part of the Foundation Day celebrations was held this year also in which students and public showed keen interest. The scientists of the institute are also involved in the task of revalidating the Potential Yield of fishery resources from the Indian EEZ as part of the committee constituted by the Department of Animal Husbandry, Dairying and Fisheries (DADF), Ministry of Agriculture and Farmers’ welfare, Govt. of India for this purpose. The institute also mourns the untimely demise of Prof. (Dr.) N. R. Menon, chairman of the institute’s Research Advisory Committee.

A. Gopalakrishnan
Director
The Central Marine Fisheries Research Institute set up on February 3, 1947 celebrated its Platinum Jubilee Year in 2017. The Platinum Jubilee Hall constructed on the seventh floor of the Institute was formally inaugurated by Dr. Trilochan Mohapatra, Secretary, DARE and Director General, ICAR during his visit to Kochi on 15th January, 2018. Later, the venue was used to host the International SAFARI Symposium which was attended by several delegates from India and abroad.

**International Symposium on societal applications of remote sensing hosted**

The second international symposium of the Societal Applications in Fisheries and Aquaculture using Remote Sensing Imagery (SAFARI) was held at ICAR-CMFRI during 15th-17th January 2018. Dr. Trilochan Mohapatra, Secretary, DARE and Director - General, ICAR inaugurated the event. In his inaugural address, Dr. Mohapatra urged the scientists to reach out to the community and stakeholders through useful weather warnings, real-time advisories on nature of the sea, forecasting various ocean phenomena and like by effectively using satellites based remote sensing technology.

The SAFARI is a global research project of the Group on Earth Observations (GEO) and is now embedded in GEO’s "Ocean and Society: Blue Planet" initiative. Dr. B. Meenakumari, Chairperson of the National Biodiversity Authority, Lasse H Pettersson from the Nansen Environmental Remote Sensing Centre, Norway, Dr. Rodney M. Forster from the University of Hull, the United Kingdom and Prof. N. R. Menon, Co-Chairman, Nansen Environmental Research Centre-India, Dr. A. Gopalakrishnan, (Fisheries), ICAR presided. Dr. T. Mohapatra addressing the delegates
Director, ICAR-CMFRI and Dr. T. V. Sathianandan, Head, Fishery Resources Assessment Division, ICAR-CMFRI spoke on the occasion. Application of remote sensing in the fresh water, estuarine and marine fisheries, small pelagics, harvest fisheries, aquaculture, fisheries management, socio-economics and Information and communication technologies (ICT), fisheries environment and ecology were the core themes of the symposium. Around 25 International and 210 national participants attended the symposium and presented, their research as oral and poster presentations. Hon’ Union minister of Kerala, Dr. A. Gopalakrishnan, Director, ICAR-CMFRI presided at the valedictory session. Dr. C. Gopal, Member Secretary, Coastal Aquaculture Authority, India, Dr. Marie-Fanny Racault, Earth Observation Scientist, UK, Dr. A. G. Ponniah, Former Director, Central Institute of Brackishwater Aquaculture (CIBA), Dr. Maheshwarudu, Dr. T. V. Sathianandan and Dr. Grinson George spoke at the valedictory function.

A SAFARI-2 Pre-Symposium Training Program on ‘Using the latest in satellite data for fisheries and aquaculture applications’ was also held at ICAR-CMFRI on January 13th-14th, 2018. 31 participants including 7 from foreign countries benefited from this training that included lectures by faculty from Plymouth Marine Laboratory, UK and University of Reading, UK, on the relevant topics and practical classes on ocean-colour data processing and the application of remote sensing data. An Agri-Aqua-Food fest and exhibition was also held on the side lines of the three-day symposium. Spices
Dignitaries visit to the exhibition stalls

Public at the Agri-Aqua Food Fest

Smt. Mercykuttyamma, Hon’ Fisheries Minister visiting the live fish sales stall at the Agri Aqua Food Fest

Platinum jubilee elocution competition held

An Elocution competition was held for high school students at Headquarters on 30th January 2018. The topic was ‘Societal Relevance to Fisheries Research in India’ in which 30 students took part. The competition was judged by an eminent panel comprising Dr. T. K. Srinivasa Gopal, Dr. V. V. Sugunan, Dr. Leela Edwin and Dr. K. V. Jayachandran. Prizes were sponsored by Prof. (Dr.) Mohan Joseph Modayil, former member, ASRB and former Director, ICAR-CMFRI. Dr. A. Gopalakrishnan, Director welcomed the gathering. The moderators were Dr. Vipinkumar V. P. and Dr. Rekha J. Nair. Dr. C. Ramachandran proposed the vote of thanks. Winners of the competition were Remitha Raveendran, Cochin Refineries School; Aditya Krishnan, Navy Children School; Sandra Leena Nair, Bhavans Vidya Mandir Girinagar and Aiswarya Ramesh, Bhavans Adarsha Vidyalaya, Kakkanad.
The 71st Foundation Day of ICAR-CMFRI was celebrated on 3rd February, 2018 at Headquarters and the eleven regional research centres across the country. ‘Open House’ was organized for the benefit of students and public at Headquarters and all centres. In the function organized by the ICAR-Mumbai Research Centre, Mr. Govind Bodke (IAS), Commissioner of Fisheries, Department of Fisheries, Govt. of Maharashtra, Dr. Gopalkrishna, Director, ICAR-CIFE, Dr. Mahesh Kumar Farejya Director (Engg) & Acting Director General, Fishery Survey of India and Dr. A. K. Chaubey, In-charge, Regional Centre of CSIR-NIO, Mumbai participated as special invitees. The Recreation Club of Mandapam Regional Centre had organized sports events for the staff and competitions for school children and prizes were distributed to the winners by Dr. G. S. Sameeran, IAS. He also released a brochure on ‘Diseases of cobia and silver pompano’. The programme at Madras Research Centre was inaugurated by Dr. C. M. Muralidharan, FAO Consultant, Karwar and Mangalore Research Centres showcased research activities at the Open House arranged for the public. Harvest of seabass and pompano was also carried out at Karwar Centre and revenue generated from the sale of the harvested fish. In the open house programme conducted at Puri Field Centre, youths from fishermen communities visited and showed keen interest in interacting with the scientists.
Glimpses of open house conducted at Headquarters and Regional Research Centres
The institute achieved the second position among ICAR institutes for the coveted Swachhata Pakhwada Award under the Swachh Bharat programme of the Government of India. Several activities were undertaken at headquarters and regional research centres during the year. Dr. A. Gopalakrishnan, Director received the award from Shri. Radha Mohan Singh, Hon'ble union minister for agriculture and farmers' welfare in a ceremony held at Delhi on 8th March, 2018. Meanwhile, activities for achieving a Clean India envisaged under the programme continue at the various Regional Research Centres of the institute. Staff of the Mumbai Research Centre participated in the awareness campaign undertaken by Mr. Afroz Shah, an environment activist and the Versova Resident Volunteers (VRV) team during 31st March to 2nd April, 2018. The campaign conducted in the backdrop of a ban on single use plastics imposed by Maharashtra State Government appealed to people for proper segregation of wet and dry domestic garbage for subsequent disposal by concerned agencies and created awareness on disadvantages of plastic litter to marine environment. The vermicompost unit set up by the staff of Mangalore Research Centre was used for preparing an additional vegetable patch to the existing plot which has been giving very good yield of vegetables. Cleaning of public places was also undertaken at Vizhinjam and Visakhapatnam Regional Research Centres.

