CPF-TURBO PROGRAM

The shrimp industry has seen major developments and tasted success over the years, and not only are we proud to be part of it, but also take pride in pioneering it. To ensure the success and profitability of the Indian Shrimp Industry, our highly determined team with committed Aquaculture specialists constantly provide the shrimp farmers with access to the latest and updated technology.
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Celebrating 25 years of delighting farmers, diners and investors

We are not just celebrating a milestone. We are celebrating India’s rise as a powerhouse in shrimp production as we watch the Vannamei shrimp, that we fought to introduce, change the industry. We are celebrating countless seafood platters that our farmers brought to dinner tables all over the world. We are celebrating the success saga of our farmers, dealers, employees and partners. Join us, as we set our eyes on scaling newer heights.

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Chennai - 600 008, Tamil Nadu, India
T : +91 44 3012 7000 www.waterbaseindia.com

Shrimp Feed  Farm Care  Processing  Exports  Hatchery
Dear friends,

I am glad to inform you that the US Department of States team had visited our wild caught shrimp harvesting systems in West Bengal and Odisha and observed whether those systems in any manner harm the marine turtle population of the country. The efforts taken to protect the Olive Ridley marine turtles were also explained to them.

The US Department of States (DOS) team have observed the traditional filtration systems, dol net operations as well as trawl fishery in West Bengal. In Odisha the fishing operations at the Paradeep Fishing Harbour and fishery in the Chilika Lake were observed. There were stakeholder consultations in both the states in which the team has explained the Section 609 of US Public Law 101-162.

We are hopeful that the DOS will consider our request and certify the harvesting systems in the east coast for exports of shrimps to US. Further, the team is likely to visit the west coast to observe the shrimp harvest systems during early 2019 and MPEDA is gearing up for that.

During the month, MPEDA has participated in two major exhibitions, the China Fishery and Seafood Expo held at Qingdao. There were a lot of visitors to the Indian Pavilion, which had the participation of 21 exporters as co-exhibitors. MPEDA has also participated in SEAFEX, Dubai along with 6 exporters. In addition, two of our officers were deputed to China International Import Expo held at Shanghai, who led the interactions with visitors and buyers along with other commodity boards.

As the Government of India is making keen efforts to push trade from India and China, MPEDA also joins the bandwagon to promote exports of marine products of India to that market. The affluent Chinese market has got good potential for high-end value added products. China is one of the largest exporters of seafood in the world, but also one among the largest importers of seafood meant for their domestic consumption and reprocessing activities as well. Though tariff differences exist when compared to SEAN nations, I would request all the exporters to focus and develop the Chinese market by supplying high quality products. This will help us to open up further avenues in East Asia and compensate for the shortfalls in the Western hemisphere.

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Chinese provinces seafood profile

China is the most promising market with great opportunities for seafood exporters. During 2017-18, export of marine products from India to China was 45,385 MT worth USD 158.30 million. The major items exported from India are frozen shrimp, frozen fish, dried and live items, which together constitute 86% of the total volume of fish and fish products.

China is divided into 23 provinces; 22 provinces are controlled by the People’s Republic of China (PRC). The 23rd province, Taiwan, is claimed by the PRC but it is not controlled by the PRC. During 2017, Shandong, Guangdong, Fujian and Zhejiang provinces were the largest seafood production areas due to favorable coastal locations and abundant freshwater resources. In terms of freshwater cultured production, Hubei, Guangdong, and Jiangsu provinces were the top-three producers. Qingdao and Dalian are the two largest sea ports in China.

Shanghai, Beijing, Guangzhou are important centers for retail outlet development. Chengdu and Shenyang are key cities connecting China with international trade and commerce.

Consumer profile in China

According to Euromonitor, China’s fish expenditure per capita was US$ 37.4 in 2016 and is estimated to reach US$56.4 in 2021. The food habits of Chinese people are similar to Japan and South Korea. They prefer steamed, fried, boiled, blanched and even raw fish. Fresh fish is preferred to frozen fish as it tastes better than frozen. This is also the reason that they are very particular about the food safety and quality.

The growing market in China is supported by the emerging middle class who has brought about a change in the consumer purchase behavior. There is an increase in the percentage of consumers ready to pay premium price for quality food products.

Beijing, Guangzhou, Tianjin and provinces of Guangdong and Zhejiang are top areas in China in terms of per capita disposable income (Source 2017, China Yearbook, National Bureau of Statistics of China).

Freshwater aquaculture products are mostly consumed at home and restaurants due to its freshness and affordable price. The purchasing methodology differs among consumer groups. Younger generation mainly opt for online ordering due to the ease of selection and the short delivery duration of the product. There are various apps on mobile with wide range of food products including seafood on the menu with affordable prices and these products are delivered within an hour of the request placed.

This is not possible for people living in the interior areas of China where the availability of seafood is comparatively less. Older generation of Chinese consumers prefer purchase from supermarkets. In spite of the various online apps for purchase of seafood, major percentage of the Chinese population prefer supermarkets/ wholesale market/ fish market for their regular purchase.
Channels for Seafood distribution in China

China is one of the largest e-commerce and e-grocery market in the world. From 2012 to 2016, China’s e grocery sale registered a compound annual growth rate of 52.9%. Alibaba and Jd.com are the top e-grocery retailers in China. An e-commerce channel is developed between Canada and China which is expected to increase the trade. Partnership between Alibaba group and Canada has contributed significantly to business development of Canada in China.

Top 10 retailers in China are
- China Resources Vanguard
- Ole’ & BLT
- RT-Mart
- Wal Mart
- Carrefour
- Yonghui
- Lianhua
- Dashang Group
- Sam’s Club
- Wu Mart

Mobile payment services like Ali pay, We pay and We Chat pay are some examples of online payment platform used in China. Chinese consumer receives products within days or hours during online purchase. The duration of delivery is crucial for e-marketing. Most people prefer home delivery within an hour in the case of perishable items like seafood or grocery. Other channels for seafood distribution include wholesale markets, fish markets, supermarkets & restaurant/hotel chains.

The Exhibition

China Fisheries & Seafood Expo 2018 is a platform to learn about the latest trends in seafood and meet new and existing seafood importers and exporters of Asia.

This year the expo was conducted in Qingdao, China from November 7-9, 2018. There were approximately 1520 number of exhibitors and more than 29,250 numbers of visitors to the expo. Participants included importers, distributors, retailers, food service operators, aquaculture producers, processing companies, equipment manufacturers etc.

MPEDA set up Indian Pavilion in which 21 Indian exporters participated as co-exhibitors displaying variety of seafood products. Indian Pavilion was located in E3 hall with a floor space of 174 sqm. MPEDA’s participation in the show was organized by Mrs. Anju and Dr. Pau Biak Lun, Assistant Directors, MPEDA.

MPEDA displayed sample of frozen, chilled, dry & ready to eat products. Publicity material included brochures in both English and Chinese about Indian Seafood. Another brochure in English gave details of the co – exhibitors. CD’s of exporter directory was also distributed to the visitors to the stall. A display on Fish Exchange Portal in Chinese language was placed in the stall. The trade enquiries received during the China 2018 are listed separately in this Newsletter.
MARKETING NEWS

A view of India Pavilion and MPEDA stall
Interaction with Seafood Importers from China

Interaction with seafood importers from China revealed that their requirement included a continuous supply of clean, high quality seafood. They reported that most of the times there is a mismatch between the product demanded and the product shipped by Indian exporters. This variation is mainly in the size or grade requirement. As for the quality of the product, most of the importers were satisfied with the quality of seafood from India. Another point raised was the increased price of shrimps when compared with the price offered by other countries. The unit price detail collected from Trade map is given below. Indian shrimp price is higher in comparison with only Argentina and Pakistan.

