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Director General, ICAR Launches Open Access Online Indian Journal of Fisheries

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International seminar on Emerging issues in Asian Aquaculture

see back cover



CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
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Published by

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About CMFRI

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

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



Director speaks

Dear Colleagues,

Our untiring efforts in collection of marine fish landings data and stock assessment received international recognition, when we organized the International Regional Training course on "Strengthening Fisheries Data Collection and Stock



Assessment" jointly with Fishery Survey of India funded by the Bay of Bengal Programme-Inter-Governmental Organization (BOBP-IGO). The participants were junior and middle level officials from member countries - Bangladesh, India, Maldives and Sri Lanka.

We are glad to inform that after series of discussion at different levels, the Ministry of Agriculture has in principle accepted to recognize CMFRI's fisheries data as the Official Statistics of Government of India under certain pre-requisites. This is a credit for all of us as so far we have been only witnessing the use of our data by different agencies to suit their objectives without giving due credit to our efforts in publishing the voluminous landing statistics for the last 40 years.

In continuation of our breakthrough in cobia breeding, we have successfully employed PIT (Passive Integrated Transponder) for tagging cobia and pompano broodstock at Mandapam Regional Centre of CMFRI for the first time. The tagging helps to identify the brooder reared in cage so that we can track the reproductive history of tagged fish and improve our efficiency.

We are glad to inform that the open access online Indian Journal of Fisheries, managed by CMFRI in ICAR website was launched by Dr S Ayyappan, Secretary (DARE) and Director General, ICAR which will improve the visibility of our research publications at global level. The Director General also dedicated the newly extended wing of the Central Marine Fisheries Research Institute-Central Institute of Fisheries Technology lab-cum-office complex and mariculture laboratories of the Visakhapatnam Regional Centre of CMFRI to the nation.

All these developments were the result of our untiring and committed efforts towards achieving our goal. We shall resolve to continue our efforts in the forthcoming years.

With best wishes

Dr. G. Syda Rao
Director

Front Cover: Director General lighting the ceremonial lamp

Director General, ICAR Launches Open Access Online Indian Journal of Fisheries



Dr. Ayyappan launching the OA online IJF

Hon'ble DG's visit to Visakhapatnam RC of CMFRI

Secretary (DARE) and Director General, ICAR Dr S Ayyappan launched the open access online Indian Journal of Fisheries in the ICAR website at a function held at Visakhapatnam RC of CMFRI. He was inaugurating the newly extended wing of the Central Marine Fisheries Research Institute-Central Institute of Fisheries Technology lab-cum-office complex.

Dr. Ayyappan in his inaugural address commended the efforts and contributions of the scientists and staff of the two centres. He highlighted the need for increasing the fish production of the country with innovative technologies like that of open sea cage culture initiated by CMFRI.

Dr. S. Ayyappan, Secretary (DARE) and Director General (ICAR) visited the Visakhapatnam Regional Centre of CMFRI and Visakhapatnam Research Centre of CIFT on June 10, 2011. Deputy Director General (Fisheries), ICAR, Dr. B. Meenakumari, CMFRI Director Dr. G. Syda Rao, SIC of VRC of CMFRI Dr. G. Maheswarudu and SIC of VRC of CIFT Dr. M.M. Prasad were also present. DG, DDG (Fy.) and Director, CMFRI planted saplings in the campus on this occasion. The DG addressed the gathering and also interacted with scientists and staff of the two centres as well as representatives of



DG addressing the staff at Visakhapatnam



Dr. Ayyappan inaugurating the new extension wing of CMFRI and CIFT lab-cum-office complex



DG Dr Ayyappan and DDG Dr B Meenakumari interacting with fisherwomen SHG

fisher NGOs. Dr P T Lakshmanan, HOD, CIFT (Cochin), Dr. G.R.M. Rao, Former

Director, CIBA (Chennai), Dr. Sudhakara Rao, Former HOD, CMFRI (Cochin) and



Director General Planting Commemorative sapling in the campus

Sri. S.S. Gupta, Former SIC, VRC of CIFT offered felicitations on the occasion.

DG dedicates the mariculture laboratory of Visakhapatnam Regional Centre to the Nation



Dr. Ayyappan dedicates the mariculture laboratory

The Director General has dedicated the mariculture laboratories of Visakhapatnam Regional Centre of CMFRI that played a significant role in development of technologies for commercially important species, to the Nation.

The mariculture laboratories of Visakhapatnam Regional Centre of CMFRI have been constructed (12000 Sq.ft) and started operation. The mariculture laboratories consist all

modern facilities such as sea water intake system including slow sand filter with 12t/hr filtration rate and 30 t storage capacity; Micro algae lab and Central instrumentation facility that harbours most of the latest equipments required for mariculture activities. These Mariculture laboratories have played a key role by supporting in development of technologies for onshore pearl culture, captive broodstock of tiger prawn *Penaeus monodon* and Seed production of green

mussel *Perna viridis* earlier. Currently the research programme on Broodstock development induced breeding and seed production of greasy grouper *Epinephelus tauvina* is progressing well in this well established facility.

IJF - The leading Fisheries Science Journal

The Central Marine Fisheries Research Institute launched the first volume of Indian Journal of Fisheries, an official journal of the Ministry of Food and Agriculture, Government of India in 1954 from the then Headquarters at Mandapam Camp. During 1954, the Editorial Board consisted of the Fishery Development Adviser to the Government of India (Chairman), the Chief Research Officer, Central Inland Fisheries Research Station and the Chief Research Officer, Central Marine Fisheries Research Station (Managing Editor). In 1967 all the Fisheries Institutes were brought under the administrative control of ICAR. Since then the journal is published by the Director, CMFRI on behalf of ICAR. Since 1971, the headquarters of the Institute is in Kochi, which was earlier at Mandapam Camp. The journal is published from Kochi. The journal is of international repute and the articles published are indexed and abstracted by many international indexing and abstracting services and thus provides international exposure to the scientific community. The editorial committee accepts only online submission of manuscripts. Visit IJF website from ICAR website as well as from CMFRI website.



About Visakhapatnam RC

The Visakhapatnam Regional Centre of CMFRI, established in 1947 as a Survey unit, was upgraded as a Research Unit in 1955. During 1970, the Research Unit housed within the premises of Department of Zoology, Andhra University was elevated to a Sub-station and subsequently as a Research Centre in 1976. The Research Centre moved in to its own building in 1995

and was further upgraded as the Regional centre on 17th October, 2001. The Research centre of Central Institute of Fisheries Technology, Kakinada was shifted from Kakinada to Visakhapatnam on 7th March, 1995 and sharing with Research centre of CMFRI, Visakhapatnam for Official Accommodation as well as for Residential Quarters.

Thematic meeting - NICRA Fisheries Component at CMFRI, Kochi



Release of CMFRI special publication - Climate change and Indian Marine Fisheries

The Fisheries thematic meeting under the NICRA project was held at CMFRI, Kochi on 6th May 2011. Scientists associated with the NICRA project in CMFRI, CIBA and CIFRI participated in the meeting. Dr. G. Syda Rao, Director, CMFRI welcomed the participants and briefed about the importance of the project. Dr. B. Venkateswarulu, Director, CRIDA outlined the project concept and objectives of the thematic meeting. Dr. A.G. Ponniah, Director, CIBA opined that the impact of climate change should not be overblown. He stressed the need for studying long term and short term impacts and adaptations of climate change on fisheries and aquaculture. Dr. A.P.

Sharma, Director, CIFRI told that aquatic systems are more vulnerable and are difficult to understand compared to terrestrial systems. He stressed the importance of identification of key deliverables of the project.

