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एक कदम स्वच्छता की ओर



Dr. Trilochan Mohapatra, DG, ICAR in the Marine finfish hatchery at Vizhinjam Research Centre

see page 3



हर कदम, हर उभार
किसानों का हमसफर
भारतीय कृषि अनुसंधान परिषद

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Indian Council of Agricultural Research
CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
P.B. No. 1603, Ernakulam North P.O., Kochi - 682 018, Kerala, India

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DIRECTOR SPEAKS



Warm greetings to all.

As year 2017 comes to close, it is time to take stock of our achievements and plan ahead for the new year. The past year was fruitful and the institute has successfully addressed various challenges and scaled new heights. While celebrating its Platinum Jubilee Year in 2017 a new regional research centre at Digha was opened that will address the challenges in developing the marine fisheries sector of the north east coast of India. Several outcomes with societal benefits like mKrishi®, deployment of artificial reefs, GIS based databases of marine fisheries related infrastructure and marine fishery resources and the development of nutraceuticals happened through focussed and untiring efforts. Programmes aimed at skill development and improving income of fishermen and fish farmers

were organised. In collaboration with NITI Aayog, the institute hosted the workshop on Sustainable Development Goal 14 (SDG 14) dealing with life below water which is one among the 17 SDGs identified by the United Nations. Brood Banks to cater to needs of the fish farmers for finfish seed of high value marine finfish, have become possible with DADF funding. Development of an indigenous Marine Fisheries Code incorporating international best practices and guidelines, as a touchstone for the sustainable management of marine fishery resources in India, putting Fishery Improvement Plans in motion and the success in seed production of more finfish species with high mariculture potential such as the lethrinid Pink Ear Emperor and the carangid Indian Pompano, were noteworthy achievements. The very severe cyclonic storm Ockhi that arrived in the last week of November devastated the marine fisheries sector and several fishermen from Kerala and Tamil Nadu lost their lives. This moment of tragedy also highlights the inevitability of increasingly unpredictable climate and weather patterns emerging on a global scale and the need to address the challenges arising because of the Climate Change phenomenon. It alerts the scientific society to the need for developing more robust early warning systems for natural disasters and the fishermen for greater adoption of sea safety measures and vessel tracking systems that can help reduce the possible damage in such situations. Let us move ahead on a positive note, reiterating our commitment to a healthy, sustainable fisheries sector in India and working together to usher in the Blue Revolution.

A. Gopalakrishnan
Director

About ICAR-CMFRI

The Central Marine Fisheries Research Institute, Kochi, is a premier research Institute under the Indian Council of Agricultural Research, devoted to research and training in marine fisheries and mariculture.

ICAR-CMFRI has three Regional Centres viz., Mandapam Camp, Visakhapatnam and Veraval and eight Research Centres located along the Indian coastline, catering to the marine fishery policy needs of all maritime states of the country.



Indigenous RAS facility dedicated to nation



Dr. Trilochan Mohapatra, DG, ICAR at the RAS facility in Visakhapatnam Regional Centre

Dr. Trilochan Mohapatra, Secretary, DARE and Director General, ICAR visited the Vizhinjam and Visakhapatnam Regional Research Centres of the Institute on 28th October and 7th November, 2017 respectively. The indigenous Re-Circulatory Aquaculture System (RAS) developed by the Visakhapatnam Regional Centre of ICAR-CMFRI was dedicated to the nation by the Hon' DG, ICAR on 7th November 2017. Dr. Shubhadeep Ghosh, Scientist-in-charge, Visakhapatnam Regional Centre welcomed the distinguished visitor and explained the activities of the centre. Established for facilitating broodstock maturation and spawning of marine finfish, the RAS facility minimizes

consumption and wastage of water and successfully overcomes the challenges of maintaining live broodstock in sea which involves high costs, bio-security problems and possible impacts on marine ecosystem. Dr. Mohapatra observed the functioning of the RAS where broodstock of orange spotted grouper (*Epinephelus coioides*) and Indian pompano (*Trachinotus mookalee*) are being maintained currently. He also visited the newly developed the live feed culture units set up for the brine shrimp *Artemia* and copepods besides the mariculture hatchery were rearing of grouper seeds and mass culture of algae and rotifers is progressing. An inhouse publication titled "Prioritized species for mariculture in India" was

released on the occasion by the Hon'ble DG who also interacted with the scientists and staff of the Institute.

The DG accompanied by Assistant Director General ICAR (IPTM & PME), Directors and scientists from various Institutes of ICAR such as CTCRI, CIFT, CSSRI, CPCRI, IIHR and ATARI also visited the Vizhinjam Research Centre of ICAR-CMFRI on 28th October 2017. Dr. A. Gopalakrishnan, Director ICAR-CMFRI apprised the hon' DG about the on going activities of the research centre. Appreciating the achievements DG urged the scientists to focus on implementation and widespread dissemination of technologies developed institute to the fishermen and fish farmers.

Pioneers in small-scale cage farming felicitated

To mark the decade-long success of cage farming technology in Karnataka, the Mangalore Research

Centre felicitated the first batch of small-scale finfish cage farmers of Uppunda district, as part of Platinum Jubilee

Celebrations of the institute. Farmers who adopted the cage farming technology of ICAR-CMFRI as well as the technical and skilled staff of the Research Centre who were actively involved in the hands-on demonstration and dissemination of the technology over the years, were honoured in a function held at Uppunda on 8th November 2017. Dr. Prathibha Rohit, Scientist-in-Charge of the Centre made a presentation on the location-specific evolution of the cage farming technology since 2008. Officials from Department of Fisheries, Govt. of Karnataka and traditional fishermen from Uppunda participated in the programme.



Farmers felicitated at Uppunda, Dakshina Kannada district of Karnataka

IMTA based cage culture initiated in Kadalundi Estuary

Calicut Research Centre launched two cages for fish culture in the Kadalundi estuary on 31st October, 2017 as a part of the Institute's Platinum Jubilee Celebrations. This is the first attempt to initiate cage culture in North Malabar region. As an innovation, Integration of mussel farming along with the cage culture of fishes, based on the principles of Integrated Multi-trophic Aquaculture (IMTA) was done. Red snapper fingerlings collected from the estuarine area were stocked (@ 300 numbers per cage) in the two Galvanised Iron cages of 4 x 4 m dimension. The fishes will be reared using low value fishes as feed. Mussel farming will be done on the periphery of the cages, on ropes, hanging from the outer frame of the cages. The institute has started this programme with the help of Mr. Ambali Baburaj, a



IMTA based cage culture unit set up in Kadalundi estuary

progressive fish farmer at Kadalundi who has earlier received the Innovative Fish Farmer Award constituted by ICAR. The event was inaugurated by the President of Kadalundi Panchayath, Mr. C. K. Ajayakumar by stocking the fingerlings in the cages in the presence of the Mr. C.

Rameshan, Village Panchayath Standing Committee Chairman, Kadalundi and Dr. P.K. Asokan, Scientist In Charge, Calicut Research Centre of ICAR-CMFRI, Kozhikode. Dr. K. Vinod, Principal Scientist and Dr. P. P. Suresh babu, Scientist also attended the programme.

Meet on fishers' perception of vulnerability to Climate Change

The Tuticorin Research Centre organised a fishermen meet titled 'Fishers perception of vulnerability to Climate change and adaptation strategies for the coastal villages of Thoothukudi'

under the National Innovations on Climate Resilient Agriculture (NICRA) project on 13th December, 2017. 52 fishermen from 15 villages actively participated in the event. The

vulnerability resource mapping which indicates the status of different resources such as mangroves, seagrass, coral reefs, fish farming etc., natural calamities, environmental changes, anthropogenic activities and industrial development that has occurred over the years to the present time in the respective villages was done. Thirumathi Bala Saraswathi, Assistant Director of Fisheries, Thoothukudi District inaugurated the programme. Dr. P. U. Zacharia, Head, Demersal Fisheries Division and Principal Investigator, NICRA and Dr. P. Kaladharan, Principal Scientist, addressed the fishermen. A handbook specially prepared for the fishermen in Tamil on Integrated Multi-trophic Aquaculture was also released on the occasion. Dr. P. P. Manojkumar, Scientist-in-charge and team from Tuticorin Research Centre comprising Dr. I. Jagadis, Dr. L. Ranjith, Mr. D. Linga Prabu, Ms. M. Kavitha, Mr. K. Diwakar and Mr. K. Karupasamy actively facilitated the meet.