There is a strong competition in the Chinese market with Russia being its largest supplier under Chapter 03, followed by USA, Canada, Norway and New Zealand. There is good demand for frozen fishes, shrimp and dried products. During the expo, many Chinese importers/common people enquired about dried shrimp, fish and fish maws. Importers were also interested to know about different species of fishes available in Indian waters. For example, many expressed interest in parrot fish, yellow croaker etc.

Feedback from the co-exhibitors was collected regarding the expo and they opined that China is a vast market with lot of opportunity for Indian seafood.

Import under HS 030617 with unit value

<table>
<thead>
<tr>
<th>Country</th>
<th>Imports in tons (2017)</th>
<th>Unit Value (USD/Ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>54,875</td>
<td>11,262</td>
</tr>
<tr>
<td>Argentina</td>
<td>20,632</td>
<td>6,861</td>
</tr>
<tr>
<td>USA</td>
<td>15,499</td>
<td>18,850</td>
</tr>
<tr>
<td>Ecuador</td>
<td>15,030</td>
<td>7,261</td>
</tr>
<tr>
<td>Thailand</td>
<td>14,546</td>
<td>10,297</td>
</tr>
<tr>
<td>India</td>
<td>13,591</td>
<td>6,918</td>
</tr>
<tr>
<td>Pakistan</td>
<td>5,411</td>
<td>5,725</td>
</tr>
<tr>
<td>Malaysia</td>
<td>3,437</td>
<td>9,606</td>
</tr>
<tr>
<td>Vietnam</td>
<td>3,128</td>
<td>12,111</td>
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</tbody>
</table>

Source: Trade Map

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<tr>
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<th>Rs. 15,000/-</th>
<th>US$ 250/-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inside Cover</td>
<td>Rs. 10,000/-</td>
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<td>Inside Full Page</td>
<td>Rs. 8,000/-</td>
<td>US$ 150/-</td>
</tr>
<tr>
<td>Inside Half Page</td>
<td>Rs. 4,000/-</td>
<td>US$ 75/-</td>
</tr>
</tbody>
</table>

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FOCUS AREA

Epidemiology of Hepatopancreatic Microsporidiosis caused by *Enterocytozoon hepatopenaei* in India

*K.P. JITHENDRAN, A. NAVANEETH KRISHNAN, V. JAGADEESAN, P. EZHIL PRAVEENA AND T. BHUVANESWARI*

Introduction

Of late, shrimp farming has emerged as one of the most important segments in commercial fishing. This calls for more cautious and informed intervention in handling the threats faced by the industry. *Enterocytozoon hepatopenaei* (EHP), the causative agent of Hepatopancreatic Microsporidiosis (HPM) is one such major threat for the shrimp farming industry. It is an emerging microsporidian parasite for penaeid shrimp, which has been associated with growth retardation and significant losses in several shrimp farming countries in Asia.

More recently, the epizootics of *E. hepatopenaei* have been reported in India with several disease outbreaks. EHP has been found in the tubules of the shrimp’s hepatopancreas and damages the organ which eventually may lead to abnormal metabolism and growth retardation in shrimp. This article examines the pathogen, disease, transmission, epidemiology, pathogenesis, diagnosis, treatment and control of Hepatopancreatic Microsporidiosis in penaeid shrimp in India.

Pathogen

Microsporidia are obligate, intracellular, spore-forming endoparasites known to infect a wide range of eukaryotic hosts, both terrestrial and aquatic. Several microsporidian have been reported as pathogens of penaeid shrimp as well as finfish. *Enterocytozoon hepatopenaei* was first reported as an unnamed microsporidian from growth retarded black tiger shrimp, *P. monodon* from Thailand in 2004. However, this parasite was characterized in detail and taxonomy was elucidated only in 2009. EHP infects *P. monodon*, *P. vannamei* and is suspected to infect *P. japonicus*. The susceptibility of different life cycle stages is also not clear; although post larvae (PL-7 onwards), juveniles, growers and broodstock are observed to be affected by the parasite.

Geographical distribution

The pathogen is now wide-spread with reported outbreaks in shrimp farming countries in south-east Asia including Vietnam, Thailand, Malaysia, Indonesia, China, India as well as Venezuela in South America (Fig. 1).

*Fig. 1. Global distribution of microsporidian suspected as EHP in shrimp farming*

In India, the disease emergence has been recorded since 2014 by CIBA and RGCA as a part of National Surveillance Programme on Aquatic Animal Diseases (NSPAAD), mainly in Andhra Pradesh and Tamil Nadu. More recently, the geographical distribution of *E. hepatopenaei* has expanded; with sporadic reports on many shrimp farms in east and west coasts and even in inland aquaculture system being affected. (Fig. 2, 2014.

---

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Table 1). It appears that the disease entered India in the recent past through infected broodstock and the geographical spread was attributed mainly through transport of infected seeds to other parts of the country. The emergence and spread of EHP in India will have a significant impact on the shrimp production after a three-fold increase in shrimp production since the introduction of *P. vannamei* in India during 2009. However, EHP has not been taken seriously due to low prevalence, and no substantial loss due to mortality as compared to WSSV. It is also unlikely that EHP has been a pre-existing disease in Indian shrimp aquaculture, as our data on other dominant species *P. monodon* never indicated its presence in India.

**Table 1. Published reports of Enterocytozoon hepatopanepheli in cultured shrimp in India**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Year</th>
<th>Species</th>
<th>Culture system</th>
<th>Clinical signs reported</th>
<th>Geographic location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2014</td>
<td><em>P. vannamei</em></td>
<td>Farm</td>
<td>Size variation, Slow growth syndrome</td>
<td>Tamil Nadu, Andhra Pradesh, Odisha, and West Bengal</td>
</tr>
<tr>
<td>2</td>
<td>2014</td>
<td><em>P. vannamei</em></td>
<td>Farm</td>
<td>Size variation, Slow growth syndrome</td>
<td>Tamil Nadu, Andhra Pradesh, Odisha</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td><em>P. monodon</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>2014</td>
<td><em>P. monodon</em></td>
<td>Farm</td>
<td>Slow Growth Syndrome, Secondary bacterial infections</td>
<td>Tamil Nadu, Andhra Pradesh, Odisha</td>
</tr>
<tr>
<td>4</td>
<td>2015</td>
<td><em>P. vannamei</em></td>
<td>Farm</td>
<td>White feces syndrome, Growth retardation</td>
<td>Tamil Nadu, Andhra Pradesh</td>
</tr>
<tr>
<td>5</td>
<td>2016</td>
<td><em>P. vannamei</em> (post larvae)</td>
<td>Hatchery</td>
<td>Black spots on post larvae</td>
<td>Tamil Nadu, Andhra Pradesh</td>
</tr>
<tr>
<td>6</td>
<td>2016</td>
<td><em>P. vannamei</em></td>
<td>Farm</td>
<td>Stunted growth</td>
<td>Tamil Nadu, Andhra Pradesh</td>
</tr>
<tr>
<td>7</td>
<td>2016</td>
<td><em>P. vannamei</em></td>
<td>Farm</td>
<td>NA</td>
<td>Tamil Nadu</td>
</tr>
<tr>
<td>8</td>
<td>2016</td>
<td><em>P. vannamei</em></td>
<td>Farm</td>
<td>Size variation, White faeces syndrome, Loose shell</td>
<td>Tamil Nadu, Andhra Pradesh</td>
</tr>
<tr>
<td>9</td>
<td>2017</td>
<td><em>P. vannamei</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>2017</td>
<td><em>P. vannamei</em></td>
<td>Farm</td>
<td>White feces syndrome, Stunted growth</td>
<td>Andhra Pradesh</td>
</tr>
<tr>
<td>11</td>
<td>2018</td>
<td><em>P. vannamei</em></td>
<td>Farm</td>
<td>Retarded growth</td>
<td>Andhra Pradesh</td>
</tr>
</tbody>
</table>
However, white faeces syndrome is not a consistent feature as compared to slow growth and size variation in experimental infections. Infected post larvae maintained in laboratory conditions never had white faecal syndrome but exhibits size variation, slow growth or both. Severe infections by EHP can increase the susceptibility for other bacterial infections like *Vibrio* spp. in shrimp farms and could manifest mild mortality.

