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Newsletter of ICAR-Central Marine Fisheries Research Institute

INSIDE

News Highlights

Bumper harvest of green mussels through IMTA

With a production of around one tonne of green mussels from 150 strings hung around four fish cages, the IMTA practice, that was experimented first time in Kerala on commercial scale, has proved to be economically feasible and suitable to Kerala's conditions. The individual mussels grew to an average size of 72g which is a good growth rate in mussel farming. Despite the harvest taking place during the COVID lockdown period, the entire produce sold out quickly. The fishes inside the cages and seaweeds cultivated

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Enhanced yields from marine cages using Artificial Intelligence techniques

Semi-automated feeder in marine cages can enhance production as studies from Visakhapatnam Regional Centre of ICAR-CMFRI indicate. Indian pompano of 22.0 ± 3.0g were stocked at @ of 25 numbers/ m^3 in marine cages at Ramakrishna Beach, Visakhapatnam. One of the cages was equipped with mobile application based semi-automated feeder procured from Eruvaka Technologies Pvt Ltd. The other cage without feeder, was used as control. With the same ration, the cage with semi-automated feeder showed an approximately 19% higher production than control cage. High nutritional diet (45% protein and 10% fat), in equal quantities was provided in both the cages. The feeding rate varied from 6.0 to 1.5% depending on the fish size in different culture period. Use of auto feeder

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Director Speaks

Enhancing livelihood options and income for fishermen community backed by research and technology development, remains a top priority for the institute. Hence, even amidst the COVID 19 pandemic, programmes for economic empowerment of fishermen communities were successfully conducted in several maritime states following safety protocols. Technologies such as Integrated multi-trophic aquaculture (IMTA) have yielded good results and needs to be further promoted. The mariculture basket of India has diversified with food fishes such as Indian pompano and sea bass becoming popular choices, besides the cobia. With the development of fish seed supply chains through fish brood banks and facilitating marketing channels for harvested fish across the country in recent time, there is growing interest in marine fish farming. Sustainable fisheries and mariculture are key to attaining the goals of a blue revolution in the country and all stakeholders need to be equal partners in achieving this goal.

With best wishes

A. Gopalakrishnan

Director, ICAR-CMFRI

News Highlights

Open sea cage farming a boon for tribal beneficiaries

Amid the COVID-19 pandemic and associated lockdowns, 8 families with nearly 50 members of Siddi tribal community of Gir Somanth Jila Aadivasi Vikas Parishad engaged in the open sea cage farming of spiny lobster (*Panulirus polyphagus)* for the year 2020-21 under Tribal Sub-Plan (TSP) programme managed to overcome the pandemic associated economic hardships. The intermittent harvest of lobsters from the open sea cages during March and April 2021 and final harvest on 15.07.2021 provided them much needed economic relief. Five cages installed and stocked with wild collected lobster seeds of size 80 to 120 gm were harvested at 250+ gm size. The lobsters were sold live at ₹1100 to 1250 per kg based on size grade. The scheme and technology was highly appreciated by the beneficiaries.

Reported by: Rajan K., Divu D., Vinayakumar V., Tarachand K., Shikha R., Abdul Azeez P., SureshKumar M., H.M. Bhint, Mayur S. Tade, Veraval Regioal Station ◆

Published by: Dr. A. Gopalakrishnan, Director, ICAR–Central Marine Fisheries Research Institute, Post Box No.1603, Ernakulam North P. O., Kochi-682 018, Kerala, India.
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Assisted by: Mr. Arun Surendran, Mr. C. V. Jayakumar, Mr. P. R. Abhilash

Sea cage farming technology secures livelihoods in COVID time

The demonstration of open sea cage farming technology of marine fishes all along the Gulf of Mannar and the Palk Bay implemented by the Mandapam Regional Centre of ICAR-Central Marine Fisheries Research Institute (CMFRI) has turned into a huge success with the fishermen beneficiaries under the guidance of the Institute reaping a rich harvest of cobia after 7 months of farming. The revenue earned from the venture came as great relief to the fishermen and their families to sustain their livelihood during a struggling period following the lockdown and COVID-induced crisis. The cage farming was part of the second phase of the demonstration project funded by the National Fisheries Development Board (NFDB). Under the project, ICAR-CMFRI fabricated 40 HDPE cages were supplied to the beneficiaries along with the fingerlings of cobia and Asian sea bass. The fishermen installed the cages in Munaikadu, Mandapam, Maraikayarpatnam, Nalupanai, Chinnapalem and Sippikulam villages and stocked the fish fingerlings in a phased manner.

In the first phase, the five cages installed in Munaikadu Village, Ramanathapuram district, Tamil Nadu produced a total of 9.8 tonnes of cobia fishes with an average individual weight of 2.6 kg during the harvest done from 21st–24th May 2021. The beneficiaries got a farm-gate price of ₹310 per kg from the harvest which ranged between 1.8 tonnes to 2.1 tonnes for each cage, with beneficiaries reap a total revenue of ₹30.10 lakhs at

a sale value of ₹6.02 lakhs per cage. Appropriate COVID-19 precautions were adopted by the beneficiaries during the entire culture period and harvest. Dr. R. Jayakumar, Dr. B. Johnson and Shri. M. Sankar ably coordinated the conduct of the harvest ◆

Cage farmed Asian Seabass harvest benefits Scheduled Tribes in Krishna District

Wild Asian seabass was stocked in 2 estuarine cages at Laximipuram village, Kruthivenu Mandal, Krishna District, Andhra Pradesh under Tribal Subplan component for beneficiaries belonging to Yenathi community during October, 2020. On 17th June, 2021, after 8 months of culture, these fishes had attained weights from 650 to 1150g each and 865 kg of fishes were harvested from the two cages. Sold at the rate of ₹300 per kg, the income of ₹2.6 lakhs was shared by the beneficiaries.

