No. 171 October–December 2021 ISSN 0972-2386

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Newsletter of ICAR-Central Marine Fisheries Research Institute

INSIDE

News Highlights

Photobioreactor for high quality micro-algae culture developed

Mass production of different species of high-quality microalgae in required quantities is key to the successful operation of a bivalve or finfish hatchery. For this, a photobioreactor has been developed and set up by Vizhinjam Regional Centre of ICAR-CMFRI for its National Brood Bank facility. The system comprises three components; the LED-lit production station, water filtration unit and air-CO_2-mix filtration unit. The production unit has three structural units in which 54 polythene bags of 12.5 cm diameter and 125 cm length can produce 15 litres of high-density microalgal culture up to 4 billion cell/ml. The whole unit is lit by LED light saving a lot of energy compared to traditional fluorescent lamps. The seawater is first

continue to page no. 10...

A new record of azooxanthellate coral from Arabian Sea

A survey on a rocky reef, along the Karnataka Coast revealed a new record of azooxanthellate scleractinian coral, *Astrangia woodsi* Wells, 1955 from Indian coastal waters (Marine Biodiversity (2021) 51:84). The species was once considered endemic to Australian waters but the present study indicates that its range may include a large part of the Indian Ocean and the endemic status of this species needs to be reconsidered. Multiple live coral colonies were observed on natural rocky substratum at Mulki Rocks at 10 to 12 m depth, off Kaup, Karnataka Coast (eastern Arabian Sea) during March 2021. The coral colonies were observed on a shaded side of the rocks where the light penetration was less and highly turbid. Various studies along the western Indian coast have recorded the presence of genus *Astrangia* since 1984 and all these were either from or in the vicinity of a port. Therefore, there is a chance that these corals belong to a non-indigenous species and they were brought to Indian coastal waters by maritime traffic, or an imported oil/gas platform, as the case with other non-indigenous scleractinian corals around the world.

Reported by: Divya Viswambharan, Mangalore Regional Centre◆

Director Speaks

Seafood production either through capture fisheries or mariculture is a major source of protein rich food for communities, globally. Sustainability issues are often flagged as most farmed fish are given artificial feeds, that rely on plant and fish meal as critical ingredients. In contrast, bivalves and seaweeds that do not require such artificial feeds are considered to have fewer environmental impacts. In this context, the development of cultchless spat technology for oysters, photobioreactors for scaling up production of high quality microalgae, as well as the focus on seaweed farming is appreciable. During the quarter, several programmes aimed at promoting sustainable fishing and mariculture were operated successfully. Let us hope that the benefits of these innovations bring positive impacts on the livelihoods of fishermen and fish farmers.

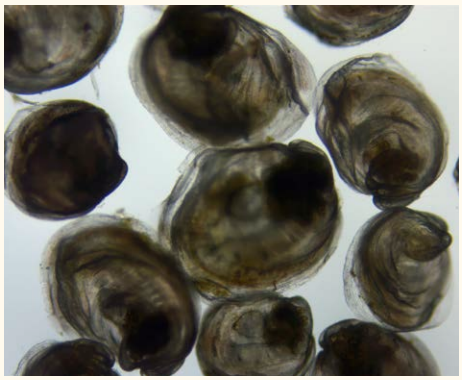
With best wishes

A. Gopalakrishnan

Director, ICAR-CMFRI

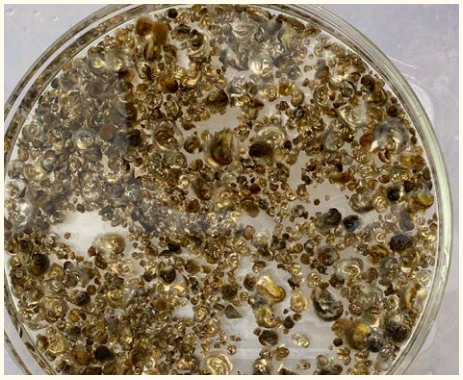
New Heights

First successful production of cultchless spat of *Crassostrea madrasensis* through hormone-induced settlement



Cultchless spat of *C. madrasensis*

Single oyster rearing in downwellers



Cultchless seed of Indian edible oyster

The technology of production of spat without using cultch material for attachment at the time of settlement was standardized at Vizhinjam Regional Centre of ICAR-CMFRI. This will give a big boost for oyster farming in India as it can promote the large-scale farming of single oysters that are in high demand in Europe and America. Ripe Indian backwater oyster *Crassostrea madrasensis* collected from the Ashtamudi Lake were brought to the laboratory after proper quarantine and disinfection and was used for stripping. After opening the shell, male and female gonads were scooped out and squeezed. Squeezed gonads were suspended in seawater separately and filtered through 100 μ mesh. Filtrate of male and female gonads were separately taken in beakers. The sperm suspension was activated using ammonium hydroxide and mixed thoroughly. Later 100-200 ml solution of sperm suspension was added to a beaker containing eggs to fertilize it. Further eggs were observed under the microscope to check the fertilization rate. Fertilized eggs were transferred to an incubation tank for hatching. The hatched-out D shaped veliger larvae were reared till they reached the eyespot stage (17-21 dph), feeding a combination of microalgae. Once the larva reached the eyespot stage with 250 μ size, they were filtered using 220 μ mesh and taken for hormone treatment. Eyespot larvae were treated with Epinephrine at the rate of 0.22 mg /5 lakhs larvae and were transferred to the Micro nursery system for further rearing. The treated larvae were settled as single spat with 20% success rate.

Reported by M. K. Anil, P. Gomathi, P. Gop Ambarish, S. Surya, P. M. Krishnapriya, O. Shalini, M. P. Sharanya. and B. Raju ◆

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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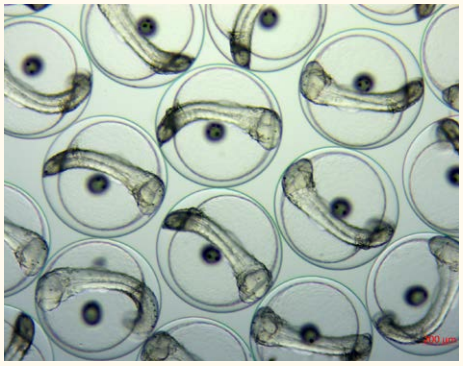
Assisted by: Mr. Arun Surendran, Mr. C. V. Jayakumar, Mr. P. R. Abhilash