EHP infection in pond conditions may happen continuously leading to progressive damage to the hepatopancreas with different degree of infection (Fig. 3, C); hence the signs of EHP appear as size variation, overall slow growth (Fig. 4) and loss during harvest. In hatcheries, if post larvae grow unusually slower and show size variation EHP can be suspected.

### Biology and transmission

The lifecycle and underlying transmission mechanism of this microsporidian was poorly understood. In general, the life cycles of microsporidia have three phases: infective, proliferative, and sporogonic.

The infective phase is the mature spores, which are ovoid in shape (1.7 x 1 μm in fresh preparation) and containing 5-6 coils of the polar filament within, appears the most important diagnostic phase of microsporidia (Fig. 5).
The spores released in the environment are activated when external factors are suitable, and infect host cells by the extrusion of the polar filament containing sporoplasm inside. The proliferative phase includes sporoplasm and meronts in host cells, without chitin and a fixed form, are difficult to observe by light microscopy. The sporogonic phase includes sporonts, sporoblasts and developing spores, in which chitin and proteins gradually accumulate along the spore wall. Due to the small size and intracellular location, most structures and developmental stages are visualized either by transmission or scanning electron microscopy. Polar filament precursors and other spore organelles formed within the sporogonial plasmodium and packaged into pre-sporoblast units prior to budding of sporoblasts to the host-cell cytoplasm. Once complete, the mature spores are released through faeces to the environment.

Enterocytozoon hepatopenaei morphologically resembles other microsporidian, but is transmitted directly from shrimp to shrimp by the oral route. Transmission occurs readily among individuals through cohabitation (spores released into the water through shrimp faeces) and as well as through healthy shrimp cannibalizing those that were moribund or dead due to infection. Other transmission route (trans-ovum) is poorly understood though suspected. So far, no secondary hosts are known to be involved in transmission of E. Hepatopenaei but carrier roles for live feeds (polychaete, mussel, clams etc.) are suspected. Laboratory infection has been successful through cohabitation and through oral route by consumption of infected tissue (cannibalism, predation etc.) and there exist no sufficient data to prove possible vertical transmission.

Laboratory diagnosis

Shrimp hepatopancreas is the target organ for the detection of EHP infection, primarily because of development within the cytoplasm of hepatopancreatic tubular cells. Mature spores are released through faeces, and hence faecal threads can also be used for non-lethal screening of precious SPF broodstock.

EHP infection can be detected by demonstrating spores (1.7 by 1 μm) in light microscopy of fresh or stained faecal and hepatopancreas tissue smears (Fig. 5, A-D) or by histology of hepatopancreas tissue sections (Fig. 6, A&B). The microscopic techniques may be enhanced by concentration and differential centrifugation of spores to detect light infections or even by special staining techniques.

Molecular based methods, such as polymerase chain reaction (Fig. 7) targeting 18s small sub unit rRNA (SSU-PCR), spore wall protein (SWP-PCR) and EHP-specific -tubulin gene, using DNA extracted from hepatopancreas tissue, faeces and whole post larva (PL) are the most commonly used diagnostic method for EHP detection in shrimps. Other molecular methods such as in situ-hybridisation, real time PCR and LAMP may also be the choice available for EHP detection in specialised laboratories.
FOCUS AREA

Fig. 6. Histological section of shrimp hepatopancreas showing early and late plasmodia stages (A), and the necrosis of hepatopancreas and packed microsporidian spores in the lumen (B)

Fig. 7. Nested PCR detection of Enterocytozoon hepatopenaei in shrimp samples A- PCR targeting spore wall protein gene, B- PCR targeting 18s subunit (SSU) rDNA gene

Prevention and control

It has been found that EHP can be transmitted directly from shrimp to shrimp through feeding of EHP-infected hepatopancreas and cohabitation making control a difficult preposition in the culture ponds. Further, the microsporidian spores seem to be resistant to environmental condition and can persist in shrimp ponds and carry-over infection to next culture. This could lead to severe growth retardation in shrimp and massive production loss.

Today, there are no efficient treatments available for the control of EHP infection, as is the case with humans and animals. Spore activity was found to be inhibited by freezing at -20°C for at least 2 h and storage at 4°C. Low doses of chlorine, KMnO₄, and ethanol was found to be inhibitory to spore activity. The ponds having history of disease should be adequately dried (for 3-4 weeks) after harvest and residual spores in the soil may be inactivated by physical and chemical methods. In grow-out system, stocking EHP-free seeds and proper pond preparation between subsequent crops is of paramount importance to ensure that EHP spores along with the carriers were destroyed. Pond-drying followed by application of burnt lime or shell lime (CaO) on the pond bottom will help get rid of EHP spores from the pond sediment.
Better management practices (BMPs) are the only way to prevent the epidemics of EHP. However, farm level biosecurity measures are inadequate due to dominance of small and marginal farms in this sector.

Hatcheries may monitor the incoming shrimp brood stock for EHP by using faecal sample. Use of EHP-free live feeds and by following complete disinfection of hatchery facility with 2.5% sodium hydroxide solution (with minimum contact time-3 hrs) followed by drying the facility for a week, then rinsing with acidified chlorine (200 ppm) in between the production cycle may be ensured.

Way forward

The rapid spread of HPM in India within a span of three years is mainly due to lack of awareness, as the disease does not cause mortality compared to viral diseases. High density of susceptible host and serial infections of individual animals resulted in ‘mass cultivation’ of microsporidian spores in farms. Incipient nature and persistence of microsporidian spores in environment along with faeco-oral route of infection eventually favours this parasite to multiply in rearing ponds.

The exact source and nature of microsporidian transmission in Indian scenario is still not clear, though imported brood stock of *P. vannamei*, artemia cysts and post-larvae meant for stocking has been found positive for *E. hepatopenaei* during 2016 onwards (unpublished data).

Infection in hatchery may be through SPF brood stock or life cycle stages or live feeds. Rearing of SPF brood stock in non-bio secured facility and use of pond-raised brood stock may also facilitate massive infection. Hence a pre-screening of post-larvae for EHP is one option for farmers before stocking in ponds.

Care should be taken while sourcing seeds for introduction to newer areas, high density culture systems, viz., biofloc technology as the infections get magnified as the culture advances. Clear understanding on prevalence of EHP in wild caught broodstock of indigenous species of shrimp such as *P. indicus*, *P. monodon* and *P. japonicus* (Fig. 8) are needed. Though *P. monodon* is reported to be susceptible to EHP in India, this appears to be acquired at farm level.

No cases of EHP have been reported in traditional farming areas of western coast till date and we do not have the data on pre-existence of this infection prior to 2014 (Table 1). Constraints in dealing with this disease include, limitation of diagnostic techniques, lack of proper diagnostic facility and skilled man power.