Second review meeting of Expert Committee for revalidation of potential fishery resources in the Indian EEZ was held at ICAR-CMFRI, Kochi on 9th March, 2018. The chairman was Dr. L. Ramalingam, Dy. Director General Fishery Survey of India (FSI), Mumbai and Dr. P. Paul Pandian, Fisheries Development Commissioner, DADF was the member Convener in the meeting. The representatives of ICAR-CMFRI, FSI, CMLRE, BOBP, NIOT, ZSI and NRSC participated in the meeting.
A workshop cum training programme on Fisheries and Aquaculture sponsored by the African Asian Rural Development Organisation (AARDO) and Ministry of Rural Development, Govt. of India was held at the institute.

Inauguration by Prof A Ramachandran, VC, KUFOS

Ramachandran, Vice Chancellor of KUFOS inaugurated the programme and Dr. A. Gopalakrishnan, Director, ICAR-CMFRI presided. Dr. Khushnood Ali, Head, Research Division and Programme Coordinator of AARDO, spoke on the occasion. Dr. Imelda Joseph and Dr. Somy Kuriakose Principal Scientists, co-ordinated the programme. Resource persons from ICAR-CMFRI, ICAR-Central Institute of Fisheries Technology (CIFT) and ICAR-National Bureau of Fish Genetic Resources (NBFGR) handled the sessions on various aspects of fisheries and mariculture.

Programme to train 5000 fishermen in open sea cage farming launched

A major project for boosting the open sea cage farming in Indian waters, aimed at providing training to 5000 fishermen across the country in sea cage farming was launched on 29th January 2018 at Kochi. The project envisages accelerating the process for ushering in the Blue Revolution through mariculture by providing effective training to the fishermen; Financial support of nearly one crore has been provided by the National Fisheries Development Board (NFDB) under the Union Ministry of Agriculture and Farmers’ Welfare for this programme.

The first phase of the programme at the Institute Headquarters in Kochi began with a three-day training that was attended by 50 fishermen of Kerala. This will be soon be extended to other maritime states also. The programme was inaugurated by Mr. Mahesh, Joint Director (Fisheries), Emakulam. Dr. A. Gopalakrishnan, Director, ICAR-CMFRI presided over the meeting. Class room sessions and field visits to local cage farms were arranged to provide all round exposure in cage farming techniques to the group. Dr. Imelda Joseph, Dr. Boby

(Reported by Dr. Imelda Joseph, Course Director)
Ignatius, Dr. Shoji Joseph, Dr. K. Madhu and Mr. N. Rajesh of the Mariculture Division handled the different topics in sea cage farming. Technical assistance to the field demonstration sessions were extended by Mr. K. M. Venugopalan and Mr. Binoy Bhaskaran. Certificates were distributed to the participants at the valedictory programme.

The programme was implemented in other research centres of the institute also. Vizhinjam Research centre organized a training programme for 50 fishermen and an awareness programme on ‘Cage farming of commercially important marine fishes’ with 100 participants, in Perinad, Kollam district during 23rd-25th January and 23rd February, 2018 respectively. Mandapam Regional Centre trained 150 fishermen from 27 villages in Ramanathapuram district in three batches during January 2018. Hands on training and field visits to Mandapam, Munaikadu and Thangachimadam farming sites was arranged by Dr. M. Sakthivel and Dr. B. Johnson, who co-ordinated the training programme. At Veraval Regional Centre, 100 fishermen from Veraval, Mangrol, Bhavnagar and other coastal districts of Gujarat were trained in the cage fabrication, installation, mooring concepts and cage farm management aspects in two batches from 19th-24th February, 2018. At Karwar Research Centre the training programmes was held from 5th to 7th March, 2018 with 50 fishermen participants from different parts of the Uttara Kannada district. The program was inaugurated by J. L. Rathod, Chairman and Head, Department of Marine Biology, Karnataka University. In Tamil Nadu, Madras Research Centre trained fifty fisher youth from Kancheepuram, Thiruvallur and Chennai districts from 19th-21st February, 2018 at Kovalam Field Laboratory.

A livekodi Village under Paduvari Grama Panchayat in Udupi district was adopted to upgrade it to a ‘Climate Smart Village (CSV)’ under NICRA project. A preliminary meeting in this connection was held on 7th March, 2018, in Tharapathi, Alivekodi village. It aimed at creating awareness on alternate livelihood options, facilitating sustainable growth in agriculture and allied sectors such as fisheries, poultry, goat farming etc., while building resilience to current climatic variability and future climate change.

Village adoption under NICRA project
Support extended to tribal community for cage farming

Aimed at uplifting the living standards of the tribal communities, ICAR-CMFRI has extended technical support in cage farming. Around 35 tribal families in Vaikom, Kottayam district, Kerala stand to benefit under the Tribal Sub Plan (TSP) programme of ICAR. A team from the Mariculture division under the leadership of Dr. K. Madhu, Principal Scientist and Chairman of the TSP in ICAR-CMFRI provided hands-on training that included guidance on budgeting, site selection for the farming, cage fabrication, culture procedures, harvesting and fish trade. A visit to the cage fish farming sites in Nettoor being operated by various farmer groups under the institute’s guidance was also arranged to enhance the experience of the trainees. The training programme conducted at the HDPI Colony in TV Puram panchayat, Vaikom and was inaugurated by panchayat president Mr. Sebastian Antony. The trainers included Dr. Boby Ignatius, Dr. Rema Madhu, Dr. N. Rajesh, Mr. N Venugopal and Mr. M. P Vijayan.