Successful breeding of green snapper *Lethrinus nebulosus*

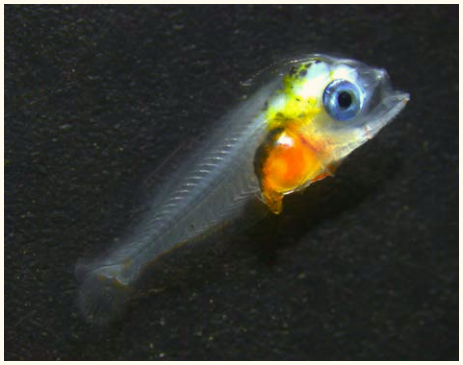
Broodstock development, volitional spawning and seed production of marine food fish spangled emperor, *Lethrinus nebulosus* in Recirculating Aquaculture System was achieved for the first time under captivity in Vizhinjam Regional Centre, ICAR -CMFRI on 26.10.2021. Belonging to the family Lethrinidae, it is commonly called spangled emperor, green snapper, or yellow sweet lip. This species is considered one of the best food fish in many countries as it can grow upto 80cm in length and weigh around 8kg. It also forms commercial fishery in many countries of the Indo-West Pacific, including Red Sea, Persian Gulf and East Africa to southern Japan and Samoa. For the broodstock development in a 10-ton RAS system fish collected from the wild were used after quarantine. Fishes are spawned naturally in the RAS without any hormone application. Fertilized eggs of green snapper were planktonic, spherical, with a single oil globule 743.655±9.4μ. A green water medium with a combination of algal species was used for larval rearing. Hatching of larvae occurred 16-18 hours after spawning, and the larvae measured 1583.945±42.95μ. Copepod nauplii were used as the first feed, and in later stages, they were fed with rotifer and artemia and then weaned to the artificial diet. Squamation began by 25-27 days post hatch (dph), and the larvae measured 22 mm total length, and it weighed 0.13 g. Metamorphosis of larvae started by 30 dph at a total length of 2.3 cm, and it was completed by 40 dph. A Flow-through system was adopted for further rearing, which improved the survival at the metamorphosis stage. This work was carried out under the All India Network Project on mariculture.

Reported by: M. K. Anil, P. Gomathi, P. G. Ambarish, S. Surya, R. Siju and B. Raju ◆

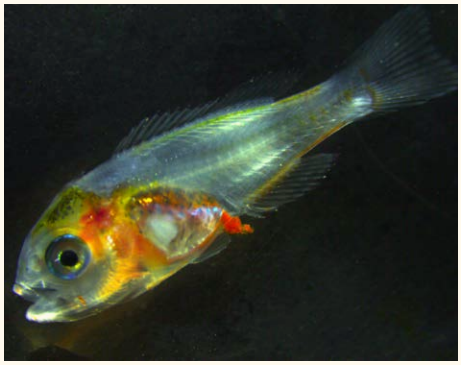


Developing eggs

Hatchling

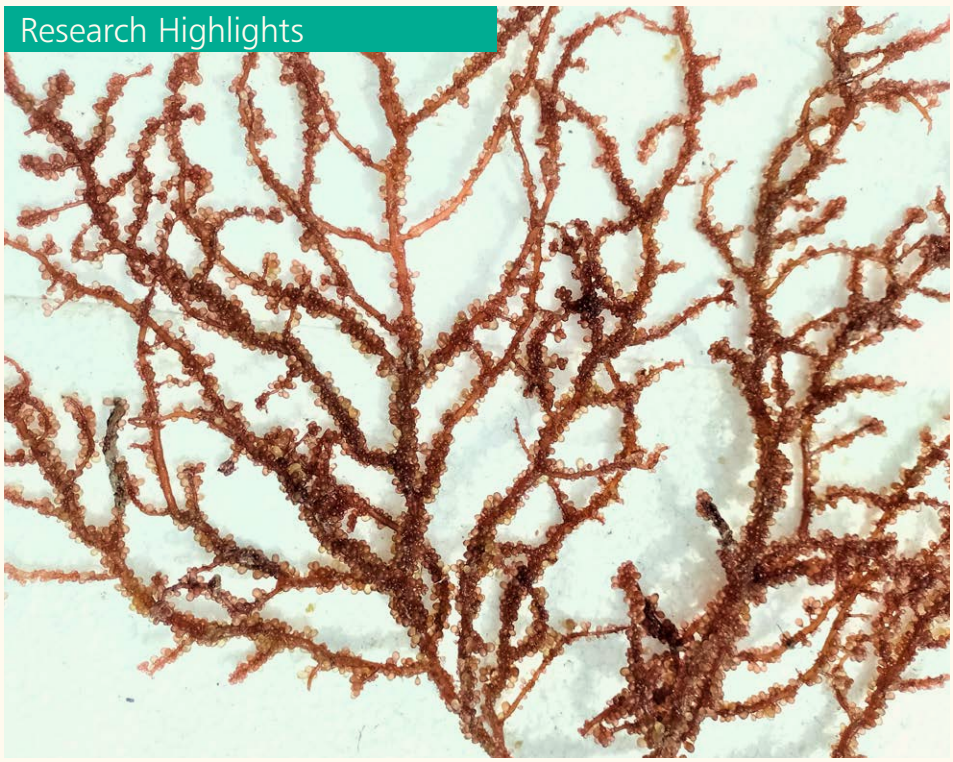


14 DPH larvae



21 DPH larvae

L. nebulosus seed



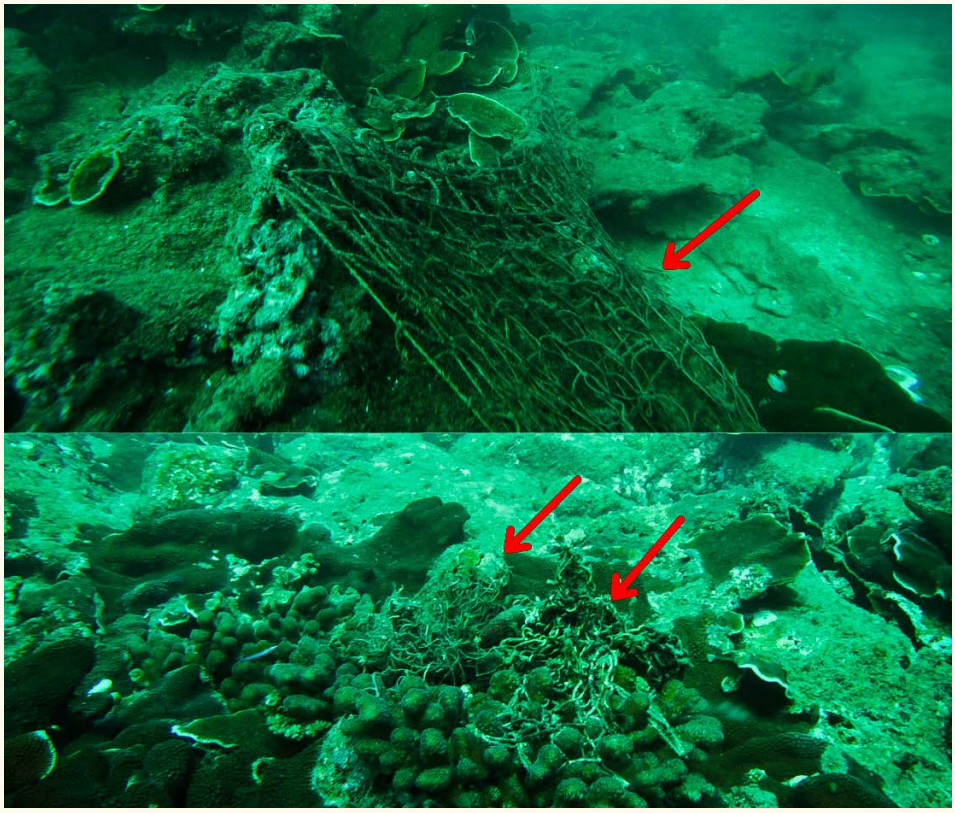
Rare red alga *Botryocladia cf leptopoda* reported from the Palk Bay