Existence of cryptic carrier hosts in the system and availability of wide host range in new environment also could pose new issues in farming to deal this newly emerging problem in Indian aquaculture. Diagnosis of EHP in SPF brood stock of *P. vannamei* and post larvae in local hatcheries and other imported aquaculture feed viz., Artemia cysts (unpublished data) is a matter of great concern in shrimp aquaculture sector and warrant close look and policy interventions.

Conclusion

In shrimp aquaculture, a microsporidian parasite *E. hepatopenaei*, the causative agent of Hepatopancreatic Microsporidiosis had resulted in significant economic losses, in many shrimp farming nations.

The infection is not associated with any visible clinical signs or mortality in shrimp, it causes growth retardation to the extent of 15-30%. The EHP infection may be suspected with the occurrence of unusually inconsistent or retarded growth, or unusually high FCR in the absence of other gross signs of disease. Shrimp hepatopancreas is the target organ for EHP infection.

EHP infection can be transmitted horizontally through cohabitation and oral route and possibly vertical transmission. Geographic spread of EHP in shrimp farms and increasing incidences in brood stock, post larvae and other aquaculture input is a matter of great concern for future. The studies on the host range, biology, mode of transmission and control methods are needed on priority basis.
Highlights of marine fish landings in selected harbours of India during October 2018

SANTOSH KADAM, V. V. AFSAAL, N. J. NEETHU AND JOICE V. THOMAS
NETFISH-MPEDA

Capture fisheries contribute nearly 70% of the quantity of fish and fishery products exported from India and 45% of the value of the exports. NETFISH records the marine fish landings and boat arrivals occurring at the major harbours of India as part of the Catch Certification system of MPEDA. This report presents the analysis result of harbour data obtained during October 2018.

Data Collection & Analysis

The fishery data were collected on a daily basis, both from primary and secondary sources, by the Harbour Data Collectors stationed at selected major harbours of India (see Table 1). Approximate quantity of various fish species that are landed in a day at the harbour was obtained by eye estimation. The name, registration number and type of fishing vessels arrived at the harbour were also recorded. Data obtained were further analysed using online applications and MS office (Excel) tools to arrive at species-wise, region-wise, state-wise and harbour-wise estimations. Data from 44 harbours belonging to 9 maritime states were obtained during the month which was analysed for this report.

Table 1. List of landing sites selected for data collection

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>State</th>
<th>Fishing harbour</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Andhra Pradesh</td>
<td>Nizampatnam</td>
</tr>
<tr>
<td>11</td>
<td>Andhra Pradesh</td>
<td>Kakinada</td>
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<tr>
<td>12</td>
<td>Andhra Pradesh</td>
<td>Machilipatnam</td>
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<td>13</td>
<td>Andhra Pradesh</td>
<td>Nagapattinam</td>
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<td>14</td>
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<td>Karaikal</td>
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<td>15</td>
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<td>16</td>
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<td>Pazhaiyar</td>
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<td>Gangoli</td>
</tr>
<tr>
<td>37</td>
<td>Goa</td>
<td>Cutbona</td>
</tr>
<tr>
<td>38</td>
<td>Goa</td>
<td>Malim</td>
</tr>
</tbody>
</table>
FOCUS AREA

Appraisal of fish landings

A total of 83264.15 tons of marine fish landings was recorded from 44 landing sites during October 2018. The Pelagic finfishes was the highest contributor during the month by registering a quantity of 38139.34 tons (46%) and it was followed by Shellfishes with a contribution of 23099.84 tons (28%).

The demersal finfishes with a quantity of 22024.97 tons formed 26% of the total catch (Fig. 1). More than 65% of Shellfish landing was comprised of molluscs, where Cuttlefish and Squid recorded the highest quantity. Among crustaceans the Karikkadi shrimp formed the major share.

The total catch was comprised of 110 varieties of marine fishery items, among which the top five contributors in the chronological order were Ribbon fish, Indian Mackerel, Cuttlefish, Squid and Indian Oil Sardine (Fig. 2). These 5 fishery items together formed 42% of the total catch.

The other major contributors to the total catch were Japanese thread fin bream, Croaker and Reef cod, each recording more than 3000 tons. The species which registered least landing during the month was the Yellow fin seabream, with a quantity of 0.20 tons.

Table 2 has the details on the quantity of various fishery items recorded during October 2018. Among the Pelagic finfish resources, Ribbon fish and Indian mackerel were the major contributors and in the case of demersal finfishes, it was Japanese threadfin bream and Croakers which contributed more. Major items among Shellfish resources were Cuttlefish and Squid.

<table>
<thead>
<tr>
<th>Fish item</th>
<th>Quantity in tons</th>
<th>% of total catch</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pelagic finfish</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ribbon Fish</td>
<td>7765.29</td>
<td>9.33</td>
</tr>
<tr>
<td>Indian Mackerel</td>
<td>7742.75</td>
<td>9.30</td>
</tr>
<tr>
<td>Indian Oil Sardine</td>
<td>5298.40</td>
<td>6.36</td>
</tr>
<tr>
<td>Tuna</td>
<td>3576.04</td>
<td>4.29</td>
</tr>
<tr>
<td>Horse Mackerel</td>
<td>2206.29</td>
<td>2.65</td>
</tr>
<tr>
<td>Seer Fish</td>
<td>1881.79</td>
<td>2.26</td>
</tr>
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</table>

