



No. 144

January - March 2015

ISSN 0972-2386



एक कदम स्वच्छता की ओर

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CMFRI Newsletter

<http://www.cmfri.org.in>

Inauguration of the Seabass harvest function at Uppunda by Dr. Madan Mohan,
ADG (Marine Fisheries), ICAR

see page 4



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

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

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DIRECTOR SPEAKS



Warm greetings to all

It has been the endeavour of CMFRI to orient its research programs and activities such that the objectives of sustainable fisheries and enhanced fish production from the seas are achieved. It is evident that marine fish farming has the potential to enhance the income of coastal fisherfolk communities.

Technology transfer for cage culture in the open seas as well as the backwaters and estuaries through field demonstrations and TSP programmes is undertaken by the institute. The keen interest shown by the fishermen community to participate in these ventures have motivated the scientists to further improve the vital linkages required for the projects to succeed when implemented on a larger scale. The recent breakthrough in the successful large scale seed production of Green mussel is an example. The species is in great demand for culture but seed availability is a constraint. Collection from wild stocks often leads to conflicts among the wild mussel collectors and mussel farmers. The success in large scale production of spat in the hatching will help farmers to cross the hurdle of inadequate availability of seed when the mussel culture operations are scheduled to start. Another recent success in breeding of Silver pompano even during the off-season using photo-thermal regulations will ensure seed availability throughout the year, allowing farmers to plan their aquaculture operations with this commercially important species in a better way. Wild caught fish continues to be the mainstay of the marine fish food supply in the country. It is well known that globally several fish stocks are overexploited, endangering in the long run fish food supply for the consumers and livelihood options for fishermen. However, fish consumers are also becoming aware of such perils. To bring the focus back to sustainable fishing CMFRI and WWF India have tied up. Through this tie-up scientific inputs will be used by the hospitality sector to promote consumption of sustainably caught fish and discourage those that do not fit the sustainability criteria. Another initiative taken up with active participation of KVK Ernakulam is the branding for the fish and rice produce from the *Pokkali* fields of Kerala. Traditionally, rice and fish crops are taken alternatively and branding will ensure the farming community gets premium price for the unique, organic produce that is safe and nutritionally rich for the consumer also. It is hoped that these initiatives can retain the strength of the fisheries sector and wholly benefit society.

A. Gopalakrishnan
Director

About CMFRI

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

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



**Asian Fisheries Society (AFS)
ICAR-Central Marine Fisheries Research Institute (CMFRI) &
Asian Fisheries Society Indian Branch (AFSIB)
announce**



5th International Symposium on Cage Aquaculture in Asia CAA5

November 25-28, 2015, Kochi, Kerala, India

Path breaking success in large scale seed production of Green mussel

CMFRI has achieved path breaking success in large scale seed production of Green mussel (*Perna viridis*) opening possibilities for mussel farming to pick up in the country. With the recent increase in demand for mussels especially in northern Kerala and Goa the price of Green mussel has shot up to ₹ 5-10 per piece in Kerala and ₹15 per piece in Goa. After the peak production of 18400 t in 2009, farmed mussel production has stagnated around 10000 t per year. The main factor hindering an increase in the farmed mussel production in India is the lack of adequate quantity of quality seeds. Coinciding with the increased adoption of Green mussel farming in northern Kerala the large scale collection of seeds for farming from the natural mussel beds led to conflicts between mussel pickers and farmers. However, recent hatchery production and nursery rearing trials conducted at Vizhinjam Research Centre of CMFRI has rekindled hope for developing a commercially viable mussel seed production technology in India. It revealed that a production rate of 0.1 million spat can be realised in a 1 ton capacity FRP tank in 30-40 days. The same number can be nursery reared to the seed size of 10-15 mm in small meshed nursery cages within 40-60 days with a survival rate of more than 95%. During the larval rearing, it was observed that more



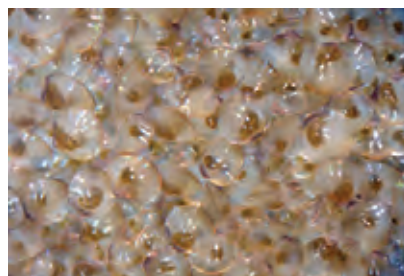
Hatchery produced Green mussel seed



A. Spawning of Green mussel



B. Fertilized eggs



C. Pediveliger stage



D. Mussel spat - 25 days



E. Mussel spat - 35 days



F. Harvesting of spat from tank



G. Stocking of spat in nursery cages



H. Mussel seed

than 80% of the D veliger reached umbo stage by 8th day. Most of them reached eyespot and pediveliger stage by 15th day and became spat by 24th day. They grew to 3-5 mm size by 40th day and were transferred to nursery cages for producing seeds for commercial culture.

Ready to settle pediveliger stage can also be transported in oxygen filled polythene bags for remote setting. About 50,000 pediveligers were transported to the Calicut Research Centre in two oxygen filled polythene bags at the rate of 25000 numbers per bag and used successfully for remote setting.

(Reported by: Vizhinjam Research Centre)

Fish Harvest Mela at Uppunda, Karnataka



Dr. Madan Mohan inaugurates the Seabass and Green mussel harvest functions organized in Karnataka

Dr. Madan Mohan, Assistant Director General (Marine Fisheries), ICAR accompanied by Dr. A. Gopalakrishnan, Director visited the mariculture farm sites in Uppunda, Saligrama and Mulky in Karnataka on 28th March, 2015. The cages and racks initially installed by the Mangalore Research Centre for the purpose of Technology Demonstration had encouraged several fishers in the region to take up cage culture of finfishes in small indigenous customized cages and rack culture of bivalves (mussels and oysters) in suitable water bodies. Dr. Madan Mohan inaugurated the Seabass fish harvest mela at Uppunda, Udupi

District. The fish after a period of 18 months of culture had attained an average weight of 3.5 kg. Partial harvest of around 100 kg was done from one cage and marketed at ₹ 400 per kg of fish. They also visited the mussel farm at Saligrama, where

mussel farming has been taken up on a large scale by several farmers using raft method and the TSP programme site at Mulky where tribals from the Marati Naik community were recently trained to take up mariculture activities.



Indigenous cages used for finfish culture at Mulky

Harvest of Milkfish at Pillaimadam lagoon

Pen farming of Milkfish *Chanos chanos* was initiated on trial basis in a participatory mode with a fishermen group of Vedalai village at Pillaimadam lagoon, Ramanathapuram district in May 2014 under ICAR-NICRA project. An artisanal pen 120 × 120 m supported by casuarina poles was stocked on 10th May 2014 with 25,000 Milkfish seeds collected from the lagoon with average length and weight of 6.3 cm and 4.6 g respectively. While Mandapam Regional Centre of CMFRI extended the technical

support for farming, the input costs of fish nets, casuarina poles and labour were borne by the fishermen group. Supplementary feeding at the rate of 1% of the biomass with extruded floating pellet feed containing 24% crude protein and 4% fat supplied by CMFRI was done in four feeding zones erected using PVC frames. After a rearing period of 10 months, a partial harvest was made on 14th March 2015 where 250 kg of milkfish with an average length and weight of 33 cm and 300 g respectively was achieved.

The fishes were immediately sold at the Vedalai fish market at ₹140 per kg. Another 500 kg of milkfish was harvested in subsequent days. The remaining fish were kept for harvesting during the fishing ban period in April - May to get a higher market price due to low availability of fish in the market during that time.

(Reported by A.K. Abdul Nazar, R. Jayakumar, G. Tamilmani, P. Rameshkumar, B. Johnson, Amir Kumar Samal & K.K. Anikuttan, Mandapam Regional Centre)



Successful cage farming of Asian sea bass and Pearlsport in brackishwater

The cage culture technology developed by the institute has been successfully adopted in open brackishwater areas of Kerala by a few fish farmers. Shri. S. Sharma, Hon'ble Member, Kerala Legislative Assembly and former Minister of Fisheries, inaugurated the harvest at Pooyapilly, Ernakulam District on 21st March, 2015. The programme was presided by Dr. A. Gopalakrishnan, Director, CMFRI. Dr. Imelda Joseph, Principal Scientist, Mariculture Division, welcomed the gathering. President and members of Mulavukad Panchayat, representatives from MPEDA and State Fisheries Department attended the function.

The cages operated by Mr. Pramod, a traditional shrimp farmer of Mulavukad Panchayat, produced about two tonnes of Asian seabass *Lates calcarifer*, locally known as *kalanchi*. Three thousand seeds procured from Rajiv Gandhi Centre for Aquaculture (RGCA) measuring 4-6 cm were reared in a nursery for 45 days and then stocked in two Galvanized Iron (GI) cages measuring 4 m x 4 m developed by CMFRI and fabricated by the farmer during April 2014. Seabass were fed with low value fish costing about ₹ 20 per kg during the one year grow-out period when it attained 850 to 1500 g weight. The juvenile pearlspot *Etroplus suratensis* caught from traditional shrimp ponds, were also stocked in the cage and fetched him an additional revenue of ₹ 50,000. The farmer is now all set to fabricate two more cages for the next farming season. The technology has evoked interest in several other farmers in Mulavukad Panchayat who have also initiated cage farming. There is immense scope for this technology in Kerala having many underutilized brackish water bodies.



Inaugural function of Seabass harvest in Pooyapilly, Ernakulam District

Cage farming of Milkfish

With successful demonstrations finfish cage farming in Kochi, farmers are becoming more innovative in selecting species also. So far, Milkfish *Chanos chanos* was farmed only in traditional tide-fed ponds in Kochi. The fish is very active, has comparatively slow growth and feeds on detritus. Recently, with technical inputs from CMFRI, Mr. Suni an innovative shrimp farmer successfully reared Milkfish in a 4 m x 4 m steel cage in brackishwater at Panampukad. About 4500 Milkfish seeds of 2-4 cm size procured from Rameshwaram area in Tamil Nadu were stocked in cages during April 2014. The fish were fed with formulated feed and after a grow-out period of 8 months were harvested with an average weight of

400 g. The farm gate prize was ₹ 200 per kg. Survival was affected because a few Asian seabass that accidentally entered the cage remained unnoticed and predated on the stocked Milkfish. The growth was better in the cage than in the pond, due to the better feeding and other management practices in the cage environment.