During regular field observation studies at Seeniappadarga along the Palk Bay coast the red algae *Botryocladia cf leptopoda* was collected from the "Singhivalai operation" on 2nd November 2021. Belonging to the genus Rhodymeniaceae, the red algae *Botryocladia* sp contains sulphated galactan which has anticoagulant properties. The species of *Botryocladia* are rare to find in the Gulf of Mannar and the Palk Bay.

Reported by R. Saravanan, Mandapam Regional Centre ◆

Derelict fishing gears found on Netrani coral reefs

Netrani is one of the few offshore rocky islands which has patchy coral growth and is located nearly 10 nautical miles (19 km) off the Murudeshwar Coast, Karnataka in the eastern Arabian Sea. The reefs currently harbour around twelve species of Scleractinian corals and many associated organisms, including 27 species protected under the Indian Wildlife (Protection) Act, 1972. The Wildlife Institute of India and ICAR-CMFRI has already recommended that reef around the Netrani Island needs conservation and hence, suggested the establishment of 'Conservation reserve' of 5-10 square km region around the Island. Underwater survey in the reefs of Netrani revealed the presence of derelict fishing gears in the reef area at 8 to 20 m depths. Pocilloporids and *Turbinaria* were found to have been most affected by the Abandoned, Lost or otherwise Discarded Fishing Gears (ALDFGs). Tissue loss, bleaching and secondary infections were found in corals entangled by the ALDFGs which highlights how derelict fishing gears affect marine biodiversity.



Derelict fishing gears observed at Nethrani Islands

Reported by: Divya Viswambharan, Mangalore Regional Centre ◆

Economics of open sea cage farming of marine fish

Harvest of marine food fishes was carried out at various locations under NFDB funded project "Extensive demonstration of technology of open-sea cage farming of marine finfishes all along Gulf of Mannar and Palk Bay" operated by Mandapam Regional Centre of ICAR-CMFRI. Various data on production and revenue generation was collected in the project which will help in effective implementation of marine cage farming ventures, in future. The survival in the cages installed in Gulf of Mannar was comparatively less, due to fish mortality caused by the Harmful Algal Bloom (HAB) of *Noctiluca scintillans* ◆

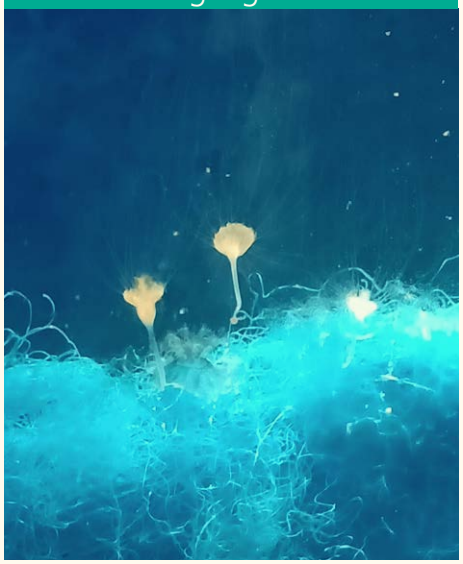
Location	Number of Cages	Duration of farming (in days)	Production per cage in metric tonnes	Species cultured	Total Harvest in metric tonnes	Price realization per kg (₹)	Total Revenue generation (₹)
Munaikkadu 9°17'14.1"N 79°07'53.8"E	3	210	1.74	Asian Seabass	5.22	310	1618200
Sippikulam 8°58'57.09"N, 78°14'13.18"E	1	270	2.15	Cobia	2.15	300	645000
Sippikulam 8°58'57.09"N, 78°14'13.18"E	1	240	1.79	Asian Seabass	1.79	310	554900
Chinnapaalam 9°16'20.2"N 79°12'41.7"E	9	220	1.38	Asian Seabass	12.42	280	3477600
Chinnapaalam 9°16'20.2"N 79°12'41.7"E	1	220	1.65	Asian Seabass	1.65	280	462000
Naalu Panai 9°17'33.3"N 79°14'17.7"E	2	210	1.63	Cobia	3.26	300	978000
Naalu Panai 9°17'33.3"N 79°14'17.7"E	11	240	1.41	Asian Seabass	15.51	270	4185000
Maraikayar Pattinam 9°16'15.8"N 79°07'43.4"E	2	210	1.58	Asian Seabass	3.16	270	853200
Mandapam 9°17'19.7"N 79°09'08.7"E	2	210	1.59	Asian Seabass	3.18	270	858600
Mandapam 9°17'19.7"N 79°09'08.7"E	1	210	2.04	Cobia	2.04	290	591600
Maraikayar Pattinam 9°16'15.8"N 79°07'43.4"E	1	210	2.23	Cobia	2.23	290	646700

Copepod infestation in Lutke's halfbeak

Heavy infestation of the parasite copepod (*Lernaeenicus hemiramphi*) was observed in *Hemiramphus lutkei* caught in the drift gillnets locally known as "Morral valai" or "Thiruvani valai" at Tharvaikulam Fisheries Harbour during September to December 2021. The parasite copepods were attached over the host by piercing and attaching to the muscle with the egg sacs hanging outside.