Table 2. Category-wise landing of various fishery items during October 2018
<table>
<thead>
<tr>
<th>Fish Species</th>
<th>Quantity</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Herring</td>
<td>401.96</td>
<td>0.48</td>
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<tr>
<td>Queen Fish</td>
<td>302.53</td>
<td>0.36</td>
</tr>
<tr>
<td>Oriental Bonito</td>
<td>87.80</td>
<td>0.11</td>
</tr>
<tr>
<td>Mullet</td>
<td>84.75</td>
<td>0.10</td>
</tr>
<tr>
<td>Sail Fish</td>
<td>81.27</td>
<td>0.10</td>
</tr>
<tr>
<td>Indian Salmon</td>
<td>37.95</td>
<td>0.05</td>
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<tr>
<td>Cobia</td>
<td>22.37</td>
<td>0.03</td>
</tr>
<tr>
<td>Marlin</td>
<td>21.37</td>
<td>0.03</td>
</tr>
<tr>
<td>Needle Fish</td>
<td>12.50</td>
<td>0.02</td>
</tr>
<tr>
<td>Sea Bass</td>
<td>10.80</td>
<td>0.01</td>
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<tr>
<td>Silver Sillago</td>
<td>9.40</td>
<td>0.01</td>
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<tr>
<td>Flat Needle Fish</td>
<td>9.34</td>
<td>0.01</td>
</tr>
<tr>
<td>Indian Ilisha</td>
<td>8.60</td>
<td>0.01</td>
</tr>
<tr>
<td>Rainbow Runner</td>
<td>4.36</td>
<td>0.01</td>
</tr>
<tr>
<td>Indian Thread Fish</td>
<td>0.90</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>38139.34</strong></td>
<td><strong>45.81</strong></td>
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<table>
<thead>
<tr>
<th>Fish Species</th>
<th>Quantity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parrot Fish</td>
<td>21.82</td>
<td>0.03</td>
</tr>
<tr>
<td>Whip Fin Silver Biddy</td>
<td>21.60</td>
<td>0.03</td>
</tr>
<tr>
<td>Black Tip Shark</td>
<td>10.60</td>
<td>0.01</td>
</tr>
<tr>
<td>Emperor Bream</td>
<td>10.52</td>
<td>0.01</td>
</tr>
<tr>
<td>Spine Foot</td>
<td>1.60</td>
<td>0.00</td>
</tr>
<tr>
<td>Guitar Fish</td>
<td>1.50</td>
<td>0.00</td>
</tr>
<tr>
<td>Trigger Fish</td>
<td>0.53</td>
<td>0.00</td>
</tr>
<tr>
<td>Yellow Fin Sea Bream</td>
<td>0.20</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>22024.97</strong></td>
<td><strong>26.45</strong></td>
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<table>
<thead>
<tr>
<th>Fish Species</th>
<th>Quantity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japanese Thread Fin Bream</td>
<td>4688.10</td>
<td>5.63</td>
</tr>
<tr>
<td>Croaker</td>
<td>3441.96</td>
<td>4.13</td>
</tr>
<tr>
<td>Reef Cod</td>
<td>3163.63</td>
<td>3.80</td>
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<tr>
<td>Bull’s Eye</td>
<td>2475.67</td>
<td>2.97</td>
</tr>
<tr>
<td>Cat Fish</td>
<td>2116.32</td>
<td>2.54</td>
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<tr>
<td>Pomfret</td>
<td>1435.67</td>
<td>1.72</td>
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<tr>
<td>Lizard Fish</td>
<td>1241.29</td>
<td>1.49</td>
</tr>
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<td>Sole Fish</td>
<td>1138.50</td>
<td>1.37</td>
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<tr>
<td>Filefish</td>
<td>605.62</td>
<td>0.73</td>
</tr>
<tr>
<td>Snapper</td>
<td>454.78</td>
<td>0.55</td>
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<tr>
<td>Eel</td>
<td>289.53</td>
<td>0.35</td>
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<td>Goat Fish</td>
<td>216.66</td>
<td>0.26</td>
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<td>Moon Fish</td>
<td>207.05</td>
<td>0.25</td>
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<td>Pony Fish</td>
<td>203.75</td>
<td>0.24</td>
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<tr>
<td>Ray</td>
<td>108.67</td>
<td>0.13</td>
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<tr>
<td>Batfish</td>
<td>72.80</td>
<td>0.09</td>
</tr>
<tr>
<td>Ghol</td>
<td>48.95</td>
<td>0.06</td>
</tr>
<tr>
<td>Perch</td>
<td>25.29</td>
<td>0.03</td>
</tr>
<tr>
<td>Indian Halibut</td>
<td>22.38</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>7953.03</strong></td>
<td><strong>9.55</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fish Species</th>
<th>Quantity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cuttlefish</td>
<td>7159.70</td>
<td>8.60</td>
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<tr>
<td>Squid</td>
<td>7151.16</td>
<td>8.59</td>
</tr>
<tr>
<td>Octopus</td>
<td>835.45</td>
<td>1.00</td>
</tr>
<tr>
<td>Whelk</td>
<td>0.50</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total Molluscs</strong></td>
<td><strong>15146.81</strong></td>
<td><strong>18.19</strong></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Fish Species</th>
<th>Quantity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karikkadi Shrimp</td>
<td>1742.95</td>
<td>2.09</td>
</tr>
<tr>
<td>Deep Sea Shrimp</td>
<td>1552.09</td>
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<td>Sea Crab</td>
<td>1067.88</td>
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<td>Penaeid Shrimp</td>
<td>863.18</td>
<td>1.04</td>
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<td>Pink Shrimp</td>
<td>810.22</td>
<td>0.97</td>
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<td>White Prawn</td>
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<td>Poovalan Shrimp</td>
<td>536.28</td>
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<td>Tiger Prawn</td>
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<td>Rainbow Prawn</td>
<td>194.42</td>
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<td>Flower Prawn</td>
<td>191.40</td>
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<td>Jawala</td>
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<tr>
<td>Red Shrimp</td>
<td>46.40</td>
<td>0.06</td>
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<tr>
<td>King Prawn</td>
<td>36.06</td>
<td>0.04</td>
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<tr>
<td>Lobster</td>
<td>21.23</td>
<td>0.03</td>
</tr>
<tr>
<td>Mud Crab</td>
<td>19.40</td>
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</tr>
<tr>
<td><strong>Total Crustaceans</strong></td>
<td><strong>7953.03</strong></td>
<td><strong>9.55</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fish Species</th>
<th>Quantity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Shellfish</strong></td>
<td><strong>23099.84</strong></td>
<td><strong>27.74</strong></td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>83264.15</strong></td>
<td><strong>100.00</strong></td>
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FOCUS AREA

Region-wise landings

In October 2018, the maximum quantity of fish landings was recorded from the North West coast, where a total of 40457.17 tons (49% of total catch) of fish catch was reported from the selected harbours of Maharashtra and Gujarat. The South West coast comprised of Kerala, Karnataka and Goa had contributed 24306.56 tons (29%) to the total catch and thus held the second position. In South East coast, landings recorded from 14 harbours in Tamil Nadu and Andhra Pradesh was totalled to 5808.93 tons (7%), whereas along the North East coast 12691.49 tons (15%) of fish catch was recorded altogether from 8 harbours of West Bengal and Odisha (Fig. 3).

The five major fishery items which had contributed predominantly to the landings in each region are given in Table 3.

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity in tons</th>
<th>% of total landings of the region</th>
</tr>
</thead>
<tbody>
<tr>
<td>South West</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indian mackerel</td>
<td>5231.16</td>
<td>21.52</td>
</tr>
<tr>
<td>Indian Oil Sardine</td>
<td>4550.50</td>
<td>18.72</td>
</tr>
<tr>
<td>Ribbon Fish</td>
<td>1747.75</td>
<td>7.19</td>
</tr>
<tr>
<td>Squid</td>
<td>1612.80</td>
<td>6.64</td>
</tr>
<tr>
<td>Bull’s eye- dusky finned</td>
<td>991.16</td>
<td>4.08</td>
</tr>
<tr>
<td>North West</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cuttlefish</td>
<td>5409.95</td>
<td>13.37</td>
</tr>
<tr>
<td>Ribbon Fish</td>
<td>5175.86</td>
<td>12.79</td>
</tr>
<tr>
<td>Squid</td>
<td>4837.52</td>
<td>11.96</td>
</tr>
<tr>
<td>Japanese Thread fin bream</td>
<td>4423.18</td>
<td>10.93</td>
</tr>
<tr>
<td>Reef cod</td>
<td>2562.79</td>
<td>6.33</td>
</tr>
<tr>
<td>South East</td>
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<td></td>
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<tr>
<td>Cuttlefish</td>
<td>739.67</td>
<td>12.73</td>
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<tr>
<td>Tuna</td>
<td>597.92</td>
<td>10.29</td>
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<tr>
<td>Squid</td>
<td>347.93</td>
<td>5.99</td>
</tr>
<tr>
<td>Ribbon Fish</td>
<td>338.11</td>
<td>5.82</td>
</tr>
<tr>
<td>Sea Crab</td>
<td>273.53</td>
<td>4.71</td>
</tr>
<tr>
<td>North East</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Croaker</td>
<td>1490.42</td>
<td>11.74</td>
</tr>
</tbody>
</table>

Table 3. Major items landed in each region during October 2018

State-wise landings

The maximum landing during October was recorded from Gujarat, which was to the tune of 32846.38 tons, forming more than 39% of total catch (Fig. 4). This was followed by Karnataka with 15208.75 tons (18%) and then by West Bengal with a contribution of 9493.38 tons (11%). The state which reported least landing during the period was Andhra Pradesh, where only 2148.77 tons (2%) of marine fish catch was recorded. The West coast states together formed nearly 78% of the total catch and the rest of the 22% only belonged to the East coast states.