Reported by: Sekar Megarajan, Ritesh Ranjan, Shubhadeep Ghosh, Biji Xavier, Balla Vamsi; Visakhapatnam Regional Centre ◆

Focus on mangroves in restoration of coastal ecosystems

On the occasion of the World Environment Day on 5th June 2021, the institute organized a webinar on "Ecosystem Restoration- Mangroves and its Possibilities". The webinar, which was attended by experts working on mangroves, pointed out that mangroves can act as a bio-shield along the coast to check sea erosion and coastal floods followed by high waves. Experts called upon restoration of coastal vegetation laying emphasis on mangrove forestation to maintain the environmental balance of the coastal biodiversity.

Dr. A. Gopalakrishnan, Director, ICAR-CMFRI, Dr. N. Vasudevan, IFS, Managing Director of Forest Development Corporation, Maharashtra. Shri P. P. Pramod, IFS, Chief Conservator, Forest Eastern Circle and Custodian, Vested Forest, Kerala and Dr R Ramasubramanian, Director of Coastal Systems Research Programme at MS Swaminathan Research Foundation (MSSRF), Chennai spoke on the occassion. The webinar recommended restoration of coastal vegetation along the Kerala coast planned in a social forestry concept with public participation. Feasibility studies for identifying potential areas for mangrove forestation and awareness programmes among different stakeholders were recommended.In addition, the webinar proposed to develop guidelines in order to promote mangroves in a way that benefits the livelihood of the stakeholders and coastal residents. Dr P Kaladharan, Principal Scientist, ICAR-CMFRI; Dr Grinson George, Senior Programme Specialist (Fisheries), SAARC Agriculture Centre (SAC), Dhaka, Bangladesh; Dr K Vinod, Principal Scientist, ICAR-CMFRI and Dr Ratheesh Kumar R, Scientist ICAR-CMFRI also spoke at the webinar. ◆

Outreach to farmers for mariculture enterprises

Multiple batches of Silver pompano were transported from the Broodbank facility of Vizhinjam Regional Centre of ICAR-CMFRI, for carrying out various technology transfer programmes in Gujarat. Shri.Jigneshkumar Gohel, Dy. Director Fisheries, Govt. of Gujarat handed over the nursery reared silver pompano seeds to stakeholders of Jamnagar district on 11.06.2021. The Veraval Regional Station is extending technical support in various farming aspects like stocking, nursery rearing, feeding, water quality management, grow-out, etc. as needed. Field day and exposure visit of stakeholders to the finfish and shellfish integration farm at Dari was conducted on 11.06.2021. Officials from Department of Fisheries, Government of Gujarat along with stakeholders from other districts were taken to observing the integration and intercropping process of marine finfish and shellfish.

Reported by: D.Divu, S. Mojjada, H.M. Bhint, Mayur S. Tade, Iswar Kumar Rathod & Pungera Kuldip H. ◆

Nursery hapas set up for pompano at Dari

Acclimatation and stocking of pompano in ponds

Observations on marine mammals off Maharashtra coast

A dolphin carcass was found washed ashore on Murud beach, Dapoli, Ratnagiri district on 7th May 2021 was identified as Indian Ocean humpback dolphin, *Sousa plumbea*. Incident was reported to State Forest Department officials and survey staff of the Fishery Resources Assessment Division in ICAR-CMFRI by local fishers. Total length of dolphin was 245 cm and weight was approximately 180 kg with no external injuries observed. Forest department officials buried the decayed carcass on the Murud beach with the help of fishers.

Another incidence of carcass of Indo-Pacific finless porpoise, *Neophocaena phocaenoides* was observed off Bankot, (17°54.72 N; 72°57.82 E) on 20.04.2021. Total length was 147 cm and weight was approximately 35 kg. No signs of fishing gear interaction or external injury were present. Autopsy was done and tissue samples were collected for analysis.

Reported by: Ramkumar S, Vaibhav D M, Arun G, Digambar S K and R. Jeyabaskaran , Mumbai Regional Station ◆

Cage farming of Indian pompano in Krishna District enthuse fish farmers

Hatchery reared Indian pompano were stocked in 4 estuarine cages at Peddapalem, Nagayalanka Mandal, Krishna District, Andhra Pradesh under Scheduled Castes and Scheduled Tribes component of the Govt. of India sponsored welfare programmes, and implemented in the institute. Two cages were managed by beneficiaries from Yenathi community (Scheduled Tribes) and other two by beneficiaries from Mala community (Scheduled Caste). The cages stocked during November 2020, with nursery reared Indian pompano were reared for 7 months and reached an average size of 675.0 ± 25.0 g following which they were harvested on17th June, 2021. Nearly 600 kg were harvested from individual cages which was sold at ₹295 per kg to wholesale fish traders in Chennai, Tamil Nadu and the income was shared among the programme beneficiaries.

Reported by: Sekar Megarajan, Ritesh Ranjan, Shubhadeep Ghosh, Biji Xavier and Narasimhulu Sadu, Visakhapatnam Regional Centre ◆

Green tiger shrimp sea ranched in Palk Bay

In continuation of the regular sea ranching initiative of the institute, 1.6 million seed of green tiger shrimp (*Penaeus semisulcatus*) of PL 15-20 size were released into the seagrass beds of the Palk Bay at Munaikadu, Tamil Nadu on 21 April, 2021. Aimed at replenishing the wild shrimp stock, the shrimp seeds were released with active participation of local fishermen. During the period 2017-2021, a total of 13.745 million numbers of *P. semisulcatus* shrimp seeds have been released in this region. The sea ranching programme was co-ordinated by Dr.R.Jayakumar, Shri M.Sankar and Dr. B. Johnson from the Mandapam Regional Centre of ICAR- CMFRI ◆

Growth experiments in marine cage farmed Indian Pompano

Different feeding strategies were followed to observe growth performance of Indian pompano in four marine cages stocked with 25.0 ± 5.0g fish. A High protein feed (40%), Low protein feed (36%), Mixed feeding (40% & 36% protein in 1:1 ratio) and cage with 40% CP feed &lights) were used on hatchery reared Indian pompano stocked in marine cages of 6 meter diameter and 4 meter depth. The feed was given twice a day @ 6 to 1.5% of body weight according to weight. After 12 months, cage cultured Indian pompano with average size ranged from 650 ± 50g to 900 ± 50 g was harvested in the first week of May, 2021. The production from individual cages varied from 1450 kg to 1950 kg. Lowest production was from cage with 36% of protein feed and highest production was from cage fish fed with 45% protein along with lights. The research work was performed under all India Network Project on Mariculture at Visakhapatnam Regional Centre of ICAR-CMFRI.