CMFRI staff contribute to Cyclone Ockhi relief fund

Staff at Headquarters in Kochi and the research centres at Vizhinjam and Calicut in Kerala contributed ₹ 4.53 lakh to the Kerala State’s Cyclone Ockhi special relief fund. Dr. A. Gopalakrishnan, Director, ICAR-CMFRI handed over the cheque to Mr. Pinarayi Vijayan, Hon’ble Chief Minister of Kerala on 20th February 2018. Similarly, the staff of the Madras, Mandapam and Tuticorin Research Centres contributed ₹ 1,90,566 towards the relief fund of Tamil Nadu state. The cheque was handed over to Mr. Edappadi K. Palaniswami, Hon’ble Chief Minister of Tamil Nadu on 27th February, 2018 jointly by the Scientists in Charge of the Mandapam, Madras and Tuticorin regional research centres.

Winter School to train researchers in developing products from marine organisms held

The Marine Biotechnology Division organised a Winter School on ‘Recent advances in bioactive compounds from marine organisms and development of high value products for health management’. Padma Bhushan Dr. Manju Sharma, eminent biotechnologist and former secretary of Department of Biotechnology, Government of India inaugurated the 21 day programme on 23rd January, 2018. Dr. A. Gopalakrishnan, Director, ICAR-CMFRI, presided. The programme was co-ordinated by Dr. Kajal Chakraborty and attended by 25 researchers and officials from various ICAR institutes and universities across the country. Training on various research aspects that include isolation and characterisation of natural products of pharmaceutical importance from marine organisms such as seaweeds, molluscs, sponges etc for developing nutraceutical products from the sea was extended to the participants. The institute has already developed and commercialised various nutraceuticals for dealing with diabetes, arthritis, cholesterol and obesity conditions.
Micro-nursery for bivalve seed production developed

Micro-nursery system has been developed for bivalve seed production at Vizhinjam Research Centre. It has one down-welling and one upwelling sub systems each with separate reservoir tanks and pumps for providing water circulation. In the down-welling system eyed stage larvae of mussel, oyster or clam can be stocked at high density for settlement and further growth. When the settled spat reaches 2 mm size it can be transferred to upwelling system for further rearing.

Down-welling system is of 2000 litre capacity, divided into 4 compartments of equal size. Each compartment has eight PVC wells each of 30 cm diameter and 25 cm height. Well are provided with air lift mechanism for pumping water to the well from the system. Bottom of the well is covered by mesh cloth of 150, 250 and 500 microns. Through all the 32 wells, water passes from surface to the system through the mesh (down-welling). Eyed stage bivalve larvae can be transferred directly to down-welling wells with 150 micron mesh at the rate of 50000 larvae per well. Eyed stage will settle in the wells and can be grown till 2mm size.

Upwelling system is of total 1500 litre volume having two race way compartments each with 8 wells each of the same size as that of down-welling system. Its bottom mesh is 2 mm depending on the stocking size of the spat. Here spat can be grown from 2 mm to seed size. Water flows from these compartments up through the mesh (upwelling) of the wells upwards to the middle drainage section through a half inch pipe and from where water is drained to the reservoir. Stocking rate in the upwelling wells is from 25000 to 50000 depending on size and species. Seawater with required feed is circulated through the systems from the reservoir by two dedicated pumps. This technology will help in scaling up bivalve seed production for the benefit of farmers.

(Reported by Anil M. K. and team, Vizhinjam Research Centre)

Assessment of the Ecosystem Health Status

An assessment of the ecosystem status of the coastal Mulavukkad Grama Panchayath was done under the project ‘Micro-level environmental management plans (EMP) for selected critical habitats for ecosystem health and sustainable production’ with a view to transform it into a model village. Initial survey was carried out to ascertain the physical, chemical and biological parameters of the aquatic systems of the area using Google Earth imageries. During the ward wise survey it was seen that around 30 t of biodegradable wastes and 14 t of non-biodegradable wastes were generated per month in the Panchayat. The formation of choke points due to construction of road and other developmental activities which restricted the water flow and impaired the natural flushing and cleaning of the water bodies was identified. A lot of unused and under used water bodies which could be judiciously used for aquaculture were also identified. A few mangrove patches which could be utilized for promoting ecotourism and recreational angling were also marked. The area is vulnerable to natural environmental disasters like flooding, cyclone and tsunami, but lack a disaster management plan which should get immediate attention. The findings of the initial survey was presented before the Panchayath Board and other stakeholders during a consultative meeting held on 27th February, 2018 and was well accepted by the participants. The next step is to generate ward-wise ecosystem health card so that the residents know the health condition of surrounding ecosystem which will prompt them to act responsibly to maintain the health of the ecosystem.

(Reported by: Kripa. V & Team, Fishery Environment Management Division).

Improved seed production techniques of camel shrimp

The successful seed production of a marine ornamental, camel shrimp, Rhyncocinetes durbanensis was achieved at Mandapam Regional Centre in April 2017. Efforts to standardise and fine tune the protocols for larval and juvenile rearing of this species continued. The major improvements presently achieved include the speedier metamorphosis of the larvae to juveniles, captive maturation and spawning of the F1 progeny and a remarkable reduction in the period required for captive maturation of the juveniles. The total number of days to complete metamorphosis which was 60 days in the initial trials has remarkably reduced and by 45th day the first juvenile was obtained. Later, in another batch, the first juvenile shrimp was obtained on 35th day and more than 50 % of the larvae completed metamorphosis within a 50 days period. The larval rearing was carried out in 200 litre capacity circular FRP tanks using live feeds such as
copepod nauplii @ 3-5 numbers/ml and rotifers @ 10-15 numbers/ml along with micro algae, *Nannochloropsis occulata* and diatom *Chaetoceros* sp. Juveniles were weaned to commercial shrimp feed (sinking pellets) of appropriate size range. Water quality parameters maintained were Dissolved Oxygen above 5 ppm, salinity 35ppt, pH 7.5-8.2 and water temperature 27-29°C. Another important achievement was the successful captive maturation and spawning of F1 progeny of this shrimp. While the initial batch of larvae took 180 days for maturation and spawning, in successive trials, this could be achieved in about 135 days. The improvements are attributed to the modifications in the feeding regimes and maintenance of optimum water quality parameters. Presently mass scale seed production of the species is underway.