Fig. 3. Region-wise landings recorded during October 2018

Fig. 4. State-wise fish landings (in tons) during October 2018
The major five fishery items which had contributed significantly to the landings in each state during October are given in Table 4.

**Table 4. Major items landed in various states during October 2018**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity in tons</th>
<th>% of total landings of the state</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kerala</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indian Mackerel</td>
<td>1381.25</td>
<td>22.45</td>
</tr>
<tr>
<td>Squid</td>
<td>781.00</td>
<td>12.70</td>
</tr>
<tr>
<td>Indian Oil Sardine</td>
<td>684.00</td>
<td>11.12</td>
</tr>
<tr>
<td>Cuttlefish</td>
<td>574.61</td>
<td>9.34</td>
</tr>
<tr>
<td>Ribbon Fish</td>
<td>501.84</td>
<td>8.16</td>
</tr>
<tr>
<td><strong>Karnataka</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indian Oil Sardine</td>
<td>3825.00</td>
<td>25.15</td>
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<tr>
<td>Indian Mackerel</td>
<td>2828.21</td>
<td>18.60</td>
</tr>
<tr>
<td>Ribbon Fish</td>
<td>1102.41</td>
<td>7.25</td>
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<tr>
<td>Bull’s Eye- Dusky Finned</td>
<td>991.16</td>
<td>6.52</td>
</tr>
<tr>
<td>Squid</td>
<td>724.70</td>
<td>4.77</td>
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<tr>
<td><strong>Goa</strong></td>
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<td></td>
</tr>
<tr>
<td>Indian Mackerel</td>
<td>1021.70</td>
<td>34.68</td>
</tr>
<tr>
<td>Reef Cod</td>
<td>418.85</td>
<td>14.22</td>
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<tr>
<td>Horse Mackerel</td>
<td>338.20</td>
<td>11.48</td>
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<tr>
<td>Little Tunny</td>
<td>174.80</td>
<td>5.93</td>
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<tr>
<td>Tuna</td>
<td>149.45</td>
<td>5.07</td>
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<tr>
<td><strong>Maharashtra</strong></td>
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<tr>
<td>Indian Mackerel</td>
<td>1105.53</td>
<td>14.53</td>
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<tr>
<td>Horse Mackerel</td>
<td>1029.14</td>
<td>13.52</td>
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<tr>
<td>Japanese Thread Fin Bream</td>
<td>738.18</td>
<td>9.70</td>
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<tr>
<td>Cat Fish</td>
<td>615.45</td>
<td>8.09</td>
</tr>
<tr>
<td>Squid</td>
<td>470.52</td>
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<td><strong>Gujarat</strong></td>
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<td>Cuttlefish</td>
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<tr>
<td>Squid</td>
<td>4367.00</td>
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<td>3685.00</td>
<td>11.22</td>
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<td>Reef Cod</td>
<td>2235.30</td>
<td>6.81</td>
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<tr>
<td><strong>Tamil Nadu</strong></td>
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<td></td>
</tr>
<tr>
<td>Cuttlefish</td>
<td>685.16</td>
<td>18.72</td>
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<td>Squid</td>
<td>303.97</td>
<td>8.30</td>
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## FOCUS AREA

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<th></th>
<th>Tons</th>
<th>%</th>
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<td>Tuna</td>
<td>225.05</td>
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</tr>
<tr>
<td>Sea Crab</td>
<td>180.02</td>
<td>4.92</td>
</tr>
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### Andhra Pradesh

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Tuna</td>
<td>372.87</td>
<td>17.35</td>
</tr>
<tr>
<td>Ribbon Fish</td>
<td>273.67</td>
<td>12.74</td>
</tr>
<tr>
<td>Brown Shrimp</td>
<td>173.43</td>
<td>8.07</td>
</tr>
<tr>
<td>White Prawn</td>
<td>154.13</td>
<td>7.17</td>
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<tr>
<td>Tiger Prawn</td>
<td>124.76</td>
<td>5.81</td>
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### Odisha

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<tbody>
<tr>
<td>Croaker</td>
<td>736.23</td>
<td>23.02</td>
</tr>
<tr>
<td>Karikkadi Shrimp</td>
<td>483.32</td>
<td>15.11</td>
</tr>
<tr>
<td>Sea Crab</td>
<td>179.97</td>
<td>5.63</td>
</tr>
<tr>
<td>Tuna</td>
<td>178.28</td>
<td>5.57</td>
</tr>
<tr>
<td>Ribbon Fish</td>
<td>177.42</td>
<td>5.55</td>
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### West Bengal

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<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Bombay Duck</td>
<td>855.74</td>
<td>9.01</td>
</tr>
<tr>
<td>Croaker</td>
<td>754.19</td>
<td>7.94</td>
</tr>
<tr>
<td>Karikkadi Shrimp</td>
<td>552.55</td>
<td>5.82</td>
</tr>
<tr>
<td>Hilsa</td>
<td>552.26</td>
<td>5.82</td>
</tr>
<tr>
<td>Indian Mackerel</td>
<td>508.45</td>
<td>5.36</td>
</tr>
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</table>

### Harbour-wise landings

Figures 5 and 6 represent the fish landings recorded during the month at the selected harbours of West coast and East coast respectively. Of the 44 harbours, Veraval harbour in Gujarat registered the maximum landing of 17714.20 tons (21%) and it was followed by Mangrol harbour with a contribution of 7733.50 tons (9%).

The Deshapran harbour with a quantity of 387750 tons (4%) could attain the seventh position and it was the harbour along East coast that registered the maximum landing. In October, 18 out of the 44 harbours had registered more than 1000 tons of fish catch, which consisted of 12 harbours of West coast and 6 harbours of East coast.

The least quantity of marine fish catch was recorded from Chinnamuttom harbour in TamilNadu (23.20 tons).

![Fig. 5. Landings (in tons) recorded at harbours in west coast during October 2018](image)
Appraisal of boat arrivals

A total of 30126 numbers of boat arrivals were recorded during October 2018, of which the highest number of boat arrivals was recorded at Veraval harbour (4476). The Porbandar harbour with 2663 boat arrivals held the next position. About 78% of the fishing vessels which landed their catch at the harbours belonged to the category of Trawlers and the remaining landings were by Purse seiners, Gill netters, Long liners and Traditional crafts.

Comparative analysis

Table 5 presents the comparison of data of October 2018 with that of previous months. The total fish catch had recorded a slight decline by about 600 tons during October when compared to that of September. On analysing the catch compositions during October, Pelagic finfish was found contributing the highest quantity as in previous month. However, the share of pelagic finfish was found increased by 10% than that of previous month and the other 2 categories had a corresponding decrease in their share. Ribbon fish had registered as the topmost contributor among the various fishery items landed during the period. Gujarat continued in the top position among the states and the Veraval harbour too maintained its topmost position among the harbours in terms of quantity of fish landed. The total number of boat arrivals recorded had increased in October when compared to that of September.

Summary

In October 2018, a total landing of 83264.15 tons of marine fishery resources were recorded from the 44 major fishing harbours of India, where in Pelagic finfish contributed the major quantity than the demersal finfish and shellfish stocks. Considering the fishery item-wise landings, though Ribbon fish was the major contributor Indian mackerel, Cuttlefish and Squid too recorded nearly same quantity during the month. About 78% of the total catch recorded during October was from the West coast. Gujarat recorded maximum landing during the period and the Veraval harbour had registered the highest landing as well as the maximum number of boat arrivals.