Resource mapping for Vulnerability Analysis by the fishermen aided by the facilitators

Seabass harvested from sea cages in Chennai

Seabass reared in five sea cages operated by fisher youth off Kovalam, Chennai with technical guidance from ICAR-CMFRI under the FIMSUL II consultancy project on sea-cage farming, was harvested on 29th October 2017. The Tamil Nadu State Fisheries Minister launched the harvest Director of Fisheries and other senior officials of the Fisheries Department of Tamil Nadu were present.



Sea bass harvest inauguration

Successful harvest of Spiny lobster in Kutch

Under the technology transfer and the demonstration consultancy project of ICAR-CMFRI, Veraval Regional center joined hands with Adani Foundation for its project on 'Strengthening of the value chain for lobster fishery in the Sekhadiya fishing village through open sea cage farming of lobster' under its CSR activity. The

harvest of sea cage farm established by ICAR-CMFRI in Sekhadiya village for Pagadiya fisherman was held on 2nd November 2017. After 150 days of culture, the lobsters had reached an average range of 250 g. Dr. Imelda Joseph, Principal Scientist, Mariculture Division, ICAR-CMFRI, Mr. Mukesh Saxena, Vice president, Adani

Foundation Dr. Divu D, Scientist In-charge, Veraval regional center of ICAR-CMFRI, Dr. Aashish Kumar Jha, Scientist In-charge, Veraval Research center of ICAR-CIFT were present on the occasion besides the officials from the Fisheries Department of Gujarat and fishermen.

ICAR-CMFRI partners with ISRO to forecast Potential Fishing Zones

The institute has joined hands with the Indian Space Research Organisation (ISRO) to identify and forecast Potential Fishing Zones (PFZ), an area in sea where fishes are seen in abundance. In the first phase, ICAR-CMFRI and the Space Applications Centre (SAC) of the ISRO have jointly launched a research project for identifying, forecasting and monitoring PFZ in coastal and offshore waters of Tamil Nadu. The collaborative project named 'SAMUDRA' is aimed at helping fishermen easily locate shoals of fish without wasting time and fuel. The research work focuses on developing and running a satellite-based ocean forecasting model to provide PFZ advisories.

Augmenting fishermen livelihoods along Tamil Nadu coast

Artificial reefs were deployed with fishermen participation at several sites in Tamil Nadu, under the

consultancy mode with IFAD-PTSPLP funding. Sites included Ayyampettai and Periyakuppam in Cuddalore District, Thoduvaai and Chavadikuppam in Nagapattinam District. and Goonimedukuppam in Villipuram District between 30th September - 8th October 2017. Deployment was also carried out at Kovalam and Pallam sites in Kanyakumari District on 5th November

2017 and during 8th-9th November, 2017 respectively. Artificial reef monitoring subcommittee meetings were also held at the respective villages.

Oyster farms were also erected at 2 sites under the FIMSUL II project 'Promoting Coastal Mariculture for Alternate Livelihood Programmes under Fisheries Management and Sustainable Livelihood' in Tamil Nadu.

Setting up of oyster farms in progress



Agriculture Education Day celebrated

The Agriculture Education Day aimed at inculcating scientific temperament in the minds of students was celebrated in a befitting manner at the various research centres of the institute. In the function held at the Visakhapatnam Regional Centre on 4th December, 2017, lectures on various topics and an essay competition on the topic "Role of Agriculture in Poverty Alleviation in India" was held. A video film on 'Marine Debris' was also screened to create awareness among the students on Swachh Bharat who also took the Swachata Pledge. Dr. Shubhadeep Ghosh, Scientist In-charge of the Centre briefed the students about the different activities being carried out by ICAR for agriculture education and research.

The Tuticorin Research Centre of ICAR-CMFRI organised a student-scientist interactive meet on 5th December 2017 attended by 51 selected students from 10 schools. Dr P

The Mumbai Research Centre of ICAR-CMFRI joined hands with the ICAR-Central Institute for Research on Cotton Technology (ICAR-CIRCOT) to celebrate the Agriculture Education Day on 3rd December, 2017. Dr. P. G. Patil, Director, ICAR-CIRCOT, Dr. Tapas Bhattacharya, Vice Chancellor of Dr. B. S. Konkan Agriculture University, Dapoli, Dr. Gopal Krishna, Director & Vice Chancellor of ICAR-Central Institute of Fisheries Education (ICAR-CIFE), Dr. S.

S. Magar, Ex-Vice Chancellor of Dr. B. S. Konkan Agriculture University (DBSKKV), Dapoli, Mumbai and Dr. Veerendra Veer Singh, Scientist in charge, ICAR-CMFRI, Mumbai Research Centre were present. The experts who spoke on the occasion stressed the need for improving agricultural education with respect to skills, integration, collaboration and cooperation among various institutes. Stake-holders present included researchers, farmers, developers and



Celebrations at Mumbai Research Centre



Students interact with Scientists at Tuticorin Research Centre

users of the technology and representatives from various ICAR Institutes and State Agriculture Universities.



Students awarded prizes

Jawahar, Professor, Fisheries College, Tuticorin and the scientists from ICAR-CMFRI answered their queries. They also visited all the laboratories at the Centre. Selected students were also awarded prizes based on the interactions during the day. Students and teachers participated in the Agriculture Education Day celebrations held at the Vizhinjam Research Centre and Karwar Research Centre on 3rd December, 2017. The programme helped the students to know more about the sea and the various marine organisms.



Students visit Vizhinjam Research Centre

The status and prospects of insurance in fisheries sector studied

Institutional mechanisms to address risk and uncertainties in the fisheries sector have been grossly inadequate in India. To throw light on this aspect, a study on the status and prospects of fishery insurance was undertaken based on primary surveys in 5 coastal states. The results show that, but for a fair coverage of personal accident insurance programs in Kerala and Tamil Nadu, the adoption of marine hull, gear or equipment insurance is hardly at satisfactory levels in the maritime states. Similarly, household asset insurance coverage against unforeseen natural disasters, to which most of the coastal families are routinely exposed to, is abysmally low. A number of factors such as lack of awareness on

the need for risk management solutions, low resource base leading to poor affordability for available risk management options, lack of confidence on claim settlement procedures, etc. are identified as the main reasons for poor penetration of insurance among the fisherfolk. The dissuading factors for the insurance industry include a perception of high risk, profitability concerns, high chance of moral hazards and lack of adequate data about disaster risks. The study however emphasizes the need for catching up with rest of the sectors, as the investment stakes in fisheries has gathered weight in recent times. To bring about perceivable changes, it is proposed to ensure participation of grass-roots-level

organizations such as fishery cooperatives, NGOs and boat owner associations as intermediaries or partners for insurance administration. It also proposes to popularize micro-insurance initiatives among fishing community, to increase competition in the sector by incentivizing the entry of new players, to bring flexibility in insurance schemes through options such as payment of premium in instalments, leverage Information and Communication Technology (ICT) and space technology to modernize insurance administration, and, to develop a brigade of rural insurance agents or service providers to strengthen grass-roots-level support.

(Reported by P. Shinoj, Socio-economic, Extension and Technology Transfer Division)

Concept of 'Drought in the sea' proposed

The coastal upwelling zone off Kerala is one of the major habitats of the Indian oil sardine, *Sardinella longiceps*. The oil sardine fishery which supports the livelihood of coastal fisher families, has seen wide inter-annual fluctuations during the last 116 years. During this decade, the sardine fishery of Kerala declined to 46,000 tonnes in 2016 from an all-time peak of 3,99,000 tonnes in 2012. The reasons for decline in sardine fishery were investigated in detail and these were found to be due to fishery dependent and independent factors. One of the factors which affected the recruitment were the changes in sardine habitat during 2015.

Real time observations on SST and phytoplankton density in coastal waters off Kochi, Kerala which form one of the major sardine habitats showed an increase in SST and lowering of phytoplankton density during pre-monsoon period. Verification of these changes with satellite based values also indicated high temperature and low chlorophyll during 2015. The average SST was $28.6 \pm 0.18^\circ \text{C}$ during 2003 - 2014. The SST in 2015 ranged between $28.1 - 30.2^\circ \text{C}$ with an average of 28.09°C indicating a difference of 0.49°C . Similarly, the remotely sensed Chlorophyll *a* data which gives an

indication of the food available for the sardine was also considerably low, (0.27 mg m^{-3}) compared to 2003-2014 period ($0.47 \pm 0.09 \text{ mg m}^{-3}$). This combination of high SST and low food supports the real time observations and can be considered as short term drought in the coastal waters. Hence the concept of short term 'Oceanic Drought' is proposed to indicate the condition like above normal SST and below normal chlorophyll *a* in the ocean which can impact recruitment of commercially important fishes.