**Identification of vibriosis in Indian pompano**

Indian pompano (*Trachinotus mookalee*) is a good candidate species for aquaculture in tanks, ponds and cages. Like other marine finfishes, it is also susceptible to vibriosis and different species and strains of *Vibrio* bacteria have been isolated from diseased fishes both during nursery rearing and grow-out phases. The fishes showed symptoms of haemorrhage in different body parts, blackening of gills, empty stomachs and exopthalmia which are related to vibriosis. Tissue samples from body surface, gills, spleen and kidney were tested for the presence of *Vibrio* species and species level identification was done using 16SrRNA gene sequencing. It confirmed infection with *Vibrio harveyi*, *V. neocaledonicus*, *V. alginolyticus* and *V. parahaemolyticus*.

(Reported by: Sekar Megarajan, Ritesh Ranjan, Biju Xavier, Narasimhulu Sadhu and Shubhadeep Ghosh. Visakhapatnam Regional Centre)

**Captive breeding of trapezium horse conch**

The brooders of *Pleuroplaca trapezium*, a marine gastropod, were collected and maintained for breeding in the hatchery. After 10 months of rearing on clam meat, three female brooders spawned during the period December 2017 to February 2018. The vase-shaped capsules were laid as a cluster on the wall of the tank, with each capsule containing 320 to 460 eggs. After an incubation period of 23 to 30 days, larvae hatched out. They measured 760 to 825 μm and freely swimming on the surface of the water. *Isochysis galbana* was fed from the day one @ 40,000 cells ml⁻¹ and they reached 1500 to 1800 μm size in 40 days post hatch (dph). Further, attempts are being made to settle the presetting larvae by different cues in the rearing tanks. This species is listed under Schedule IV of Indian Wild Life (Protection) Act, 1972 and successful larval development protocols can facilitate natural population enhancement of the species.

(Reported by: Jagades, M. Kavitha, D. Linga Prabu and J. Padmanathan, Tuticorin Research Centre)
Underwater observations on artificial reefs deployed in the coastal stretch along Kovalam and Chemmencherry in Kancheepuram district during September 2017-February 2018 were made. It revealed the presence in large numbers of the elegant crinoid squat lobster *Allogalathea elegans* on the sea lilies in the artificial reef structures. While the population was largely composed of juveniles measuring 4.5 mm carapace length (CL) in September, observations in February indicated occurrence of adult, ovigerous females. Live ovigerous specimens collected were transferred to aquarium tanks in Kovalam Field Laboratory where hatching was observed in the early morning hours, releasing zoea. It is reported to convert to megalopa through four zoal stages and grow to a maximum size of 50 mm CL. This squat lobster is an important commodity in live aquarium trade and fetches even up to 50 US $ per individual.

(Reported by Joe K. Kizhakudan, Abbas Mohamed, M. Anbarasu, M. Midhun and A. Vinoth, Madras Research Centre)

**Squat lobster collected from artificial reefs**

**Zoea 1 of A. elegans**

Grow-out culture of hatchery produced orange spotted grouper (*Epinephelus coioides*) was carried out in sea cages in Visakhapatnam and in ponds in Nagayalanka, Krishna District, Andhra Pradesh. In cages, fishes were stocked with different stocking densities of 5 and 10 numbers/m³. Artificial feed was given in the initial months of reaching, till the fishes reached 150 g and later low-value fishes like Indian scads, sardines and tilapia were given which was well accepted. Fish fingerlings were stocked at 3.47 g and 4.63 cm in size in the hapa for two months and released into the cage after attaining around 20 g weight. After 14 months of stocking in the cages, the fishes have attained a weight of 1.02 kg.

(Reported by: Sekar Megarajan, Ritesh Ranjan, Biji Xavier, Biswajit Dash, Shubhadeep Ghosh and R.D. Suresh. Visakhapatnam Regional Centre)

**Grow-out culture of orange spotted grouper**

**Unusual landings of crocodile shark**

Mechanised gillnetters operating from Kasimedu Fisheries Harbour in Chennai extend their fishing grounds to deeper waters for exploiting tunas during the post monsoon period between February and March every year. During this period, landing of deep-sea fishes as by-catch is common. From mid-February to March 2018, regular landing of the crocodile shark *Pseudocarcharias kamoharai* of 65 to 82 cm total length (TL) was observed. The sharks caught off the Chennai coast at 150 m depth were sold for very low prices ranging between ₹ 20-50 per shark as there is no consumer demand for this species in the local market.

(Reported by: KSSM Youusuf, M. Shanthi, R. Thiagu and Shoba Joe Kizhakudan, Madras Research Centre)

**NICRA Project Review held**

Review of Technical Programmes (Strategic Research) of partner Fisheries Institutes under National Initiative on Climate Resilient Agriculture (NICRA) project was held during 1st-2nd March, 2018 at ICAR-CMFRI, Kochi. The meeting was chaired by Dr. S. Bhaskar, ADG (Agronomy, agroforestry & climate change), ICAR and co-chaired by Dr. A. G. Ponnaiah, NICRA External Expert Member. Dr. A. Gopalakrishnan, Director, ICAR-CMFRI and Dr. Prabhakar, PI (NICRA Project), CRIDA were also present. Principal Investigators from participating ICAR institutes such as Central Marine Fisheries Research Institute, Central Institute of Freshwater Aquaculture, Central Inland Fisheries Research Institute, Central Institute of Brackishwater Aquaculture, Central Fisheries Research and ICAR Research Complex for North East Hill Region made presentations in the workshop.

**NICRA review meeting in progress**
Participants of skill development workshop Kochi NICRA project

One-day training programme on live feed culture with special emphasis on copepod culture from 13th to 16th December 2017 was organized under AINP Mariculture for scientists and technical Officers of CMFRI at Vizhinjam Research Centre.

One training programme on ‘Field demonstration on Integrated Multi-trophic Aquaculture (IMTA)’ under the project National Innovations on Climate Resilient Agriculture (NICRA) was held during 15th to 17th February 2018 at Thoothukudi. 25 trainees from 6 coastal villages attended the training. A sensitization workshop for officials newly associated with the FIMSUL project attended by 24 officials was also held on 25th January 2018.