After these remarks, Dr B. Venkateswarulu released CMFRI Special Publication No. 105 (Marine Fisheries Policy Brief No.3) Climate Change and Indian Marine Fisheries authored by Dr E. Vivekanandan.

The Principal Investigators of CMFRI, CIBA and CIFRI made presentations on the progress of NICRA project in the last three months. Dr. E. Vivekanandan, Principal Investigator, CMFRI presented

the progress made in capture fisheries, mariculture and technology demonstration. In capture fisheries, indications are found on the relationship between changing sea surface temperature and its impact on oil sardine and Indian mackerel catches. Evidences are also found on shifting in spawning activity of few fishes in relation to sea water temperature. In mariculture, incubation period and larval survival reduced in higher temperature in lobsters and shrimps, respectively. Low cost technology on sea cage construction and mooring of cages were demonstrated to stakeholders at Karwar.

Dr. M. Jayanthi, CIBA, presented the progress of work on brackishwater aquaculture. She outlined the impact of extreme climatic events on brackishwater aquaculture. She informed about the work initiated on collection of data on energy consumption in brackishwater aquaculture activities and vulnerability of systems as a consequence of sea level rise and cyclones. She also outlined the work to be taken up for the coming year.

Dr. M. K. Das, Principal Investigator, CIFRI presented the progress of work on Inland Fisheries. After outlining the impact of climate change on inland fisheries, he outlined the technical programmes of NICRA project. He also



Dr. Venkateswarulu speaks

briefed that surveys to collect time series data on climate, breeding and spawning of inland fishes have been initiated in ten states.

Dr. R. K. Trivedi, Professor, West Bengal University of Animal and Fisheries Sciences, Calcutta presented on the project which he is going to initiate in Sunderbans. After his presentation, it was suggested that Dr. Trivedi may concentrate his work on the impact of salinity on Indian Major Carps and a few more locally cultivated species. It was also suggested that he may consult the Director, CIFRI on the work programme.

The proposed activities, milestone and outcome of the project were also presented by the Principal Investigators. Dr. Ponniah outlined the need for evolving common methodology to find out the impact of climate change on maturation process in aquatic organisms. He cautioned that since maturation is affected by multiple factors, there is need for delineating of impacts of climate change to find out possible adaptation

options. He also emphasized the need for analysis of time series seasonal data to find out the trends. Dr. Sharma opined that the project is ambitious and exhaustive and proper time allocation has to be made on the activities allotted to each Scientist.

Dr. Venkateswaralu suggested that adaptation in capture fisheries is possible only through policy interventions and disseminating information on potential fishing zones. However, several interventions may be possible in mariculture such as suggesting suitable species amenable to climate change and suggesting suitable seasons and technologies. He also told that scenarios have to be constructed with the help of digital GIS maps on seawater temperature, chlorophyll concentration and fish catch.

The interactions were followed by discussion on the themes common to the three fisheries institutes. At the end of the discussions the following three themes emerged.

1. Common methodology may be evolved to assess the impact of climate change on maturation process of different aquatic organisms.
2. Assessment of carbon dioxide emission by fisheries and aquaculture sectors by following Life Cycle Assessment (LCA) from pre-production to consumption. Mitigation options at each level in the life cycle of the product also need to be recommended.
3. Assessment of hazards of climate change events like cyclones and sea level rise in each subsector namely marine, brackishwater and inland fisheries and aquaculture and suggest adaptation options.

It was suggested that the above mentioned themes may be taken up as Action Plans by the three Institutes.

The meeting concluded with vote of thanks by Dr. V. Kripa, Head, FEMD, CMFRI, Kochi.

IRC Meeting



IRC meeting in progress

The 18th Institute Research Council (IRC) meeting was held in Institute Headquarters at Kochi from 9th May - 13th May, 2011, under the chairmanship of Dr. G. Syda Rao, Director, CMFRI.

The Heads of Divisions, Principal Investigators and Co-PIs from Headquarters, all Regional and Research Centers attended the meeting and the progress under the inhouse of the

Institute was critically evaluated. The new projects presented by the PIs were also evaluated and recommended by IRC for implementation during 2011-2012.

Workshop Conducted at Mangalore

A one day inception workshop for the Project 'Flow of matter through trophic levels and biogeochemical cycles in marine and estuarine ecosystems' was

organized at the Mangalore Research Centre of CMFRI on 7th June 2011. Dr. Sujitha Thomas, Senior Scientist and PI of the project and other project associates from CMFRI

participated in the workshop and discussed modalities and methodologies for carrying out various technical programmes of the project.



Dr. Y. S. Yadava, Director, BOBP lighting the ceremonial lamp along with Dr. Vijayakumaran, DG of FSI and Dr. Syda Rao

International Training Course on Strengthening Fisheries Data Collection and Stock Assessment

Jointly organized by CMFRI and Fishery Survey of India

An international training course termed as Regional Training Course on “Strengthening Fisheries Data Collection and Stock Assessment” was jointly organized by CMFRI and Fishery Survey of India under funding from the

Maldives and Sri Lanka. The training course was for two weeks from 25th April to 7th May 2011 with the following objectives.

- To train the junior and middle-level

landing centres

- To enrich overall knowledge on fisheries science

The expertise available with CMFRI in the areas of fish landings data collection



A view of audience



Dr. Yadava speaks

Bay of Bengal Programme Inter-Governmental Organization (BOBP-IGO). The training program was proposed by BOBP-IGO for capacity building of its member countries in the Bay of Bengal region on species identification, fisheries data collection and fish stock assessment. The participants were junior and middle level officials from member countries - Bangladesh, India,

fisheries officials from member countries on fisheries data collection, collation, analysis and survey based fish stock assessment

- To introduce computer aided methodologies in resource assessment
- To give first hand experience in fish stock surveys and sampling from

through sample survey, species identification and fish stock assessment were extended for capacity building through this training programme. During the 14 day training course the participants were trained by expert faculties in CMFRI and FSI through theory and practical classes in different laboratories. Also, they were exposed to the fishery through field trips and vessel cruise.



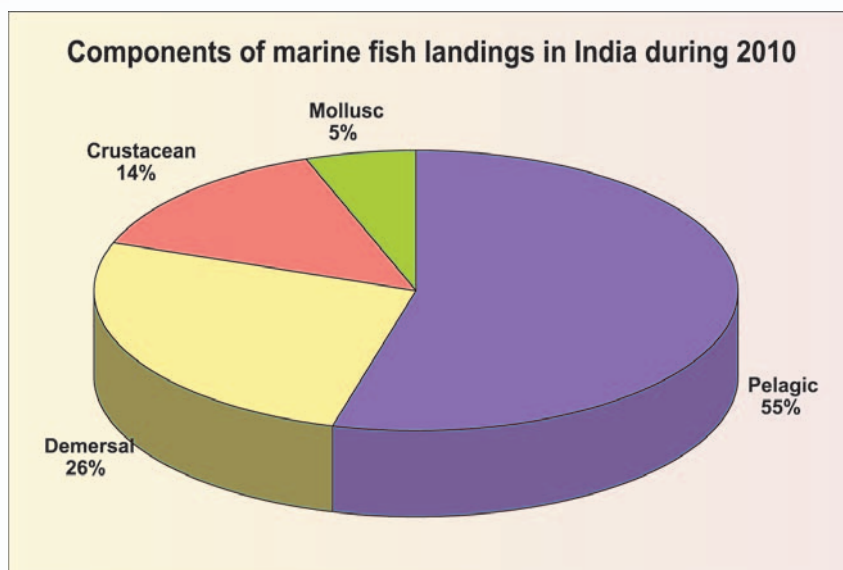
Participants with Dr. Y. S. Yadava, Dr. Syda Rao and Dr. Vijayakumaran and staff,