(Reported by V.Kripa, Head, Fishery Environment Management Division)

El Nino conditions affect oil sardine abundance and fishery

Since time immemorial a major issue in the oil sardine fishery is the periodic fluctuations in their abundance and fishery. Several studies were conducted over the years and several theories and hypothesis were tested. However, no conclusive findings arrived from these investigations. Observation on the biological response of oil sardines along the Kerala coast to *El Nino* provided clue to the cause of periodic fluctuations in the oil sardine abundance and fishery. The study spread over a period of seven years from 2011 to 2017, which cover *La Nina* and *El Nino* periods. During the *La Nina* period (2010-13) growth, sexual

maturity, spawning and recruitment processes were normal and the stock exhibited sufficient resilience even with high fishing pressure. With the onset of *El Nino* by 2014, drastic changes were observed in the biology of this fish, which included growth retardation, incidence of atretic ovaries followed by disruptions in normal gonadal development leading to spawning failure that apparently affected the recruitment process adversely. Targeted fishing for oil sardine continued unabated during this period and removed large portion of the available stock depleting it to an extremely low level. With the weakening of *El Nino* intensity

by 2016, improvement in growth and resumption of normal gonadal maturation was noticed. It seems from this study that the cyclic trend of oil sardine decline as also evident during earlier years, is a natural phenomenon associated with the onset and retreat of *El Nino*. Fisheries management measures should be of a precautionary approach during periods of adverse environmental conditions and include reduction in fishing pressure so that sufficiently high stock biomass will still be available to spawn and produce recruits.

(Reported by E.M. Abdussamad, U.Ganga, K. P. Said Koya, D. Prakasan and T.B. Rethesh, Pelagic Fisheries Division)

Multidimensional geospatial modeling for coastal Karnataka

The geospatial models are efficient decision support tools for monitoring and outlaying any coastal area. In an attempt to introduce the micro and macro level spatial planning by using GIS techniques for sustainable use of natural resource an exclusive geospatial

model was developed for the area. The pictorial 3D representation depicted the various uses of coastal ecosystem and human interfaces and helps in projecting possible interventions in future. This model has also aided in illustrating various activities such as aquaculture, energy

production, natural resource conservation, marine fishing and human recreation activities in the coastal belt of Karnataka.

(Reported by Mangalore Research Centre)

Unusual heavy landings of Long barrel squid at Mandapam

Long barrel squid *Uroteuthis* (*Photololigo*) *singhalensis* locally known as "Tube kanava" is a rare cephalopod in Pamban Therkuvadi Fish Landing centre. However, during the months of October and November 2017, bulk landing of this resource was recorded from fish trawlers operating at

depths of 62 to 110 m. Each vessel brought around 1.5 to 2 tonnes per day and around 50 boats were targetting the resource during the season. The average size of the squids ranged from 120 to 175 mm (mantle length) and 13 to 25 numbers of squids constituted one kilogram. Most of the catch was sent by

trucks to Kerala, especially Kochi where there is good demand. Remaining catch was sold in local market @ ₹ 80 to 135 per kg.

(Reported by Remya L. and U. Rajendran, Mandapam Regional Centre)

Data inputs from ICAR-CMFRI for the Coastal Regulation Zone (CRZ) management plans of Karnataka

Research inputs on coral reefs, turtle nesting grounds, seabirds, clam beds, oyster reefs, green mussel beds, mangrove areas, fish landing

centres, juvenile fishing grounds, finfish and bivalve mariculture sites and other geomorphological feature collected by the Mangalore Research Centre were

incorporated in the Coastal Regulation Zone (CRZ) Management Plan of Karnataka State

Strandings of spotted dolphin off Thoothukudi

Stranding of spotted dolphin (*Stenella attenuata*) in Punnakayal and nearby villages 27th and 28th November, 2017 was recorded. The stranded dolphins 2 to 2.35 m and weighed 70 to 130 kg each, 3 were females of which two were lactating and the other was a male. The stranding was initially observed on 27th November, 2017 by the fishermen of Punnakayal. A pod of around 40 dolphins were spotted at a distance of 6 to 7 nautical mile off Punnakayal where depth ranges from 40-60 m waters by the fishermen. Beating their flippers and caudal flukes and making distress sounds they were moving towards the shore. Fishermen aided by the Forest Department, Fisheries Department and Fire and Rescue Departments initiated the rescue operations and nearly 30-35 dolphins were directed back. However



Dead spotted dolphins on the seashore

four dead dolphins were recorded on the seashore in the late evening. The post mortem analysis was done by Veterinary officers of Forest Department and Professors of Veterinary College and Research Institute, Tirunelveli. There

were no visible marks of injury, deformity or attack of any external parasite on the body of the dead dolphins.

(Reported by L. Ranjith, PPManojkumar, K. P. Kanthan and K. Karupasamy)

Indo-German Workshop on marine fish stock assessment

An Indo-German training workshop on the use of Catch Maximum Sustainable Yield (CMSY) method for marine fish stock assessment was held at ICAR-CMFRI on 5th and 6th October 2017. The training that focussed on new approaches of fish stock assessment in cases of a data-poor environment, was given to participants comprising scientists and researchers from India and Bangladesh. Dr. Michael Vakily, Programme Director, GIZ India Biodiversity Programme, Dr. M.L.D. Palomares, Senior Scientist at the University of British Columbia, Canada and Ms. Crispina Binohlan, Research Associate, FishBase, Philippines delivered the training. Dr. Rainer Froese, Centre of Ocean Research, Germany interacted with the trainees through Skype and gave feedback during the hands-on training. Scientists from ICAR-CMFRI, officials from fisheries institutes in Bangladesh and



Dr. Michael Vakily inaugurated the workshop on CMSY

representatives from the Bay of Bengal Programme also attended the training-cum-workshop. Dr. T. V. Sathianandan, Head, Fishery Resources Assessment Division, ICAR-CMFRI proposed the vote of thanks. Dr. Dineshababu A. P., Dr. Somy Kuriakose, Dr. Mini, K. G., Dr. Eldo

Varghese, Dr. Geetha Sasikumar, Dr. S. Lakshmi Pillai, Dr. Shoba Joe Kizhakudan, Dr. U. Ganga, Dr. Rajesh K. M., Dr. T. M. Najmudeen, Ms. M. Muktha, Ms. F. Jasmin, Dr. Gyanranjan Dash, Mr. K. Mohammed Koya and Ms. M. Kavitha participated in the Training-Workshop.

CeRA Workshop organised



Participants of CeRA workshop

A training-cum-awareness workshop on Consortium of e-Resources in Agriculture (CeRA) was held on 15th December, 2017. Jointly organised by ICAR-Directorate of Knowledge Management in Agriculture (DKMU), Informatics publishing Ltd. (J-Gate) and ICAR-CMFRI it called for promoting ICT based information dissemination systems to improve agricultural research in the country. The CeRA is a consortia mode

of journal subscription and electronic information services which help in saving huge resources by avoiding duplication in journal subscription by various agricultural research institutes and universities under the National Agricultural Research System (NARS). The workshop aimed to create awareness in using CeRA on J-Gate platform. Dr. S. K. Singh, Project Director, ICAR-DKMA inaugurated the

programme. Librarians from the ICAR research institutes and agricultural universities located in Andhra Pradesh, Telangana, Karnataka, Tamil Nadu and Kerala attended the workshop. Mr. S. K. Joshi, Business Manager and in-charge of CeRA; Dr. G. Maheshwarudu, Head, Crustacean Fisheries Division, Dr. K. S. Shobhana, Scientist in Charge, Library, ICAR-CMFRI and Ms. P. Geetha, ICAR-CMFRI spoke on the occasion.