A one-day skill development workshop on sustainable livelihood options towards building climate-smart fishing communities in Thiruvarur district, Tamil Nadu for six identified fishing villages in Thiruvarur district - Ennorekuppam, Mughathavarukuppam, Kathivakkam Periyakuppam, Nettukuppam, Thazhankuppam and Kattupalli, was held at Nettukuppam Community Hall on 9th March, 2018. Dr. Shoba Joe Kizhakudan and Dr. M. Sivadas co-ordinated the workshop held under the NICRA project. Sixty fishermen nominated by the respective Panchayat leaders and representatives of the Tamil Nadu State Fisheries Department participated.

As a part of capacity strengthening and technology targeting training, 40 fisherwomen from Chinnapalam village which was adopted to develop as Climate Smart Village under NICRA, by the Mandapam Regional Centre were trained in 'Marine Ornamental Fish Culture' on 16th February 2018.

Training on Sea Cage Farming of Cobia’ under the Technology Up-Gradation Scheme of NFDB was successfully organized at the Mandapam Regional Centre for the fisheries officials of State Fisheries Departments during 30th January - 1st February 2018. Ten officials representing Karnataka, Andhra Pradesh and Gujarat Fisheries Departments participated.

One-day training programme on bivalve farming was organized at Mulki on 5th March, 2018 for 50 farmers in association with Department of Fisheries, Government of Karnataka.

In Plant Training programme, for 25 final year B.F.Sc students of College of Fisheries, Kavwardha, Chhattisgarh during 19-24 February 2018 operated at the institute's Headquarters. Theory and practicals were conducted by 21 faculty and an e-Training manual "Recent advances in marine fisheries and taxonomic research in India" was distributed to the students.

(Reported by: Dr. Rekha J Nair, Nodal Officer of the programme).
**Popularisation of cage culture**

A survey undertaken by the Karwar Research Centre under the All India Network Project on Mariculture identified five marine and brackish waters sites as suitable for cage culture technology demonstration. Based on this assessment, two awareness programmes and one skill development programme funded by NFDB were organized. Two Self Help Groups (marine sector) of Majali and Kumta and five Self Help Groups (estuarine sector), from Karwar and Honnavar were part of technology demonstration of offshore and inshore cage farming of Asian seabass. Fabrication of rectangular (6 x 4 x 2 m and 4 x 2 x 2m) and circular (6m diameter) cages and their installation in villages near Kali estuary was done. Seabass *Lates calcarifer* was stocked at a density of 15 and 25 numbers/m$^3$ in the two types of cages.

The Mandapam Regional Centre organised a Workshop cum Awareness Programme on Sea cage farming in collaboration with the National Fisheries Development Board (NFDB) and State Fisheries Department, Tamil Nadu on 22nd February 2018. 100 fishermen from the 20 Coastal villages of Ramanathapuram district who had already undergone training during January 2018 participated in the workshop. Fishers interacted with the experts and clarified their queries on the various schemes to popularise cage farming under NFDB. Dr. M. Sakthivel, and Dr. B. Johnson coordinated the programme.

**Workshop on seaweed culture**

Synd Rural Self Employment Training Institute (SyndRSETI) in association with Mangalore RC of ICAR-CMFRI and Department of fisheries, Udupi organised a one-day workshop on seaweed culture at Manipal, Udupi District on 26th February, 2018. Nearly 37 participants were trained on various aspects of seaweeds by ICAR-CMFRI scientist.

**Workshop on elasmobranchs**

In connection with the Platinum Jubilee Celebrations of ICAR-CMFRI, Demersal Fisheries Division organized a workshop on “Taxonomy and identification of Elasmobranchs” during 23rd to 25th January 2018. The participants included scientists and technical staff of the Demersal Fisheries Division and the Fisheries Resources Assessment Division of the Institute. There were discussions and presentations on identification of sharks, rays, guitarfishes and sawfishes, chimaeroids and skates separately during the workshop. A spot elasmobranch identification test and quiz programme were also conducted and prizes were distributed to the winners. Dr. A. Gopalakrishnan, Director, presided at the valedictory function.
The 22nd RAC meeting was held during 15th-16th March, 2018 chaired by Prof. Dr. N. R. Menon, Co-Chairman, Board of Directors, Nansen Environmental Research Centre (India). Other members of the RAC included Dr. A.R. Thirunavukarasu, Principal Scientist (Retd.), CIBA, Chennai; Dr. Madan Mohan, Retd. ADG (Marine Fisheries,) ICAR, & Director of Fisheries, Punjab; Dr. S.K. Chakraborty, Principal Scientist (Retd.), CIFE, Mumbai; Dr. V. N. Sanjeevan, former Director, Centre for Marine Living Resources & Ecology, Ministry of Earth Sciences; Dr. Pravin P. ADG (Marine Fisheries), ICAR, New Delhi and Dr. A. Gopalakrishnan, Director, ICAR-CMFRI. Dr. P. Vijayagopal, Principal Scientist, and Member Secretary, RAC co-ordinated the programme.

Stakeholders' meetings organised

Stakeholders' Workshop on current issues in the marine fisheries sector was held in Kochi on 20th March, 2018. A Farmers Meet in connection with the operationalization of the E-commerce mobile app and website was also organised on 21st March, 2018. The etc.) needed to avoid unhealthy competition was fixed for several fish species. It was also decided to create categories 'Whole', 'Cleaned & Sliced' and 'Bulk' under which appropriate products could be added by the fishermen/fish farmers. Detailed discussions on logistic support required and future plans were held and it was decided to initiate sales with mass publicity. Dr. N. Aswathy, Dr. T. M. Najmudeen and Dr. P. Kaladharan participated in the discussions.

The Mangalore Research Centre in collaboration with Karnataka State Fisheries Department organized the stakeholders meeting on 2nd March, 2018 at Taluk Panchayat Office, Udupi. Mr. Pramod Madhvaraj, Minister for Fisheries and Youth services & Sports, Karnataka State inaugurated and presided over the function. The concept of Ecosystem Approach to Fisheries Management (EAFM) was introduced on this occasion for conservation of marine fishery resources in the state.