Reported by: Sekar Megaran, Ritesh Ranjan, Biji Xavier, R.D. Suresh and Shubhadeep Ghosh ◆

Unusual landings of Japanese Tiger shrimp

Unusual landing of the Japanese Tiger shrimp or Kuruma shrimp *Penaeus japonicus* was observed at Mandapam landing centre on 8th April 2021. About 6-8 kg per unit was landed from a single day shrimp trawlers operated at 4-5 m depth off Mandapam, in Palk Bay. The size ranged between 110-123 mm in total length and were auctioned at the landing centre at the rate of ₹300 per kg. The occurrences of these shrimps in the shrimp catch in Palk Bay is usually in stray numbers only.

Reported by: M. Rajkumar, Midun Muthaiyan, R. Vinothkumar, R. Rajkumar and S. Thirumalaiselvan, Mandapam Regional Centre ◆

Invasive mussel, *Mytella strigata* reported in Karnataka backwaters

A field survey revealed the presence of *Mytella strigata* (charru mussel) as foulers in the finfish cages in the Gurupura estuary, Karnataka. The first report confirming the occurrence of *Mytella strigata* (Hanley, 1843) in India was from Cochin backwaters (Vembanad Lake) and later its presence was reported from other locations like Ashtamudi, Kayamkulam and Padanna. Other than the finfish cages, the species was observed to have attached to the hull and sides of the fishing vessels anchored in different parts of the estuary. More intense surveys and studies are required to understand the source, distribution, and extent of the spread of this invasive species in the estuaries of Karnataka.

Reported by: Geetha Sasikumar and Divya Viswambharan, Mangalore Regional Centre ◆

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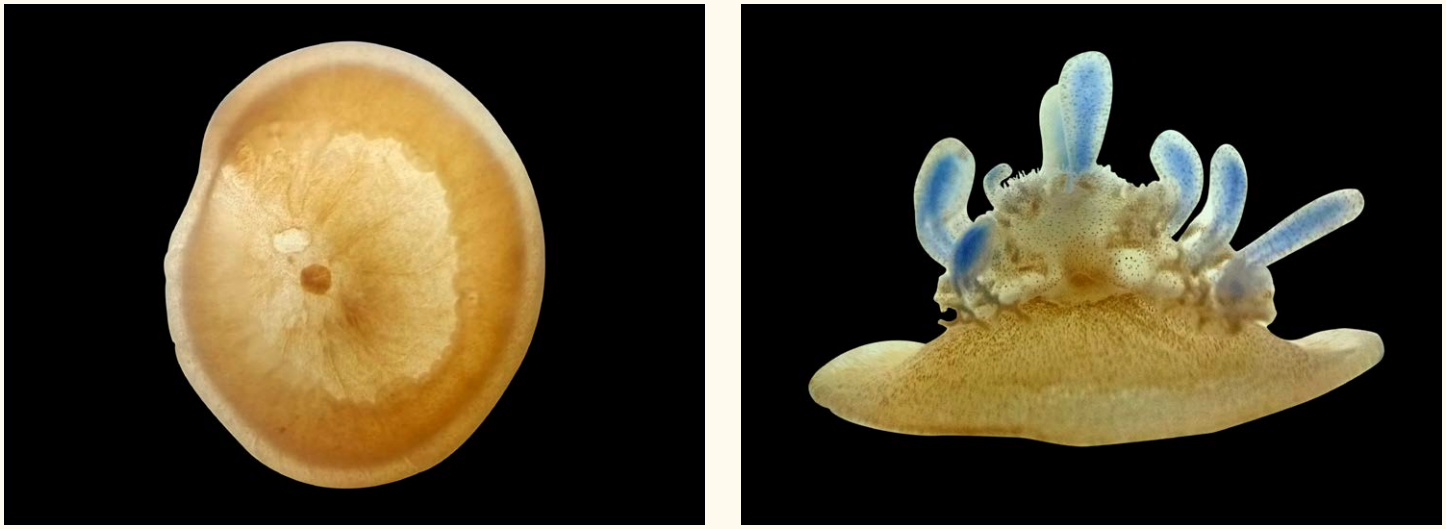
around the cages also showed healthy growth promising good income to the farmers. The IMTA is a practice which combines appropriate proportions of fish, filter feeding bivalves and seaweeds in farming to create balanced systems for environmental and economic stability. ICAR-CMFRI had started the programme in December 2021 in Moothakunnam in Ernakulam district under participatory mode with fishermen, as part of its research initiative for developing a sustainable cage fish farming model suitable to Kerala's ecosystem. The work was carried out by Dr. Shoji Joseph and team from the Mariculture Division. ICAR-CMFRI has already developed a successful model of IMTA practice in the open seas, off Tamil Nadu coast. In addition to the enhanced income through diversified crops from a particular area and period, IMTA is sustainable farming practice as excess nutrients and carbon dioxide from the cage farm are all directly or indirectly utilized. Adoption of this innovative technology in tandem with the increasing trend of cage farming ventures can transform the lives of coastal fishermen communities ◆

Regeneration in Upside-down jellyfish



Injured *C. Andromeda* with only umbrella tissue on Day 1 (left) and Oral arms with well-developed vesicles on Day 70 (Right)

The self-repair and regeneration capacity of a cnidarian model organism was documented in the Upside-down jellyfish, *Cassiopea andromeda.* It indicated that medusae umbrella tissue can lead to virtually all body structures, including the complete appearance of canal structures, development of oral arms, and offers evidence that *C. andromeda* has a regenerative capacity.