Workshop on Next Generation Sequencing

As part of the Platinum Jubilee celebrations of the institute, a workshop on "Next Generation Sequencing and its applications in fisheries and agricultural sciences for beginners" was organized by the Marine Biotechnology Division in collaboration with AgriGenome Labs Pvt. Ltd., Kochi during 7th-8th November, 2017. Dr. George Thomas, Chief Operating Officer, AgriGenome Labs inaugurated the workshop. 35 participants from various scientific institutions across the country were trained on various aspects of Next Generation Sequencing (NGS) technology including Sample Quality Control, library preparation, sequencing, application of transcriptome and whole genome data, studying unknown organisms and the application of small RNA and metagenomics in marine biology. A visit to AgriGenome Labs to give



Dr. George Thomas, Chief Operating Officer, AgriGenome Labs inaugurated the workshop on NGS

an exposure to the functioning of latest NGS equipments like Illumina HiSeq2000, MiSeq, PacBioRS and

Nanopore Minlon sequencer was also arranged.

(Reported by Vijayagopal P, Head, Marine Biotechnology Division)

Winter School to train researchers for the utilisation of satellite technology



Participants of the Winter School with Dr. N. R. Menon, Co-Chairman, NERCI and Dr. A. Gopalakrishnan, Director, ICAR-CMFRI

The 21-day Winter School on 'Structure and Functions of Marine Ecosystem: Fisheries' organised at the Headquarters during 1-21 December 2017, was attended by 22 participants from various research institutes, agricultural universities and colleges across the country. The programme was inaugurated by Dr. C. N. Ravishankar, Director, ICAR-CIFT. Valedictory function was held on 21st December, 2017 with Prof. (Dr.) N. R. Menon, Co-Chairman, NERCI as Chief Guest. Aimed at

strengthening the research network for the utilisation of satellite technology in India's marine fisheries sector, the Winter School provided hands-on training on using satellite based ocean colour datasets, mapping using Sea DAS, Q-GIS, Arc-GIS and using R, the statistical computing environment to the participants. Apart from the scientists of ICAR-CMFRI, experts from the Naval Physical and Oceanographic Laboratory (NPOL), National Remote Sensing Centre (NRSA); Indian National Centre for Ocean

Information Services (INCOIS), Cochin University of Science and Technology (CUSAT), Nansen Environmental Research Centre-India (NERCI), National Institute of Oceanography (NIO) and Kerala University of Fisheries and Ocean Studies (KUFOS) imparted training. The Fishery Resources Assessment Division (FRAD) of the institute coordinated the programme with the financial support of Indian Council of Agricultural Research (ICAR), New Delhi.

(Reported by Grinson George, Course Director of the Winter School)

Workshop on seagrass ecosystems



IMASES workshop in progress

Inception workshop on 'Identification of Marine Macrophytes and Assessment of Seagrass Ecosystem Services (IMASES-2017)' was organized at Mandapam Regional Centre of ICAR-CMFRI during 4-6, October, 2017. Dr. A. K. Abdul Nazar, Scientist-in-Charge inaugurated the

workshop. Dr. P. Kaladharan, Principal Investigator of the project along with the scientists and technical person associated with the project from Mandapam, Puri, Chennai, Vishakhapatnam, Calicut and Veraval Regional Research centres participated the workshop. Scientists from

CSMCRI-MARS., Mandapam and ICAR-CMFRI delivered lectures in the workshop. Field visit was arranged to Chinnapalam, Dhanuskodi and Devipattinam sea grass meadows. Dr. B. Johnson and Mr. S.Thirumalaiselvan, coordinated the workshop.

Project launch workshop on Fishery Management Plan for Lakshadweep

The In-house Project Resource assessment and management framework for sustainable marine fisheries of Lakshadweep was formally launched by Dr. A. Gopalakrishnan, Director, ICAR-CMFRI at Kavaratti on 30th November, 2017 at a function graced by senior officials of the Lakshadweep Administration. Department of Fisheries, Department of Panchayat and Rural Development, Department of Science & Technology, Marine Products Export Development Authority (MPEDA); besides fishers, members of the women self-help groups, NGOs etc. It was followed by the project launch workshop and consultation of ICAR-CMFRI with the Administration of U.T. of Lakshadweep for long-term association on island fisheries research. In his presidential speech, Director, ICAR-CMFRI highlighted the research priorities of the Institute for the marine fisheries of the country and promised to extend all technical support from ICAR-CMFRI for the Lakshadweep administration in implementing their prioritized schemes and programmes especially those under



Project launch at Kavaratti

the Blue Revolution platform of the Government of India. Dr M. P. Anwer, Director of Fisheries, Lakshadweep, Mr. T. Kasim, Chief Executive Officer, District Panchayat, Lakshadweep and Mr. K. Mohammed koya, Scientist and Principal Investigator of the project also spoke on the occasion. Discussions on specific areas such as the development of data collection system based on the scientific sampling design for estimation of species level landings in Lakshadweep; gainful utilisation of the fish waste generated from the masmin processing in the islands

for livelihood generation and cleanliness of the beach and lagoon; and opportunities in cage based sea farming (food fishes, bait fishes and ornamental fishes) in the islands were led by Dr.T.V. Sathianandan, Head, Fisheries Resources Assessment Division, Dr P. Vijayagopal, Head, Marine Biotechnology Division, and Dr Bobby Ignatius, Principal scientist, Mariculture Division, respectively. Proceedings enlisting specific actions was prepared and shared with Lakshadweep Administration for action.

(Reported by K. Mohammed Koya, Pelagic Fisheries Division)

Demonstrative Workshop on Best Practices in Trawl Fishing

A National level Demonstrative Workshop on "Data Collection through FGD for Best Trawl Practices" was held at Visakhapatnam Regional Centre of ICAR-CMFRI on 14th and 15th November 2017. The workshop was led

by Dr. G. Maheswarudu, Head, Crustacean Fisheries Division and Dr. A. P. Dineshbabu, Principal Scientist. Dr. R. Narayanakumar, Dr. P. S. Swathilekshmi, Dr. Sujitha Thomas, Dr. Anulekshmi Chellappan, Dr. Gyanranjan Dash, Dr.

Shubhadeep Ghosh, Dr. Indira Divipala, Dr. S. S. Raju, Mr. Rajesh Kumar Pradhan and scientists of the Centre also participated in the workshop.

- The LCA Workshop under NICRA was held in the Demersal Fisheries Division at Headquarters from 25-27 October 2017. Dr. P. U. Zacharia, Head, DFD and scientists Dr. Shoba Joe Kizhakudan, Dr. Sujitha Thomas, Dr. T. M. Najmudeen, Dr. K. V. Akhilesh and Mr. Ambarish P. Gop involved in the project at various research centres attended the programme.
- The Demersal Fisheries Division organised a meeting with the World Wide Fund for Nature (India) team regarding elasmobranch value chain survey on 24th October, 2017 at Headquarters. Dr. P. U. Zacharia, Head, DFD, CMFRI, Dr. Vinod Malayilethu, Senior Coordinator, Marine Conservation Programme, WWF-India and Dr. Mervin Fernandes, Coordinator, TRAFFIC-India were present. Dr. Shoba Joe Kizhakudan, Dr. Sujitha Thomas, Dr. Shyam Salim, Dr. Rekha J. Nair (Principal scientists), Dr. T. M. Najmudeen, Senior Scientist, Dr. K. V. Akhilesh, Mr. Ambarish P. Gop (scientists) attended the meeting.

Training

Sea Cage Farming of Cobia under Technology upgradation Scheme of NFDB

The training programme on 'Sea-cage Farming of Cobia' under the technology up-gradation scheme of NFDB was successfully organized at Mandapam Regional Centre of ICAR-CMFRI for the fisheries officials of State Fisheries Departments during 13th - 15th November 2017. A total of 18 fisheries officials representing Tamil Nadu, Andhra Pradesh, Kerala and West Bengal Fisheries Departments participated in the training. Hands on training in cage and net fabrication, feed management, growth assessment, net exchange, nursery management, packing & transportation of fish seed, stocking of fingerlings in cages and disease management. Field visit to farming site was also arranged. The valedictory



function was held on 15th November 2017. Dr. A. K. Abdul Nazar, Scientist-in-Charge distributed the certificate to participants. Dr. M. Sakthivel & Dr.

Johnson, B., Scientist coordinated the training programme.