Reported by: L. Ranjith, M. Kavitha, C. Kalidas, D. Linga Prabu, N. Ramasamy, A. Mathan Babu, P. Nevathitha and P. S. Asha, Tuticorin Regional Station ◆

Early Life History of Upside-Down Jellyfish in captivity documented

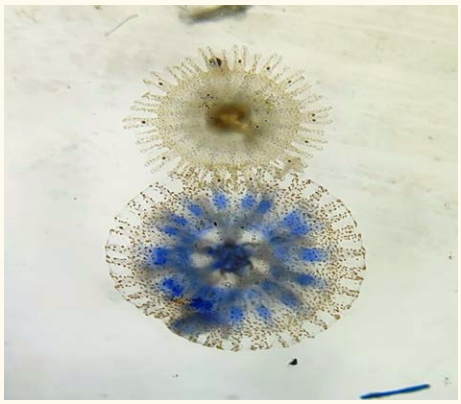


Polyp attachment

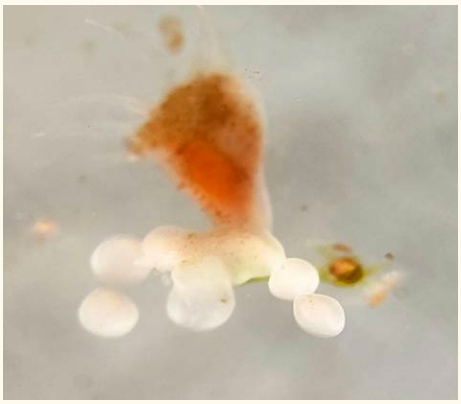
Early life-history stages of *Cassiopeia andromeda* (Upside-down jellyfish) was studied under laboratory conditions and observed free-swimming planuloid buds, polyp development, monodiscus strobilation and further ephyrae development. Newly released buds transformed into functional polyps within 24 hours of release, after 8 to 15 days ephyrae will release with the bell diameter of 5.0±0.4 mm (number=15). The study ascertained the influence of salinity and temperature on the reproductive pattern of *C. andromeda*. The asexual mode of reproduction through planuloid buds in the form of a chain of buds (2 to 4 numbers) was noticed at the higher regime, whereas the monodisc strobilation (single ephyra release) was seen at the lower regime. This study will provide baseline information on predicting the jelly bloom dynamics along the coast based on the reproductive patterns and water quality.

Reported by: L. Ranjith, R. Saravanan, C. Kalidas, D. Linga Prabu, M. Kavitha, P. Nevathitha and P. S. Asha ◆

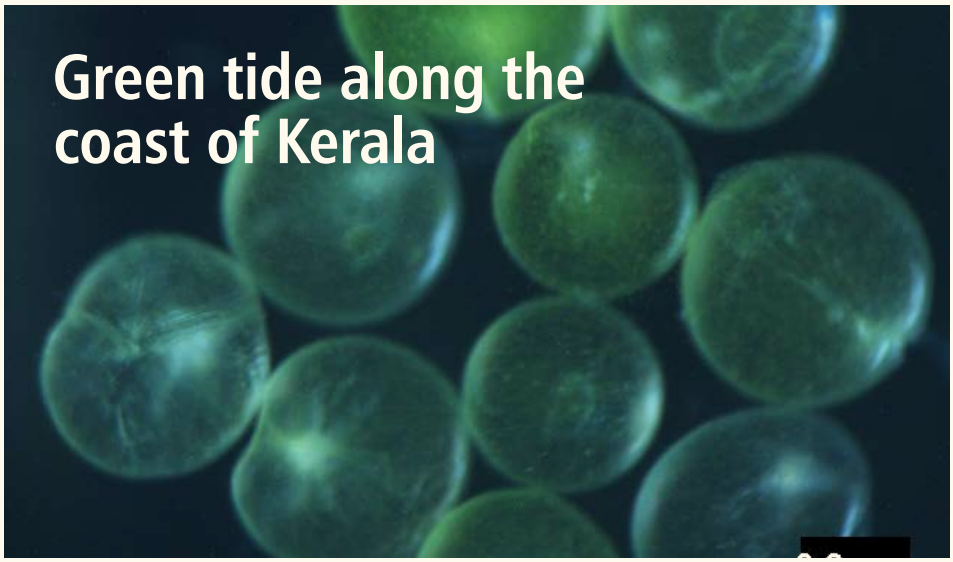
Monodiscus strobilation



Released Ephyrae



Polyp with a chain of planuloid buds



Green tide along the coast of Kerala

An unusual occurrence of green tide particularly visible through the stretch from Kozhikode to Thiruvananthapuram along the Kerala coast was recorded. The phytoplankton was identified as *Noctiluca scintillans.* Blooms occur when the nutrients are readily available and environmental parameters like sunlight, water temperature, salinity, depth, wind etc. are favourable. Kerala experienced exceptional North East Monsoon rains which were categorized as large excess and the runoff resulting from this must have supplied enough nutrients to the costal ecosystem. The surface current speed was about 0.12 m/s towards the coast during November 2021and general wind direction controlled by North East Monsoon winds. With abundant sunlight available, the rapid multiplication of *Noctiluca scintillans* lead to the appearance of green tide along the Kerala coast. *Noctiluca* bloom observed at off Kochi stations, during the last week of November 2021, has moved towards the coast and highest cell density of 45 x 10^5 cells/l was observed at around 30 m depth, off Kochi. The Korapuzha estuary in Kozhikode and Kochi estuary in Ernakulam reported green colouration and a small scale fish kill was also reported from Konadu beach, Kozhikode.

Reported by: Shelton Padua, Ramya Abhijith, R. Ratheesh Kumar, P. G. Ambarish, D. Prema, Reeta Jayasankar, Lavanya Ratheesh, Reena V. J, and Akhil Babu ◆

Normal Seaweed branches

IID affected seaweed branches

Ice-ice disease in farmed seaweed *Kappaphycus alvarezii*

One of the most severe issues in cultivating seaweeds is the Ice-Ice Disease (IID). A recent study revealed that ice-ice disease occurs in *Kappaphycus alvarezii* in Tsunami Nagar, Tuticorin. Unfavourable environmental conditions such as high temperature (March-May), low salinity (October-November) and shallow depth that heavily affects farm productivity was flagged. This disease has affected the overall production and reduced seaweed farming revenue by 50 to 60%. The observations revealed the initial loss of primary branches due to bleaching/ whitening followed by softening of the thallus by the disintegration of affected tissues, then spread to apical regions, ultimately leading to a loss of biomass.

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

Cage Farming initiated under SCSP Programme

Two cages were installed in the Pavanje River at Koluvailu Village, Haleyangady Gram Panchayath, Karnataka. One cage was stocked with Seabass fingerlings in August, 2021 and the other cage with Pompano seeds in December, 2021. Four scheduled caste families were selected by the Regional Centre of ICAR-CMFRI, Mangalore to take up cage culture under Scheduled caste sub-plan programme during 2021-2022. Dr. Pravin Putra, ADG (Marine Fisheries), ICAR visited the farm site ◆

Pilot scale farming of seaweed *Kappaphycus alvarezii*

A frontline demonstration cum training programme was organized during 30th November to 3rd December, 2021 to initiate pilot scale farming of seaweed *Kappaphycus alvarezii* at Chandrabaga, Odisha. Twenty beneficiaries were given hands on training in Best Management Practices in seaweed cultivation such as fabrication of seaweed cultivation rafts, transportation of seed materials of seaweed, seeding and installation of rafts in sea and their regular maintenance.. Twenty seaweed rafts of 3×3 size, each seeded with 10 kg of seed materials obtained from Rameshwaram in Tamilnadu, were deployed at the bar-mouth area of Kushabhadra river near Chandrabhaga. This is the first attempt for pilot scale cultivation of seaweed *K. alvarezii* along Odisha coast by ICAR-CMFRI.