Research Highlights

Trends in Marine Fish Landings, 2010

- The marine fish landings of India during the year 2010 has been provisionally estimated as 3.32 million tonnes with an increase of about 1.91 lakh tonnes compared to the estimate for 2009.
- The pelagic finfishes constituted 55%, demersal fishes 26%, crustaceans 14% and molluscs 5% of the total landings.
- The sector-wise contributions during the year 2010 were mechanized 78%, motorized 20% and artisanal 2%.
- The west coast accounted for 57% of the total landings and east coast 43%

Region-wise and resource-wise estimates of marine fish production were made along with the effort expended by different types of gears. The estimate of region-wise production showed that the northeast region, comprising West Bengal and Orissa contributed 20% to the total production and the southeast region consisting of Andhra Pradesh, Tamil Nadu and Pondicherry contributed 23%. On the west coast, the northwest region comprising Maharashtra and Gujarat recorded 25% of the total landings, and the southwest region comprising Kerala,



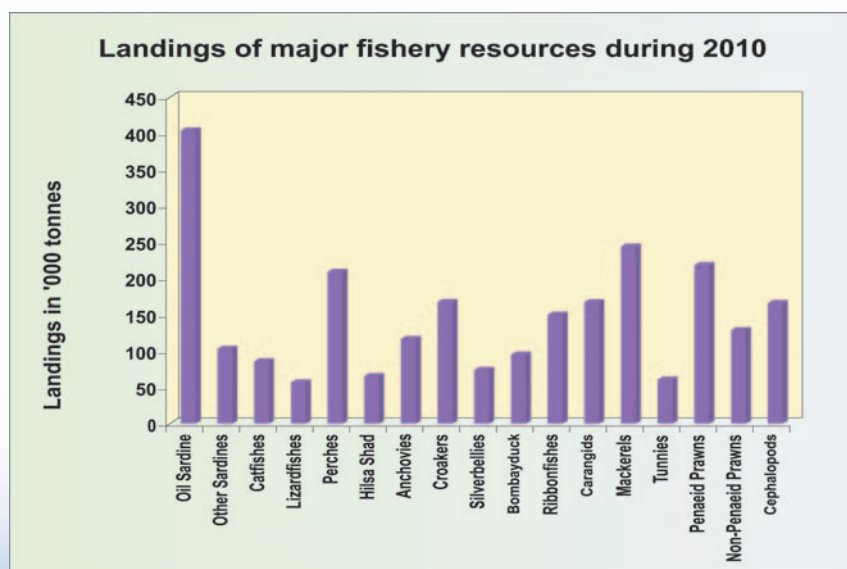
Karnataka and Goa contributed 32%.

Contribution of Major species/Groups

Oil sardine (*Sardinella longiceps*) remained as the most important single species contributing 14.7% of the total marine fish landings in the country. The estimated landings of oil sardine for 2010 is 4,88,204 tonnes against 4,14,767 tonnes in 2009. The second important resource in terms of contribution towards total landings is Indian mackerel (*Rastrelliger kanagurta*) accounting for 8.04% of total landings, the estimate for 2010 being 2,67,196 tonnes compared

to 1,85,932 tonnes in 2009. The estimated landings of other important resources are penaeid prawns 2,53,738 tonnes (7.64%), croakers 1,87,722 tonnes (5.65%), cephalopods 1,71,653 tonnes (5.17%), ribbonfishes 1,70,136 tonnes (5.12%), non-penaeid prawns 1,22,479 tonnes (3.69%), threadfin breams 1,29,544 tonnes (3.99%), lesser sardines 90713 tonnes (2.73%) and Bombayduck 1,07,001 tonnes (3.2%).

(Fishery Resources Assessment Division)



PhD awarded

Mrs. Ganga.U, Scientist (SG), Pelagic Fisheries Division, was awarded the degree



of Doctor of Philosophy by the Cochin University of Science and Technology for her thesis entitled "Investigations on the biology of Indian mackerel *Rastrelliger kanagurta* (Cuvier) along the central Kerala coast with special reference to maturation, feeding and lipid dynamics"

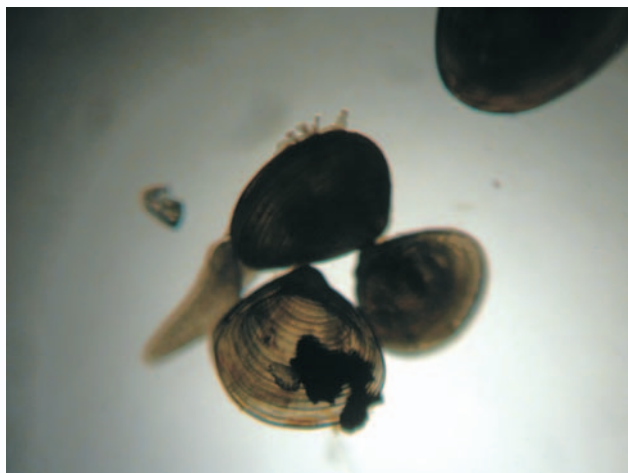
Large scale seed production of hard clam at Tuticorin RC

Under the in-house research project, "MD/IDP/01. Technology development for seed production of shellfish" routine seed production is being carried out in clam *Paphia malabarica* and pearl oyster *Pinctada fucata*. During this quarter (April-June'11) experiments on the seed production of *Meretrix meretrix* was conducted. Brood hard clam was collected from the Karapad bay and induced to spawn by thermal

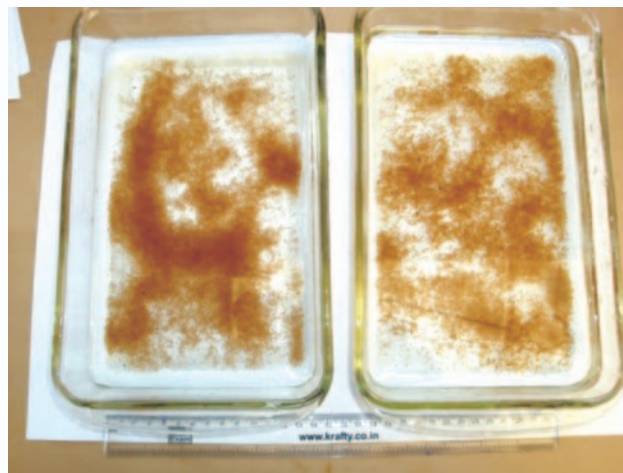
stimulation. The clam responded positively and viable larvae were obtained. The veliger larvae were reared following conventional method in the hatchery using *Isochrysis galbana* as feed. The larvae metamorphosed into pediveliger and settled on 14th day with an average size measuring 580 μ . Further rearing of the settled larvae continued and more than 3.0 lakhs young spats (1.0mm) are

obtained. The young spats are being reared in the hatchery under a diet of mixed culture predominantly of *Chaetoceros spp.* The spats on reaching an average size of 5 mm would be relayed in the Karapad bay by erecting velon net pens for production potential estimates.