(Reported by Dr. Imelda Joseph, Mariculture Division)



Harvest of cage farmed fishes at Poothotta

Under the technical guidance of the Mariculture Division a steel cage of 6 x 6 m size was installed with pole mooring in the backwaters at Poothotta, Ernakulam. In April 2014 it was stocked with Pearls spot (*Etroplus suratensis*) seeds collected locally as well as hatchery produced seeds of GIFT Tilapia procured from MATSYAFED, Veliyamgodu and Red snapper (*Lutjanus argentimaculatus*) seeds collected from Thriprayar area. This was the first demonstration of cage farming in South Kochi area after the technology was developed by CMFRI in 2008. The fish harvest was inaugurated by Dr. A.



Gopalakrishnan, Director, on 23rd December 2014 in the presence of Udayamperoor Grama Panchayat President, Vice-President, ward members and other villagers. Pearl spot had attained 250 to 350 g in 4-6 months. GIFT Tilapia attained 750 to 800 g and Red snapper 1 to 1.4 kg in 8 months. The harvested fishes

were sold in the local market at a price of ₹ 200 per kg for Tilapia, ₹ 500 per kg for Pearls spot and ₹ 400 per kg for Red snapper. On the same day a training programme on cage culture was also organized for 50 local fish farmers.

(Reported by Dr. Shoji Joseph, Mariculture Division)

Harvest of cultured Red snapper

Pond cultured Red snapper (*Lutjanus argentimaculatus*) Scientist-in-Charge, Calicut Research Centre of CMFRI. Two hundred and



Red snapper harvest

attained an average weight of 1 kg in 7 months with good survival rate. A total of 245 kg of Red snapper harvested was sold at the rate of ₹ 400 per kg. The input cost was ₹ 35,000 and the net income realized was ₹ 63,000. It was thus demonstrated that the Red snapper is a hardy fish that can tolerate wide

Tribal Sub Plan Project initiated at Mangalore

Proven technologies of low-cost mariculture practices of cultivable fishes were demonstrated under the Tribal Sub Plan (TSP) programme of the Mangalore RC. An amount of ₹ 4.5 Lakhs was sanctioned during February 2015 and the TSP programme was initiated in the same month. A group belonging to the Marati Naik Tribe was selected for the pilot project in mariculture. A total of 45 people were trained for the programme. Of these, 12 members formed a group and the mariculture activity was initiated in the Mulky estuary situated about 45 km north of Mangalore.



Installation of 3 racks for culture of bivalves (mussels and oysters) along with collection of oyster spat by suspending rens in the Mulky estuary was initiated. For finfish culture, four small scale cages of 6 x 2 x 2 m with an outer net made of 50 mm netlon material and an inner HDPE net of 18 mm mesh and GI pipes as frames of the cage were designed. Fingerlings of Seabass and Red snapper were selected. Protocols

for successful nursery rearing with more than 95% survival rate were extended to fishermen. For this, several hapas were installed in the Mulky estuary for nursery rearing of finfish seeds before transferring them to the grow-out cages nearby. A total of 1800 numbers of Seabass seed measuring about 8 cm, procured from a hatchery in the east coast were

stocked in hapas for a period of one month. Feed containing 30 % protein was used with growth monitored regularly to adjust feeding rates appropriately. Grading is also being done at regular intervals to cull out the bigger sized fishes which are to be stocked separately.

(Reported by Mangalore RC)

CMFRI's modified new website launched

The modified website was formally launched by Prof. (Dr.) N.R. Menon in a function organized in CMFRI on 3rd February, 2015 when the institute was celebrating its 68th Foundation Day. The new website was designed by the Website Development Committee headed by Dr. K.S. Mohamed. Dr. Sathianandan T.V., Dr. Jayasankar, J., Dr. Mohan, V., Shri. Manu V.K., Shri. Manjeesh R., Smt. Jayalakshmi, V. and Smt. Deepa P.N. were other members of the team.

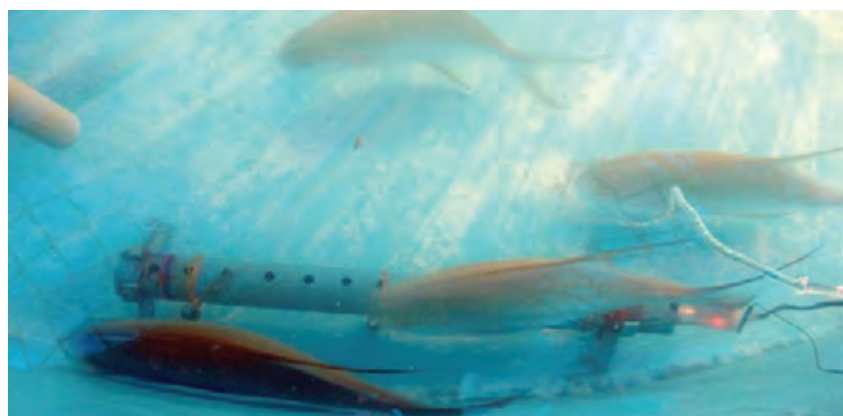
First success in off-season spawning of Silver pompano paves way for round the year seed production

The first successful off-season spawning of Silver pompano through photo-thermal regulation was achieved at Mandapam Regional Centre of CMFRI. A total of three successful spawnings were got during November 2014 to February 2015. This is considered a break through that will help the Institute to achieve the goal of round-the-year seed production of Silver pompano.

With the onset of winter in November, the sea water temperature gradually falls below the optimal level and becomes a major bottleneck in the continuous breeding and seed production of Silver pompano. Breeding experiments through thermal



Photoperiod regulation through timer connected to CFL lighting



Thermal regulation through titanium heaters fitted with thermostat

regulation by titanium water heaters with thermostat increased source seawater temperature of 25 - 26 °C to 29.7 - 30.3 °C in the breeding

tanks.

(Reported by A.K. Abdul Nazar, R. Jayakumar, G. Tamilmani, P. Rameshkumar, B. Johnson, Amir Kumar Samal & K.K. Anikuttan, Mandapam Regional Centre)

Nursery rearing trials of pearl oyster spat

47,000 spat of pearl oyster, *Pinctada fucata* produced at Vizhinjam RC of CMFRI were reared in basket cages (26 cm diameter and 16 cm height) at different stocking densities ranging from 200 to 1000 spat per basket. During the first two months cages were covered by velon screen to prevent escape of small sized spat and subsequently the screen was removed to facilitate better water flow for improved food supply, oxygen availability and waste removal. Upto a stocking density of 1000 per basket there was not much reduction in growth rate. About 35000 seed were produced in nursery cages in 4



Nursery reared pearl oyster at different stocking densities

months with an average size of 35-40 mm which were transferred to

grow out cage of dimension 50 x 50 x 10 cm.

Pompano fingerlings supplied to different parts of the country

A total of 20,330 fingerlings of silver pompano were supplied by the Mandapam Regional Centre to fish farmers of Kerala during the period January to March 2015. Besides 21,500 and 6000 fingerlings were also supplied to Karwar Research Centre and Headquarters, Kochi.

Clam biomass surveys in Ashtamudi Lake

Closed season for clam fishery in the Ashtamudi Lake is observed during December to February every year. To assess new stock in fishery, biomass survey was carried out in the five zones of lake during 9th to 11th February, 2015 That is before the fishery opened on March 1st. Biomass was estimated as 5300 tonnes which was 49% less than last year. Unlike the last year, clams were present in 4 out of 5 zones. The observation of lower stock in clam beds can be



Sorting and counting of clams collected from different zones of Ashtamudi Lake

attributed to either non-synchronous spawning/early spawning or sampling error due to the high tide when survey was done. If it is due to early spawning, then late spawning is expected to

rebuild stocks to higher levels or at par with last year's stock size. In order to confirm the stock estimates the survey will be repeated in May.

(Reported by Molluscan Fisheries Division)

Exploratory surveys around Lakshadweep archipelago for *Sthenoteuthis oualaniensis*

Targeted cruise covering two stations (9°55'08" N, 73°39'16" E and 10°48'20" N, 72°40'38"E) around Lakshadweep Islands was carried out on FV *Silver Pompano* during 26th February to 1st March, 2015. To collect and ascertain the presence of eggs of *Sthenoteuthis oualaniensis* in the Arabian Sea, the

macro zooplankton samples were collected from the two stations using Isaacs-Kidd Midwater Trawl (IKMT) net. Horizontal tows for 30 minutes at the depth of 50 meter in the Deep Scattering Layer (DSL) detected using echo sounder (Garmin) were made. In the laboratory Para larvae (21 numbers) of *S. oualaniensis* were

observed from the preserved samples. During the sorting and identification of the station I samples, juvenile of Glass octopus *Vitreledonella richardi* was also observed which is a new record from the Arabian Sea.

(Reported by Fishery Environment Management Division)

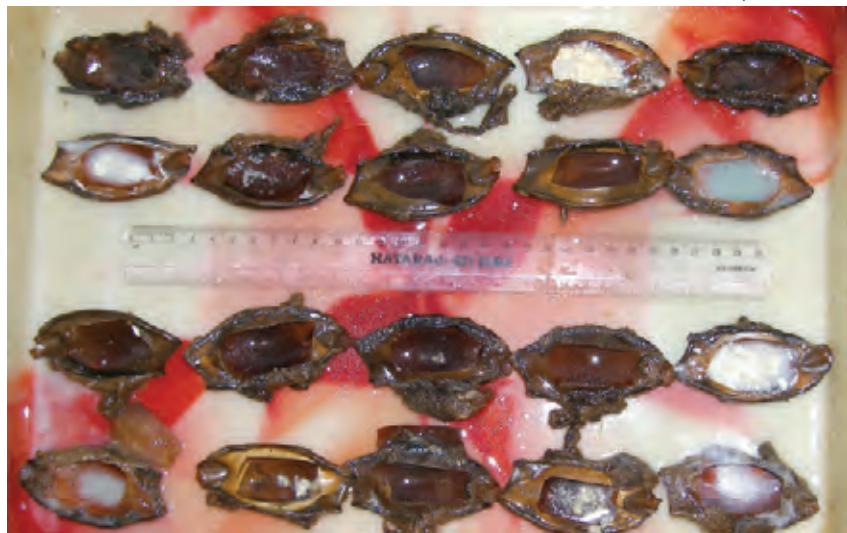
Oviposited egg cases of Grey bamboo shark

The Grey bamboo shark *Chiloscyllium griseum* maintained in the research aquarium at

Mandapam released mermaid purses on numerous occasions in the absence of a male counterpart in the

tank. On one occasion, the 20 numbers of mermaid purses released were maintained in an FRP tank with sufficient aeration to allow hatching. Generally, mermaid purses hatch out after 70 to 80 days but when none hatched out even after 3 months of incubation, they were examined and it was found that thirteen were empty and another seven were presumably infertile or decayed. Some species of sharks can store sperm for successive fertilization from single mating. The present observation shows that the female bamboo sharks may release mermaid purses even in the absence of males.