Reported by: Gyanaranjan Dash, Rajesh Kumar Pradhan and Reeta Jayasankar ◆

Field Day programme organised

Sixteen tribal beneficiaries (Bhumija) of Nilamadhaba Swayam Sahayak Gosthi (TSP SHG) and eleven schedule caste beneficiaries (Kaibarta) of Maa Banasitala SCSP SHG from Jugadiha village participated in the field day programme held on 8th October 2021 at Jugadiha village of Balasore (Odisha) under the TSP and SCSP programmes of the Institute. The beneficiaries were also given demonstration about techniques for pond preparation, stocking, feeding and other necessary farm management techniques for successful polyculture of grey mullets with prawns as an additional livelihood opportunity to improve their socio-economic status.

Reported by: Rajesh Kumar Pradhan, Gyanaranjan Dash, Biswajit Dash, Swatipriyanka Sen Dash and Madhumita Das, Puri Field Centre ◆

National Campaign on women empowerment in fisheries sector

Veraval Regional Station felicitated progressive fisher women Hansaben Solanki for her contribution in the field of fisheries in a function held on 15th October 2021. It was done as part of a National Campaign on Equity and Empowerment of Women in Fisheries and Aquaculture under the "Azadi ka Amrit Mahotsav" Programme ◆

Training Programme on statistical designs in Agriculture

ICAR- Central Marine Fisheries Research Institute organized a ten days online training programme on "Statistical Designs and Analytical Methods for Multifactor Experiments" during 08-17 December, 2021. Conducted as a part of 75th anniversary celebration of the institute under the Lal Bahadur Shastri Young Scientist Award Project of ICAR, it aimed to enhance the analytical skills of agricultural and fishery researchers in efficient statistical designs and analytical procedures for multifactor experiments. The inaugural function of the training programme was held on 8 December, 2021 with Prof. (Dr.) Seema Jaggi, ADG (HRD), Education Division, ICAR as the chief guest. A pre-training session on Introduction to R and R studio was also conducted on 7 December, 2021.

Reported by Dr. Eldho Varghese, Course Director ◆

World Fisheries Day

Fishermen were honoured during the celebration of World Fisheries Day 2021 on 21-11-2021 at the Vizhinjam Regional Centre. Sixteen fishers, including women fish farmers were presented with a memento in recognition of their remarkable services to the fisheries sector ◆

High saline poly-culture pond harvested

A farmers fair cum harvest mela was organized on 22nd December 2021 at Kanaman village of Astaranga (Puri district, Odisha) in connection with the harvest from high saline poly-culture ponds maintained by socio-economically weaker scheduled caste beneficiaries of Maa Sathimaa Self Help Group (SHG) under the SCSP livelihood support activities of Puri Field Centre of ICAR-CMFRI. The harvest of 245 kg grey mullets and 95 kg crabs was auctioned for ₹1,23,000 and the proceeds were handed over to the SHG in the presence of District Fisheries Officer and Assistant Director of Fisheries of State Fisheries Department, Odisha.

Reported by: Gyanaranjan Dash, Rajesh Kumar Pradhan, Biswajit Dash, Swatipriyanka Sen Dash and Madhumita Das ◆

Vigilance Awareness Week

Madras Regional Station conducted a Vigilance Awareness Week from 26th October to 1st November 2021. Various competitions were organized for the staff members with the theme Vigilance and the prizes were distributed. A talk on "Banking and Vigilance" by Shri. S. Suresh Kumar, General Manager & Chief Compliance officer, Indian Bank, Chennai was also organised ◆

Mahila Kisan Diwas celebrated under Azadi Ka Amrit Mahotsav

As a part of "Mahila Kisan Diwas", a training programme cum awareness campaign was convened on 15.10.2021 by Madras Regional Station with fisherwomen of Ernavoor, Kuppam fishing village. Dr. A. K. Abdul Nazar, Principal Scientist gave a lecture and discussed about the "Alternate livelihood options for the economic empowerment of the fisherwomen".

On 15th October 2021, Vizhinjam Regional Centre organized a training cum interactive session on cage farming under "Azadi Ka Amrit Mahotsav" at Poovar Fishing Village, Thiruvananthapuram as part of "Mahila Kisan Diwas". The program was organized amongst the SHGs of women who are into fish farming.

Visakhapatnam Regional Centre of ICAR-CMFRI celebrated "Mahila Kisan Diwas" with the theme 'Equity and Empowerment' on 15th October, 2021 through virtual mode. The programme was organized as part of the series of events under "Azadi Ka Amrit Mahotsav" ◆

Seaweed Farming Training Conducted

On 22nd December 2021, Mandapam Regional Centre successfully organized a one-day training programme on seaweed farming by collaborating with Tamil Nadu Rural Transformation Project (TNRTP), Department of Fisheries and Fishermen Welfare at Pudupattinam.

Reported by B. Johnson and G. Tamilmani, Mandapam Regional Centre ◆

Fisher-Scientist interaction

In commemoration of the 75th year of the Indian Independence Celebration "Bharat ka Amrut Mahotsav", Tuticorin Regional Station conducted a "Fisher Scientist Interaction meet on sustainable Capture Based Aquaculture" on December 2021 as a part of National Campaign on "Diversification in Aquaculture". Dr. C. Kalidas, delivered a talk on the importance of sustainable Capture Based Aquaculture. The chief guest Shri P. Vijayaragavan, Assistant Director of Fisheries, Tuticorin, informed fishers the various schemes and subsidies under PMMSY on culture and capture fisheries. Fishermen who co-operated with the various research and outreach activities of Tuticorin Regional Station were felicitated on the occassion ◆

... continue from page 1

filtered using a cartridge filter; later, it is pumped under low pressure through ultrafilter units and stored in a plastic Tank after passing through a UV filter. The stored water is again passed through a UV filter unit before injecting into the reactor bags. The air/CO_2 mixture is also nano-filtered before injecting into the system to avoid contamination of the system by air-borne bacteria and other pathogens. The required amount of CO_2 is injected into the system by controlling the CO_2 input using a bubble counter. Production of 500 liters of culture 3-4 billion cells/ml could be harvested per day from the system, which can be directly used for larval rearing in tanks or for outdoor inoculation of production systems for the use in the nursery. This system is beneficial for bivalves, finfish and shrimp hatcheries. Many hatcheries, including those from the government sector, have showed keen interest in setting up similar units. An MOU will be signed soon with the State Fisheries department of Kerala for installing the same in their hatcheries,

Reported by: M. K. Anil, P. Gomathi, Ambarish P. Gop, S. Surya, P. M. Krishnapriya, O. Shalini and B. Raju ◆

Seabass harvested from sea cages

Nearly 2 tonnes of sea bass was harvested from six cages on 20th and 21st November 2021 bringing revenue of ₹4,22,894 was shared by three groups under the SCSP programme at Kottaikadu, Cheyyur Taluk of the Chengalpattu District, Tamil Nadu ◆