(Reported by
I. Jagadis,
Tuticorin RC of CMFRI)



Just settled spat of *Meretrix meretrix* (... μ)



Young spat of *Meretrix meretrix*

Unseasonal high landings of *Loligo duvauceli* at Sassoon docks, Mumbai



Landings of *Loligo duvauceli* at Sassoon docks, Mumbai

At Sassoon docks (new jetty), which is a major cephalopod landing centre in Mumbai, very high landings of *Loligo duvauceli* were observed on 09-06-11. The fishing ground was south of Mumbai in the depth range of 40-50 m. Usually in the month of June, not much trawlers

are operated from Sassoon docks due to the monsoon ban on trawling. Eight trawlers landed squids on this day and about 1.5-2 t was observed in each trawler. A catch of this magnitude in the month of June is very unusual and therefore gains a lot of importance. The

Dorsal mantle length of ranged between 90 mm to 335 mm. The species fetched a price of ₹110 per Kg. at the landing centre.

(Reported by Sujit Sundaram, Vaibhav Mhatre and Punam Khandagale, Mumbai RC of CMFRI)

New record of Bombay duck from Veravel

An exploratory deepwater fisheries resource survey reveals that a previously unreported species of Genus *Harpadon* occurs in the Northern Arabian Sea of Indian EEZ off Veraval at 275 – 310 m depths from where it was caught in EXPO trawl net. This species differs from *H. nehereus*, the only reported species in the Northern Arabian Sea, by its distinctively small size (220 mm) and very short pectorals (9.4 - 11.1 % SL). DNA barcoding (sequencing of ca. 650 bp region of mitochondrial gene cytochrome oxidase subunit I) and phylogenetic analysis strongly suggested the same as a newly recorded *Harpadon* spp. other than *H. nehereus*.

(PFD & MBTD, CMFRI, Cochin)



Harpadon sp. collected off Veraval

Harvest and post harvest of oysters and mussels by trained farmers and SHG's

During the period, the harvest of green mussel *Perna viridis* and *Crassostrea madrasensis* farmed at Chakkamkandam canal, a newly selected area, in the North eastern side joining to Chettuva estuary was done by the newly trained farmers from the Orumanayoor Panchayet in Thrissur District.

The harvest of green mussel and oyster was done by trained SHG's at Moothakunnam farm in the southern side

of. Sathar Island of Ernakulam District, Kerala. The SHG's were trained on various aspects of harvest and post-harvest technologies such as standardization of steaming for the required numbers of oysters in trays, optimization of minimum utilization steam to open the valves of the oysters without loosing the internal fluids from oysters so as to avoid shrinkage of meat and loss of weight and easy shucking of the oysters.

They were specially trained on other aspects such as Individual quick freezing of oysters(IQF), preparation of oyster curry " MUZIRIS" and arrangement of meat in pouches of 150 g for long term preservation etc.

The oysters harvested by the farmers from Chettuva, Moothakunnam and Kollam were supplied to Casino Hotel uninterruptedly after depuration, a method described by this Division.

Oyster picking in Alambarai Creek



Woman picking oysters

During the course of a survey conducted in the first week of June by ferry boat in the Alambarai creek (Chinna Cuddalore area, Tamil Nadu) to study the availability of fish seed suitable for cage culture operations, clam beds (*Meretrix casta*) and oyster beds (*Crassostrea madrasensis* and *Saccostrea cucullata*) were observed in the creek.

There is a thriving sustenance fishery for oysters in the creek. Oyster picking is a trade practiced year-round in the area by a group of about 15 people, predominantly women of Kotte Kadu village, who do not belong to the fishermen community. This process is completely manual and does not involve the use of any craft or gear.

The oysters are collected from the oyster beds at a depth of 1.5 fathoms. The toes of the right foot wrapped in cloth are used to pick up the oyster clutches from the oyster bed. The oyster clutch is then held in the gloved left hand and a sickle-shaped knife held in the right hand is used to pry open the oyster shell and remove the meat on site. The meat is collected in a palm leaf basket strapped to the back of the oyster pickers. The mean meat weight of an oyster is 2.3 g; smaller oysters are spared. Approximately 1.5-2 kg of oyster meat is usually collected per day per person. The meat is measured using a cylindrical box about 20 cm in height (which can hold approximately 1 kg of oyster meat, and sold to a trader @ Rs. 100/box. On an average, each picker earns an income of about Rs. 150-200/day.

(Reported by Vidya Jayasankar,
Joe K. Kizhakudan and C. Manibal,
Madras RC of CMFRI)

Diamond back squid spotted at Chennai coast



Dorsal view of the Diamond back squid *Thysanoteuthis rhombus* collected from Chennai Fisheries Harbour

A single male specimen of diamond back squid *Thysanoteuthis rhombus* (Troschel, 1857) locally called “Thalan kadama” was recorded for the first time in the landings at Chennai Fisheries Harbour on 31.03.2011. The squid was caught in the drift gill net operated off north Chennai at a depth of around 100 m. The length of the squid was 650 mm in mantle length and it weighed 9 kg. The specimen was sold for Rs. 900/- in the landing centre. The landing of the same species of female squid with a mantle length of 630 mm at Chennai Fisheries Harbour has been reported by Sethi et al 2009.

It is an epipelagic oceanic rhomboid squid of bright red colour, having a thick cylindrical muscular mantle - wide anteriorly and tapering gradually to a blunt end posteriorly. The fins are long, occupying the entire length of the mantle laterally. The shape of the fin is rhomboidal, being broader in the middle and tapering at both anterior and posterior ends. The head is shorter and the eyes are prominent. The squid possesses longest outer lateral arms and the outer arms are the shortest provided with a crest like muscular projection at the base of each arm. The other arms are intermediary in length devoid of any

structures. All the arms possess two rows of suckers and sucker rings with sharp teeth.

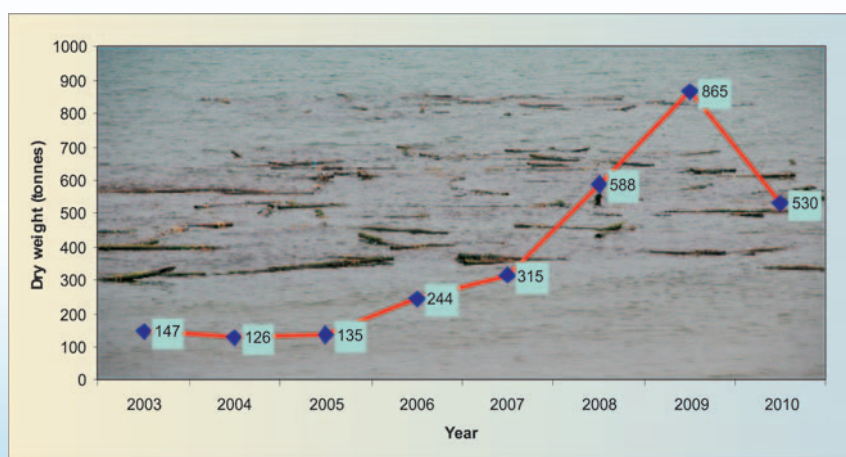
The squid is an inhabitant of warm tropical and partially sub-tropical waters. It occupies near surface waters during the night and migrates to mid waters during the day time and often occurs alone or in pairs. There is detailed information on the distribution of this species in the Atlantic and Pacific waters and the most abundant populations have been found in the waters of Japan.

(Reported by S.N.Sethi,
P.Poovannan, S.Rajapackiam,
Madras RC of CMFRI)

Morphometric measurements of the Diamond back squid *Thysanoteuthis rhombus* caught off Chennai coast.