(Reported by R. Saravanan, I. Syed Sadiq and A. Shanmuganathan, Mandapam Regional Centre)



Egg cases of Bamboo shark

Dr. A. Gopalakrishnan, Director was nominated as Member of the newly constituted National Coastal Zone Management Authority by the Ministry of Environment, Forest and Climate Change for a period of two years effective from April 1, 2015 vide order no F No. J 1701/18/1996 I A-III.

Dugong washed ashore

A male dugong with a total body length of 244 cm and weighing 200 kg was washed ashore at Maraikayarpattinam, Mandapam on 24th March 2015. On examination it was found that there was a deep cut near the anus and a bleeding wound near lateral furrow in the mouth region. The exact cause of death could not be diagnosed, but the had wounds indicated that it was probably collided with a vessel propeller or similar speeding objects. In February, another



Dugong carcass washed ashore

female dugong was found dead at Thalaitthoppu, Periyapattinam nearly 30 km away from the present site.

(Reported by R. Saravanan, I. Syed Sadiq, A. Shanmuganathan and N. Ramamoorthy, Mandapam Regional Centre)

Cobia fishery in Lakshadweep waters

Rachycentron canadum (Linnaeus, 1766) was not reported from Lakshadweep waters earlier. However from the late 1990s due to the diversified fishing practices and the shift in the time of operations, stray numbers of cobia have landed at Lakshadweep islands. Currently, cobia is landed in Minicoy, Androth and

Kalpeni Islands and the size group of 50 - 90 cm are regularly caught in drift gill nets operated off Androth during August - April period in night fishing operations. Fishes caught in hand lines are comparatively larger in size.

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



Hand line caught cobia from Androth

Elasmobranch landings at Cochin Fisheries Harbour



Landings of Zebra shark

Unusually heavy landings of Zebra shark, *Stegostoma fasciatum* was observed at Cochin Fisheries Harbour during the last week of March. These were caught by longliners operated off Lakshadweep. Three numbers of large manta rays, *Manta birostris* were landed on 27th March 2014 by a drift gill net unit operated in deeper waters off the north-west coast. Of these, one was a pregnant female carrying one foetus measuring 101 cm in total length. Fifteen numbers of Cow nose ray, *Rhinoptera javanica* in fully mature condition were also landed in March, of which nearly one third were mature females carrying one foetus each.

(Reported by Demersal Fisheries Division)

Heavy landings of Santer seabream at Cochin Fisheries Harbour

The Santer seabream, *Cheimarius nufar* is caught from offshore waters upto 100 m depth and reported to attain a total length of 75 cm. Reports from Oman suggest a heavy exploitation through targeted fishery for these sparids. On February 13th 2015, around one tonne of Santer seabreams were landed at Cochin Fisheries Harbour by hook and line units operating between Mangalore and Mumbai coast. This is the first instance of these fishes landed here. The fishes were in the length range of 30-43 cm total length (TL) and weighed 0.47-2.3 kg each. Female fishes of 35 cm TL had ripe ovaries. The guts examined were mostly empty and some contained semi-digested molluscan shells. The fish has been listed as Data Deficient in IUCN list.

(Reported by Demersal Fisheries Division)

Lobster cage farming under TSP

Under Tribal Sub-Plan project two 6 m diameter cages stocked with lobster seed were launched on 16th-17th January, 2015, at village Bhardkhol, Raigad District, Maharashtra.

(Reported by Mumbai RC)

CHOOSE WISELY - A campaign to promote responsible consumer choices

CHOOSE WISELY Fish Stock Status inputs from CMFRI

Fish Stock Status for ITC Hotels provided by CMFRI-Kochi

Nov-14

Classification of stocks:

Green - indicates fishery is carried out sustainably and it is a safe to use the product on the menu - Abundant/Less abundant category in CMFRI stock classification
Orange - indicates the fishery is under threat of overexploitation and it may be avoided in the procurement plan - Declining category in CMFRI stock classification
Red - indicates the fishery is seriously depleted and should be avoided by the procurement plan of the hotel - Deleted or collapsed category in CMFRI stock classification
NMF - Not a major fishery - only sporadic occurrence

Hotel trade name	Scientific name	Common name	Gujarat	Maharashtra	Karnataka	Goa	Kerala	Tamil Nadu	Andhra Pradesh	Orissa	WB
ANCHOVY WHOLE / 60-90GMS	<i>Stolephorus indicus</i>	Indian anchovy	NMF	NMF							
BOMBAY DUCK / WHOLE	<i>Harpodon nehereus</i>	Bombay duck			NMF	NMF	NMF	NMF			
SEABASS / CALCUTTA BHEKTI /	<i>Lates calcarifer</i>	Bhekti/ Seabass	NMF	NMF	NMF	NMF	NMF	NMF	NMF		
RIVER SOLE	<i>Brachirus ponoides</i>	River sole	NMF	NMF	NMF	NMF	NMF	NMF	NMF		
SEA SOLE	<i>Cynoglossus spp.</i>	Malabar Sole/Soles	NMF								
GHOLE / FILLET	<i>Protonibea diacanthus</i>	Ghol			NMF	NMF	NMF	NMF			
POMFRET WHITE / WHOLE	<i>Pampus argenteus</i>	Silver pomfret									
MURREL / FILLET	<i>Channa striata</i>	Snake head/Murrel		NMF	NMF	NMF					
SEA SOLE	<i>Solea solea</i>	Common sole/sea sole		NMF							
INDIAN SALMON / FILLET	<i>Eleutheronema tetradactylum</i>	Indian Salmon			NMF	NMF		NMF			
SEER / FILLET	<i>Scomberomorus commersoni</i>	King seer									
KINGFISH / WHOLE	<i>Rachycentron canadum</i>	Black kingfish/Cobias									
RED SNAPPER / WHOLE	<i>Lutjanus spp.</i>	Red snapper		NMF							
GROUPE / WHOLE	<i>Epinephelus spp.</i>	Grouper	NMF								NMF
TUNA / WHOLE	<i>Tunas - Thunnus albacares</i>	Yellowfin tuna								NMF	NMF
TUNA / FILLET	<i>Thunnus spp.</i>	Other tunas									
SEA VERAL / FILLET	<i>Saurida tumbil</i>	Greater lizard fish									
PEARL SPOT / WHOLE	<i>Etroplus suratensis</i>	Pearl spot	NMF	NMF	NMF	NMF				NMF	NMF
KARIE FISH	<i>Sillago sihama</i>	Karie fish	NMF	NMF						NMF	NMF
MAHI MAHI	<i>Coryphæna hippurus</i>	Mahi mahi		NMF	NMF	NMF	NMF			NMF	NMF
HILSA / WHOLE	<i>Tenualosa ilisha</i>	Hilsa shad		NMF	NMF	NMF	NMF	NMF			
COCONUT PARS	<i>Scombroides commersonis</i>	Talang queenfish	NMF	NMF							
MACKEREL	<i>Rastrelliger kanagurta</i>	Indial mackerel									
POMFRET BLACK	<i>Parastromateus niger</i>	Black pomfret									

Inputs on status of fish stocks provided by CMFRI to WWF India

Consumer awareness is a crucial step in preventing overfishing by choosing to buy sustainably caught fish only and lowering the demand for

overexploited or depleted species of fishes. Be informed, choose wisely and tell those around you about the decline in our fish stocks is a concept

promoted by the World Wide Fund for Nature (WWF). In India, CMFRI assesses the exploitation of marine fish stocks and based on certain specific criteria developed by the scientists classifies them into sustainable and unsustainable exploited stocks. Dr. A. Gopalakrishnan, Director, CMFRI and Dr. Sejal Worah, Programme Director, WWF India signed an agreement whereby the latter would be provided technical inputs on sustainable fishery resources by CMFRI to enable ITC Hotels to adapt the international Choose Wisely concept and guidelines into its procurement practices, hotel menus and other customer communications. The classification in red, orange and green colour codes follows the same principle as the traffic light system to indicate which fish are the best choices for customers. The catch based Rapid Stock status Assessment method was applied for each species included in the list.

CHOOSE WISELY

Menu input for ITC Hotels by CMFRI through WWF

A responsible luxury initiative

FULL SQUARE MEALS

Combination meals served with select accompaniments and condiments

ORIENTAL

- MAPO TOFU
Silken tofu simmered in a pungent Sichuan pepper infused sauce
- THAI VEGETABLE CURRY
Seasonal vegetables simmered in green Thai curry
- GRILLED PRAWNS
Chili garlic steamed charbroiled prawns
- THAI CHICKEN CURRY
Tender sliced chicken simmered in red Thai curry

Optional Full Square Meals are served with parathas, pomegranate, guava, lemon grass, cucumber and mango salad, fresh chili sauce and the day's dessert

WESTERN

- MAC VEGGIE AND CHEESE SAKE
Served with house salad, onion rings and garlic bread
- FISH & CHIPS / Fish's Portion
Served with our signature Tartar Sauce

CHOOSE WISELY

- Over fished. Think again!
- Under threat. But there's better.
- Choose Wise. Go for it!

A Responsible Luxury initiative, the 'Choose Wisely' program is a co-creation between ITC Hotels, WWF-India and Central Marine Fisheries Research Institute to enable the luxury of responsible choices to guests

Menu card in ITC hotels based on inputs from CMFRI

Lobster grow-out culture in wooden cages

Lobster culture trials were carried out at two sites in Manapad Bay, Thoothukudi using low cost fixed wooden cages of dimension 3 x 3 x 1.5 m having a 30 mm mesh size inner and outer net. The cage was fixed 0.5 m above ground level. Under sized and soft-shelled live lobster species such as *Panulirus homarus* and *P. ornatus* weighing 60 - 80 gms were collected from different landing centres along the Thoothukudi coast and stocked at 1100 to 1250 numbers per cage. Inside the cage, shelters

were provided with calcareous stones and plastic crates. Lobsters were fed once every morning at 10.00 hrs with chopped cuttlefish and low value fishes @ 5-8% of its body weight. Water quality parameters recorded during the period were salinity (31-34 ppt), temperature (28-32 °C) and pH (7.9-8.2). Partial harvest of grown-up lobster was done at 25-30 days interval. Fortnightly sampling of the lobsters was carried out to assess the growth in terms of length and weight. Moulded shells, uneaten feed and

debris were removed daily. About 20% of the stocked lobster seeds which were purchased for ₹ 240 to 300 per kg had grown to 100 gms and above within a month whose market price varied from ₹1200 to 1800 per kg. Culture duration varied from 120 to 150 days and at the end of culture period the entire wooden cages were taken to the shore for cleaning and maintenance.