Reported by: L. Ranjith, C. Kalidas, M. Kavitha, D. LingaPrabu, A. MathanBabu, P. S. Asha Tuticorin Regional Station ◆

Successful harvest of Indian pompano from coastal cage farms in Andhra Pradesh

Thirty eight cages stocked with Indian Pompano in different coastal estuarine locations at Nagayalanka Mandal, Krishna District, Andha Pradesh were harvested at different times between 5 to 15th June, 2021. The fishes reared for 6 months reached an average size of 650±50g. Fishes. Each of the 38 cages harvested from different locations including Edurumondi Village, Peddapalem Village and Nagayalanka Panchyat yielded 500 to 600 kg of fish which was sold @ ₹295 to 335 per kg to different wholesale fish traders across the country including Chennai (Tamil Nadu), Hyderabad (Telangana), Panaji (Goa) and Kochi (Kerala). The cages were managed by different beneficiaries under National Fisheries Development Board funded project on 'Demonstration of Cage Culture Technology for Indian Pompano in Andhra Pradesh' and the income from harvested fish was shared among the beneficiaries.

Reported by: Visakhapatnam Regional Centre ◆

Recreation Club extends a helping hand amid COVID

The Recreation Club of ICAR-CMFRI took initiative to extend moral backing to the Kochi City Police who serve on COVID duty in the city. The support which included 1000 N-95 masks, water bottles and reusable glove was handed over by Director Dr A Gopalakrishnan to A J Thomas, Assistant Commissioner of Police, Ernakulam Central Police Station on 13 May 2021 in the presence of Hareesh Nair, Chief Administrative Officer, ICAR-CMFRI and Jose Kuruvila, PRO of Ernakulam Central Police Station. It also distributed food kits including vegetables to needy among the transgender community facing economic hardship due to the COVID 19 pandemic, on 30 May 2021 ◆

Survey of marine mammals flagged off

Marine mammals survey in coastal and offshore waters of Maharashtra under the collaborative national project "Assessment of marine mammals stock and by-catch of marine mammals and sea turtles" funded by MPEDA, Ministry of Commerce and Industry, Govt. of India was set rolling at Mumbai Regional Station of ICAR-CMFRI. Coastal waters survey was undertaken from 16th March 2021 to 1st April 2021 covering 54 sampling stations upto 12 nautical miles distance from Zai, Palghar district to Aroda, Sindhudurg district, Maharashtra covering the distance of 720 km. Offshore survey conducted in collaboration with Fishery Survey of India employing Fishing Vessel *Matsya Vrushti* from 14th April 2021 to 29th April 2021 covered sampling sites beyond 12 nmi off Mumbai to Sindhudurg. The coastal survey was ceremonially flagged off by Mrs. Jyoti Meher, Secretary of the National Fish Workers Forum on 16.3.2021 at Satpati Jetty, Palghar.

Reported by: Mumbai Regional Station ◆

Outreach

Programmes to promote sea farming organised at Veraval

Pradhan Mantri Matsya Sampada Yojana (PMMSY) Convergence programmes on sea cage farming and seaweed farming for Jambur tribal villagers and Gir-Somnath District stakeholders were organised by Veraval Regional Station. Dr.Suresh Kumar Mojjada, Asst. Chief Technical Officer, also presented PMMSY sea cage culture implementation strategy and plan of action for 1000 sea cages by Gujarat at Commissionerate of fisheries, Dept. of Fisheries, Gandhinagar on 09.06.2021 ◆

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helped to increase the feeding frequencies and thus, in cage with auto feeder, the fishes were fed 5 times a day. In the control cage manual feeding was done with fishes fed twice in a day. After 12 months of grow-out culture, a total of 2150 kg of Indian pompano was harvested from cage with semi auto feeder, and 1760 kg from control cage. It was evident that increased feeding frequency with semi-automated feeder helped to increase the production from cage. This work was carried out under All India Network Project on mariculture by Visakhapatnam Regional Centre.

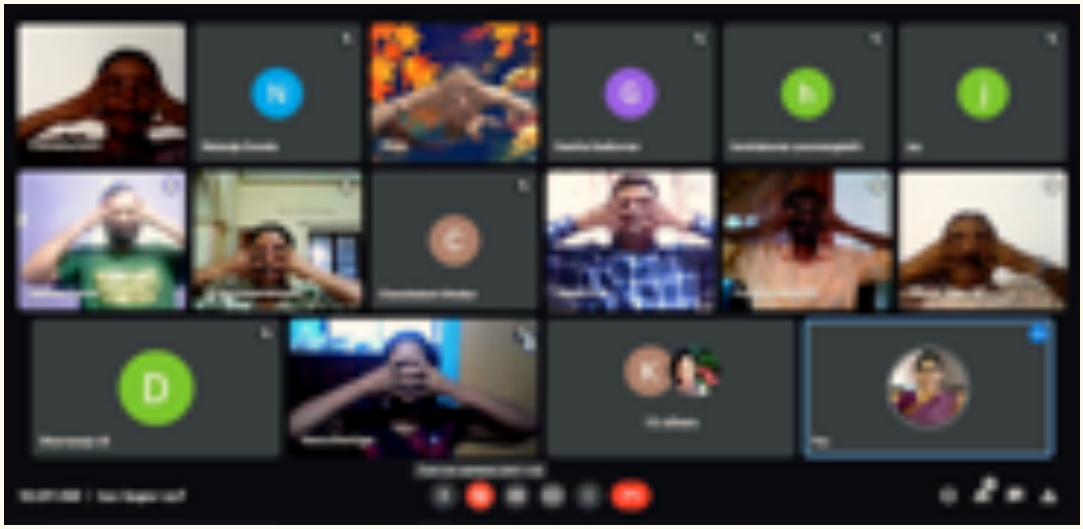
Reported by: Sekar Megarajan, Ritesh Ranjan, Biji Xavier, Shubhadeep Ghosh and R.D. Suresh ◆

ICAR-CMFRI extends support to frontline health workers

As a token of moral support in fighting against the COVID-19 pandemic, the staff of Mandapam Regional Centre extended support to frontline health workers on COVID duty at the Primary Health Centre in Mandapam, Ramanathapuram District, Tamil Nadu. Items such as masks, reusable gloves and hand sanitizer were handed over to Dr. A. Packianathan, Medical Officer of the Mandapam PHC by Dr. R. Jayakumar on 14 June, 2021 ◆