Morphometric characters	Measurements (mm)
Mantle length, dorsal	650
Mantle length, ventral	630
Mantle width	500
Fin width	210
Head length	110
Width of head	160
Funnel length	85
Eye diameter	45
Tentacle length	625
Total weight (kg)	9

Kappaphycus alvarezii -Seaweed production catching up in Tamilnadu coast



Seaweed (*Kappaphycus alvarezii*) production in Tamil Nadu (2003-2010)

Commercial cultivation of *Kappaphycus alvarezii* was started in 2003 along the Tamil Nadu coast. At present, *K. alvarezii* production is carried

out in five coastal districts of Tamil Nadu namely Kanyakumari, Thoothukudi, Ramanathapuram, Thanjavur and Pudukottai. It is evident from the figure that from 2003 to 2009, *K. alvarezii* production has shown a steady increase. During the year 2009, the production was maximum (865 tonnes) in comparison to other years. A decline in production was noted in 2010, which may be due to heavy storm and high temperature. At present, around 1500 families are dependent only on *K. alvarezii* farming for their livelihood.

(Reported by
G. Gopakumar and
Johnson, B.,
Mandapam RC of CMFRI)

Occurrence of *Rock shrimp* from Indian waters

Six specimens of the Rock shrimp *Sicyonia parajaponica* Crosnier, 2003 was landed at Sakthikulangara fishing harbour, Kollam. This is the first record from Indian EEZ. This species is very close to *Sicyonia japonica* Balss, 1914 and its main morphological characters are: the dorsal carina of the carapace high and cut in six or seven

teeth, the hepatic spine well developed and infraorbital lobe rounded or slightly biangular. The tooth of the second dorsal abdominal segment well developed and strong. This species has been previously reported from Taiwan Sea, South China, Philippines, the northwest coast Australia, Andaman Sea in Thailand and Gulf of Aden and are reported at 10 to 200 m depths.



(Pelagic and Crustacean Fisheries Division)

Heavy landings of *Pinjalo pinjalo* and *Kathala axillaris* at Chennai



Pinjalo pinjalo landed at Chennai

On 19-02-2011, 1.6 tonnes of *Pinjalo pinjalo* (Family: Lutjanidae), locally called as "Periya kizhichan," was landed by mechanised gillnets at Chennai Fisheries Harbour. The size range was

480-689 mm with dominant mode at 620-639 mm.

On 19-02-2011, 2.2 tonnes of the sciaenid, *Kathala axillaris* was landed by multiday thangal trawlers. The size



Kathala axillaris landed at Chennai

ranged from 110 to 169 mm with dominant mode at 130-139 mm.

(Reported by S. Rajapackiam, Madras RC of CMFRI)

Large size Giant devil rays landed at Chennai

On 04-06-2011, three numbers of large sized (DW 410-475mm) Giant Devil Ray *Manta birostris* were landed by gillnet at Chennai Fisheries Harbour. The weight ranged from 650 kg to 1000 kg. The rays were sold for Rs 10200/-, Rs 16400/- and Rs 22600/-. On 09-06-2011, six numbers of the same

species were landed by gillnet and these rays were totally auctioned for about Rs 100000/-. The rays were priced high due to the high value of their gill rakers.

(Reported by T. Hameed Batcha, S. Rajapackiam & S. Subramaniam, Madras RC of CMFRI)



First Photographic record of a lesser known Scorpion fish from Karnataka Coast

This lesser known scorpion fish *Parapterois macrura* was first reported by Alcock in 1898. Since his report, no photographic record of this species has been made available to the scientific world. This is the first ever colour photographic record of this species. The specimen was collected from a multi-day trawler catch at Mangalore Fishing Harbour which operated at a depth of 151 m, 40 km south off Mangalore.

(Reported by R. Saravanan,
Mangalore RC of CMFRI)



Scorpion fish *Parapterois macrura*

Mussel harvest at Kaup

Mussels cultured in estuarine and marine farming systems at Sastan and Kaup were harvested during 16-20th May 2011. The farming was done with

the participation of local fisherfolk. The farming activity has evinced a lot of interest among the locals and more fishers are interested in taking up this

activity in the next season. The harvested mussels were marketed in Goa markets and it fetched Rs.2/- per mussel.



Mussel harvest at Kaup (open sea farming)



Mussel harvest at Sastan (Estuarine system)

Production of Cultchless and Uniform shape spat in hatchery at Narakkal



Cultchless spat of edible oysters were produced experimentally in the hatchery at Narakkal through spat settled on the polyethylene sheet and the clam shell grits provided for the larvae in the tanks. Uniform shape of juvenile oysters was also produced in the hatchery to get large uniform size at grow out to fetch good price to the farmers.

(Molluscan Fisheries Division)

◀ Oyster products launch at
NIPHATT stall at Chettuva,
Thrissur

Yellow fin tuna fishing off Chennai



Yellow fin tuna caught by hooks & lines

Large-sized yellow-fin tuna *Thunnus albacares* was landed by hooks & lines operated from trawlers that operate for deep sea fishing during January-March. These trawlers operate in the depth range of 300-350m, about 200-300 km from the shore, south-east of Chennai. The length of *T. albacares* landed by hooks & lines ranged from 150 to 200 cm (60 to 85 kg weight) and the price ranges from ' 65 to 80 per kg. The monthly catch of yellow fin tuna during

the period was 3 t, 8 t and 5 t respectively. The fishes were transferred to collection sheds immediately after landing and quickly packed in ice and transported to processing plants for export processing, mainly to Thailand,



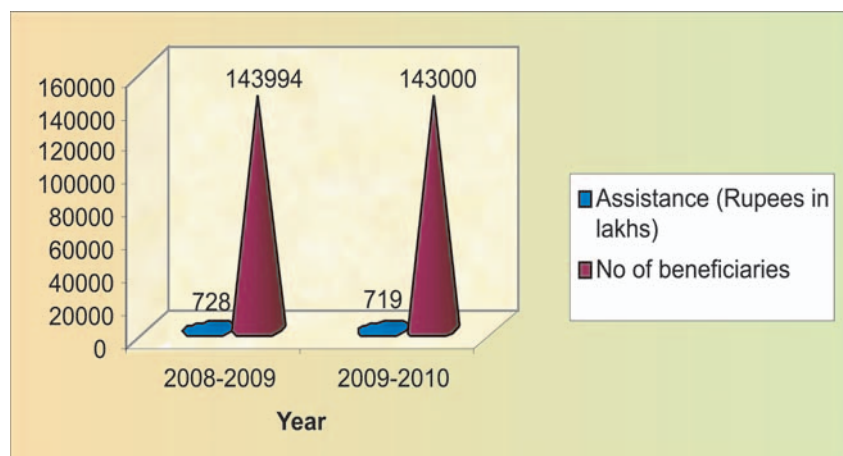
Tunisia and Iran.

During January-March 2011, heavy landing of the skipjack tuna, *Katsuwonus pelamis* was observed in the landings by mechanized gillnets, with the monthly catch being about 340 t, 750 t and 420 t respectively. Along with skipjack tuna, there was an unusual occurrence of small sized (425-670 mm; 0.9-3.5 kg) yellow fin tuna. Occasionally, medium sized (700-1219 mm) yellow fin tuna were also landed. The yellow fin tuna catch by mechanized gillnet was to the tune of 8.5 t, 32.0 t and 20 t respectively in January, February and March.