An interactive event was chaired by Dr. P. U. Zachariah, Head, Demersal Fisheries Division and Principal Investigator of the NICRA Project operated in ICAR-CMFRI. Farmers/fishermen registered as vendors were guided to upload their products in the www.marinefishsales.com. Website developed in the NICRA project. The meeting decided that fixing fish product rate will be the responsibility and privilege of vendors. A common minimum price based on fish specifications (size, count, etc.) was fixed for several fish species.
International Women's Day celebrated

At Headquarters, Women's Cell of ICAR-CMFRI organized a Colloquium on "Kidney Diseases: What One Should Know" by a team of Doctors led by Dr. Rajesh R. Nair, Head, Department of Nephrology, Amrita Institute of Medical Sciences, Kochi on 8th March, 2018 which was attended by all staff. At Karwar Research Centre Mrs. Nafisa H. A. and Mr. Nitin Raikar, advocates in the District Legal Services Authority, Karwar, spoke about different laws related to women such as domestic violence, workplace harassment, marriage, divorce, property and other offences against women and children in the programme attended by all staff of the centre.

The Womens Cell at Kochi also organized a women empowerment programme by arranging a motivational talk by veteran actor and Ex-MP Urvashi Sharada. While sharing her life experience, Ms. Sharada emphasized that real empowerment lies in women recognizing their own strength.

Awards & Recognitions

- Dr. V. Kripa, Head, Fishery Environment Management Division was selected as the external Reviewer of the IPCC Special Report on the Ocean and Cryosphere in a Changing Climate.
- Dr. Shyam S. Salim inducted as ExCom Member of the International Institute of Fisheries Economics & Trade (IIFET) - and elected as member of Executive Committee of IIFET for a period of four years.
- The Best Poster award in International Symposium SAFARI-2 was received by Drs. Kripa, V., Shelton Padua, Jeyabaskaran R., Prema D., Said Koya K. P. and Mohamed K. S. in the session on Marine Fisheries Management
- Best Paper award in International Symposium SAFARI-2 was won by Drs. P. S. Swathilekshmi, Dr. Shyam S. Salim and R. Narayan Kumar in the session on Socio-Economics and ICT.
- Mumbai Research Centre in collaboration with Lokmanya Tilak Blood Bank (TSSIA), Thane organised a Blood Donation Camp on 2nd February, 2018 in which 33 volunteers from ICAR-CIFE and ICAR-CMFRI, Mumbai participated. A certificate of appreciation was awarded to the centre for its participation and support for the blood donation campaign.
The Second Sub-Committee of the Committee of Parliament on Official Language inspected the Official Language activities of ICAR-Central Marine Fisheries Research Institute, Cochin on 22nd January, 2018. The inspection committee comprised of Dr. Prasanna Kumar Patsani, MP (Lok Sabha), Convener, Dr. Sunil Baliram Gayakwad, MP (Lok Sabha), Dr. Lakshmi Narayan Yadav, MP (Lok Sabha), Dr. Sathyendra Singh, Senior Research Officer, Mr. Vikas Varma, Hindi Officer, Mrs. Neeraja, Research Assistant and Mr. Abdul Moheeb, Assistant. Dr. P. Pravin, Assistant Director General (Marine Fisheries), ICAR, New Delhi, Dr. A. Gopalakrishnan, Director, ICAR-CMFRI, Mrs. Seema Chopra, Director (OL), ICAR, Mr. C. Muralidharan, Chief Administrative Officer, Mr. Navin Kumar Yadav, Assistant Director (OL), Mrs. E. K. Uma, Asst. Chief Technical Officer (Hindi), from ICAR-CMFRI, Kochi and Mr. Manoj Kumar, ICAR, also attended the inspection meeting. The Official Language implementation activities of ICAR-CMFRI were reported to the committee during the inspection.

Hindi Workshops organised

- At Tuticorin Research Centre on 24th February, 2018 attended by all scientific, technical and skilled supporting staff members of the centre.
- At Headquarters on 27th February, 2018 attended by 28 officers and staff.
- At Karwar Research Centre on 17th March, 2018 attended by all scientific, technical and skilled supporting staff members of the centre.

OLIC Meeting

The quarterly meeting of Official Language Implementation Committee of the Institute was held on 31st March, 2018 under the Chairmanship of Dr. A. Gopalakrishnan, Director, ICAR-CMFRI. Official Language activities for the quarter January-March, 2018 were reviewed and decisions were taken for further improvement. First issue of Hindi Half yearly In House Magazine ‘Matsyagandha’ was also released.

Fish seed sales

Sale of ornamental fishes and silver pompano fingerlings was conducted at the Mandapam Regional Centre of ICAR-CMFRI during January to March 2018 and generated a revenue of ₹ 1,66,288.

(Reported by A. K. Abdul Nazar, R. Jayakumar, G. Tamilselvi, M. Sakhivellu, P. Rameshkumar, Johnson, B., Ameer Kumar Samat, K. K. Anikuttan & M. Sankar, Mandapam Regional Centre)
Human Resources Development

- Dr. P. S. Asha attended the "International training workshop on Meiofauna" at Department of Marine Biology and Biochemistry, School of Marine Science, CUSAT, Kochi during 6th to 9th February, 2018.
- Dr. Joe K. Kizhakudan attended DST, Govt. of India, sponsored training programme on "Managing Innovations and Technology for Competitiveness." conducted from 22nd January - 2nd February, 2018 at the Administrative Staff College of India, Hyderabad.
- Dr. Rekha J. Nair, Mr. Vivekanand Bharti, Mr. Vinaya Kumar Vase and Mr. Abdul Azeem P., attended the Pre-Symposium Training on Satellite data for fisheries and Aquaculture as part of the Second International Symposium SAFARI 2 on Remote Sensing for Ecosystem Analysis and Fisheries during 12th - 14th January, 2018 at ICAR-CMFRI, Kochi, Kerala.
- Dr. J. Jayasankar attended the two day workshop on "Big Data Analysis in Agriculture" organized by ICAR NAARM, Hyderabad during 8th-9th February 2018.
- Dr. Josileen Jose and Dr. Rekha Chakraborty attended the International Workshop on Taxonomy of Heenit Crabs organised by the Department of Aquatic Biology and Fisheries, University of Kerala on 20-21 February 2018.
- Ms. Shikha Rahangdale, participated in training workshop on ‘Biodiversity conservation for women scientists/technologists’ at Wildlife Institute of India, Dehradun from 19th to 23rd March, 2018.

Exhibitions

- Science exhibition at MES college Aluva from 28th February, 2018 to 1st March, 2018 and the exhibition in connection with the SAFARI -2 international conference at Kochi from 15th to 17th January, 2018 was co-ordinated by ATIC.
- The Mandapam Regional centre put up stalls exposition on the marine resources from to 8th February, 2018 organised by the Gulf of Mannar Biosphere Reserve Trust (GOMBRT), at Ramanathapuram.