FRAD workshop on marine fish identification

Online Workshop on 'Identification of Marine Finfish and Shellfish Resources of Tamil Nadu" for staff working in projects on capture fisheries in Tamil Nadu and Puducherry was held in six sessions during April-May 2021. The workshop aimed at updating marine fish species identification skills during field surveys was co-ordinated by Dr. Shoba Joe Kizhakudan and all scientists, technical and Fishery Resources Assessment Division (FRAD) survey staff in the Madras Regional Station of ICAR-CMFRI attended ◆



Yoga Day Celebrations

Yoga Day was celebrated online following restrictions during the COVID 19 pandemic. At headquarters, a video series of yoga exercises that can be easily followed by various age groups was circulated among all staff. Various regional centres also held yoga related programmes online in which staff participated ◆

Outreach

Skilling communities in farming of high value marine fishes

Under an NFDB funded project, Visakhapatnam Regional Centre of ICAR-CMFRI conducted Hands on training programme on coastal farming of Indian pompano and orange spotted grouper from 28 -30 January, 2021. Training programme was attended by a total of 50 progressive farmers and selected officials from State Fisheries Department. Training programme under Scheduled Tribes

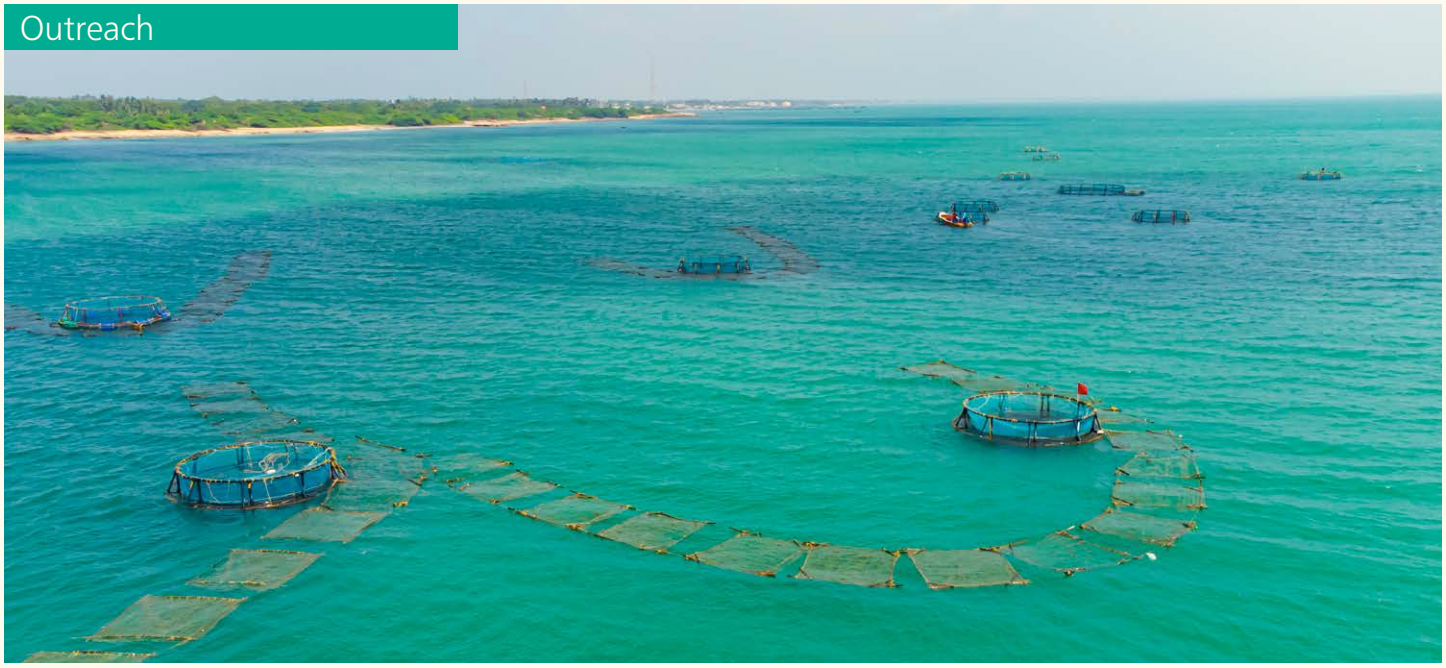
Component on "Culture of Finfishes in Coastal Cages" was conducted during 6-8th March, 2021 at Peddapalem Village, Nagayalanka Mandal Krishna District, Andhra Pradesh and attended by 150 beneficiaries of Yenathi community. A similar training programme under Scheduled Caste Component was conducted during 4-6th March, 2021 at Peddapalem Village, Nagayalanka Mandal Krishna District, Andhra Pradesh attended by 100 beneficiaries of Mala community.

Reported by: Sekar Megarajan, Ritesh Ranjan, Biji Xavier and Shubhadeep Ghosh, Visakhapatnam Regional Centre ◆

Olive Ridley entangled in ghost net rescued

Rescue of an Olive Ridley sea turtle, *Lepidochelys olivacea* found entangled in ghost net off Sindhudurg coast at a distance of 117 nautical miles from the Jaitapur coast, Sindhudurg district, Maharashtra was recorded on 24 April 2021, during the marine mammal sighting survey onboard Fishing Vessel Matsya Vrushti of the Fishery Survey of India. The depth contour and geolocation was 2260 m and 16°28.99 N; 71°18.27 E respectively. The live entangled sea turtle found on the sea surface was taken on-board and after the ghost net removed carefully, released back into the sea successfully. Ghost net removed from the sea turtle was brought to the coast and discarded properly. Improperly discarded fishing nets are a threat to marine life and there is need to enhance awareness of safe disposal of used fishing nets on land, among stakeholders.