(Reported by S. Mohan, S. Rajapackiam and Shoba Joe Kizhakudan, Madras RC of CMFRI)

Assistance to fishermen during the fishing ban period

In order to conserve fishery resources in the coastal region of Tamil Nadu, ban on fishing by mechanized fishing boats and trawlers in the territorial waters of the State is being imposed every year for a period of 45 days in the east coast from 15th April to 29th May (inclusive of both the days) from the year 2000 onwards. Government of India is also imposing a similar fishing ban in the east and west coasts in the Exclusive Economic Zone of India every year. The scheme of providing financial assistance of Rs. 500/- per fishermen family (affected due to the ban) was commenced in the year 2008 and the same was raised to Rs. 800/- per family during 2010-2011. Then the relief assistance was enhanced to Rs. 1000/- in the year 2011. Considering the request of the fishermen community, the Hon'ble Chief Minister of Tamil Nadu has now ordered that the relief amount may further be enhanced



Distribution based on number of beneficiaries and financial assistance provided by Tamil Nadu government during the period of ban on fishing

to Rs. 2000/- per fishermen family from this current ban period onwards. During the year 2008-2009 and 2009-2010, the Tamil Nadu government provided financial assistance of Rs. 728 lakhs and Rs. 719 lakhs respectively during fishing

ban period, which benefited around 1.43 lakh marine fisherfolk.

(Reported by Johnson, B., Mandapam RC of CMFRI)

Occurrence of *Pteria* in inshore waters of Calicut



Aquarium showing the live specimens of adult (left) and spat (right) of *Pteria avicular* attached to the seafan

Pteria avicular (Holten, 1802), popularly known as pearlwing shell comprising adults (TL-48.94 mm, HL-73.63 mm and thickness- 18.51 mm) and spats attached to flower type gorgonids (*Leptogorgia sp*) were collected from the mussel bed off the south beach, Calicut on 1- 5- 2011. The depth of the mussel bed is 3.5 - 4.0 m. As per the available information the maximum size recorded for this species is 13.0 cm. This species can be used for pearl production. The live specimens of adult as well as the spat are being maintained in the marine research aquarium of Calicut.

(Reported by
K.P Said Koya,
Calicut RC of CMFRI)

World Environment Day

Events



The Mangalore Research Centre of CMFRI celebrated the World Environment Day and World Oceans Day on 6th and 8th June 2011

respectively. The Centre brought out a pamphlet on the occasion and also conducted an elocution competition of high school students of Mangalore

region to create awareness on the importance of World Environment and Oceans Days.

Exhibitions

Asian Aquaculture

- Exposition in connection with the International Convention on 'Emerging issues in Asian Aquaculture organized by 'Network of Aquaculture Countries of Asia' (NACA) held at Ramada International Resort at Kochi during the period from 9th to 12th May, 2011.
- 'ICAR - CII Industry Meet- 2011' held at NASC Complex, New Delhi on 23rd May, 2011 and exhibited two flyers on A device for breeding and culturing marine fish in open sea: Open sea cage farming and Low cost open sea cage farming.



ICAR-CII Industry Meet 2011, NASC Complex, New Delhi

Visit of Deputy Director General (Fisheries) ICAR to Vizhinjam RC



Dr Meenakumari addressing the staff

The Deputy Director General (Fisheries), ICAR, Dr. B. Meenakumari accompanied by the Director, CMFRI, Dr. G. Syda Rao visited Vizhinjam Research Centre of CMFRI on 18th of April 2011. Shri. Jayaraj, Engineer CPWD, Trivandrum, Shri. Anil Kumar, AO, CMFRI, Cochin

and Shri. Viswanathan, Engineer, CMFRI, Cochin were also present at Vizhinjam Research Centre to discuss the future developmental plans of the Centre and a meeting for this was conducted at 10.45 AM in the Library Hall of Vizhinjam Research Centre.

At the outset, Director extended a warm welcome to DDG and thanked for her keen interest and support for the developmental activities of Vizhinjam Research Centre. This was followed by an introductory remark by DDG and a brief discussion with all the staff members. Later DDG and Director along with the visitors and scientists of the Vizhinjam Research Centre proceeded to the proposed site of Vizhinjam Research Centre at Vizhinjam Harbour area and further discussed the plans for the construction of new office cum laboratory building and compound wall.

On 19.04.2011, the DDG visited the Marine Aquarium and the Marine Biotechnology Laboratory and the major research activities of the Centre was explained by the Scientist-in-Charge. Further, she visited the Vizhinjam Bay wherein the CMFRI cage is installed and also observed the fishing activities. Before leaving CMFRI the DDG (Fy) once again assured her full support for the development of Vizhinjam Research Centre.

CMFRI film on Glimpses of Indian sea farming released by Prof. Sena De Silva, Director General, NACA, Bangkok



DG, NACA releasing the Video film

CMFRI's new video film (DVD) on "Glimpses of Indian sea farming" (April 2011) was released during the inaugural session of the International Seminar organized by the NACA-CMFRI on 'Emerging issues in Asian Aquaculture'

on 12th May 2011. The film was released by Prof. Sena De Silva, Director General, NACA, Bangkok and the first copy was received by Dr. (Smt.). B. Meenakumari,

Deputy Director General (Fisheries), ICAR, New Delhi. The film was produced by Dr. G. Syda Rao, Director, CMFRI and Dr. A.P. Lipton, Principal Scientist, CMFRI.

The film provides information on the achievements made by the scientists of CMFRI Institute on the sea farming of invertebrates (crustaceans, mollusks), seaweeds, ornamental fishes and food fishes. CMFRI Institute's new venture of sea farming through open sea floating cages and capture based aquaculture are highlighted in the film. The efforts made by the scientists in the successful breeding, nursery rearing and raising of F1 generation of cobia for the first time in the country and the future goals are depicted in the film.



Dr. G. Syda Rao, Director

- Visited Chennai Research Centre of CMFRI on 05.04.2011
- Attended to the 220th Governing Body Meeting of ICAR 06.04.2011
- Attended the First Meeting of the Task Force for Conservation on Marine Biodiversity in the Society of Integrated Coastal Management on 08.04.2011 at New Delhi
- Attended to the First Meeting of the Working Group on Development and Management of Fisheries and Aquaculture for the Twelfth Five Year Plan (2012-17) held at National Fisheries Development Board (NFDB) on 16.04.2011 at Hyderabad.
- Visited Vizhinjam Research Centre of CMFRI on 18.04.2011
- Participated in the Parliamentary Committee Inspection and visited Mandapam Regional Centre of CMFRI on 09.05.2011.
- Participated in the Workshop on "Diversification of Species in Aquaculture: Status and potential" on the occasion of Golden Jubilee Celebration of C.I.F.E., Mumbai on 19.05.2011.
- Attended to the 8th meeting of the Technical Monitoring Committee (TMC) for the Central Sector Scheme on "Strengthening of Database and Geographical Information System for the Fisheries Sector" held at Shillong on 03.06.2011
- Visited Visakhapatnam Regional Centre of CMFRI and attended to inaugural function of Mariculture Laboratory and office building on 09.06.2011.

Dr.E.V.Radhakrishnan, Head, CFD participated in the constitution of Expert team to undertake survey of Lakshadweep Island along with NFDB officials during 24-27, May 2011

Attended the workshop on seafarming at Karwar RC of CMFRI (brainstorming to finalise the project for XII Plan EFC) on 4.6.2011

Dr. K.K. Vijayan, Attended 4th CAC meeting of the NAIP project on "Bioprospecting of genes and allele mining for abiotic stress tolerance" at

Dr. Ramachandran, participated in 9th Asian Fisheries and Aquaculture Forum at China



Dr. C. Ramachandran (extreme left) with GAF3 delegates of 9th Asian Fisheries & Aquaculture Forum

Dr. C. Ramachandran, Senior Scientist participated and presented a paper in the special session on Gender in Aquaculture and

Fisheries (GAF) conducted as part of 9th Asian Fisheries and Aquaculture Forum during 21st to 25th April, 2011 held in Shanghai, China

New Delhi from 2-4 May 2011.