Visitors

Ms. I. Rani Kumudini, IAS, CEO, NFDB visited the Mangalore Research Centre for discussions regarding fishery development along coastal Karnataka on 27 January 2018. She visited Veraval Regional Centre of ICAR-CMFRI on 1st of February 2018 accompanied by Dr. C. R. K. Reddy, Chief Scientist, CSIR-Central Salt and Marine Chemical Research Institute, Bhavnagar. The guests interacted with invited stakeholders comprising prospective sea cage farmers, fishermen and members of the Siddi tribals involved in sea cage farming activities under ICAR-CMFRI guidance. She also visited Mandapam Regional Centre on 12th and 13th March, 2018 to review the progress of NFDB project on ‘Enhancing production of farmed Cobia Rachycentron canadum through the establishment of broodbank and supply of larvae to States for seed production’. She also participated in a sea ranching programme held on 3rd March 2018, at Thonthurai, Gulf of Mannar by ICAR-CMFRI where around five lakh PL 30 stage of the shrimp Penaeus semisulcatus were sea ranchered by the fishermen from Mandapam region. Dr. S. Felix, Vice Chancellor, Tamil Nadu Dr. J. Jayalalithaa Fisheries University, Shri. Issac Jayakumar, Deputy Director of Fisheries, Ramanathapuram, Dr. A. K. Abdul Nazar, Scientist-in-Charge and Scientists of ICAR-CMFRI, Mandapam were also present on the occasion.
- Dr. Pravin P., ADG (Marine Fisheries), ICAR, visited and Vizhinjam Research Centre on 19th January, 2018 and Mumbai Research Centre on 20th February, 2018.
- Dr. J. Jayasankar attended the two day workshop on “Big Data Analysis in Agriculture” organized by ICAR NAARM, Hyderabad during 8th-9th February 2018.
- Dr. Josileen Jose and Dr. Rekha Chakraborty attended the International Workshop on Taxonomy of Heenit Crabs organised by the Department of Aquatic Biology and Fisheries, University of Kerala on 20-21 February 2018.
- Dr. P. S. Asha attended the “International training workshop on Meiofauna” at Department of Marine Biology and Biochemistry, School of Marine Science, CUSAT, Kochi during 6th to 9th February, 2018.
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Welcome to Ms. Rani Kumudini, IAS, at Veraval Regional Centre Ms. Rani Kumudini, IAS, in the cobia larviculture facility at Mandapam
Live webcast of Prime Minister's inaugural speech at Krishi Unnati Mela

Live webcast attended by farmers

Live webcast of Prime Minister's speech during inauguration of biennial KVK conference and Krishi Unnati mela was done by KVK at ICAR-CMFRI, Kochi on 17th March 2018. The Petroleum Conservation Association also conducted an exhibition of low cost biogas models at the venue. Assorted seed packets for the kitchen gardens were distributed to farmers present. Subsequently, training on rooftop fruit cultivation and farmer scientist interface was also conducted. The event was attended by 265 selected farmers.

KVK participated in the Agri-Aqua-Food fest and exhibition as part of the Second International SAFARI Symposium during 15th to 17th January 2018. Test marketing of Pokkali Farmer Producer company products such as Pokkali raw rice, Pokkali parboiled rice, Pokkali rice powder, Pokkali dried shrimp was also done.

In Memoriam

Prof. (Dr.) N.R. Menon, Chairman of Research Advisory Committee of ICAR-CMFRI passed away on 18 March 2018 at Kochi. An eminent scientist and expert in field of fisheries oceanography, marine pollution and coastal zone management, he was part of the International Indian Ocean Expedition during the sixties. His scientific career spanned more than 40 years in various research institutes in India. As member of various national organisations and committees including the Kerala State Coastal Zone Management Authority, National Fisheries Development Board and Working Group of Experts on Revalidation of Potential Fishery Yield from the Indian EEZ his contributions were highly valued. He was holding the position of Dean, Faculty of Climate Variability and Aquatic Ecosystems, Kerala University of Fisheries and Ocean Studies, Kochi and Co-Chairman, Board of Directors, Nansen Environmental Research Centre India (NERCI), Kochi. He is survived by his wife Indira Menon and children Dr. Anuradha Menon and Dr. Aravind Menon.
Programme participations