Reported by: Ramkumar S, Vaibhav D M, Arun G and Jeyabaskaran R, Mumbai Regional Station ◆



Online Training Programme on Seaweed Farming

Mandapam Regional Centre successfully conducted an "Online Training Programme on Seaweed Farming" to 103 Village Fisheries Assistants and Fisheries Officials in collaboration with State Institute of Fisheries Technology (SIFT), Kakinada, Andhra on 27th May, 2021. Dr. R. Jayakumar and Dr. B. Johnson, provided the knowledge on seaweed farming techniques & integrated multi-trophic aquaculture (IMTA) through presentation & video. Recently, seaweed farming has gained traction among the fishermen as a key to enhancing their incomes. Through IMTA harvest of valuable agar and carageenan yielding seaweeds as well as high value food fishes grown in cages nearby is possible, effectively enhancing incomes of the farmers ◆

Rare landing of the sciaenid *Macrospinosa cuja*

Macrospinosa cuja is one of the lesser known species belonging to the family Sciaenidae. The species was originally described as *Bola cuja* by Hamilton (1822) from the Ganges river estuaries. The species is distributed in the marine and brackishwater estuaries of eastern India and Bangladesh, locally called as paru bhola (Bengali). While doing regular fishery surveys following a multi-stage stratified sampling design, a single specimen of *M. cuja* measuring, 31. 4 cm TL was collected from Digha Mohana fish landing centre, West Bengal on 25th June 2021. The fish was caught by a gillnetter operated at a depth of 5-10 m. According to the fishermen, the species have become very rare now compared to earlier days and the price at landing centre usually varies between ₹80-200 depending on the size. Recording fish species diversity trends over time scales is important to understand the ecosystem functioning and balance as well as in the context of climate change related disruptions in regional fish species abundance and distribution trends.

Reported by: Subal Kumar Roul, Digha Regional Station ◆

Outreach

Fattening of spiny lobsters in sea cages wins over fish farmers

With the aim of socio-economic upliftment of traditional fishers belonging to the SC community support for scientific sea cage farming of spiny lobsters at Mottakopuram, Thoothukudi was initiated by Tuticorin Regional Station of ICAR-CMFRI under its Scheduled Caste Sub Plan (SCSP) program including selected SHGs of members of Mela-Alangarathattu community. Live baby scalloped spiny lobsters, *Panulirus homarus* of 60±10 g collected from the daily fish landings at Thoothukudi and Tirunelveli coast @ ₹700 - 800 / kg. These were quarantined in the institute's marine hatchery and subsequently the selected healthy baby lobsters were stocked in the HDPE cages.

The spiny lobsters culture was for 140-150 days. The hard shelled and grown-up spiny lobsters of weighing around 200g each formed 70 % of total yield which were preferred for live export market. Those below 200 g along with the soft-shelled lobsters undergoing the moulting process were retained in the cages for 20-30 days to attain the market conditions. The farm gate price for 200 g and above spiny lobsters was ₹2200 per kg and participants earned ₹1,10,000 from the sales. The programme demonstrated the skill, ability and interest of SC fisher members in adoption of cage farming technologies to enhance their livelihoods in a sustainable manner as undersized lobsters with little value could be tapped effectively through the fattening process in sea cages.

Reported by: C. Kalidas, D. Linga Prabu, P.S. Asha, L. Ranjith and M. Kavitha, Tuticorin Regional Station ◆

Seaweed farming in Ramanathapuram district set to expand

With the aim of expanding seaweed farming in Ramanathapuram district , ICAR-CMFRI, Mandapam Regional Centre, Department of Rural Development and Panchayat Raj, under Tamil Nadu Rural Transformation Project (TNRTP) and State Fisheries Department, Ramanathapuram have joined hands. Two meetings organized in this connection, during the month of June, 2021 fixed roles and responsibilities of each department. The ICAR-CMFRI will provide training, technical support and preparation of business plan for seaweed farming activities in the district. Dr. R. Jayakumar and Dr.B. Johnson, participated in the meetings ◆

NABARD Distinguished Lecture Series held

NABARD Chair Unit, ICAR-CMFRI Mumbai Regional Station organized the NABARD Distinguished Lecture, featuring eminent scientists. An online talk on 'Recent Advances in Harvest and Post-harvest Technologies' was delivered on June 30, 2021, by Dr.C. N. Ravishankar, Director, ICAR-Central Institute of Fisheries Technology ◆

Awards for ICAR-CMFRI 2014 -2021

सी एम एफ आर आइ
CMFRI

Established on February 03, 1947, ICAR-CMFRI has emerged as a leading tropical marine fisheries and mariculture research institute in the world. With its R & D activities aimed at engaging stakeholders to ensure sustainable marine fisheries as well as promotion of mariculture, it has bagged more than 50 accolades at institute and individual levels during 2014 -2021 period, including the prestigious Sardar Patel Outstanding Institution Award (ICAR).