Delivered an invited lecture in the symposium on 'Aquatic Environment and Health Management: status and challenges' organized by CIFE, Mumbai on 2nd June 2011.

All Heads of Divisions, Scientists-in-Charges of Regional/Research Centres

Attended Workshop cum training on Towards Effective Role of Heads of Divisions and Regional Stations of ICAR Institutes held at Central Institute of Agricultural Engineering, Bhopal, during 14-15 June 2011.

Dr. E. Vivekanandan, Principal Scientist & Scientist-in-charge

- Attended the First South Asia Sub-Regional Workshop of UNEP/CMS Dugong MOU during 6-7, June 2011 at Tuticorin.
- Participated in the QRT for network project on Climate change and made presentations on the progress of work under the project on Climate Change during 13-15th June 2011 at the University of Agricultural Sciences, Hebbal, Bangalore

Dr. P.C. Thomas, Principal Scientist, MBTD : Attended the Annual Review meeting of ICAR Outreach project on "Fish Genetic Stocks" at ICAR during 4-5 April 2011.

Dr. P. Vijayagopal, Sr. Scientist :

Attended the Annual Review meeting of ICAR Outreach project on Fish Feeds at ICAR on 4-5 April 2011.

Attended the Workshop entitled "Towards food security and second green revolution –Workshop on Extrusion processing from 7-4-11 to 8-4-11 at Punjab Agricultural University (PAU), Ludhiana.

Dr. Vipinkumar. V. P., Senior Scientist attended the 'ICAR – CII Industry Meet-2011' held at NASC Complex, New Delhi on 23rd May, 2011 and participated in the exposition in connection with the meet and presented about 'cage farming technology' in the workshop held in NAAS complex, New Delhi.(Photograph enclosed)

Dr. Kajal Chakraborty, Scientist, MBTD : Attended the Annual Review meeting of ICAR Outreach project on Nutrient Profiling and evaluation of fish as dietary component" at ICAR during 4-5 April 2011.

Attended the Annual Review meeting of AMAAS project at NBAIM, MAU on 15.5.2011 to 15.5.2011.

Dr.Rekhadevi Chakraborty made a presentation as per the invitation of INSA, 'INSA Young Scientist Award 2011' on 27th April at New Delhi.

Parliamentary Committee inspection



Shri.Satyavrat Chaturvedi, M.P.(Rajya Sabha) and Dy.Chairman, Second sub-committee of the Committee of Parliament on Official Language handing over the compilation of orders of the President on official language to Dr.G.Gopakumar, Scientist-in-Charge, Mandapam Regional Centre during the inspection on 9-5-2011.

The Second Sub Committee of the Committee of Parliament on Official Language inspected the Official Language implementation activities of Mandapam Regional Centre of CMFRI, MandapamCamp on 09th May, 2011. The inspection meeting was chaired by ShriSatyavratChaturvedi, MP (RajyaSabha). Dr. Prasanna Kumar Patasani, MP (LokSabha), Dr.

NirmalKhatri, MP (LokSabha), ShriKishanbhai V. Patel, MP (LokSabha), Shri Ramesh Bais, MP (LokSabha) and Dr.(Smt.) Botcha Jhansi Lakshmi, MP (LokSabha); Smt. PoonamJuneja, Secretary, Dr. S.P.Shukla, Under Secretary, ShriS.B.P.Sinha, Assistant and ShriArvindkumar, Reporter of the Committee Secretariate were present. From the Office side Dr.AnilAgarwal,

Principal Scientist (Fy.) and ShriPR.Rao, Dy. Director (OL), ICAR; Dr. G. SydaRao, Director, Shri R. Anil Kumar, Administrative Officer, Smt. Sheela P.J., Assistant Director (OL) and Smt. E.K.Uma, Technical Officer (Hindi), CMFRI, Cochin; Dr. G. Gopakumar, Scientist in Charge and Shri V. Venkatesan, Scientist, Mandapam Regional Centre attended the meeting.

The progress made in the implementation of Official Language Policy based on the questionnaire submitted was discussed in the inspection meeting.

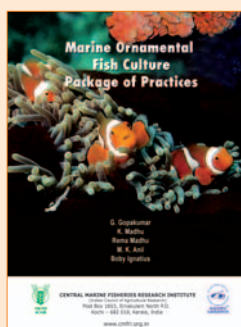
Inspection of Centres

Dr. G. SydaRao, Director, CMFRI inspected the Official Language Implementation activities of Mumbai Research Centre of CMFRI, Mumbai on 19.05.2011.

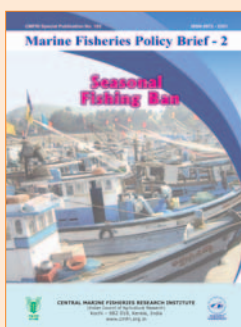
At Mangalore RC

Dr. Prathibha Rohit, Senior Scientist and Shri. G.S.Bhat, Technical Officer attended the 50th TOLIC meeting held at Corporation Bank Auditorium on 15th June 2011. The Research Centre of CMFRI, Mangalore received the appreciation prizes under the Central Government Offices category.

Latest CMFRI Publications



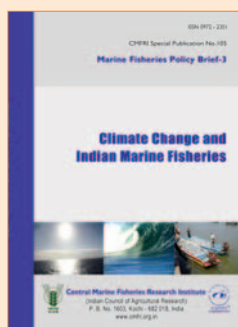
Marine Ornamental Fish Culture Packages of practice CMFRI Special Publication No. 101



Marine Fisheries Policy Brief No. 2: Seasonal Fishing Ban, CMFRI Special Publication No. 103



Socioeconomic Dimensions of Seaweed Farming in India CMFRI Special Publication No. 104



Marine Fisheries Policy Brief No. 3: Climate Change and Indian Marine Fisheries, CMFRI Special Publication No. 105



Pamphlet on Marine Environment and Resources Released by Mangalore RC

Dr. Thangavelu retires

Dr. R. Thangavelu joined CMFRI on 10th July, 1972 and served under various capacities in research centers of Vizhinjam, Tuticorin and Chennai. Later he was posted as Senior Scientist at Veraval Regional Centre of CMFRI and was serving as SIC of the centre from 2011 till his retirement on 31.05.2011.



Dr. Asokakumaran Unnithan retires

Dr. Unnithan joined the Central Marine Fisheries Research Institute in February 1972. He served at various research centres of the Institute including Mandapam Regional Centre, Krishi Vigyan Kendra/Trainers' Training Centre of CMFRI at Narakkal, Kakinada and Calicut Research Centres and CMFRI Headquarters at Cochin in various capacities. Retired from service on 30-06-2011 while serving as Senior Scientist and Head-in-Charge of the Pelagic Fisheries Division of the Institute



RETIREMENTS

Name	Designation	Center	w.e.f
Retirement on Superannuation			
Dr. V.S. Kakati	Principal Scientist	Mandapam RC	30.06.2011
Smt. K. Vijayalakshmi	Assistant Adm. Officer	Hqrs. Kochi	31.03.2011
Smt. K.M. Annamma	Assistant Adm. Officer	Hqrs. Kochi	30.06.2011
Shri T.K. Sudhakaran	T-5 (Technical Officer -Bosun)	CMFRI, Calicut	30.04.2011
Smt. Tara Karupalli	T-5 (Technical Officer)	Calicut RC	31.05.2011
Shri V. Sasidharan Pillai	T-4 (Sr.Tech. Assistant)	Quilon FC	31.05.2011
Smt. A.K. Kunjupennu	Assistant	Hqrs. Kochi	30.04.2011
Smt. M.M. Teresakutty	Assistant	Hqrs. Kochi	30.04.2011
Shri M. Anbu	Skilled Support Staff	Madras RC	30.04.2011
Shri. O. Ismayil	Skilled Support Staff	Hqrs. Kochi	30.06.2011