(Reported by : Mandapam Regional Centre)

Multivendor E-Commerce Platform launched

To help fish farmers and fishermen sell their catch directly to the customers, a multi vendor e-commerce website and mobile app has been developed by ICAR-CMFRI under the National Innovations on Climate Resilient Agriculture (NICRA) project being implemented. The website marinefishsales.com and its mobile app named marinefishsales is an interface of multiple vendors and consumers with the institute as a facilitator, monitoring vendor profiles, order status and sales. It is envisaged as part of improving the income of the small scale fishers and coastal fishermen community whose livelihoods are often affected by Climate Change

related processes and help them to get better profits by avoiding middlemen in the market chain. Fishermen and fish farmers who want to sell their fish catch online may form Self-Help Groups (SHGs) and register with the platform. In the first phase the service will be offered in Ernakulam District and according to the

success of the initiative, it will be extended to other parts of the country. Dr. P. U. Zacharia, Principal Investigator, NICRA, Dr. N. Aswathy, Manager, Agricultural Technology Information Centre and Dr. G. Rojith, Research Associate, NICRA actively co-ordinated the programme.



Participants in NICRA Training Programme

Training on stratified multi stage random sampling design for fish landings data collection



Trainees from the Department of Fisheries

Aimed at coordinating the data collection methods related to fishing activities in the State, training in estimation of fish landings with a special focus on data collection methods, sampling methodologies, database creation and data validation was given to the officials from the Department of Fisheries, Kerala. The three-day programme

organised by the Fishery Resources Assessment Division (FRAD), also included visits to fish landing centres and fishing harbours and hands-on training in using the stratified multi stage random sampling design, a methodology developed by ICAR-CMFRI for estimation of marine fish landings in the country. Fisheries sub inspectors and

enumerators working under the State Fisheries Department in different districts attended the training programme. Scientists from the FRAD, Dr. T. V. Sathianandan, Dr. J. Jaysankar, Dr. Somy Kuriakose, Dr. K. G. Mini and Dr. Eldho Varghese led various training sessions during the programme.

Trainings on cage farming of marine fishes

Vizhinjam Research Centre organised a 3-day NFDB sponsored training programme on "Cage farming of commercially important marine fishes" from 6 to 8 December, 2017 at Perinad, Kollam district. 50 participants attended the training with theory and practical sessions in cage farming methods in seas and backwaters sponsored by the National Fisheries Development Board (NFDB).

Veraval Regional Centre initiated capacity building training in Open Sea cage culture for the fisher folk/entrepreneurs under a recently launched scheme of the Department of Fisheries, Govt. of Gujarat. 24 fishermen from Surat, Bhavnagar, Kotda, and Veraval were trained in various aspects of sea cage farming during October to December, 2017 period.



Practical classes on fish farming in cages at Perinad

Mussel culture training



Training to women for starting mussel culture

46 fisherwomen of North Kanara District sponsored by Dept. of Fisheries, Karwar were trained in mussel culture at Karwar Research Centre on 27th December, 2017.

Training for VHSE students

On-the job training programme on Advances in Fisheries and Aquaculture for vocational higher secondary students from

Kaippamangalam and Thevara was organized from 25th October, 2017 to 2nd November, 2017 through Agricultural Technology Information Centre (ATIC).

Dr. N. Aswathy, Manager, ATIC was the Course Director and 50 students from the coastal areas benefitted through the programme.

Training in microalgal culture techniques

Tuticorin Research Centre organised a one-day training programme for post-graduation level college students on 'marine microalgal culture' as part of the ongoing Platinum Jubilee Celebration. Mr. V. P. Nema, General Manager, Heavy

Water Plant, Dept. of Atomic Energy, Tuticorin inaugurated the function. Hands on training in techniques of microalgal isolation, identification, quantification, nutrient preparation for microalgal culture and stock/mass culture maintenance was

given by scientific team comprising Dr. C. P. Suja, Mr. C. Kalidas and Mr. D. Linga Prabu. A brochure on micro algal culture was released.

Exhibitions

The Institute participated and set up stalls at following events. The exhibitions were coordinated through the Agricultural Technology Information Centre (ATIC) by Dr. N. Aswathy, Senior Scientist and Smt. K. P. Salini, Senior Technical officer along with staff from ATIC and SEETTD.

- World Food India exhibition, New Delhi from 3rd November, 2017 to 5th November, 2017. The exhibition was inaugurated by Hon'ble Prime Minister Narendra Modi on 3rd November, 2017.
- World Fisheries Day exhibition from 21-23 November, 2017 at NASC, Pusa, New Delhi. The exhibition was inaugurated by Shri. Radha Mohan Singh, Union Minister of Agriculture and Farmers Welfare.
- Science exhibition at Jama-ath residential public school, Padamugal, Kochi on 1st and 2nd November, 2017.
- Exhibition in connection with 11th IFAF at Le-Meridien, Kochi from 21st-24th November, 2017.



Dr. T. Mohapatra, DG, ICAR, Dr. J. K. Jena, DDG, Fisheries, ICAR and Dr. A. Gopalakrishnan, Director, ICAR-CMFRI at CMFRI exhibition stall during the 11th IFAF conference



Shri. Radha Mohan Singh, Union Minister of Agriculture and Ms. Rani Kumudini, IAS Chief Executive, NFDB visiting CMFRI exhibition stall IARI, New Delhi



Dr. T. Mohapatra, DG, ICAR at CMFRI exhibition stall in ICAR-CTCRI

- Vizhinjam Research Centre of CMFRI set up an Exhibition stall at CTCRI, Sreekariyam, Thiruvananthapuram on the occasion of the inauguration of the Tuber Crops Technology Conclave & Centre-State Interface Meeting to enhance productivity in rice and horticultural crops on 28th October, 2017.

Visitors

- Mr. Chhabilendra Roul, IAS, Additional Secretary DARE & Secretary, ICAR, Ministry of Agriculture and Farmers' Welfare, New Delhi, visited Mandapam Regional Centre on 29th December, 2017.
- Noted agriculture economist and full-time member of the NITI Aayog Prof. Ramesh Chand visited ICAR-CMFRI



Ms. Rani Kumudni, CE, NFDB at Interaction Meet

Headquarters on 17th November, 2017.

- Ms. I Rani Kumudni, IAS, (Chief Executive National Fisheries Development Board, Hyderabad visited Headquarters on 30th October, 2018 and interacted with scientists, farmers and entrepreneurs in the Fisheries Sector.
- Dr. Sanjay Pandey, Assistant Commissioner (Fy.), Department of Animal Husbandry, Dairying & Fisheries (DADF), Ministry of Agriculture & Farmers Welfare, Govt. of India visited Veraval Regional Centre of CMFRI on 11th October, 2017.



Prof. Ramesh Chand, Member NITI Aayog interacting with scientists

Awards

ICAR-CMFRI team champions in ICAR South Zone Sports Meet

In a hat-trick win, ICAR-CMFRI emerged as the overall champions in the ICAR South Zone Inter-Institute Sports Meet held during 9th -13th October, 2017 at the ICAR- Sugarcane Breeding Institute in Coimbatore. In the meet, 24 ICAR institutes based in Kerala,

Tamil Nadu, Karnataka, Andhra Pradesh and Telangana participated among which the ICAR-CMFRI team members became winners in team events such as football, volleyball and badminton. Individual champions emerged in the competitions for cycling (Shri. Prasad K.

G.) chess (Dr. Veena S), 4 x 100 m relay (Mr. P. Rajendran, Mr. Kaushik T. R., Mr. P. Shrinath, Mr. Vaibhav J. Ghorat), discus throw (Mr. Sukhdhane S. Kapil) and javelin throw (Ms. Smitha K). 54 staff members from the ICAR-CMFRI participated in the meet.



ICAR-CMFRI sports contingent 2017

Dr. Anusree V. Nair, Technical Assistant, Marine Biotechnology Division, won the Best Paper award for the work entitled "High throughput screening of nitrifiers through analytical methodologies: Validation and their implementation in marine microbes" by the 27th Swadeshi Science Congress held at Amrita Viswa Vidyapeetham, Amrita University, Vallikkavu, Kollam during 7th-9th November, 2017. The award winning paper authored by Anusree V. Nair, Mamuge F. Ismail, Reshma K. Janardhanan, Sumithra T Gopakumar and Vijayagopal P. was judged as the best paper in the session "Agriculture, Veterinary and Fisheries Science".

Research paper entitled 'Harvest strategies incorporating Minimum Legal Size in a mixed-species fishery along eastern Arabian Sea' authored by Prathibha Rohit, Geetha Sasikumar, A. P.



Dr. Anusree receiving the award at Swadeshi Science Congress

Dineshbabu, Sujitha Thomas, K. M. Rajesh, G. B. Purushottama, Divya Viswambharan, G. D. Nataraja and Karamathulla Sahib was adjudged as the Best poster under the session 'Fisheries Trade, Policy and Governance' during the 11th Indian Fisheries and Aquaculture Forum (11th IFAF) held at ICAR-Central Institute of Fisheries Technology, Kochi during 21st-24th November, 2017. The Best Poster Award was also conferred to team comprising Muktha Menon, F.