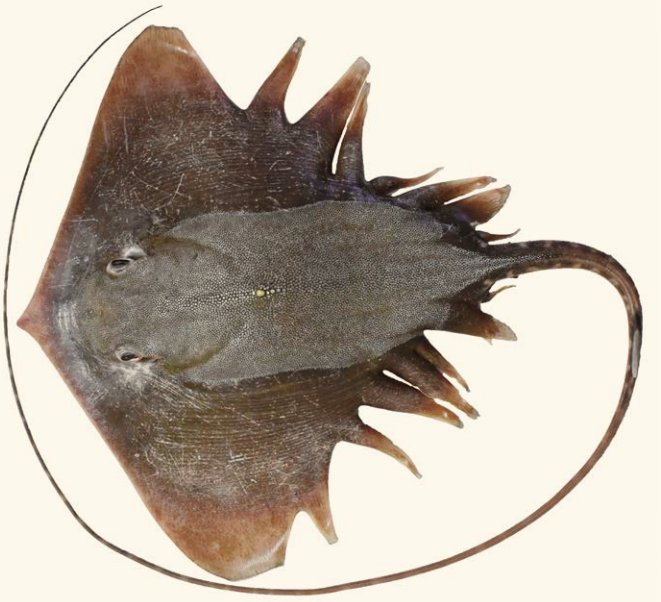
Bryde's whale washed ashore

A female bryde's whale (*Balaenoptera edeni*) was found washed ashore near Fatehpur village of Krushnaprasad block (Puri, Odisha) on 10th December 2021. The whale measured 14.6 m long and showed injuries, probably from an accidental encounter with a ship. Bryde's whales are distributed in tropical and subtropical waters of Pacific, Indian and Atlantic oceans and are known to perform long distance migrations due to their preference for warmer waters. As per the International Whaling Commission (IWC), it has been given 'Data Deficient' conservation status on the IUCN Redlist of threatened species and also listed in Appendix I of CITES and Appendix II of CMS, which prohibits commercial international trade of this marine mammal and any of its products.

Reported by: Swatipriyanka Sen Dash, Rajesh Kumar Pradhan, Madhumita Dash, Gyanaranjan Dash and Menaka Das ◆

Deformity in ray landed at Visakhapatnam

A single specimen of deformed *Maculabatis gerrardi* was landed at Visakhapatnam by a mechanized trawler on 03.12.2021. The ray had finger-like extensions instead of fully formed pectoral and pelvic fins. New extensions (minute in size) were seen forming along the lateral parts of the body indicating that this deformity was most probably formed at birth/over time and not due to physical injury. The deformed ray was male and measured 38.2 cm in disc width with a weight of 1.6 kg.



Reported by Muktha M, H. M. Manas and Sujitha Thomas ◆

Rare landing of a giant manta ray

On 1st October, 2021, a male giant manta ray(*Manta birostris*) measuring up to 460 cm disc width (DW) and weighing approximately 700 kg was landed at Chandrabhaga fish landing centre of Odisha. The fishermen reported that it was found in a bottom set gillnet (58 mm mesh size) operated at night from a depth of 35 m near Ramachandi ($19^0 45' 25'' N$, $86^0 10' 31'' E$). The manta was auctioned for ₹4000.

Reported by: Swatipriyanka Sen Dash, Madhumita Dash, Gyanaranjan Dash, Rajesh Kumar Pradhan, Biswajit Dash and Sankar Paleti ◆

Fish kill in cages at Arokiapuram, Kanyakumari

Incidence of *Noctiluca scintillans* bloom and mortality of Asian seabass in cages at Arokiapuram, Kanyakumari was reported from 3rd to 8th December 2021. *N. scintillans* with size ranges between 0.6 and 1.2 mm were found in the water samples. Symbiont *Pedinomonas noctilucae* was found in the cells of *N. scintillans*. Harmful algal blooms (HABs) due to *N. scintillans* are indirectly associated with fish kills due to lowering of oxygen concentrations when the bloom crashes.

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

Noctiluca bloom leads to massive fish death at Gulf of Mannar

Blooms of *Noctiluca scintillans* were observed along the coast of Gulf of Mannar stretching from Thonithurai to Tuticorin during 8th to 24th October 2021. Crashing of the algal blooms started from 10th October onwards and coastal water turned green affecting small pelagic fishes and minor perches which were washed ashore that resulted in foul smell. The icthyodiversity affected during the bloom period was identified and quantified. Silverbellies was the most affected group followed by grunter, lesser sardines, gizzard shad, silverbiddies, trevallies and scads, ariid catfish, parrotfishes, spinefoots, puffers, eels, triacanthids, fullbeaks, halfbeaks, flying fish, mullets and cuttlefish. *Noctiluca* bloom and associated fish death during September and October, a brief period between the southwest and northeast monsoons, is becoming a regular phenomenon at Gulf of Mannar since 2019. Insufficient dissolved oxygen and increased ammonia concentration due to proliferation, death and decay of algae could be the primary reasons of fish death at coastal waters.

Reported by L. Remya, P. Rameshkumar, S. Thirumalaiselvan, V. Vetrivel, R. Rajkumar, M. Midhun and M. Prakash, Mandapam Regional Centre ◆

Release of live whale shark in Andhra Pradesh

A whale shark measuring 11 ft and weighing approximately 1 ton was released alive at Mogadalapadu, Andhra Pradesh. The whale shark had been entangled in a fishing net. The fishermen freed it from the net and pushed it back alive into the sea.

Reported by Maharshi Ashok, M. Muktha and H. M. Manas ◆

Awards

Rajbhasha Puraskar for ICAR-CMFRI

ICAR-Central Marine Fisheries Research Institute, Kochi bagged Rajbhasha Kshetriy Puraskar-2019-20 (Third position) of Department of Official Language, Ministry of Home Affairs, New Delhi for the excellent implementation of Official Language Hindi. The Rajbhasha Shield and Certificate were distributed in the presence of Dr. Meenakshi Jolly, Joint Secretary, (OL), Shri B. L. Meena, Director (Impl.), Shri Anand Kumar, Director (Policy), Department of Official Language, Ministry of Home Affairs, New Delhi; Dr. Dinesh Srivastava, Chief Executive, Nuclear Fuel Complex, Hyderabad and Dr. V. M. Tiwari, Head, CSIR, Hyderabad in the Official Language Regional Conference (SW) organized on 04th December, 2021at Hyderabad. The Heads and Officials of Central Government Organizations from Kerala, Tamil Nadu, Karnataka, Telangana, Andhra Pradesh, UT of Puducheri and Lakshadweep also attended the function. ◆