(Reported by C. Kalidas, L. Ranjith, M. Kavitha, N. Jesuraj and M.S. Madan, Tuticorin Research Centre of CMFRI)

Culture of Silver pompano *Trachinotus blochii* in hypersaline shrimp ponds

In Gujarat, during the winter period of November to February, temperature reaches nearly 9-10 °C with the salinity simultaneously increasing to over 40 ppt. As a result, shrimp farming is suspended during this period and the fish farmers are on the lookout for an alternative species to culture during this period. In this context, the Veraval Regional Centre of CMFRI attempted pond farming of silver pompano during the winter period at Kodinar, Gir Somnath District, Gujarat.

Hatchery bred pompano seeds (1000 numbers) brought from the Mandapam RC of CMFRI in November, 2014 were initially stocked in 3 x 2 x 2 m nylon hapa fixed in the shrimp pond. After 30 days they were released into the pond measuring 500 m². The salinity during stocking was 47 ppt. The temperature was 22 °C during day and 16 °C at night. The fishes were fed thrice a day with formulated feeds having 48% protein and 10% fat content @10% of body weight. After 120 days of culture, the fishes were harvested with a survival rate of 93% recorded. Average growth rate of 0.26 g per day was recorded. No diseases occurred during the culture period with fishes maintaining good appearance and color. The results show that the pompano is a good alternative to shrimps during the winter period. The idle shrimp ponds can produce an additional crop during winter and earn profit.



Harvested Silver pompano

Mussel Farmer receives National Award

Sri. Shankar Kunder, a progressive mussel farmer from Saligrama in Udupi District and beneficiary of mussel culture programmes of Mangalore Research Centre of CMFRI received a national award for outstanding contributions made by farmers in the field of aquaculture. Award was given by the Marine Products Export Development Authority (MPEDA), Kochi at a function held on 10th March 2015.



Integration of seaweed *Kappaphycus alvarezii* in open sea cages - a source of additional income

Seaweed resources exploited from coastal waters of Gujarat are inadequate to meet the growing demand from the seaweed based industries. Hence, there is a need to cultivate commercially important seaweeds to augment the supply of raw materials to the existing industries. Seaweed *Kappaphycus alvarezii* was integrated in the mega pilot scale sea cage farm established off Somnath under the Tribal Sub Plan (TSP) programme. During the past three years various marine finfish and shellfish species were cultured profitably in the cage farm by the local Sidi tribes. This time, the seaweed *K. alvarezii* was integrated along with the spiny lobster *Panulirus polyphagus* to create an additional income using the existing infrastructure. Net tube method using old HPDE nets with an internal support of PVC rings fixed in every 2 m gap to retain the tube structure and floats attached for buoyancy were used. Around 1kg seed material was stocked in 4m length net tubes which were placed inside the cages. After 60 days of



Net tube seeded with seaweed being installed in the cage

culture seaweed had grown to 11.5 kg and the crop is scheduled to be harvested completely during May 2015. Thus, using the existing cage farm infrastructure an additional income could be generated by the tribal community. Sites for seaweed

farming along Saurashtra coast like Sutrapada, Okha, Porbander, Miyani and Kodinar were also identified.

(Reported by Divu. D., Mohammed Koya, K. Suresh K. Mojjada, Mahendra D Fofandi, Sreenath K.R., Gyanaranjan Dash, Vinaykumar Vase)

Coastal erosion damages the sea water intake facility at Kovalam Field Laboratory

Of late the coastal erosion and the water incursion near Kovalam Field Lab (KFL) of CMFRI has been progressively worsening and the seawater bore installation was severely damaged in the last week of January 2015. The sea is now only 50 metres from the main gate of KFL. During the first week of February after erosion affected the 200 metres length of the HD PVC sea water intake lines, hatchery works were affected and maintenance of the seed stocked for nursery rearing became difficult. A team of Government officials visited the site on 14th February, 2015. On 16th February 2015,



the Hon'ble Minister of Fisheries (Tamil Nadu) Shri. K. A. Jayapal along with Commissioner of Fisheries Dr. (Smt) Beela Rajesh, IAS and several other officials visited the site to assess the damage. They also visited the Field Lab of CMFRI and were appraised of the research works progressing at the centre. The Tamil Nadu Government and the Fisheries Department agreed to provide several loads of granite boulders for piling up on the eroded beach front to avoid further erosion. The works are progressing and the temporary sea water intake at the lab was restored on 6th March 2015.

Foundation Day Celebrations

The Institute celebrated its 68th Foundation Day on 3rd February 2015 at Headquarters and its various Regional/Research centres with an Open House when its research laboratories and other facilities were open to the public. At HQ, 1770 students and 42 teachers from 20 educational Institutions in and around Kochi attended the Open House. They had an opportunity to observe the scientific activities carried out on the institute and interact with the scientists and researchers. The Marine Biodiversity Museum which is a 'Designated National Repository' by the Government of India that houses more than 22 holotypes and 2010 specimens of marine fishes, corals, sponges, sea snakes, marine birds, turtles, seagrass and seaweeds was a major attraction to the students. The library with more than 7000 scientific books / periodicals and the Marine Aquarium were the other attractions.

The Foundation Day celebration at Tuticorin Research Centre was inaugurated by Smt. S. Mathumathi, IAS, Commissioner, Tuticorin Municipal Corporation in the presence of the Joint Director of Fisheries, Govt. of Tamil Nadu; Dean, Tuticorin Fisheries College and



Visitors in Marine Biodiversity Museum at HQ

CMFRI staff. Students from 60 schools and colleges visited the centre. At Karwar Research Centre, Dr. S.R. Krupesha Sharma, Senior Scientist explained the on-going research activities to the students who visited various laboratories, museum, library and marine fish farm of the centre. Over 1200 students from Primary and Higher Secondary Schools visited the Kovalam Field Lab and Madras Research Centre, Chennai. Posters and charts were distributed to the participating schools. Students interacted with the scientists and they were also taught the importance of cleanliness, minimizing the use of plastics, protection of endangered animals and habitats and the judicious use of water. At the Mumbai Research Centre the foundation day was celebrated by screening video films of the institute including short films on marine life and the oceans. About 100 participants including fishermen, college students, faculty from the Institute of Science and ICAR institutes in the vicinity visited the centre. Drawing and quiz competitions were conducted for students at Vizhinjam Research Centre and winners were given certificates and trophy.



Pelagic fishes exhibited at HQ



Working models explained to students at HQ



Students visiting the museum at Karwar RC



Students visit Mangalore RC



Scientists-students interact at Vizhinjam RC



Chief Guest Smt. S. Mathumathi, IAS, in the oyster hatchery at Tuticorin RC



Research activities of Madras Research Centre, Chennai being explained to students

Women's Cell celebrates International Women's Day

The International Women's Day was observed at HQ on 10th March, 2015 under the auspices of Women's Cell. Dr. M. Lekshmikumari, Chairperson, Vivekananda Kendra Vedic Vision Foundation, Kodungallor was the Chief Guest. She gave a talk on the topic "Dharmic responsibility of individuals to the society".

Women's day was also celebrated by all the lady staff of Tuticorin RC of CMFRI by contributing lunch to an old age home, Little Sisters of the Poor, Home for the Aged at Tuticorin on 7th March 2015. At



Dr. M. Lekshmikumari delivering a talk on International Women's Day



Madras RC of CMFRI, Women staff visited Adayar cancer hospital in Chennai and contributed ₹ 10000/- towards medical expenses for the children admitted there.

Women's Cell organised a special lecture and interactive session with Dr. Jacob Vadakkancherry, Nature Life International, Ernakulam on the topic "Life without Diseases" on 20th February 2015 at Kochi.

Dr. Jacob Vadakkancherry delivering lecture on Naturopathy

Republic Day celebrations

Republic Day was celebrated at HQ and various Regional/Research Centres of the Institute.



Dr. A. Gopalakrishnan, Director at the Republic Day celebrations in Veraval Regional Centre

CMFRI participated in the exhibitions organized during following programs

- World Ocean Science Congress-2015 held at Jawaharlal Nehru International Stadium, Kaloor, Kochi during 5th-8th February, 2015.
- 'Sathavatsaraghoshangal' of Sanskrit College, Thripunithura during 14th-20th February, 2015.
- Workshop on "Aquaculture of Sea bass - Status and Way Forward for Commercial Production" conducted jointly by the Fisheries Technocrats Forum and Central Institute of Brackishwater Aquaculture at CIBA, Chennai on 28th January, 2015.
- Technology Pavilion to showcase the innovations and knowledge products focusing on Information Communication Technologies for Cross-Learning, organized by the M.S. Swaminathan Research



CMFRI team from Vizhinjam RC with trophy for Best Marine Aquarium won at Aquashow 2015

Foundation in connection with the Grameen Gyan Abhiyan convention during 2nd-4th February, 2015 at Chennai.

- Chennai Science Festival jointly organized by the Dept. of Education, Govt. of Tamil Nadu and Anna

University at Queen Mary's College, Chennai, 26th-28th February, 2015.

- 2nd Aqua Goa Mega Fish Festival 2015 at Navelim, South Goa from 29th January to 1st February, 2015 and at Mapusa, North Goa from 5th-8th February, 2015.



Dr. Vipinkumar receiving the Award for the 3rd Best pavilion in World Ocean Science Congress-2015



Shri. Laxmikant Parsekar, Hon'ble Chief Minister of Goa at the CMFRI stall during the Aqua Goa 2015.

Marine Ornamental Fish Broodbank facility established at Mandapam Regional Centre

The facility was developed under the project 'Capacity building on seed production of selected marine ornamental fishes to fisherwomen in Gulf of Mannar region' funded by Gulf of Mannar Biosphere Reserve Trust (GOMBRT), Government of Tamil Nadu. 51 RCC cement tanks each having a capacity of 350 litres are available lending valuable support to marine ornamental fish culture programmes in the region.



Hindi Workshops

Spoken Hindi workshops were held at Headquarters and Regional/Research Centres as follows:

At Kochi, on 24th February, 2015, Shri. Ramesh Prabhu, Chief Official Language Translator, Hindustan Petroleum Corporation Ltd., Kochi conducted class for 22 officers and staff.

At the Karwar RC, Smt. Bharathi Doddamani, Associate Professor, Shivaji College of Arts and Science, Karwar conducted a workshop on 19th March, 2015 for the institute staff.