Jasmine, Madhumita Das, M. A. Jisnudev and Imelda Joseph for their poster entitled "First report on the reproductive biology and diet of the Indian Pompano *Trachinotus mookalee* (Cuvier, 1832) from Indian waters. Dr. R. Saravanan, Scientist, Marine Biodiversity Division, received best paper award for the presentation on "Traditional Knowledge of fisherfolk on the treatment methods for Jellyfish envenomation along Palk Bay and Gulf of Mannar".



Dr. Geetha Sasikumar receiving award at the 11th IFAF



Dr. R. Saravanan receiving award at the 11th IFAF

ICAR-CMFRI participates in the 10th Indian Expedition to Southern Ocean

Mr. K. K. Sajikumar, Molluscan Fisheries Division and Mr. N. Ragesh, Crustacean Fisheries Division participated in the 10th Indian Expedition to Southern Ocean (Antarctica) organized by National Centre for Antarctic and Ocean Research (NCAOR), Goa. The

expedition of 59 days onboard S. A. Agulhas extended upto the latitude of 67° S had around 35 participants from various organizations in India. Studies on cephalopod biodiversity and biomass in frontal region in Southern Ocean were carried out by the team from ICAR-CMFRI.



K. K. Sajikumar and N. Ragesh on board SA Agulhas in Southern Ocean

Working Group (WG) on Tissue Culture in ICAR-CMFRI was constituted with Dr. K. S. Sobhana (WG Leader) and Drs. C. P. Suja, Vidya Jayasankar and V. Srinivasa Raghavan as team members

Super Randonneur title for K. G. Jayaprasad



Mr. K. G. Jayaprasad, has been declared a Super Randonneur and he has won this title for the third consecutive year. Randonneuring is a long-distance cycling sport where, riders attempt courses of 200 km or more, passing through predetermined checkpoints every few tens of kilometres. Super Randonneur is a title given for completing a series of 200, 300, 400 and 600 kilometre events (brevets) within the same season. The international governing body for randonneuring is Audax Club Parisien (ACP) which works with other randonneuring organisations worldwide.

TOLIC Rolling Trophy for ICAR-CMFRI

Central Marine Fisheries Research Institute, Kochi bagged the Rajbhasha Rolling Trophy of Kochi Town Official Language Implementation Committee (TOLIC) for the best implementation of Official Language during 2016-17. Dr. G. Maheswarudu, Principal Scientist received the Rolling Trophy from Chief Commissioner, Central Excise and Customs, Kochi in the meeting held at Income Tax Office, Kochi on 8th November, 2017. Dr. Susmita Bhattacharya, Assistant Director (Implementation), Regional Implementation Office, Kochi was also present.

Dr. G. Maheswarudu receiving the Rolling Trophy



Valedictory function of Hindi Fortnight celebrations

The valedictory function of Hindi Fortnight Celebrations was held on 4th December, 2017 at Headquarters. Dr. G. Maheswarudu, Principal Scientist presided over the function. Mr. K. K. Ramachandran, Deputy Director (OL), Income Tax Office, Kochi was the Chief Guest. Cash prizes and certificates to the winners of various Hindi competitions, Hindi Incentive Scheme and winners of Platinum Jubilee Special Essay competition for High School students were distributed. Rajbhasha Rolling Trophy was won by the Fishery Resources Assessment Division (FRAD).



FRA Division receiving the Rajbhasha Rolling Trophy



Valedictory function held at Madras Research Centre

Hindi Week celebration were observed at the Madras Research Centre from 3rd-6th October 2017 and various competitions in Hindi were conducted for the staff of the Centre who participated with great enthusiasm. Dr P. R. Vasudevan, Senior Hindi Officer, Office of the Principal Accountant General, Chennai was the Chief Guest for the valedictory function. At Mumbai Research Centre Smt. Nirmala Samant Prabhavalkar Former Mayor of Mumbai, a High Court Advocate and former Chairperson of Maharashtra State Women's Commission. The valedictory function of Hindi Pakhwada/Hindi Chetana Maas-2017, held on 30th October, 2017 was presided by.

Hindi Workshops

- 25 Officers and staff attended the One day Hindi workshop on 'Use of Hindi in official work' conducted for the Officers and staff in Kochi on 22nd December, 2017. Spoken Hindi workshops were also organised at Mandapam Regional Centre on 1st December 2017, Tuticorin Research Centre on 16th December, 2017 and Karwar Research Centre on 29th December, 2017.

Official Language Inspections

The ICAR Committee on Official Language (Hindi) inspected Mumbai Research Centre on 16th November, 2017.



The ICAR Committee on Official Language at Mumbai Research Centre

- The quarterly meeting of Official Language Implementation Committee of the Institute was held on 18th December, 2017 under the Chairmanship of Dr. A. Gopalakrishnan, Director.
- Smt. E. K. Uma, ACTO (Hindi), Ms. Jasmine F. and Dr. Manas (scientists), attended the Annual Regional Conference conducted by Department of Official Language (SW), Ministry of Home Affairs, New Delhi at National Steel Authority, Visakhapatnam on 8th December, 2017. Mr. Kiren Rijiju, Hon'ble Minister of State for Home Affairs was the Chief Guest. Mr. Prabhas Jha, IAS, Secretary, Department of Official Language presided over the function.
- Smt. Vandana, V., Technical Assistant (Hindi Translator) attended 5 days Short Term Translation Course conducted by Kochi TOLIC (CG & PSU) in coordination with Central Translation Bureau, Bengaluru during 11th-15th December, 2017.

KVK (Ernakulam) News

Entrepreneurship Development Programme conducted

In an effort to develop entrepreneurs across the state for commercial production of soil-less media that the KVK has developed, an Entrepreneurship Development Programme (EDP) was conducted at ICAR-CMFRI, Kochi on 8th November, 2017. Soil less media that can be used as alternative to soil would solve the issue of lack of availability of quality top soil for urban farmers. Twenty five participants from various parts of Kerala attended the programme. Mechanized production of soil-less media was demonstrated and marketing strategies provided. The KVK will be providing continuous technology backstopping for those who venture in this enterprise.



EDP program on soil-less media

World Fisheries Day celebrated

The World Fisheries Day on 21st November was celebrated by conducting an Inland Fish Farmers' Meet at Kothamangalam, Ernakulam, Kerala. Around hundred local, progressive inland

fish farmers attended the programme. Local strategies that would double fish farmer's income were chalked out including prospects of farm tourism, business plans for fish seed rearing, feed

supply and farmer operated fish market. An Inland Fish Farmers' Task Force was also created. Shri. Antony John Member of Kerala Legislative Assembly inaugurated the programme.

- **Dr. A. Gopalakrishnan**, Director participated in the Writeshop for preparation of Guidelines on Open Sea Cage Culture in marine waters of India conducted under the chairmanship of Chief Executive, NFDB at Hyderabad on 13th October 2017.

Participated in the Centre-State Interactive meeting at ICAR-CTCRI, Thiruvananthapuram on 28th October 2017.

Attended the meeting of the "State level Co-ordination Committees on Doubling Farmers' Income by March 2022" under the Chairmanship of Prof. M.S. Swaminathan, renowned Agriculture Scientist and the Father of Indian Green Revolution held in New Delhi on 3rd November 2017.

Attended the meeting with Hon'ble Minister for Fisheries, Kerala to discuss on the conduct of an interstate Conference of the Fisheries Ministers on 9th November 2017.

Attended the Task-Force Committee Meeting for the National Mission-Mode Programme on 'Trans-Disciplinary Research for Improved Forecasting of Indian Marine Fisheries (TRIMFish)' under the chairmanship of Dr. Sunil Kumar Singh at CSIR-NIO, Goa on 14th & 15th November 2017.

Attended the Launch Workshop of the In-house project 'Resource assessment and management framework for sustainable marine fisheries of Lakshadweep' at Kavaratti on 30th November 2017.

Attended the meeting to revise/frame Recruitment Rules for fishing vessel crew for Fisheries Research Institutes under the chairmanship of Secretary, DARE & DG, ICAR at New Delhi on 6th December 2017.
- **Dr. K. S. Mohamed**, Head, MFD Attended a meeting on Impact of LED light fishing in coastal states held at Panaji, Goa on 4th October, 2017 chaired by Minister of Fisheries, Govt. of Goa.