- Dr. A. Gopalakrishnan, Director, attended a meeting with Dr. T. Mohapatra, Secretary, DARE and DG, ICAR on 2nd and 3rd January, 2018.
  Attended the Directors’ Conference held at NASC Complex, Pusa, New Delhi on 8th & 9th March, 2018.
- Dr. K. Sunil Muhammed attended Aquaculture Kerala 2018 - A Blue Revolution Initiative held on 10th-11th February, 2018 at Kannur, Kerala.
  Attended a meeting for presentation on the issues related to establishment of commercial Pearl Production in A&N Islands at Raj Niwas, Port Blair on 8th March 2018.
- Dr. Veerendra Veer Singh, SIC, Mumbai Research Centre, participated in National Conference on empowerment of rural communities through aquaculture on 10th February, 2018 organized by College of Fisheries, Ratnagiri.
- Dr. Prathibha Rohit, SIC, Mangalore Research Centre, attended inter institutional collaborative project discussion with NIO, Goa on 16th March 2018.
- Dr. P. Laxmilatha, SIC, Madras Research Centre attended a meeting with World Fisheries Expert Consultant on 20th February 2018 at the Dept. of Fisheries, Chennai to review the progress on bivalve farming, fisheries database management work plan and market survey under the FIMSUL II project.
  Participated in the review meeting with World Bank Officials on the progress made in the Database development project of FIMSUL-II Component-3 at Directorate of Fisheries, Chennai during 20th-22nd February, 2018.
- Dr. Shubhadeep Ghosh, SIC, Visakhapatnam Regional Centre and Dr. Ritish Ranjan attended a meeting with Joint Secretary (Fisheries) on 12th January 2018 at Krishi Bhawan, New Delhi on the follow up of IORA Workshop on "Marine Aquaculture and Fish Health Management" held on 21st-28th November 2017, at Situbondo, East Java Province, Indonesia and marine aquaculture of groups in India.
- Dr. Jayasree Loka, SIC, Karwar Research Centre participated in a meeting organized at Mangalore Research Centre, ICAR CMFRI in association with state fisheries Department and NFDB, Hyderabad on 27th January, 2018.
- Dr. V. Kripa and Dr. P. Kaladharan attended a workshop and brain storming under the GCRF Plastics in Society-Research and Innovation Hub in India during 28-29 March 2018 at the Centre for Product Development and Manufacturing, IIISc, Bengaluru.
- Dr. Prathibha Rohit, Dr. Dineshbabu A., P. Geetha Sasikumar and Dr. Bindu Sulochanan attended meeting organized by Karnataka State Pollution Control Board, at NITK Surathkal on 9th February 2018.
- Dr. R. Narayanakumar, attended the Institute Management Committee (IMC) Meeting of ICAR-CMFRI as Member on 11th January and 19th March, 2018.
- Dr. T. V. Sathianandkan, Dr. J. Jayasankar and Dr. K. G. Mini. functioned as resource persons for Refresher Training Course on Stock Assessment of Tropical Fishes for Bangladesh Fisheries Officials organised by the Bay of Bengal Programme Inter Governmental Organisation at Chittagong, Bangladesh during 28th January - 1st February 2018.
- Dr. Prathibha Rohit, Dr. E. M. Abdussamad, Dr. Shubhadeep Ghosh, Dr. R. Narayanakumar and Dr. Shyam S. Salim attended a workshop "National Consultation on Fishery Performance Indicators for Yellowfin tuna and Skipjack tuna" conducted by BOBP-IGO on 12th & 13th March, 2018 in Chennai.
- Dr. Shyam S. Salim and Dr. P. S. Swathielskshini attended the 9th meeting of Project Appraisal and Monitoring Committee (PAMC) on Ocean Science and Resources held during 11th-12th January 2018 at Indian National Centre for Ocean Information services (INCOIS), Hyderabad.
- Dr. P. Shinoj attended meeting of the Task force on Fishery Subsidies held at Krishi Bhavan, New Delhi on 28th February, 2018.
- Dr. Imelda Joseph, Dr. Rekha J. Nair and Dr. N. Aswathy attended the National Conference on ”Technological Empowerment of Women” organized by the National Academy of Sciences, India (NASI) from 8th - 9th March, 2018 in New Delhi.
- Dr. Grinson George attended the project award ceremony of the DST-INDO-UK programme at New Delhi on 19th February, 2018.
- Ms. Saloni Shivam, attended the Consultative Group Meeting of Mormugao Zonal Base of Fishery Survey of India at Mormugao, Goa on 2nd February, 2018.
- Ms. Muktha M., attended the Consultative Group Meeting of Fishery Survey of India, Visakhapatnam on 9th February 2018.
- Dr. Anulekshmi Chellappan, attended consultative meeting at Fishery Survey of India, Mumbai, on 23rd February, 2018.
- Dr. T. M. Najmudeen attended the NICRA Modeling Review Workshop at IARI, New Delhi on 12th-13th February 2018.
- Mr. Loveson Edward L, attended a District level Workshop / Awareness programme on Bio-Diversity conservation conducted by AP State Bio-Diversity Board on 30th January 2018 at Visakhapatnam.
- Mr. Kapil S. Sukhdhane, participated in "National Workshop on Coastal Zone Management" held on 12th-13th January, 2018 at Gujarat Ecology Commission, Gandhinagar.
- Dr. P. Kaladharan imparted trainings on seaweed farming under the Climate Smart Village (CSV) programme under NICRA Phase II at Alvekodi village , Kundapura during 7-8 March, 2018 and demonstration of seaweed culture in net tubes integrated with fish and mussel culture on 24th March, 2018 at Vadakumbad Lake, Chalyam.
- Dr. Anulekshmi Chellappan, attended meeting regarding proposed INPFT port consultancy project. Vadavhan on 15th and 22nd March, 2018 at Mumbai.
- Mr. Ajay D. Nakhawa attended Stakeholders Meet with Maharashtra Raja Macchimar Mahasangh organized by District Collector, Palghar on 15th March, 2018.
- Dr. G. B. Purushottama participated in the seminar on “Usage of simple Hindi in official communication” on 26th March, 2018 at Mangalore Refinery and Petrochemicals Limited, Karnataka, Mangaluru.
- Shri Sajeel C. K., ACTO, attended Taraporevala Aquarium Renovation Committee Meeting at the Office of the Commissioner of Fisheries, Mumbai on 16th January and 27th February, 2018.
### PROMOTIONS

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<td>Dr. (Mrs.) C. P. Suja, Senior Scientist</td>
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<td>Tuticorin Research Centre</td>
<td>07.11.2017</td>
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<td>Dr. Shubhadeep Ghosh, Senior Scientist</td>
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<td>Visakhapatnam Regional Centre</td>
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<td>Dr. T. M. Najmudeen, Senior Scientist</td>
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<td>Mandapam Regional Centre</td>
<td>18.01.2018</td>
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<td>Mr. R. Balakrishnan, Upper Division Clerk</td>
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<td>Mr. Sunil A.T., Upper Division Clerk</td>
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<td>Mr. Rajesh T.K., Skilled Support Staff</td>
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### TRANSFERS

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<td>Mr. Febeena P.A., Junior Accounts Officer</td>
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### RESIGNATION

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<td>Mrs. Anju E. T. Skilled Support Staff</td>
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### MEETINGS HELD

- Research Advisory Committee meeting was held on March 15 & 16, 2018
- 82nd Institute Management Committee (IMC) meeting was held on January 11, 2018
- 83rd Institute Management Committee (IMC) meeting was held on March 19, 2018

### RETIREMENTS ON SUPERANNUATION

- Shri. P. Villan, Senior Technical Assistant
  - Mandapam Regional Centre
  - 31.01.2018

- Dr. M. S. Madan, Principal Scientist
  - Tuticorin Research Centre
  - 28.02.2018

- Dr. J. D. Sarang, Technical Officer
  - Mumbai Research Centre
  - 28.02.2018

- Smt. C. Rajeswari, Assistant
  - Tuticorin Research Centre
  - 31.03.2018

- Shri. S. Enasteen, Technical Officer (Deckhand)
  - Tuticorin Research Centre
  - 31.03.2018
Cage farming training under TSP programme

see page 11

Cadalmin
CMFRI Newsletter

Cadalmin, the CMFRI Newsletter is a quarterly publication of the Central Marine Fisheries Research Institute, Kochi. The publication gives an insight into the major events of the quarter, besides highlighting the salient findings in the research front and dissemination of technological know-how to the farming community.