At the Madras Research Centre the 'Spoken Hindi' workshop on 30th March, 2015 was guided by Shri. Hari Om Rastogi, Assistant Director (Raj Bhasha) HTS, Chennai.

At Mangalore RC, a Hindi workshop was held for staff on 1st April, 2015 guided by Shri. Vageswari Sivaram, retired teacher, Canara Educational Institutions and Public speaker.



Official Language Inspections

Shri. Rakesh Kumar, Chief Administrative Officer inspected the Official Language activities of Karwar Research Centre of CMFRI on 25th February, 2015.

Dr. Madan Mohan, Assistant Director General (Marine Fisheries), ICAR, New Delhi, Dr. A. Gopalakrishnan, Director CMFRI and Smt. E.K. Uma, Asst. Chief Technical Officer (Hindi) inspected the Official Language Implementation of Mangalore Research Centre on 28th March, 2015.

OLIC Meeting

The quarterly meeting of Official Language Implementation Committee (OLIC) of the Institute was held on 31st March, 2015 under the Chairmanship of Dr. A. Gopalakrishnan, Director. Official Language activities for the

quarter January - March, 2015 were reviewed and decisions were taken for further improvement.

Regional Official Language Annual Conference

Smt. E.K. Uma, Asst. Chief Technical Officer (Hindi) attended the Regional Official Language Annual Conference conducted by Department of Official Language, Ministry of Home Affairs, New Delhi and Mangalore Town Official Language Implementation Committee at Ocean Pearl Hotel, Mangalore on 27th March, 2015. Shri. Vajubhai Rudabhai Vala, Hon'ble Governor of Karnataka State was the Chief Guest of the function. Kum. Snehalata Kumar, Secretary, Kum. Poonam Juneja, Joint Secretary and Shri. Harindra Kumar, Director (Implementation), Department of Official Language, Ministry of Home Affairs, New Delhi were also present.

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ISSN 0970-6011



Annual Subscription:

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Contact : The Director, CMFRI

Kochi - 682 018

International Impact Factor 0.195

NAAS rating 6.2

Delegation from Republic of Fiji visits CMFRI

The Hon'ble Minister for Agriculture, Rural & Maritime Development and National Disaster Management from Republic of Fiji, Inia Seruiratu led the delegation to Kochi during his visit to India. The visits were facilitated by the Ministry of Agriculture, Government of India through Indian Council of Agricultural Research (ICAR), led by its Protocol and Liaison officer Mr. A. K Sharma. The delegation comprised of the Fiji High Commissioner to India H. E. Yogesh Karan, Acting Permanent Secretary of Agriculture Mr. Uraia Waibuta, First Secretary Mr. Sakeasi Waikere and Senior Economist Mr. Osea Ratuyawa. They visited the Central Marine Fisheries Research Institute, Kochi on 29th January and the fish cage farms at Panampukad, Kochi to look at the cage farming activities going on under technical guidance of CMFRI on 30th January, 2015. The purpose of the visit was to keep the Fiji delegation updated with the latest fisheries technologies on best farming practices. The delegation appreciated CMFRI's cage culture programme.



Fiji delegation at the CMFRI Museum



Visit to the cage farm at Kochi



Shri. K. Nanthakumar, IAS, at Mandapam Regional Centre of CMFRI

Dr. B. Meenakumari, Deputy Director General (Fisheries), ICAR visited Mumbai RC of CMFRI on 24th January, 2015.

Dr. J. K. Jena, Director, National Bureau of Fish Genetic Resource and Dr. Arun S. Ninawe, Scientist G & Advisor, Aquaculture and Marine Biotechnology, Department of Biotechnology, New Delhi visited Tuticorin RC of CMFRI on 3rd February, 2015.

Shri. K. Nanthakumar, IAS, District Collector, Ramanathapuram visited Mandapam Regional Centre of CMFRI on 27th March, 2015 and inspected two sea farming cages at Ramanathapuram district run under State Balanced Growth Fund Scheme with technical support of Mandapam RC.

QRT visits Karwar and Mangalore Research Centres

The Quinquennial Review Team (QRT) consisting of Dr. N.R. Menon, Dean (Retd.), School of Marine Sciences, Kochi and Chairman, QRT, Dr. A.D. Diwan, Assistant Director General (Retd.), Dr. Prabhudeva, Fisheries Research and Information Centre, Hebbal, Bangalore, Dr. Sreenivasa Kumar, Head, Advisory Service & Satellite Oceanography Group, INCOIS and Dr. V. Kripa, Member Secretary, visited Karwar and Mangalore Research Centres of CMFRI on 20th and 21st January, 2015 respectively.



QRT visiting the hatchery facility at Karwar RC



Presentation on centre activities by SIC at Mangalore RC

Workshop / Trainings

Summer School on "Recent advances in marine biodiversity conservation and management"

The ICAR sponsored Summer School was held during 16th February to 8th March, 2015 in CMFRI, Kochi with 20 participants. Inauguration of the summer school on 16th February, 2015, was done by Dr. V. Kripa, Principal Scientist and Head, Fishery Environment Management Division, CMFRI. The major objective of the summer school was to impart training on the various aspects related to study of marine ecosystems biodiversity. The methodologies to study biodiversity such as to species identification, biodiversity indicators, conservation of species and valuation of biodiversity were discussed. Assessment and protection of marine biodiversity, application of R software in biodiversity assessments, economic valuation of biodiversity and vulnerability assessment, molecular taxonomy and its applications, marine fish cell lines, marine microbial diversity, marine protected areas and species, marine algae, mangrove ecosystems, CITES and modeling of aquatic ecosystems for fisheries



Inauguration of the Summer School

management in India were some of the topics covered in different sessions.

On 28th February, field trips to the Neendakara fishing harbour, Thottapilly landing center and Purakad fishing village where participants could observe fish landings from different

types of crafts and gears and the Ashtamudi Lake in Kollam district for interactions with the clam fisherwomen were organised. Guest lectures by experts like Dr. V. Sriramachandra Murty, Dr. A. D. Diwan, Dr. V. K. Venkataramani, Shri. C. M. Muralidharan (BOBLME) and Dr. Satish



Guest lecture by Dr. A. D. Diwan



Practical class in progress



Participants receiving certificates from Dr. A. Gopalakrishnan, Director

Sahayak (MPEDA) were organised. The valedictory function of the summer school held 7th March, 2015 was

presided by Dr. A. Gopalakrishnan, Director, CMFRI who distributed certificates to the participants. Dr. P.

Laxmilatha, Principal Scientist and Course co-director, Marine Biodiversity Division proposed vote of thanks.

Training programme on "Seed production of selected marine ornamental fishes"

The training programme was organized under Gulf of Mannar Biosphere Reserve Trust (GOMBRT) funded project "Capacity building on seed production of selected marine ornamental fishes" to fisherwomen in Gulf of Mannar region. A total of 69 fisherwomen from Thangachimadam, Saveriyar Nagar, Raja Nagar, Anthoniyarpuram, Therukuvadi, Kundukal and Pamban villages participated in the training held in two batches during 27th to 29th January and 23rd to 25th March, 2015 respectively. Dr. A. K. Abdul Nazar, Scientist-in-Charge, Mandapam RC and Dr. K. Eswaran, Principal Scientist,

CSMCRI, Mandapam Camp inaugurated the training. Shri. R. Senthil Kumar, Biodiversity Programme Officer, GOMBRT delivered the felicitation address. Hands on training was given on broodstock development, breeding, rearing of larval and juvenile clown fishes, grow-out techniques, livefeed culture, copepod culture and *Artemia* hatching, enrichment of live feeds, water quality and disease management. Topics like biodiversity of marine ornamental fishes in the Gulf of Mannar region, setting up of a small-scale hatchery for ornamental fishes and its economic analysis,

information Government schemes for starting a hatchery were also covered in the training. Thematic Apperception Test was administered among the trainees to identify their level of achievement motivation. Feedback was received from the participants and Training Effectiveness Index was worked out. Thiru. M. Shahul Hameed, Eco-Development Officer (GOMBRT), Dr. I. Rajendran and Dr. R. Jayakumar (CMFRI), distributed the certificates to the participants. Dr. B. Johnson, Principal Investigator of the project proposed vote of thanks.

(Reported by Mandapam Regional Centre)



Inauguration of training programme



Learning by doing- Artemia harvest practicals



Lecture session



Participants along with faculty members

Pre-launch workshop of All India Network Project on Mariculture

The Pre-launch workshop of the All India Network Project on Mariculture was held at Karwar Research Centre of CMFRI during 25th-26th February, 2015. Dr. A Gopalakrishnan, Director inaugurated the workshop and explained the conception of the network project and the overall activities planned under the project. Dr. K.K. Philipose, Project Co-ordinator welcomed the delegates. Dr. G. Gopakumar, Principal Scientist (Rtd.) and Dr. Das, Dean, WBUAFS, Kolkata offered felicitations on the occasion. Scientists from all the participating centres in the project were present and the work plans were discussed.



Dr. A Gopalakrishnan, Director and Dr. G. Gopakumar inaugurating the pre-launch workshop

Project inception cum training workshop of the Belmont forum GULLS project

"Global Understanding and Learning for Local Solutions: Reducing vulnerability of marine dependent coastal communities" was held in Poonthura, Thiruvananthapuram on 25th February, 2015. Mr. Shreekantan, Joint Director of fisheries was the Chief Guest at the programme. Mr. Muhammed Iqbal, Councillor, Corporation of Thiruvananthapuram inaugurated the program. Dr. P.S. Swathilekshmi, welcomed the gathering and Dr. S. Jasmine, outlined the major activities of CMFRI related to the upliftment of the fishing community. Dr. Shyam. S. Salim, Co-ordinator of the workshop gave a brief description about the project which

was followed by the Methodology training and a mock field survey to facilitate a hands on experience in surveying techniques. The projects aims to develop a rapport with the stakeholders at chosen study sites for the community participation in administering adaptation mitigation plans to combat climate change and to achieve sustainable fishing.

Reported by SEETD Division

National Innovations in Climate Resilient Agriculture (NICRA) Project Review Workshop was organized by the Demersal Fisheries Division during January 29th-30th, 2015 at CMFRI, Kochi. All the NICRA Associates from HQs, Centre Co-ordinators and Dr. E. Vivekanandan, Consultant of the project participated.

One day training programme on "Issues on Environmental Degradation and Coastal & Marine biodiversity" was conducted at Mandapam Regional Centre on 25th February 2015, under Faculty Development Programme organized by the Mohamed Sathak Polytechnic College, Kilakarai for participants from various polytechnic colleges in Tamil Nadu. Dr. I. Rajendran, Senior Scientist inaugurated the training programme. The event was coordinated by R. Saravanan, Scientist.