V.S. Kakati



K. Vijayalakshmi



K.M. Annamma



T.K. Sudhakaran



Tara Karupalli



V. Sasidharan Pillai



A.K. Kunjupennu



M.M. Teresakutty



M. Anbu



O. Ismayil

ASSUMPTION OF CHARGE

1. Shri. Rakesh Kumar, CAO assumed the charge of Chief Administrative Officer, CMFRI, Kochi w.e.f. 21.04.2011.
2. Shri. K. Mohammad Koya, Scientist assumed the charge of Scientist-in-Charge, Veraval RC of CMFRI w.e.f. 01.06.2011.
3. Dr. Shinoj Subramannian assumed the charge of Programme Co-ordinator, KVK of CMFRI, Narakkal w.e.f. 25.04.2011.

APPOINTMENTS

Name	Designation	Center	w.e.f
1. Dr. Jayasree Loka	Sr. Scientist	Karwar RC	16.03.2011
2. Dr. Shinoj Subramannian	Prog. Co-ordinator	KVK Narakkal	25.04.2011

PROMOTIONS

Names	From	Promoted To	Center	w.e.f
1. Dr. Shubhadeep Ghosh	Scientist	Sr. Scientist	Visakhapatnam RC	03.03.2011
2. Smt. K.N. Meera	Assistant	AAO	Hqrs. Kochi	18.03.2011
3. Smt. K.C. Girija	Assistant	AAO	Visakhapatnam RC	23.03.2011
4. Shri P.V. Devassy	Assistant	AAO	Hqrs., Kochi	01.04.2011
5. Smt. C.M. Jenny	Assistant	AAO	Hqrs., Kochi	06.05.2011
6. Shri D. Augustus Julin Raj	UDC	Assistant	Karwar RC	28.03.2011
7. Smt. K. Latha	UDC	Assistant	Vizhinjam RC	18.03.2011
8. Smt. V. Jayalakshmi	UDC	Assistant	Mumbai RC	30.03.2011
9. Smt. P. Thankaleelal	UDC	Assistant	Madras RC	04.04.2011
10. Smt. C. Rajeswari	UDC	Assistant	Tuticorin RC	04.05.2011
11. Smt. S. Anjali Devi	SSS	LDC	Madras RC	21.03.2011
12. Smt. M.P. Kaladevi	SSS	LDC	Hqrs. Kochi	21.03.2011

INTER-INSTITUTIONAL TRANSFER

Name	Designation	From	To
1. Shri V. Mohanan	AAO	Hqrs. Kochi	IISR, Calicut w.e.f. 05.05.2011

TRANSFERS

Name	Designation	From	To
1. Dr. Gulshad Mohammed	Sr. Scientist	Veraval RC	Calicut R.C. w.e.f. 21.03.2011
2. Dr. M.A. Pradeep	Scientist	Karwar RC	Hqrs. Kochi w.e.f. 09.05.2011
3. Shri. Raghunathan	AAO	Visakhapatnam RC	Vizhinjam RC w.e.f. 05.04.2011
4. Shri K. Solaman	T-1-3	Hqrs. Kochi	Vizhinjam RC w.e.f. 31.05.2011
5. Shri D. Augustus Julin Raj	Assistant	Hqrs. Kochi	Karwar RC w.e.f. 28.03.2011
6. Smt. V. Jayalakshmi	Assistant	Hqrs. Kochi	Mumbai RC w.e.f. 30.03.2011
7. Smt. M.P. Kaladevi	LDC	Vizhinjam RC	Hqrs. Kochi w.e.f. 21.03.2011

RESIGNATION

1. Dr. A. Shanas	T-6 (SMS)	KVK Narakkal	w.e.f. 23.05.2011
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MEETINGS

IJSC meeting of CMFRI held on 5th April 2011 at CMFRI Hqrs., Kochi

International seminar on Emerging issues in Asian Aquaculture

Jointly organised by
CMFRI & NACA

One day international seminar on "Emerging issues in Asian Aquaculture" was held at CMFRI on 12th May 2011. The seminar was organized jointly by CMFRI and NACA (*Network of Aquaculture Centers in Asia-Pacific*, intergovernmental organization promotes rural development through sustainable aquaculture), in continuation with the 22nd NACA Governing Council Meeting in Cochin, during 9-11th May, hosted by Government of India.

Delegates from NACA member governments, regional lead centres and international partner organisations (total 20), Dr. B. Meenakumari, Deputy Director General (Fisheries) of the Indian Council of Agricultural Research, Dr. G. Syda Rao, Director CMFRI, Dr. Sreenivasa Gopal, Director CIFT, Dr. J. K. Jena, Director NBFGR, Dr.

Ambedkar Eknath, Director CIFA, Dr. A.R.T. Arasu, Principal Scientist & HOD, CIBA, Dr. D. S. Krishna Rao, SIC, CIFRI, Bangalore, Dr. Amit Pande, DCFR, Bhimtal, HOD's and all the scientists from CMFRI, HOD's and scientists from CIFT, officials from MPEDA, KUFOS, ADAK, FFDA and Matsyafed participated in the seminar.

Director, G. Syda Rao, welcomed the delegates of the seminar and opening remarks were delivered by Dr. B. Meenakumari, DDG, (Fisheries), ICAR and Dr. Sreenivasa Gopal, Director, CIFT. Dr. Meenakumari highlighted the importance of establishing a network of hatcheries to produce high quality seeds in the country to tap the emerging opportunities.

Prof (Dr.) Sena De Silva, the Director General of Network of Aquaculture Centers in Asia-Pacific, (NACA) inaugurated the seminar and released a video film "Glimpses of Indian Sea Farming" produced by CMFRI. In his inaugural address he cited the success story of catfish culture in Vietnam and described how Vietnam could circumvent the trade embargo imposed by US on catfish import from that country. He also shared his hope that "India can emerge as a winner in the global renaissance in the aquaculture industry with increasing regional cooperation in technology development and implementation of enabling policy environment".

During the presentation session six papers were presented on various topics - Catfish farming in Vietnam, Responsible Shrimp farming in Thailand, Cage culture in Indonesian reservoirs, Coastal cage culture in Hong Kong SAR, Certification of aquaculture products, Trends in Aquaculture production in China and Open sea cage farming in India. The papers were presented by Dr. De Silva (NACA), Dr. Nanthiya Unpra Sert (Thailand), Dr. C.V. Mohan (NACA), Dr. So Ping Man (Hong Kong), Dr. Miao Weimin (FAO) and Dr. G. Syda Rao (CMFRI).

In the panel discussion conducted towards the end of the seminar the experts threw light on the various technical and policy issues that should be tackled by India. The workshop highlighted the importance of India coming out with a proactive policy to promote commercial cage farming both in Indian coastal waters as well as our reservoirs.

(Josileen Jose, Crustacean Division)



Prof (Dr.) Sena De Silva, lighting the ceremonial lamp



Prof (Dr.) Sena De Silva



Dr. Meenakumari



Dr. Sreenivasa Gopal



A view of the audience



cadalmin
CMFRI Newsletter

Cadalmin, the CMFRI Newsletter is a quarterly publication of the Central Marine Fisheries Research Institute, Cochin. 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.