Attended a meeting for discussing data collection system for marine fisheries landings and Marine Fisheries Code at Krishi Bhavan, Delhi on 24th October, 2017.

Attended the 1st Meeting of the Expert Committee for revalidation of potential fishery resources in the Indian EEZ at Fishery Survey of India, Mumbai on 4th November, 2017.
- **Dr. Veerendra Veer Singh**, SIC, Mumbai Research Centre coordinated and organized a stakeholders meet at Shrivardhan regarding upgraded mKrishi fisheries® mobile app technology of ICAR-CMFRI on 6th and 7th November 2017.

Presented the progress of collaborative project 'Time Series Oceanographic Observations (TSOOM) off Mumbai', at CSIR-NIO, Goa on 14th November, 2017.
- **Dr. Prathibha Rohit**, SIC, Mangalore Research Centre attended the workshop 'Neeli Kranthi' organized by Department of Fisheries, Govt. of Karnataka at Coondapura on 28th October, 2017.
- **Dr. Shubhadeep Ghosh**, SIC, Visakhapatnam Regional Centre attended the International Agri Hackathon conducted by the Andhra Pradesh State Government during 15th to 17th November 2017 at Visakhapatnam.
- **Dr. Shubhadeep Ghosh and Mr. M. Satish Kumar** attended a meeting headed by the Chief Minister of Andhra Pradesh on "Blue Revolution: Assistance for deep sea fishing" on 28th November 2017 at Vijayawada.
- **Dr. K. K. Joshi**, Head, MBD, attended the National Conclave on Mangrove Conservation organised by Wildlife Trust of India on 12th December 2017, at Kochi
- **Dr. P. Laxmilatha**, SIC Madras Research Centre participated in a meeting with the Fisheries Expert from World Bank Mission at the Directorate of Fisheries, Chennai with regard to progress on bivalve farming, fisheries database development and fish seed production for cage culture under the CDRRP-FIMSUL II project on 4th October 2017.
- **Dr. P. Laxmilatha, Dr. J. Jayasankar and Mr. D. Pugazhendi**, attended the meeting held on 1st December 2017 at the Directorate of Fisheries, Govt. of Tamil Nadu, to discuss the implementation of FIMSUL II project in Tamil Nadu.
- **Dr. P. P. Manojkumar**, SIC, Tuticorin Research Centre attended Bay of Bengal programme Inter-Governmental Organization organized 'Regional Dialogue on Management of Highly Migratory Fish Species in the Bay of Bengal' on 23rd November, 2017 at Kochi.
- **Dr. P. Laxmilatha and Dr. Joe K. Kizhakudan** attended a meeting at the Department for Fisheries and Fishermen Welfare, Puducherry on 6th December 2017 to discuss about the implementation of open sea cage culture programmes in UT of Puducherry as part of the CSS Blue Revolution scheme.
- **Dr. K. Vijayakumaran**, delivered an invited talk on 'Science Education in India' at the 27th Swadeshi Science Congress held at Amritha Vishwa Vidya Peetham, Amritha University, Kollam during 7th-9th November 2017.
- **Dr. Joe K. Kizhakudan**, attended the IMC meeting of ICAR-CIBA as Member on 28th October 2017.
- **Mr. Pralaya Ranjan Behera** attended a Board meeting of Andra Pradesh State Biodiversity Board at Vijayawada on 17th October 2017.
- **Dr. Shyam S. Salim** attended the World Fisheries Day meeting held in New Delhi during 20th-21st November 2017 and interacted with Secretary, DADF and Ms. I. Rani Kumudini, IAS, Chief Executive, National Fisheries Development Board, Hyderabad on the proposed E-marketing portal on fish markets and prices.
- **Dr. R. Jayakumar** participated in the Writeshop on preparation of 'Sea cage farming guidelines' held at NFDB, Hyderabad during 10th-12th October, 2017.

Participated in the Indo-Sri Lankan Joint Working Group on Fisheries held at New Delhi on 13th October, 2017.
- **Dr. R. Saravanan** participated in the India International Science Festival at Chennai during 13th-16th October, 2017.
- **Dr. P. Shinoj** attended the interim review meeting and final review meeting on 'Doubling Farmers' Income at Krishi Bhavan, New Delhi held respectively on 10th October and 3rd November, 2017.
- **Dr. P. S. Asha** attended the 14th Scientific Advisory Committee meeting of Krishi Vigyan Kendra, ICAR, Thoothukudi on 29th November, 2017.
- **Dr. N. Aswathy** presented papers in the 25th Annual conference of the Agricultural Economics Research Association held from 7th to 9th November, 2017 at NAARM, Hyderabad.
- **Dr. Vidya Jayasankar and Dr. V. Srinivasa Raghavan** participated as resource person in the DBT sponsored national training programme in molecular biology & biotechnology for fisheries professionals at the Tuticorin Research Centre of ICAR-CMFRI during 6th-8th December 2017.
- **Dr. Anulekshmi Chellappan** attended JNPT Special Cell Meetings on 12th October, 2017 and 31st October, 2017 to discuss about the development of proposed JNPT port project at VadHAVAN.
- **Dr. B. Johnson**, participated in the 21 days CAFT Training on 'Advances in Instructional Technologies in Enhancing Teaching-Learning and Training

Competencies' organized by Division of Agricultural Extension, IARI, New Delhi during 13th October to 2nd November, 2017.

- **Dr. K. K. Anikuttan, Dr. Ritesh Ranjan, Dr. Suresh Babu P. P., Mr. Anuraj A., Dr. Praveen N. Dube, Mr. G. Hanumantha Rao and Mrs. Sonali S. Mhaddolkar** participated in the AINP- HRD Training on Live Feed culture with special reference to copepod culture organized at Vizhinjam Research Centre of ICAR-CMFRI during 13th-16th, December 2017.
- **Mr. Loveson Edward** attended the orientation program on the usage and analysis of antibiotics, chemicals, feed additives and other aqua inputs for aqua stakeholders conducted by Department of Fisheries, Govt. of Andhra Pradesh on 14th December 2017 at CIFNET, Visakhapatnam.
- **Mrs. Divya Viswambharan and Mr. Nataraja G. D.** attended a training programme on "Good Aquaculture Practices and Food Safety Preventative Controls for aquaculture farms" held at Mangalore organized by MPEDA in association with USDA from 17th-18th November 2017.
- **Dr. G. B. Purushottama** attended training programme on 'Multivariate Data Analysis' at NAARM, Hyderabad from 14th-20th December, 2017.
- **Mr. Kapil S. Sukhdhane** participated in Training workshop on Identification of Marine Macrophytes and Assessment of Seagrass Ecosystem Service (IMASES-2017) in Mandapam from 4th-6th October 2017.
- **Dr. Nilesh A. Pawar** participated in one-day seminar cum workshop on 'Brackish water farming systems in Maharashtra' organized for brackish water fish farmers by commissioner of fisheries, Government of Maharashtra, on 15th November, 2017.
- **Dr. Sumithra T. G. and Dr. Anusree V. Nair** attended '2-day workshop on an insight into analytical instruments in research' during 17th-18th November, 2017 at Sree Chitra Tirunal Institute for Medical Sciences and Technology Thiruvananthapuram, Kerala.
- **Ms. Saloni Shivam** participated in training 'Recent Advances of Bioinformatics in Agricultural Research: A practical Perspective' at Indian Agricultural Statistics Research Institute, New Delhi from 1st held to 21st December, 2017.
- **Dr. Senthil Murugan, Dr. Suresh Babu P. P. and Mr. Anuraj A.** participated in "Aqua Goa" held at Panjim on 7th December, 2017.

Overseas assignments

Dr. A. Gopalakrishnan, Director was nominated by Secretary, DARE and DG, ICAR to visit premier institutions in marine science and technology in the United Kingdom (UK) to discuss prioritized areas for collaboration under the aegis of the UK Science & Innovation Network. A team of selected leaders of India's marine institutions visited premier research institutes like the National Oceanography Centre (NOC) Southampton; Centre for Environment, Fisheries and Aquaculture Sciences (CEFAS), Weymouth and Marine Alliance for Science and Technology for Scotland (MASTS), Glasgow, Scotland between 1st and 7th October 2017. The visit was intended to create networking and co-operation between institutes involved in fisheries and aquaculture production, research and development in India and UK. Priority areas of research and initiatives to enhance food security and income generating opportunities for fisheries sector were presented and discussed.