Name of Awards	Year
ICAR AWARDS	
Sardar Patel Outstanding ICAR Institution Award (For large institute category)	2019
Cashless ICAR institute (to promote digital transactions)	2017
Best Annual Report Award	2014-15
ICAR Swachhta Pakhwada Award	2018
OFFICIAL LANGUAGE IMPLEMENTATION, GOVT. OF INDIA	
Rajarshi Tandon Rajbhasha Puraskar (ICAR)	2014-15; 2016-17; 2017-18; 2019-20
Ganesh Sankar Vidyarthi Patrika Award (ICAR) for Hindi Magazine	2019-20
Indira Gandhi Rajbhasha Puraskar (Ministry of Home Affairs, Govt. of India)	2013-14; 2014-15
Rajbhasha Kshetriya Puraskar (Ministry of Home Affairs, Govt. of India) for best performing Institute in Southwest Region of India	2019-20
Rajbhasha Gaurav Puraskar (Ministry of Home Affairs, Govt. of India)	2017-18 - Dr. A. Gopalakrishnan, Director & Dr. Imelda Joseph, Principal Scientist
National Award for best scientific article in Hindi Kendriya Sachivalaya Hindi Parishad, New Delhi	Dr. Reeta Jayasankar, Principal Scientist-2019 Dr. Molly Varghese, Principal Scientist-2015
ICAR SPORTS	
ICAR Inter-institutional South Zone Sports Meet-Overall Championship	2015, 2016, 2017, 2018
INDIVIDUAL RECOGNITIONS	
Padma Award	Padma Shri Ali Manikfan (Retd.)-2020
Norman Borlaug National Award for Excellence in Agricultural Research (ICAR)	Dr. Kajal Chakraborty, Principal Scientist - 2020
Rafi Ahmed Kidwai Award (ICAR)	Dr. Kajal Chakraborty, Principal Scientist - 2017
Jawaharlal Nehru Science Fellowship (JNSF), DST, Govt. of India	Dr. Trevor Platt, ICAR-CMFRI - 2014
Lal Bahadur Shastri Outstanding Young Scientist Award	Dr. Eldho Varghese, Scientist-2017
Pandit Deen Dayal Upadhyay Antyodaya Krishi Puruskar, ICAR	Shri Hasam Bhai Jumabhai Musangara (Farmer supported by ICAR-CMFRI on cage farming) - 2016
NAAS Fellowship	Dr. Kajal Chakraborty, Principal Scientist -2017
Jawaharlal Nehru Award for P.G. Outstanding Doctoral Thesis Research in Agricultural and Allied Sciences (ICAR)	Dr. P. A. Vikas-2014; Dr. Bineesh K. K.-2016; Dr. Anusree V. Nair-2017; Dr. Bini Thilakan-2017; Dr. Selsa J. Chakkalakal-2019; Dr. Fasina Makkar-2020
Netaji Subhas ICAR-International Fellowship	Ms. Saima Rehman (2017-18) Mr. Adnan Hussain Gora (2017-18) Mr. Chandrasekar S. (2017-18) Ms. Saloni Shivam (2018-19); Mr. M. Sankar (2019-20)
Ministry of External Affairs & Niti Aayog, Govt. of India- Social Innovation & Blue Ocean Award	Dr. V. V. Singh, Principal Scientist-2016
DBT-Biotech Product, Process Development and Commercialization Award	Dr. Kajal Chakraborty, Principal Scientist-2020
NAAS Recognition Award	Dr. Kajal Chakraborty, Principal Scientist-2020
NAAS Young Scientist Award	Dr. Eldho Varghese, Scientist-2018
Dr. Hiralal Chaudhuri Best Scientist Award (ICAR)	Dr. Grinson George, Principal Scientist-2015-16
Dr. C. V. Kulkarni Best Young Scientist Award	Dr. Grinson George, Principal Scientist - 2015-16
Best Biodiversity Researcher Award, Kerala State Biodiversity Board, Govt. of Kerala	Dr. K. K. Joshi, Principal Scientist - 2017
Young Investigator Award - Advances in Algal Biotechnology, Govt. of Tamil Nadu and Seaweed Research & Utilization Association	Dr. B. Johnson, Scientist - 2016
Gold Medal Award, Asian Fisheries Society,	Dr. A. Gopalakrishnan, Director, ICAR-CMFRI-2016
Taylor and Francis Commonwealth Scholar Best Journal Article Prize	Dr. Sandhya Sukumaran, Senior Scientist - 2015
Dr. PSBR James Memorial Award, MBAI	Dr. K. G. Mini & Team; Dr.K.K.Sajikumar & Team, 2020
Dr. R. Reghuprasad Memorial Award, MBAI	Dr. R. Jeyabaskaran & Team, 2020
Prof. N. R. Menon Memorial Award, MBAI	Dr. P. U. Zachariah & Team, 2020
Young Marine Biologist Award, MBAI	Dr. G. B. Purushottama - 2014; Dr. Sanal Ebeneezar, Dr. Divya Viswambharan & Dr. Rajesh Kumar Pradhan- 2020

Programme participation

Dr. A. Gopalakrishnan, Director, attended the monthly Directors' meeting of Fisheries Institutes & SMD on 7th April 2021.

Attended webinar on the various initiatives to be taken under the Pradhan Mantri Matsya Sampada Yojana (PMMSY) for the 75 years of India's independence celebration 'Azadi Ka Amrut Mahotsav' (AKAM) in Fisheries sector held on 12th April 2021.

Attended the Midterm Review Meeting of the ICAR Regional Committee-VIII, held through Video Conferencing on 12th April 2021. The meeting was Chaired and Presided over by Dr. J. K. Jena, Deputy Director General, (Fisheries Science), ICAR and Nodal Officer to the RC-VIII.

Attended Meeting to review the progress of the collaborative study conducted by Central Salt and Marine Chemicals Research Institute (CSMCRI), National Centre for Sustainable Coastal Management (NCSCM) and ICAR-CMFRI on Seaweed cultivation in the coast of Tamil Nadu, under the Chairmanship of Ms. B.V. Uma Devi, Additional Secretary, Ministry of Environment, Forest and Climate Change on 13th April 2021 through virtual mode.

Attended the Scientific Advisory Committee meeting of Krishi Vigyan Kendra, Ernakulam, along with Director, Agricultural Technology Application Research Institute (ATARI) on 19th April 2021.

Attended Asian Fisheries Society (AFS) Council Meeting held online on 20th April 2021.

Attended the monthly ICAR Institutes Directors' meeting of the SMD hosted by Dr. J. K. Jena, Deputy Director General, (Fisheries) on 11th May 2021.

Attended conferences organized by Department of Fisheries, Ministry of Fisheries, Animal Husbandry and Dairying on 'Status of Seaweed Farming', 'Status of Integrated Coastal Villages with Department of Fisheries' and 'Ornamental Fisheries' on 11th May 2021 through virtual mode.

Attended an Online meeting along with Lakshadweep UT-Administration on PMMSY funded Technology Demonstration Project on Ornamental Fishes in Lakshadweep chaired by Shri. Bhupinder Singh, Chief Director, National Cooperative Development Corporation, held on 20th May 2021.

Attended meeting with Department of Fisheries, Govt. of India to discuss the centralized Data Release in Fisheries Sector on 15th June 2021 through Video Conferencing mode.

Attended First Meeting on the Standing Committee on Oceanography and Meteorology, Govt. of India under the Chairmanship of Dr. M. Rajeevan, Secretary, Ministry of Earth Sciences, and Dr. M. Mohapatra, Director General of Meteorology, India Meteorological Department, to review the user requirements and readiness for utilizing the data from Oceansat-3 and 3A satellites.