JNSF Workshops - Prof. Dr. Trevor Platt (Jawaharlal Nehru Science Fellow) jointly with Dr. J. Jayasankar and Dr. Grinson George (Fishery Resources Assessment Division, CMFRI) organised following workshops.

"The Scientific Basis of Estimating the Potential Fisheries Yield Using Remotely Sensed Data" during 6th and 7th February, 2015.

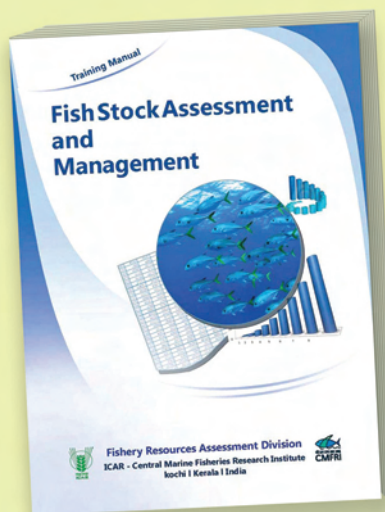
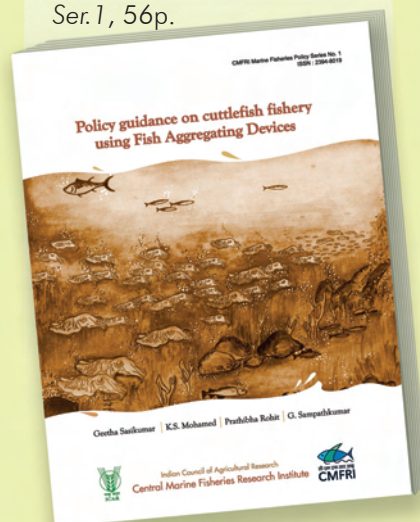
"Oceanographic bases for fluctuations in fisheries resources in the Northern Indian Ocean" on the 9th and 10th February, 2015.

A Hands on training programme on open sea cage culture for 15 fishermen from Kerala was held during 8th-9th January, 2015 at Karwar RC.



Hands on training for fishermen at Karwar RC

Sasikumar, G., K.S. Mohamed, P. Rohit and G. Sampathkumar 2015. *Policy Guidance on Cuttlefish fishery using Fish Aggregating Devices*. CMFRI Mar. Fish. Policy Ser.1, 56p.



CMFRI, FRAD 2015. Training Manual "Fish Stock Assessment and Management"

CMFRI, FRAD 2015. *Marine Fish landings in India - 2014*



Research Advisory Committee meeting held

The 19th Research Advisory Committee (RAC) meeting of the Institute was held during 26th-27th March, 2015 at Head Quarters chaired by Dr. B.N. Desai. Other members of the RAC included Dr. Madan Mohan, Dr. C.B.S. Dutt, Dr. E. Vivekanandan, Dr. R. Alfred Selvakumar and Dr. A. Gopalakrishnan, Director, CMFRI.

Heads of Divisions and Scientist-in-Charge (SICs)



RAC meeting in progress

of all Regional and Research centres participated in the meeting and made presentations before the RAC.

On the concluding day Chairman, RAC officially released the CMFRI publication "Policy Guidance on Cuttlefish Fishery using Fish Aggregating Devices" prepared under the CMFRI Marine Fisheries Policy Series. Dr. P.U. Zacharia, Member-Secretary, RAC proposed the vote of thanks.



Official release of CMFRI publication

Awards

Dr. Sandhya Sukumaran, Scientist, Marine Bio-technology Division won the Taylor and Francis Commonwealth Scholarship Commission's Best Journal Article Prize 2014 for the research paper entitled 'Multigenerational demographic responses of sexual and asexual *Artemia* to chronic genotoxicity by a reference mutagen' which was co-authored with Alastair Grant and published in the *Aquatic Toxicology Journal*.

Shri. Akhilesh K.V., Scientist, was awarded Doctor of Philosophy in Marine Biology by Cochin University of Science & Technology (CUSAT), Cochin for his thesis entitled "Fishery and biology of deep sea chondrichthyans of the southwest coast of India" under the guidance of Dr. N.G.K. Pillai, former Principal Scientist and Head, Pelagic Fisheries Division.

Product Branding initiative by KVK

Partnered with CMFRI the NICRA (National Innovations in Climate Resilient Agriculture) Technology demonstrations of integrated finfish- rice farming was conducted by KVK in seven selected Pokkali fields at Kadamakudy, Pizhala and Nayarambalam. The twin objectives of the venture were to enhance the income from unit area for the

traditional Pokkali farmers and ensure availability of natural organic crops to the consumers. The paddy straw of the

previous crop, the peaty soil and the saline water in the Pokkali ecosystem combine to impart a characteristic taste to the fish grown here. However, the fish harvested from these fields is currently reaching the market mixed up with low quality fish from elsewhere. Hence, branding of the rice/fish/ shrimp produced as natural organic crops in the unique and traditional tide fed Pokkali fields of Ernakulam District whereby producers will get a premium price in the market was mooted. As a first step to create awareness on the unique taste of safe, organic fish produce, on-site fish harvest melas coinciding with the festive Easter Season were held in several fields during the first week of April which received wide media coverage and public support.



KVK To Brand Pokkali Produce

Kochi: The Krishi Vigyan Kendra (KVK) of CMFRI here is moving towards giving a brand name for Pokkali produce including rice, fish and shrimp to ensure availability of these nutritious rich naturally organic produce in its original quality. The rice and its value added products, Pearlspot, (Karimeen), Mullet (Thirutha) and Shrimp (Chennamoon) from different Pokkali fields marketed for a premium price in a common brand name would also ensure more remuneration for the Pokkali farmers, by ensuring sustainability of this traditional and world renowned farming system of Kerala. The active farming is confined only to less than 800 ha of area though Pokkali farms are spread over 2000 ha around Kochi due to less remuneration for the farmers due to the high labour cost, disease to shrimps and climate variations. However, all these can be offset if a premium price is ensured for Pokkali farmers. In order to popularise the brand, KVK is



Satellite Pearlspot Seed Production Centre set up

The Pearlspot seed production centre at Kumbalanghi, Ernakulam has been set up to meet the ever

increasing demand of Pearlspot seeds in the state. The First sale of seed produced under this initiative was held

on 19th January, 2015 from the centre located in the field of Shri. Shibu Kochery near Kumbalanghi, Ernakulam.

KVKs Vegetable Task Force becomes functional

KVK has formed a task force for promoting organic vegetable production in urban areas. Training and

practical demonstrations on vegetable farming from KVK professionals followed by garden setting by the task

force and distribution of a 100 day activity chart would enable city residents to learn farming by doing.

Scientific Advisory Committee meeting of KVK

The Scientific Advisory Committee (SAC) meeting of KVK chaired by Dr. A. Gopalakrishnan, Director, CMFRI was held on 10th February, 2015 at CMFRI, Kochi. Dr. Sreenath Dixit, Zonal Project Director and Dr. P.V. Balachandran,

Director of Extension, Kerala Agricultural University were present. The Kisan Mobile Advisory service to spread recent technologies among farmers and initiation of mobile sales counter for KVK products, setting up of soil testing facility

and expansion of the existing sales counter at CMFRI was decided. Decision for adoption of a suitable coastal village in the district to showcase the various technologies related to marine fisheries was also taken.

Exclusive feed for Pearlspot launched

KVK has launched an exclusive feed for Pearlspot under the trade name Pearlplus which was developed under the National Innovations in Climate Resilient Agriculture (NICRA) project by Central Marine Fisheries Research Institute. The

feed with 47% protein and 6% fat content is available in five different feedgrain size types as PS1 (250 µm), PS2 (500 µm), PS3 (1000 µm), PS 4 (1.4 mm) and PS5 (2 mm). PS1 and PS2 are ideal for the fry stages up to 2.5cm size while PS3

and PS4 are suitable for fingerlings of size up to 8cm. PS 5 is ideal for feeding fingerlings above 10 cm size. Feeds are readily available in 1 kg and 5 kg packets at CMFRI-ATIC/KVK sales counter of CMFRI.

Demonstration of Precision Farming for vegetables

A precision farming module for bitter melon minimum pesticide usage and popularization of local varieties in the market has been demonstrated. "Fertigation" through Ventury system and

Plastic mulching were the essential components which in addition to saving nutrient loss also reduces labour required for weed management. Use of Pheromone traps and Yellow Sticky Traps

to control fruit flies and white flies infestation respectively and neem oil spray as an organic pest repellent was demonstrated.

- **Dr. A. Gopalakrishnan**, Director attended a meeting of project partners in ICAR Outreach Project on "Fish Genetic Stocks - Phase-II" from 7th - 9th January, 2015 at NBFGR, Lucknow.

Visited Veraval Regional Centre from 25th to 27th January, 2015.

Inaugurated the Pre-launch Workshop of the Network Project on Mariculture held from 24th to 27th February, 2015, at Karwar.

Visited the mariculture farms and attended Fish Harvest Mela from 27th - 30th February, 2015 in and around Karkikali, Uppunda Village, Mangalore.

- **Dr. R. Narayanakumar**, Head, SEETTD attended the TEEB Coastal and Marine Ecosystem Learning Group Workshop held at Ministry of Environment, Forest & Climate Change, New Delhi, 5th - 6th February, 2015.

Attended the PME New Guidelines Implementation Workshop held at NASC, New Delhi 23rd February, 2015.

- **Dr. V. Kripa**, Head, FEMD attended the QRT meeting at CMFRI Karwar and Mangalore RC during 19th - 21st January, 2015.

Attended the Mud bank Review Meeting at NIO.

Attended the Scientific Advisory Committee Meeting of KVK on 12th February, 2015 at CMFRI, Kochi.

Attended the 12th IJSC Meeting of CMFRI, held on 13th February at Kochi.

Attended and delivered a lecture on "Sustainability of Marine Resources" organized by Netfish, MPEDA and Sea Club at St. Albert's College on 22nd, February, 2015.

Delivered a key note address on "Marine ecosystem health and sustainability - Threats from anthropogenic activities and the way forward" in the National Seminar on 'Marine Ecosystem Health' organized by CUSAT on 12th March, 2015.

Attended the IMC Meeting of Central Institute of Fisheries Technology, Kochi on 18th March, 2015.

- **Dr. P. U. Zacharia**, Head, DFD attended the ICAR Vigilance Officers meeting on 24th January, 2015 at CIBA, Chennai.