Swachh Bharat

As a part of "Swachhta Pakwada" 2021 from 16th to 31st December, 2021, the staff of the Mangalore Regional Centre cleaned the office campus and surroundings including the maintenance of vermi compost tanks and biogas unit for disposal of fish waste installed on the office premises. Regional stations of the Institute at Tuticorin and Madras also organised several programmes and cleaning activities following all prescribed covid 19 safety protocols. A talk by Swami Surachidanada from Sri Rama Krishna Math, Vivekananda cultural centre, Chennai on"Healthy mind, body and nature" was organised for the staff. Based on the theme "Waste to Wealth", Vizhinjam Regional Centre organized a lecture cum interactive session with Shri R. Raveendran, a recipient of several ICAR awards ◆

Distinguished visitors

Ms. C. Suvarna, IAS, Chief Executive, National Fisheries Development Board accompanied by Dr. B. Meenakumari Chairman, Research Advisory Committee, ICAR-CMFRI and Dr. A. Gopalakrishnan, Director, ICAR-CMFRI visited the Vizhinjam Regional Center of ICAR-CMFRI on 21-10-2021. The Pompano Brood stock hatchery complex was constructed under the NFDB funded project "Enhancing the production of silver pompano *Trachinotus blochii* through the establishment of a Brood bank, supply of larvae to States/UTs for seed production" with Dr. M. K. Anil, Principal scientist as Principal investigator.

Dr. J. K. Jena, DDG (Fisheries), ICAR, New Delhi visited Digha Regional Station of ICAR-CMFRI on 7 October 2021.

Dr. J. K. Jena, DDG (Fisheries), ICAR, New Delhi visited the Madras Regional Station of ICAR-CMFRI on 18 December 2021. A brochure on artificial reefs prepared by Dr. Joe Kizhakkudan and team was released on the occassion.

Programme participation

Dr. Prathibha Rohit

- Attended IOTC 2nd Working Group on FADs from 4-6th October 2021
- Attended IOTC 12th Working Party on Methods (WPM12) from 18 to 20 October 2021
- Attended IOTC 23rd Working Party on Tropical Tunas (WPTT23) from 21-26 October 2021
- Attended 20th meeting of the Working Group for monitoring and review of implementation of IOTC Resolutions from 29 October 2021
- Attended IOTC 9th Technical Committee on Allocation Criteria (TCAC09) on 5 November 2021
- Attended Panel discussion on biotechnology enterprises and innovative start-ups, with special focus on food products that use bioactive chemicals found in fish and seaweed, for the Bengaluru Tech Summit organized by the Dept. of IT & BT, Government of Karnataka on 30 October 2021

Dr. Shoba Joe Kizhakudan

- Attended online meeting conducted by the Department of Fisheries, MoF, AH&D to discuss preparation of Draft NPOA on Seabirds and other NPOAs, on 05 October 2021
- Attended an online consultative workshop on "The Refinement of Marine Products of Marine Fisheries Management in East Coast of India" conducted by MPEDA, Kochi on 13 October 2021

Dr. Johnson B.

- Participated in the Virtual meeting to discuss on the draft Action Plan on Seaweed cultivation and value chain under Pradhan Mantri Matsya Sampada Yojana (PMMSY) convened by Department of Fisheries, Ministry

of Fisheries, AH & D, Govt. Of India on 5th October 2021.

- Participated in the meeting regarding Seaweed chaired by Joint Secretary to GOI convened by Tamil Nadu Fisheries Department on 8th October, 2021.

- Participated in the 2nd Meeting of the ICC Seaweed expert Committee on 15th December, 2021.

Dr. P. S. Asha

- Attended DST sponsored online Training Programme on ''Emotional Intelligence at Workplace for Scientists/Technologists organized by Centre for Organization Development, Hyderabad held during 29 November -3 December 2021

Dr. C. Kalidas & Dr. L. Ranjith

- Attended GIST – Global Indian Scientists & Technocrats Festival 2021, Goa organized by the National Centre for Polar & Ocean Research at Panaji, Goa during 10-13 December 2021.

Smt. M. Kavitha

- Attended 'Data Analysis in Social Sciences Research' organised by NAARM, Hyderabad during 04-08th Oct 2021

Dr. Loveson Edward, Dr. Pralaya Behera and Dr. P. Pattnaik

- Attended and exhibited a stall highlighting ICAR-CMFRI's research activities and outputs at the XV Agricultural Science Congress held at BHU, Banaras, during 13-16 November 2021.

Dr. Muktha. M

- Attended the first online meeting of the Grouper & Wrasses Working group of the IUCN on 14.12.2021

Smt. L. Remya

- Participated in the 2nd International Agrobiodiversity Congress from 15 to 18 November, 2021.

Dr. K. K. Anikuttan

- Delivered an invited talk on " Clown Fish Breeding and Live Feed Production in Aquaculture" for an online training programme organized by State Agriculture Management & Extension Training Institute (SAMETI), Department of Agriculture Government of Kerala on 11.10.2021.

Personnel

Promotion & Transfer

Name	From	To	w.e.f.
Shri K. S. Sreekumaran	Finance and Accounts Officer, ICAR-CIFT	SFAO ICAR-CMFRI,Kochi	16.10.2021
Shri V. Raghuraman	Administrative Officer, NIVEDI	Senior Administrative Officer ICAR-CMFRI,Kochi	10.11.2021
Shri A. T. Sunil	Assistant, ICAR-CMFRI, Kochi	Assistant Administrative Officer Vizhinjam Regional Center, ICAR-CMFRI	15.11.2021
Shri P. V. Devassy	Assistant Administrative Officer, ICAR-CMFRI,Kochi	Administrative Officer SBI, Coimbatore	09.11.2021
Smt. C. M. Jenny	Assistant Administrative Officer, ICAR-CMFRI, Kochi	Administrative Officer ICAR-CPCRI, Kasaragod	12.11.2021

Inter-Institutional Transfer (Deputation)

Name & Designation	To	w.e.f.
Shri R. Raja Sekar, SSS	ICAR-CIBA, Chennai as LDC on deputation	31.10.2021
Shri Chandra Mauli Sharma, Assistant Administrative Officer	IIPR – Regional Station, Bhopal	25.10.2021
Shri Nilesh Anil Pawar, ACTO	Promoted as Deputy Director on deputation basis at Dept. of Fisheries, Animal Husbandry & Dairy, New Delhi	30.11.2021
Shri M. M. Vanvi, Assistant	Assistant Administrative Officer on deputation at IIPR, Kanpur	7.12.2021

Inter Institutional Transfer on Permanent absorption basis

Name & Designation	From	To	w.e.f.
Smt. T. R. Remya, UDC	ICAR-CPCRI, Kasargod	ICAR-CMFRI, Kochi	01.10.2021