Table 5. Comparative analysis of the data

<table>
<thead>
<tr>
<th></th>
<th>August 2018</th>
<th>September 2018</th>
<th>October 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Catch</td>
<td>47118.88 t</td>
<td>83878.88 t</td>
<td>83264.15 t</td>
</tr>
<tr>
<td>Landing of Pelagic finfishes</td>
<td>13585.64 t (29%)</td>
<td>30605.87 t (36%)</td>
<td>38139.34 t (46%)</td>
</tr>
<tr>
<td>Landing of Demersal finfishes</td>
<td>15360.49 t (33%)</td>
<td>23239.71 t (28%)</td>
<td>22024.97 t (26%)</td>
</tr>
<tr>
<td>Landing of Shellfishes</td>
<td>18172.75 t (38%)</td>
<td>30033.30 t (36%)</td>
<td>23099.84 t (28%)</td>
</tr>
<tr>
<td>Species recorded highest landing</td>
<td>Japanese threadfin bream (16%)</td>
<td>Squid (15%)</td>
<td>Ribbon fish (9%)</td>
</tr>
<tr>
<td>State recorded highest landing</td>
<td>Kerala (26%)</td>
<td>Gujarat (38%)</td>
<td>Gujarat (39%)</td>
</tr>
<tr>
<td>Harbour recorded highest landing</td>
<td>Veraval (11%)</td>
<td>Veraval (22%)</td>
<td>Veraval (21%)</td>
</tr>
<tr>
<td>Total Boat Arrivals</td>
<td>17296</td>
<td>29333</td>
<td>30126</td>
</tr>
</tbody>
</table>

*Percentage of total catch
FOCUS AREA

Awareness Programme on Fish Exchange Portal

The MPEDA Regional Division, Veraval conducted an awareness programme on Fish Exchange portal. New Financial assistance schemes, e-stat package and EU-REX Registration for exporters in Veraval region on October 24 and November 20 at the Regional Division, Veraval. The programme was attended by managers, technical persons, technologists, and statistic dealing persons of the plants. As many as 24 exporters participated on October 24 and 21 exporters participated on November 20.

Mr. Ram Adhar Gupta, Deputy Director, Regional Division, Veraval started the programme by welcoming the participants and giving a detailed brief about the awareness programme.

Mr. Shrimali Vinodkumar, Assistant Director explained the details of the Fish Exchange portal for facilitation of trade between the Indian Seafood exporters and overseas buyers using the digital platform. He explained how trade facilitation is provided by this portal, which is the most pressing demand in today’s competitive world trade. The portal enabled efficient and easier communication between exporters and importers resulting in sale promotion, market trend and availability and tracking. Exporters can view latest news around the globe, import procedure, market demand and product standards in this window. Exporters and importers can access the data, analytics and get updated market intelligence. Exporters registered under MPEDA are given access for posting their available products and offers, receive buying enquiry alert, check the latest trade statistic and plan their trade.

The participants at the programme were shown the registration process for exporters on fish exchange portal. The details of the new financial assistance scheme were also presented in detail at the programme.

Mr. Ghanshyam Mehta, Junior Technical Officer made a presentation on e-stat package and EU-REX and explained in detailed how an exporter can register for the same. Practical demonstration on how to prepare invoice and shipping bills were done at the programme and participants were advised to start entering statistical data from November 2018 onwards. The e-stat programme is all set to be implemented from December 1, 2018 and any difficulties faced by the exporters need to be rectified before that.
The Regional Division of MPEDA at Kolkata convened a meeting of stakeholders before the proposed visit by US Department of State (DOS).

The meeting at Hotel Novotel was held on October 26, which began with Deputy Director, Regional Division, Kolkata giving a brief introduction about the context of the meeting. In his welcome address, Secretary, MPEDA, gave a detailed overview about the purpose of the visit by US Department of States from October 31 to November 5. This was followed by a presentation by Joint Director (Marketing), MPEDA on the shrimp trade, harvesting systems and turtle conservation measures followed in India submitted before the US.

The Chairman of MPEDA, in his address, explained the strategies by which the US DOS visit will be organized and also explained about the importance of shrimp trade and associated regulations. The nation is now exporting Rs. 1,500 Crore worth wild caught shrimp products to USA. He said that Turtle Excluder Device (TED) is not relevant to West Bengal as there are no nesting places for turtle in Bengal beaches. Chairman also gave an idea about the schedule of visit in West Bengal by the US team, besides talking about their programme in Odisha and involvement of other related departments.

Chairman, MPEDA has also invited a couple of members to join the meeting with the Principal Secretary of Fisheries of West Bengal at his office on October 27 and sought the cooperation of all the stakeholders and exporters in making the visit a successful one.

Mr. Pranab Kar, Vice President, SEAI, West Bengal, Mr. Taj Mohammed, Secretary, SEAI, West Bengal, Mr. Ramlingam, Director, Mr. Arijit Bhattacharya of M/s. Triveni Exports, M/s. Megaa Moda Exports, and Mr. Deepak Nopany of M/s. Asian Exports brought to light various issues faced by the trade for Chairman’s consideration.
Exporters meet on antibiotics at Bhimavaram

The Sub Regional Division of MPEDA, Bhimavaram continued the ongoing stakeholders’ awareness programme on US Seafood Import Monitoring Programme (SIMP) with an exporters’s meet on antibiotics at Bhimavaram on October 26.

Following this, the Regional Division of MPEDA at Vijayawada drafted a proposal for procurement of antibiotic-free farmed shrimp for export processing and this was circulated among exporters by the Regional Division, Vizag and Sub Regional Division, Bhimavaram. Those interested were requested to attend a meeting to brainstorm on the proposal and further refine it for implementation. 27 participants representing 19 exporting units participated in the meeting.

Programme started with a brief introduction by Mr. M. Shaji, Deputy Director, Regional Office, Visakhapatnam.

Mr. Anil Kumar P., Joint Director, Regional Centre, presented the proposal for assisting the exporters to avoid exporting antibiotic contaminated farmed shrimp consignments and sought their comments and inputs. Dr. Pau Biak Lun, Assistant Director, Sub Regional Division, Bhimavaram led the class on trade issues and trade agreements in seafood sector.
The Marine Products Export Development Authority (MPEDA) is implementing an up-skilling programme for the seafood processing plant workers with the financial assistance of National Skill Development Corporation (NSDC) under Ministry of Skill Development and Entrepreneurship (MSDE). This programme comes under the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) and the project type is Recognition of Prior Learning (RPL). Two hundred training programmes are planned at present in 200 seafood processing plants registered under MPEDA in 9 maritime states, with a target of 6,000 seafood workers to be covered. The trainees, who are expected to pass with 70% score in an assessment by an independent assessor, will be certified under the National Skill Development Programme.

It is proposed to train and certify all the seafood processing workers of the country in future so that India becomes the first country with a fully certified labour force. MPEDA has trained 44 members of its officials under the Training of Trainers (ToT) programme conducted by the Sector Council, namely Food Industry, Capacity and Skill Initiating Sector Council (FICSI) and obtained certification for them to train the seafood workers in nine states.

The first batch of training under PMKVY was organized from October 29 to 31 at M/s. Sagar Samrat Seafoods, Porbandar and 26 seafood workers were trained on different aspects of plant, equipment and personal hygiene, sanitation aspects, product handling at various stages from pre-processing to packing etc.