Attended the Marine Fisheries Management Code (MFMC) meeting from 27-28th January, 2015 at CIFT, Kochi -18.

Overseas Deputations

- **Dr. A. Gopalakrishnan**, Director and **Dr. Sandhya Sukumaran**, scientist participated in the project workshop "Genetic study on breeding stock of Indian Mackerel, *Rastrelliger kanagurta* along the Indian coast" funded by FAO-BOBLME during 17th-18th February, 2015 at Phuket, Thailand



- **Dr. V. Kripa**, Principal Scientist and Head, Fishery Environment Management Division, attended the 3rd International Symposium on the "Effect of Climate Change on World's Oceans" held at Santos, Brazil during 23rd -27th March 2015 as an invited speaker and presented a paper.



Participants of Fisheries Governance Short Course

Dr. Johnson B., Scientist attended the International Short Course on 'Fisheries Governance' at Centre for Development Innovation, Wageningen University, Wageningen under the NFP (Netherlands Fellowship Programme of Netherlands Government) during 31st October to 24th November 2014. The course provided

the theoretical orientation on fisheries governance and co-management concepts, challenges faced in governance and management; various perspectives on fisheries management and practical orientation on participatory methodologies and tools in support of the fisheries management planning process.

34th Indian Scientific Expedition to Antarctica (ISEA)

Jinesh P. T., Research Fellow, Pelagic Fisheries Division, CMFRI successfully completed **34th Indian Scientific Expedition to Antarctica (ISEA)** programme as a student participant. The expedition was conducted by National Centre for Antarctic and Ocean Research (NCAOR) from 7th January to 1st March 2015. Survey and documentation of the qualitative/quantitative diversity of phytoplankton with special reference to diatoms available during austral summer in coastal waters of Antarctica was carried out by sampling 30 stations in coastal waters of Broknes Island, Fisher Island and Larsemman Hills covering different geographic locations.



Lighting at Bharati Station, Antarctica

- **Dr. K. S. Mohamed**, Head, MFD attended the Scientific Advisory Committee meeting of Krishi Vigyan Kendra on 10th February, 2015 at CMFRI, Kochi.

Participated in the Aqua Aquaria India 2015 organized by MPEDA and delivered a presentation on "Aquaculture of bivalves" during 20th - 22nd February, 2015 at Vijayawada, Andhra Pradesh.

Attended ICSF-BOBLME Subnational Workshop: implementing the FAO SSF guidelines: India (East Coast), held at Chennai during 6th - 7th March, 2015.

Attended as a resource person in the One Day Seminar on "Kerala Laws on Environment: Current Trends and Judicial Responses" on 28th March, 2015 at NUALS, Kalamassery.

Delivered a talk in the Special Session: Aquaculture and Marine Biotechnology for Human Health at the 102nd Indian Science Congress, organized by the University of Lucknow at Kalina Campus, Mumbai University on 6th January, 2015.

- **Dr. G. Maheswarudu**, Head, CFD attended the RAC meeting during 26th and 27th March, 2015 at CMFRI, Kochi.
- **Dr. C.S. Purushothaman**, Principal Scientist, attended the workshop for HRD Nodal Officers of ICAR Institutes at NAARM, Hyderabad on 26th January, 2015.
- **Dr. Prathibha Rohit**, Principal Scientist and Scientist-in-Charge, Mangalore R.C. participated in the Research Advisory Committee Meeting at CMFRI, Kochi on 26th - 27th March, 2015.
- **Dr. Veerendra Veer Singh**, SIC, Mumbai RC participated in Workshop on Nitrogen Flow- Its Assessment and Evaluation in Aquatic Systems at ICAR-Central Inland Fisheries Research Institute, Barrackpore, Kolkata on 30th January, 2015.

Attended meeting of Board of Studies "Fisheries Economics, Extension and Statistics Division of Central Institute of Fisheries Education, Versova, Mumbai on 19th January, 2015.

Attended one-day brainstorming workshop on seaweed cultivation at Central Institute of Fisheries Education, Mumbai on 21st February, 2015.

Participated in Fourth Annual Review Meeting of the NASF during 19th - 20th February, 2015 at Delhi under NFBSFARA project.

Attended 16th meeting of the

Consultative Committee of the Fisheries Survey of India on 30th March, 2015.

Attended 19th Research Advisory Committee meeting at CMFRI, Kochi during 26-27th March, 2015.

- **Dr. A. K. Abdul Nazar**, SIC, Mandapam Regional Centre participated as member in RAG Review meeting to evaluate the progress of research projects sanctioned by Gulf of Mannar Biosphere Reserve Trust on 5th March, 2015.

Participated the 19th Research Advisory Committee meeting at CMFRI, Kochi during 26th - 27th March, 2015.

- **Dr. Margaret Muthu Rathinam, A.**, SIC, Madras Research Centre attended the National Convention of Grameen Gyan Abhiyan organized by the M.S. Swaminathan Research Foundation during 2th - 4th February at Chennai.

Participated in the 19th Research Advisory Committee meeting at CMFRI, Kochi during 26th - 27th March, 2015.

- **Shri. K. Mohammed Koya**, SIC, Veraval Regional Centre attended the 1st Lokvani Advisory Committee meeting of the Community Radio Station, Krishi Vigyan Kendra, Kodinar on 3rd January, 2015.

Attended the 11th Meeting of the Agriculture Research Sub-Committee of the Junagadh Agricultural University on 20th and 21st February, 2015.

Attended the Scientific Advisory Committee meeting of the Krishi Vigyan Kendra, Kodinar on 25th February 2015.

Participated in the 19th Research Advisory Committee meeting at CMFRI, Kochi during 26th - 27th March, 2015.

Attended training programme on Brackishwater Shrimp farming by the Junagadh Agricultural University Regional Centre, Mahua on 3rd March, 2015 as resource person.

- **Dr. Margaret Muthu Rathinam A.**, Principal Scientist and **Dr. Vidya Jayasankar**, Senior Scientist attended the National workshop on 'Aquaculture of Sea bass- Status and Way Forward for Commercial Production' jointly organized by the Fisheries Technocrats Forum and Central Institute of Brackishwater Aquaculture (CIBA) on 28th January, 2015 at Chennai.

- **Dr. K. Vijayakumaran**, Principal Scientist participated in the ICSF-BOBLME India (East Coast) workshop: Implementing the FAO Voluntary

Guideline for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication, held during 6th - 7th March, 2015 in Chennai.

- **Dr. K. Vijayakumaran**, Principal Scientist and **Dr. Shoba Joe Kizhakudan**, Senior Scientist attended ICSF/BOBLME State-level Marine Fishworker Consultation on Implementation of FAO Small-scale Fisheries Guidelines on 5th February, 2015 at Chennai.

Participated in the seminar on Fisheries Sector and Coastal Zone Development organized by the AKG Study and Research Centre, Thiruvananthapuram on 17th February, 2015 at Alleppey, Kerala and presented a paper on 'Changing Deep Sea Fisheries Policies: The Science, Economics and Impact on Fishermen'.

- **Dr. Joe K. Kizhakudan**, Senior Scientist attended the First State-Level Technical Committee meeting of FIMSUL II held on 16th February, 2015 at the Department of Fisheries, Govt. of Tamil Nadu, Chennai.

Made a presentation on "Open sea cage farming of seabass by CMFRI" at the workshop on Aquaculture of Seabass-Status and Way Forward for Commercial Production held at CIBA, Chennai on 28th January, 2015.

- **Dr. Shoba Joe Kizhakudan**, Senior Scientist attended the Stakeholders' meeting on the Conservation and Protection of Sea Turtles held on 4th March, 2015 at the Department of Fisheries, Govt. of Tamil Nadu, Chennai.

Attended the NICRA review meeting and workshop at Kochi during 29th - 30th January, 2015.

- **Dr. A.P. Dineshbabu**, Principal Scientist, attended meeting as GIS expert for the Ecosystem based Fisheries Management Project in the Space Application Centre, Ahmedabad on 16th - 17th March, 2015.

Attended the Technical Review Committee meeting of the research activities of the College of Fisheries, Mangalore on 14th March, 2015.

- **Dr. P.S. Swathilekshmi**, Senior Scientist attended and participated in the meeting conducted by the State Fisheries Resource Management Committee (FIRMA) in association with the State Fisheries Department, Government of Kerala and presented a talk on the Indigenous Technical Knowledge of

Marine Fisherfolk on 14th February, 2015 at Kannur, Kerala.

- **Dr. Geetha Sasikumar**, Senior Scientist participated as resource personnel for training 25 farmers in mussel farming in the estuaries and brackish water bodies under the purview of Secondary Livelihood Opportunities through fishery resources at the ICAR Research Complex, Goa on 20th March, 2015.
 - **Dr. A.P. Dineshbabu**, Principal Scientist, **Dr. Bindu Sulochanan**, Senior Scientist attended the DFAT-PSLP Training workshop on safe water under the CSIRO-IITR-NBFGR Project on safe water for the future held at NBFGR, IITR Lucknow from 23rd - 27th March, 2015.
 - Attended the *Rajabhasha Avom Puraskar Vidhran Samaroha* at the South and South Western Zone Hindi Officers meeting on 27th March, 2015 at Mangalore.
 - **Dr. A.K. Abdul Nazar & Dr. R. Jayakumar**, Senior Scientists participated the pre-launch Workshop on implementation of 'All India Network Project' on Mariculture at Karwar Research Centre of CMFRI, Karwar on 25th February, 2015.
 - **Dr. R. Jayakumar**, Senior Scientist attended the Aqua Aquaria India - 2015 organized by Marine Products Export Development Authority (MPEDA) at Vijayawada during 20th - 21st February, 2015.
 - **Dr. B. Johnson**, Scientist participated the FAO-TCP Thematic Workshop on Fishers' Livelihoods during 7th - 8th January, 2015 at Chennai, Tamil Nadu organized by BOBP-IGO.
- Participated in ICSF/BOBLME State-level Marine Fishworker Consultation on Implementation of FAO Small-Scale Fisheries Guidelines at Ramanathapuram, Tamil Nadu on 7th February, 2015 and at Chennai on 6th - 7th March, 2015.
- **Dr. Veerendra Veer Singh**, Principal Scientist, **Smt. Anulekshmi Chellappan**, **Dr. Purushottama G.B.**, **Ms. Karthireddy Syamala** and **Dr. Akhilesh K.V.**, Scientists participated in 4th National Mission Meeting on Conservation of Sharks at Central Institute of Fisheries Education, Mumbai on 22nd January, 2015.
 - **Dr. K. S. Mohamed**, **Dr. V. Kripa**, **Dr. P.U. Zacharia**, **Dr. D. Prema**, **Dr. Josileen Jose**, **Dr. E.M. Abdussamad**, **Dr. Somy**

Kuriakose, Principal Scientists, **Dr. T.M. Najmudeen**, **Dr. Rekha J. Nair**, **Dr. U. Ganga**, Senior Scientists, **Shri. Mohammed Koya**, **Dr. R. Vidya**, Scientists, **Smt. Jenni. B.**, Senior Technical Officer and **Shri. K.K. Sajikumar**, Technical Assistant attended in the World Ocean Science Congress (WOSC) 2015 held at Kochi during 5th - 8th February, 2015.