Dr. Prathibha Rohit, attended the 18th Session of the Compliance Committee (CoC18) of the Indian Ocean Tuna Commission (IOTC) meeting held during 30 May 2021 and 3 June 2021;IOTC 19th Meeting of the Working Group for monitoring and review of implementation of IOTC Resolutions, 31 May 2021; IOTC 18th Session of the Standing Committee on Administration and Finance (SCAF18), 2-5 June 2021;IOTC Technical Committee on Management Procedures (TCMP), 4-5th June 2021;25th Session of IOTC (S25) meeting during 7-11 June 2021 and 8th Technical Committee On Allocation Criteria (TCAC8), 21-24 June, 2021.

Dr. R. Jayakumar and **Dr. R. Narayanakumar** attended the Mid-term Review Meeting of the ICAR Regional Committee No. VIII held online on 12th April 2021.

Dr. R. Jayakumar and **Dr. B. Johnson**, participated the virtual meeting under the Chairmanship of Ms. B. V. Umadevi, Additional Secretary, MoEFCC to review the progress of Joint Study on seaweed farming in Gulf of Mannar on 13th April, 2021.

Attended an online meeting on Status of Seaweed Farming chaired by the Secretary, Department of Fisheries, MoFAHD, Govt. of India, New Delhi on 12th May 2021.

Participated the Video Conference (VC) meeting through Teams on 'issues related to seaweed cultivation in Gulf of Mannar & Palk Bay' under the Chairmanship of Commissioner of Fisheries, Govt. of Tamil Nadu on 10th June 2021.

Attended an online meeting organized by the Department of Fisheries, MoFAHD, Govt. of India, to discuss on draft "Holistic Development of Islands Action Plan 2025" held on 17th June 2021.

Dr. R. Jayakumar, attended an online meeting between ICAR – CMFRI and Batangas State University (BatStateU)-Apolinario R. Apacible School of Fisheries (ARASOF), Philippines on 20th May 2021.

Attended the Board of Studies meeting, Department of Fisheries Sciences, Alagappa University, Karaikudi on 26th May 2021.

Attended a meeting organized by the District Executive Officer, Tamil Nadu Rural Transformation Project, Ramanathapuram to have Convergence Programme to promote seaweed farming on 30th June 2021.

Dr. K.K.Anikuttan, attended a meeting of "Technology Demonstration Project on Ornamental Fisheries" at Lakshadweep under Central sector Component of PMMSY on 20th May 2021.

Dr.D.Divu and **Dr. Suresh Kumar Mojjada** attended the international faculty development programme on " Research Perspectives on AI, ML, Data Science & IoT" from 17 May to 05 June 2021 and national level training programme on "Full stack AI and deep learning practitioner approach" from 07 to 19 June 2021 organised by KL Univeristy, Vijayawada.

Promotions

Name & Designation	Promoted as	w.e.f
Smt. K. Balamani, Assistant	Assistant Administrative Officer	19.04.2021 AN
Smt. Deepa P.N. Upper Division Clerk	Assistant	19.04.2021 AN
Shri Roopesh E.A. Upper Division Clerk	Assistant	19.04.2021 AN
Shri Rohit A. Chavda, Lower Division Clerk	Upper Division Clerk	20.04.2021
Smt. Sreeja N.P. Lower Division Clerk	Upper Division Clerk	22.04.2021
Shri Jithesh P.T., Skilled Support Staff	Technician	17.06.2021 AN
Smt. Vijisha M. Skilled Suppor t Staff	Technician	18.06.2021
Smt. Keerthi Krishna, Skilled Support Staff	Technician	18.06.2021
Shri Greever Yoyak V. Skilled Support Staff	Lower Division Clerk	17.06.2021 AN
Shri T. JothiManikandan, Skilled Support Staff	Lower Division Clerk	17.06.2021
Shri Vineeth T., Skilled Support Staff	Lower Division Clerk	17.06.2021 (AN)
Smt. Emy K. Baby, Skilled Support Staff	Lower Division Clerk	17.06.2021
Shri Eldhose Benny, Skilled Support Staff	Lower Division Clerk	17.06.2021
Smt. K. Madhavi, Skilled Support Staff	Lower Division Clerk	17.06.2021
Shri Seban John, Skilled Support Staff	Lower Division Clerk	17.06.2021 (AN)

Transfer

Name & Designation	From	To	w.e.f.
Shri Rishikesh Aandi, Assistant	ICAR-CMFRI, Kochi	Calicut Regional Station	14.06.2021
Ms. Jaysree Loka	Karwar Regional Station	Visakhapatnam Regional Centre	18.01.2021

Inter-Institutional Transfer

Name & Designation	From	To	w.e.f.
Smt. Arathy R Pillai	ICAR-CMFRI	ICAR-CPCRI	25.06.2021

Resignation

Name	Designation	w.e.f
Smt. Marjana P.M.	Skilled Support Staff	30.04.2021

Retirements

Shri Udaya V. Arghekar
Technical Officer
30.04.2021

Shri K.C. Rajappan
Skilled Support Staff
30.04.2021

Shri C.D. Manoharan
Private Secretary
30.04.2021

Shri Wilson T. Mathew
Scientist
31.05.2021

Shri Baben N. Katkar
Technical Officer
31.05.2021

Shri Bashir Ahamed Adam Shilodar
Technical Officer
31.05.2021

Shri K.N. Pushkaran
Technical Officer
31.05.2021

Shri N.K. Harshan
Technical Officer
31.05.2021

Smt. V. Jayalakshmi
Assistant
31.05.2021

Shri Makwana Somapitha
Technician
31.05.2021

Shri N. Jesuraj
Technical Officer (TO–Skin Diver)
30.06.2021

ICAR-CMFRI

The Central Marine Fisheries Research Institute is a premier research institute under the Indian Council of Agricultural Research and focusses on research and training in marine fisheries and mariculture.

Cadalmin is the quarterly newsletter of ICAR-CMFRI. This publication gives an insight into the major events of the institute, besides highlighting the salient research findings for the benefit of various stakeholders in the marine fisheries sector.

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