Transfer

Name & Designation	From	To	w.e.f.
Shri A. Yesudhas, Assistant	Madras Regional Station	Digha Regional Station	10.11.2021
Shri C. Jayakanthan, AAO	Mandapam Regional Centre	ICAR-CMFRI, Kochi	12.11.2021
Shri A. R. Akhil, SSS	ICAR-CMFRI, Kochi	Vizhinjam Regional Centre	15.11.2021
Shri Mahendra Pandit Sonawane, Technician	Goa Field Centre	Ratnagiri Field Centre	15.12.2021
Shri Sonara Yogesh Zinabhai, Technician	Alibag Field Centre	Jamnagar Field Centre	15.12.2021
Shri Ashish Chobey, AAO	NIDH – Haryana	KVK of ICAR-CMFRI Ernakulam	15.11.2021
Shri V. Raghuraman, Senior Administrative Officer	ICAR-CMFRI,Kochi	ICAR-IIHR, Bengaluru	22.12.2021

Voluntary Retirement

Name	Designation	w.e.f.
Shri S. Muragaboopathy	Senor Technician	13.09.2021

Promotion of Senior Scientists to Principal Scientists

Name	w.e.f.
Dr. K. N. Saleela	27.07.2020
Dr. N. K. Sanil	18.07.2019
Dr. V. Venkatesan	01.01.2020
Dr. Miriam Paul Sreeram	05.07.2018
Dr. Sandhya Sukumaran	01.01.2020
Dr. N. Aswathy	08.02.2020

Retirements

Dr. P. Jayasankar
Principal Scientist
31.10.2021

Shri R. Vasu
Senior Technician
30.11.2021

Promotions

Name & Designation	Promoted as	w.e.f
Smt. Lavanya Ratheesh, Senior Technical Assistant	Technical Officer	12.07.2020
Shri Punam Ashok Khandagale, Senior Technical Assistant	Technical Officer	15.07.2020
Shri G. Hanumantha Rao, Senior Technical Assistant	Technical Officer	13.07.2020
Smt. Sonali S. Mhadholkar, Senior Technical Assistant	Technical Officer	12.07.2020
Shri T. Retheesh, Senior Technical Assistant	Technical Officer	21.07.2020
Shri Narasimhulu Sadhu, Senior Technical Assistant	Technical Officer	12.07.2020
Shri P. S. Arun Surendran, Senior Technical Assistant	Technical Officer	14.07.2020
Dr. Shiak Mohammed Yousuf, Senior Technical Assistant	Technical Officer	13.07.2020
Shri Chudasama Ramji Raja, Senior Technical Assistant	Technical Officer	04.01.2020
Shri Y. V. S. Suryanarayana, Senior Technical Assistant	Technical Officer	03.07.2020
Dr. Mamidi Sathish Kumar, Senior Technical Assistant	Technical Officer	06.08.2020
Shri M. Anbarasu, Senior Technical Assistant	Technical Officer	28.07.2020
Shri B. Raju, Senior Technical Assistant	Technical Officer	14.09.2020
Shri P. S. Alloycious, Senior Technical Assistant	Technical Officer	25.10.2020
Shri T. B. Retheesh,,Technical Assistant	Senior Technical Assistant	05.05.2020
Smt. Anusree V. Nair, Technical Assistant	Senior Technical Assistant	06.05.2020
Shri P. Sayooj, Technical Assistant	Senior Technical Assistant	06.05.2020
Shri Binoy Bhaskaran, Technical Assistant	Senior Technical Assistant	06.05.2020
Dr. N. Ragesh, Technical Assistant	Senior Technical Assistant	13.05.2020
Dr. K. A. Sajeela, Technical Assistant	Senior Technical Assistant	16.05.2020
Shri Albert Idu, Technical Assistant	Senior Technical Assistant	08.05.2020
Dr. Praveen Narayan Dube, Technical Assistant	Senior Technical Assistant	13.05.2020
Shri Balla Vamsi, Technical Assistant	Senior Technical Assistant	08.05.2020
Shri Suresh Kumar Pilli, Technical Assistant	Senior Technical Assistant	08.05.2020
Shri Chinni Babu Bathina, Technical Assistant	Senior Technical Assistant	15.05.2020
Shri Aju K Raju, Technical Assistant	Senior Technical Assistant	10.09.2020
Smt. G. Dhanya, Senior Technician	Technical Assistant	12.07.2020
Shri S. Pradeep, Senior Technician	Technical Assistant	22.07.2020
Dr. P. Rajendran, Senior Technician	Technical Assistant	13.07.2020
Shri M. Thayalan, Technician	Senior Technician	25.03.2020
Shri K. Senthilkumar, Technician	Senior Technician	24.03.2020
Shri S. Willington, Technician	Senior Technician	24.03.2020
Shri Chudasama Karsan Punja, Technician	Senior Technician	30.03.2020
Shri Ansar Pokkarakath, Technician	Senior Technician	25.04.2020
Shri T. G. Kishor, Technician	Senior Technician	27.04.2020
Shri K. T. S. Sunil, Technician	Senior Technician	01.05.2020
Shri L. Sreesanth, Technician	Senior Technician	27.04.2020
Smt. P. G. Silpa, Technician	Senior Technician	28.04.2020
Shri Abbas A. Muhammed, Technician	Senior Technician	27.04.2020
Shri Anoop P. Anassery, Technician	Senior Technician	01.05.2020
Shri J. Balaji, Technician	Senior Technician	01.05.2020
Shri A. Ramesh,Technician	Senior Technician	25.04.2020
Shri Tinto Thomas, Technician	Senior Technician	29.04.2020
Shri Indranil Mukharjee, Technician	Senior Technician	07.05.2020
Shri Rachakonda Sivaraju, Technician	Senior Technician	19.05.2020
Shri Panchakarla Nagaraju, Technician	Senior Technician	02.05.2020
Ms. Gohel Jaysree Khimji, Technician	Senior Technician	02.05.2020
Shri Solanki Vipulkumar Mulajibhai, Technician	Senior Technician	02.05.2020
Shri Bhatt Bhargav Hareshbhai, Technician	Senior Technician	06.05.2020
Shri Shrikrishna Pandurang Hotekar, Technician	Senior Technician	07.05.2020
Smt. S. Prasannakumari, Technician (Retd.)	Senior Technician (Retd.)	01.06.2020
Shri T. Rajesh Babu, Technician	Senior Technician	01.07.2020
Shri M. Jayasingh, Technician	Senior Technician	05.08.2020
Shri N. Ramasamy, Technician	Senior Technician	25.03.2020
Shri Joseph Mathew, Assistant	Assistant Administrative Officer	01.10.2021
Smt. M. Rameswari, Assistant	Assistant Administrative Officer	10.11.2021
Smt. V. Vandana, Technical Assistant	Senior Technical Assistant	11.05.2020
Smt. K. M. Priya, Technical Assistant	Senior Technical Assistant	08.06.2020
Shri V. K. Manu, Technical Officer	Senior Technical Officer	22.12.2021
Smt. M. B. Dhanya, Stenographer	Personal Assistant	24.12.2021
Smt. Zulekha, Stenographer	Personal Assistant	24.12.2021

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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