- **Dr. Rekhadevi Chakraborty**, Senior Scientist, attended the Training programme on 'Molecular markers' held at PMFGR Centre, NBFGR, Kochi, during 9th - 14th February, 2015.
- **Dr. R. Narayanakumar**, **Dr. N. Aswathy** and **Dr. R. Geetha** attended the Interactive Training cum Workshop on Valuation of Ecosystems held at Madras RC of CMFRI, 5th - 9th January, 2015.
- **Dr. P.S. Swathilekshmi**, Senior Scientist and **Dr. B. Johnson**, Scientist participated in the meeting of FAO-TCP: Organisation of Thematic workshops on Development of Strategy and Action Plan for Fisheries Livelihood Enhancement and Diversification during 7th - 8th January, 2015 at Chennai.
- **Dr. R. Narayanakumar**, Head, SEETTD, **Dr. G. Maheswarudu**, Head, CFD and **Dr. N. Aswathy** attended the annual Scientific Advisory Committee meeting of KVK, Ernakulam on 10th February, 2015 at CMFRI, Kochi.
- **Dr. R. Narayanakumar**, Head, SEETTD, **Dr. T.V. Sathianandan**, Head, FRAD, **Dr. Shyam S. Salim**, and **Dr. N. Aswathy**, Senior Scientists attended the Review Meeting of the MoSPI sponsored study on Input-output in marine fishing in India to arrive at Gross Value Added on 10th March, 2015 at CMFRI, Kochi.
- **Dr. Vipinkumar V. P.**, Senior Scientist participated as Chief Guest and inaugurated the Agricultural Exhibition: *Haritha Darshanam* at Assisi Vidyaniketan Public School, Chembumukku, Kakkanad on 27th February, 2015.
- Participated as Chief Guest and inaugurated the Science Exhibition at Chinmaya Vidyalaya, Kannamaly on 30th January, 2015.
- **Dr. M. S. Madan**, Principal Scientist attended the 19th RAC meeting at CMFRI Headquarters Kochi during 26th & 27th March, 2014.
- **Dr. P. P. Manojkumar**, Principal

Scientist & **Dr. M. Sivadas**, Principal Scientist co-ordinated one day stakeholder meeting at Tuticorin RC of CMFRI on 20th March, 2015.

- **Dr. P. S. Asha**, Principal Scientist attended the "Science of Living" a programme of women Scientists sponsored by DST organized by Academy of Human Excellence during 5th - 9th January, 2015 at Vedodari, Baroda.
 - **Dr. M. Sivadas**, Principal Scientist attended the National Consultative meeting on management of ring seine fishery for conservation of resources and carbon foot print at CIFT, Kochi on 13th March, 2015.
 - **Shri. L. Ranjith**, Scientist successfully completed PADI Open Water SCUBA Diver programme held from 15th to 20th December, 2014 at National Institute of Ocean Technology Field Centre, ANCOST, Port Blair.
 - **Shri. Ramkumar**, Scientist participated in "Ecosystem valuation and methodology" workshop held at Madras Research Centre of CMFRI, Chennai from 5th - 9th January, 2015.
- Participated in NICRA Review Workshop held at CMFRI, Kochi, Kerala on 29th - 30th January, 2015.
- **Dr. Sreenath, K.R.**, **Shri. Vinaykumar Vase** and **K. Mohammed Koya**, Scientists attended two days workshop on "The Scientific Basis of Estimating the Potential Fisheries Yield using Remotely Sensed Data" from 6th - 7th February, 2015 at CMFRI, Kochi.
 - **Dr. Sreenath, K. R.**, Scientist attended 5 day training on 'Advanced training course on satellite data management and application of cloud computing using python' attended at NERC India, Kochi from 9th - 13th February, 2015.
 - **Dr. Gyanaranjan Dash** and **Shri. Vinaykumar Vase**, Scientists attended workshop on "Corporate-Community Partnership for Mangrove and Biodiversity Conservation in Kutch", on 14th March, 2015 at CGPL, Mundra, Gujarat
 - **Shri. K. Mohammed Koya**, and **Dr. Divu, D.**, Scientists attended a meeting on 20th January, 2015 called by the Managing Director, Gujarat Livelihood Promotion Co. Ltd (GLPC), Gandhinagar and presented a Consultancy Project proposal for the 'Feasibility Study of Seaweed farming in Gujarat'.



Asian Fisheries Society (AFS)
ICAR-Central Marine Fisheries Research Institute (CMFRI) &
Asian Fisheries Society Indian Branch (AFSIB)
announce

5th International Symposium on Cage Aquaculture in Asia CAA5

November 25-28, 2015, Kochi, Kerala, India



Programme

25-27 November, 2015 : Registration and Opening of the Symposium, Technical Sessions and Trade Show

28 November, 2015 : Post-Symposium Tours

Venue

The venue for the CAA5 will be **Dream Hotel**, Kadavanthra, **Kochi, Kerala, India** which is located in the heart of the city. Kochi International Airport (COK) has direct flight service from Southeast Asia, the Middle East and other South Asian countries.

How to Register

Delegates can register online by following the guidelines given in the symposium website (<http://caa5.net>). However, spot registration is permitted at the venue during the symposium.

Registration Fees

Stages	International (US\$)	National (₹)
Early bird (Up to 31 July, 2015)	AFS Members : 250	AFS Members : 10,000
	Non Members : 300	Non Members : 12,000
After July 31, 2015	AFS Members : 300	AFS Members : 12,000
	Non Members : 350	Non Members : 15,000
	Students : 150	Students : 5,000
	Observers/ Companion : 150	Observers/ Companion : 5,000

Exhibition & Trade Show

The CAA5 is accompanied by an international trade show which will feature major fisheries research institutions, aquaculture related industries and their products and services.

Major Themes

- ★ **Production Systems**
 - Potential Species
 - Grow-out
 - Site
 - Harvest
 - Design and Engineering
- ★ **Breeding & Seed Production**
 - Hatchery Technology
 - Genetics
- ★ **Nutrition and Feed**
- ★ **Health and Environment Management**
- ★ **Economics, Livelihood and Policies**

Abstract Submission

Abstracts are invited under five major themes and can be submitted online. For details visit website <http://caa5.net>

Dates to Remember

Early Registration:
From 1st April, 2015 to 31st July, 2015

Submission of Abstract:
From 1st April, 2015 to 31st July, 2015

Symposium date:
From 25th to 28th November, 2015

Contact

Dr. A. Gopalakrishnan
Convener CAA5 & Director, CMFRI
Central Marine Fisheries Research Institute
P.B. No. 1603, Ernakulam North P.O.
Kochi 682 018, Kerala, India.
Telephone: +91-484-2394867
Fax: +91-484-2394909; 2396685
Email: caa5cmfri@gmail.com

Web : <http://caa5.net>

APPOINTMENTS

Name	Designation	Centre	w.e.f
1. Shri. S. Maharajan	Lower Division Clerk	Mandapam RC	02.01.2015
2. Kum. Sandhya. C. K	Lower Division Clerk	CMFRI, Kochi	15.01.2015

PROMOTION

Name & Designation	Promoted as	w.e.f	Centre
1. Shri. K. Senthil Kumar, Skilled Support Staff	Technician	24.03.2015 (AN)	Mandapam RC
2. Shri. S. Willington, Skilled Support Staff	Technician	24.03.2015 (AN)	Tuticorin RC
3. Shri. M. Thayalan, Skilled Support Staff	Technician	25.03.2015 (FN)	Mandapam RC
4. Shri. N. Ramasamy, Skilled Support Staff	Technician	25.03.2015 (FN)	Tuticorin RC
5. Shri. S. Chandrasekaran, Skilled Support Staff	Technician	25.03.2015 (FN)	Madras RC
6. Shri. Chudasama Karsan Punja, Skilled Support Staff	Technician	30.03.2015 (FN)	Veraval RC

TRANSFERS

Name & Designation	From	To	w.e.f
1. Smt. Sumeena. N.K, Assistant	Mandapam RC	CMFRI, Kochi	02.02.2015
2. Shri. S. Pradeep, Technician	Veraval RC	Cuddalore Field Centre	27.02.2015

INTER-INSTITUTIONAL TRANSFERS

Name & Designation	From	To	w.e.f
Shri. Vijendra Kumar Meena, Senior Technical Officer (SMS -Agronomy & Soil Science)	KVK of CMFRI, Narakkal	NDRI, Karnal	06.02.2015

MEETINGS

- 7th meeting of the 12th IJSC of CMFRI held on 13th February, 2015 at CMFRI, Kochi.
- 19th RAC of CMFRI held on 26th-27th March, 2015 at CMFRI, Kochi.

ASSUMPTION OF CHARGE

Dr. A. Margaret Muthu Rathinam, Principal Scientist has assumed the charges of Scientist-in-charge, Madras Research Centre of CMFRI, Chennai on 31st January, 2015

Retirements


Shri. Ahmed Kamal Basha, A.
Technical Officer
31.01.2015, Madras RC



Shri. L. K. Suvarna
Skilled Support Staff
31.01.2015, Mangalore RC



Dr. A. P. Lipton
Principal Scientist
28.02.2015, Vizhinjam RC



Shri. J. Sreenivasan
Assistant Chief Technical Officer
28.02.2015, CMFRI, Kochi



Shri. M. Manivasagam
Senior Technical Officer
28.02.2015, Madras RC



Shri. Johny R. Dias
Technical Officer
28.02.2015, Mumbai RC



Kum. T. A. Omana
Technical Officer
28.02.2015, Vizhinjam RC



Shri. Gangadhara Gowda
Skilled Support Staff
28.02.2015, Mangalore RC



Shri. V. K. Suresh
Senior Technical Assistant
31.03.2015, CMFRI, Kochi



Brackishwater cages off Kochi

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cadalmin

CMFRI Newsletter

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