Visiting team from India at CEFAS, Weymouth



Visiting team from India at NOC, Southampton

Ms. Muktha M., Scientist, attended an Expert Workshop on 'Best-practices for the production and reporting of SDG Indicator 14.4.1' at FAO, Rome during 21st to 24th November, 2017 and made a presentation on the current status of the marine fishery resources of India.



Participants at the Expert Workshop conducted by FAO

| PROMOTIONS | | | |
|---|---|-------------------------------|--------------|
| Name& Designation | Promoted as | Centre | w.e.f |
| Mr. V. Lingappa, Senior Technical Assistant | Technical Officer | Mangalore Research Centre | 20.09.2016 |
| Mr. A. Vairamani, Senior Technical Assistant | Technical Officer | Mandapam Regional Centre | 30.12.2016 |
| Dr. (Ms.) Veena Shettigar, Senior Technical Assistant | Technical Officer | Mangalore Research Centre | 28.03.2017 |
| Mr. V. Ashok Maharshi, Technical Assistant | Senior Technical Assistant | Mandapam Regional Centre | 15.10.2016 |
| Mr. Vaibhav Dinkar Mhatre, Technical Assistant | Senior Technical Assistant | Mumbai Research Centre | 17.10.2016 |
| Ms. Bharadiya Sangita Arvindkumar, Technical Assistant | Senior Technical Assistant | Veraval Regional Centre | 18.10.2016 |
| Mr. Kodi Srinivasa Rao, Technical Assistant | Senior Technical Assistant | Karwar Research Centre | 21.11.2016 |
| Mr. K. Solaman, T-II-3 (Technical Assistant) | Senior Technical Assistant | ICAR-CMFRI, Kochi | 01.01.2017 |
| Mr. S. Selvanidhi, Technical Assistant | Senior Technical Assistant | Madras Research Centre | 01.01.2017 |
| Mr. K. Lakshmi Narayana, Technical Assistant (Motor Driver) | Senior Technical Assistant (Motor Driver) | Visakhapatnam Regional Centre | 05.03.2017 |
| Mr. K. Ramasamy, Senior Technician (Motor Driver) | Technical Assistant (Motor Driver) | Tuticorin Research Centre | 29.07.2016 |
| Mr. S. Tatabhai, Senior Technician | Technical Assistant | Visakhapatnam Regional Centre | 25.08.2016 |
| Mr. R. Manjeesh, Senior Technician (Computer Application) | Technical Assistant (Computer Application) | ICAR-CMFRI, Kochi | 05.02.2017 |
| Mr. S. Murugabhoopathy, Technician | Senior Technician | Mandapam Regional Centre | 15.10.2016 |
| Mr. Joseph Xavier, Technician | Senior Technician | Madras Research Centre | 15.10.2016 |
| Mr. N. Ramakrishnan, Technician | Senior Technician | Mandapam Regional Centre | 15.10.2016 |
| Mr. M.P. Mohandas, Technician | Senior Technician | ICAR-CMFRI, Kochi | 15.10.2016 |
| Mr. Durga Suresh Relangi, Technician | Senior Technician | Visakhapatnam Regional Centre | 17.10.2016 |
| Mr. Karamathullah Sahib, Technician | Senior Technician | Mangalore Research Centre | 05.12.2016 |
| Ms. S. Leelavathi, Personal Assistant | Private Secretary | Madras Research Centre | 14.12.2017 |
| Mr. C.P. Umasankar, Lower Division Clerk | Upper Division Clerk | Calicut Research Centre | 14.12.2017 |
| Mr. S. Sreekumar, Lower Division Clerk | Upper Division Clerk | ICAR-CMFRI, Kochi | 14.12.2017 |

TRANSFERS

| Name & Designation | From | To | w.e.f |
|---|---|---------------------------|------------|
| Mr. W. Sathyawan Neelraj, Upper Division Clerk | Madras Research Centre of ICAR-CMFRI | Tuticorin Research Centre | 09.10.2017 |

INTER-INSTITUTIONAL TRANSFER

| Name & Designation | From | To | w.e.f. |
|--|-------------------------|---|------------|
| Dr. Manas H. M., Scientist | ICAR-CIFRI, Barrackpore | Visakhapatnam Regional Centre of ICAR-CMFRI | 03.10.2017 |
| Mr. P. Krishnakumar, Assistant Finance & Accounts Officer | ICAR-CMFRI, Kochi | ICAR-CTCRI, Thiruvananthapuram (promoted as Finance & Accounts Officer) | 29.12.2017 |

ASSUMPTION OF CHARGE

Dr. Jayasree Loka was appointed Scientist -in-Charge of Karwar Research Centre of ICAR-CMFRI

RETIREMENTS ON SUPERANNUATION



Ms. M. G. Chandramathy
Assistant Administrative Officer
31.10.2017
ICAR-CMFRI, Kochi



Mr. D. Anandan
Technical Officer (Deckhand)
31.10.2017
Mandapam Regional Centre



Mr. Baby Mathew
Technical Assistant (Motor Driver)
31.10.2017
ICAR-CMFRI, Kochi



Mr. V. T. Ravi
Skilled Support Staff
31.10.2017
ICAR-CMFRI, Kochi



Ms. P. S. Sumathi
Assistant Administrative Officer
30.11.2017
ICAR-CMFRI, Kochi



Mr. N. Venugopal
Chief Technical Officer
30.11.2017
ICAR-CMFRI, Kochi



Mr. M. M. Bhaskaran
Technical Officer
30.11.2017
ICAR-CMFRI, Kochi



Mr. A. Y. Jacob
Technical Officer
31.12.2017
ICAR-CMFRI, Kochi



Mr. K. Baburajan
Assistant
30.11.2017
ICAR-CMFRI, Kochi



Ms. N. K. Suseela
Assistant
30.11.2017
ICAR-CMFRI, Kochi



National Conference on Marine Debris CoMaD 2018

11th -12th April 2018

at ICAR - Central Marine Fisheries Research Institute, Kochi



One of the biggest threat to aquatic ecosystems including lakes, rivers, estuaries and oceans is the non-biodegradable waste originating from anthropogenic activities. Studies conducted across the globe have clearly indicated that this has started threatening even the existence of biota. The government's Swachh Bharat Mission is addressing this issue. Though most of us are aware about this and have also started action to fight this problem, there has not been a platform where we can evaluate the gravity, share our experience and success stories related to this theme. To resolve this, the **Marine Biological Association of India (MBAI) is organizing a National Conference on Marine Debris at Kochi CoMaD 2018 during 11-12 April 2018.** The conference is for researchers as well as the public who have an important role to play in preventing our water bodies from becoming polluted and dead zones. More details can be obtained from the MBAI website <http://mbai.org.in/comad/>

Sessions

The Symposium will have three sessions. First one targeting the research updates, the second session on the way ahead to control marine debris and the third will be a photo video exhibition to create public awareness. Researchers from Universities, Institutes and other developmental organisations can present their findings on Regional assessments, Impacts on resources/habitats, micro plastics in ecosystem, plastics in food chain, leaching of chemicals from plastics, ghost nets/fishing, mapping and modelling, impacts on livelihood- fisheries/tourism/farming and impacts on coastal health in the first session. The second session is an opportunity for Government bodies, public and NGOs to share success stories on waste management, removal and processing of accumulated marine debris, Infrastructure developed for debris management, models or prototypes developed for plastic waste recycling/processing, new Packaging for reducing use of plastics and Policy – Strategies developed for implementation. The third session will be an exhibition to create public awareness. Short videos and photographs can be submitted online and the best photograph and video will be awarded.

Awards

There will be awards for best research presentation.
Best Photograph on marine debris (impact/ situations)
Best success story on land based waste management for local governing bodies / municipalities /districts
Best short video on marine debris (impact/ situations)

Contact

Convener

Dr. V. Kripa, Principal Scientist, CMFRI

Email: mbaicomad@gmail.com

Co-Conveners

Dr. P. Kaladharan, Principal Scientist, CMFRI

Dr. D. Prema, Principal Scientist, CMFRI

Dr. R. Jeyabaskaran, Senior Scientist, CMFRI

Dr. Shelton Padua, Scientist, CMFRI

Watch out for updates at the web site www.mbai.org.in





*Cage grown lobsters and fish harvest at Sekhadiya Village in Gujarat
see page 5*



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.