The training programme was conducted by two ToT certified trainers – Mr. Jignesh M. Visavadia, State coordinator, Netfish Gujarat and Mr. Shrimali Vinodkumar M, Assistant Director, MPEDA Regional Division, Veraval. The up-skilling was conducted in class rooms and production line.
On the third day of the programme, the assessor deputed by the independent assessment agency conducted the theoretical and practical skill assessment – both in class rooms and production line in seafood processing plant.

The second batch of training for seafood processing plant workers under Pradhan Mantri Kaushal Vikas Yojana (PMKVY) was organized from November 19 to 21 at M/s. Silver Sea Food Unit-II, Porbandar. Twenty-three seafood plant workers, who have been registered and enrolled under Skill Development and Management System (SDMS) of National Skill Development co-operation (NSDC) as per the protocol, were trained on different aspects of plant, equipment and personal hygiene, sanitations aspects, product handling at various stages from pre-processing to packing etc. for two days.

The training was led by Mr. Jignesh M Visavadia, State coordinator, Netfish Gujarat. The deputed assessor from the sector council namely Food Industry, Capacity and Skill Initiating Sector Council (FICSI) did the independent assessment of the participants' skills at the end of the programme.
FOCUS AREA

Sea Safety and Navigation Training by NETFISH

NETFISH and MPEDA jointly organised an awareness programme in association with Sahyadri Community Development and Women Empowerment Society (SCODWES) to promote the use of life-saving equipment and its proper use among fishers of Aligadda, Baithkol and Kawar. Mr. Vijayakumar C. Yaragal, Deputy Director, MPEDA, Karwar, inaugurated the training programme at MPEDA office, Karwar Uttara Kannada District on October 31. Mr. Narayana K. A., State Coordinator, NETFISH, explained the objectives of the programme to the participants. Mr. Dinesh Kumar, Assistant Commandant, Coast Guard, Karwar, was the master trainer for the programme and he spoke on sea safety and navigation. Mr. Praveen Kumar, Senior Sailor, Coast Guard, Karwar, demonstrated and trained fishers in using life jackets and life buoys.

About 28 fishers actively participated in the training programme. Some of them requested NETFISH to provide the life-saving equipment and to conduct more programmes on this subject. Mrs. Nidhi Naik, Coordinator, SCODWES, welcomed the gathering and Mr. Umesh Marati, Coordinator, SCODWES, proposed the vote of thanks.

At Karaikal in Tamil Nadu, training programmes on GPS Handling and Sea Safety were conducted on October 23 and 24 respectively, in association with Fisheries Professional Organization (FPO), a member NGO.

The GPS training was aimed at generating awareness on importance of using GPS in fishing vessels and providing hands-on training on its operation and troubleshooting.

About 30 participants including drivers, boat owners and boat labours were made aware about the functions of GPS, various GPS receivers, GPS accuracy, GPS signal reception, how to record a waypoint, how to navigate to the recorded waypoints, how to use GPS waypoints in rescue situations, function of proximity alarm etc.

During the Sea Safety programme, 30 fishers were made aware about the importance of personal safety and demonstrated the safety equipment and how to manage the emergency situation. The trainees gained the knowledge about the safety equipment and there were requests made to NETFISH for providing life-saving apparatus in subsidized rates.
Focus Area

‘Swachhata Hi Seva’ 2018 campaign by NETFISH-MPEDA

Swachhata Hi Seva, a drive initiated by Government of India, aims at accelerating the jan andolan for realizing the vision of a Clean India. NETFISH had joined the campaign this year by organizing a series of harbour and coastal clean-up programmes across all the maritime states of India in October 2018.

In West Bengal, a Harbour Clean-up Programme was organized at Deshapran Fishing Harbour, Petuaghat, Purba Medinipur on October 9. The event had the participation of 31 people, including 20 students of National Social Service (NSS) unit of Nayaput Sudhir Kumar High School, Contai, Purba Medinipur, school teachers, staff of Jnput Coastal Police, Fisheries officials, fishermen and net menders. Mr. Mofuddin, Officer-in-Charge of Jnput Coastal Police Station, inaugurated the programme and highlighted the importance of sanitation and cleanliness. Mr. Pradyut Pahari, Special Officer, Deshapran Fishing Harbour, stressed on the significance of hygiene and sanitation at harbours. Mr. Atanu Ray, NETFISH State Coordinator, explained the importance to observe Swachhata Hi Seva and importance of cleaning of fishing harbour as well as personal hygiene of fishers. He also highlighted on the misuse of plastic and its adverse effects on our environment and also stated the initiative taken by NETFISH in Kerala to eradicate plastic from sea.

The participants were provided with hand gloves, caps and bags and were asked to collect debris, plastic carry bags, PET bottles, plastic cups, thermocol pieces, broken nets, ropes etc. from the premises of Deshapran fishing harbour. Bleaching powder was applied in the drainages, jetties as well as in unsanitary areas.

The Harbour Clean-up Programme conducted at Paradeep Fishing Harbour on October 5 2018 had active participation from Paradeep Fishing Harbour Management Society, fishermen, net menders and boat crew members. Mr. S. K. Mohapatra, State Coordinator, highlighted on the importance of sanitation and cleanliness at fishing harbours as it is the important area to maintain the quality of fish.

The participants wearing T-Shirt and caps provided by NETFISH had collected all sorts of plastic wastes from the harbour premises and discarded off safely.
NETFISH and its member NGO DFYWA organized a clean-up event at Pudimadaka fish landing centre on October 12, with the support of Fishermen Society of Jalaripeta, Pudimadaka. The programme started with a mass awareness meeting at the landing centre with 100 numbers of active fishermen.

Messages were conveyed to the fishers on the importance of Swachh Bharat Mission of Government of India and the need to implement it for good health as well as fish quality management.

Mr. Hanumantha Rao, State Coordinator, explained the requirement of hygiene in landing centres and the problem with open defecation along coastal area. Mr. Jaggarao, President of the Fishermen Society, talked against open defecation and expressed the need for keeping the landing centre clean for good health. Mr. Arjilli Dasu, DFYWA, explained about the importance and significance of organising clean-up programme under Swachh Bharat Mission of India. Towards the end of the meeting all the participants took an oath on ‘Swachhata hi Seva’ and after that they were engaged in the clean-up drive, removing all kind of wastes from the harbour surroundings. NETFISH provided caps, hand gloves, brooms and offal bags to the participants.

As part of Swachhata Hi Seva campaign, NETFISH in Chennai along with member NGO Fisheries Professional Organization (FPO) and in collaboration with Fisheries Department and Dr. MGR Fisheries College and Research Institute, Thalainaiyeru, observed a clean-up day at Nagapattinam new beach on October 10. Hand bills stressing the need for keeping the beach clean and the role of public and fishermen in maintaining the bio-resources of sea were distributed.

Dr. R. Balasubramanian, State Co-ordinator, NETFISH and Mr. V. Soundarapandian, Co-ordinator, FPO, felicitated on the occasion. Mr. M. Muruganantham, Assistant Professor and Head, Department of Fish Processing Technology, co-ordinated the cleaning programme. Around 100 persons, including students and staff of Dr. M.G.R. Fisheries College and Research Institute, took active participation in the clean-up. The way leading to the beach, the children park nearby and the sand bed near the shore were thoroughly cleaned. T-shirts bearing NETFISH - MPEDA emblem was distributed to the participants.
A harbour clean-up programme was organised at the Cochin Fisheries harbour Thoppumpady on October 9 to mark the ‘Swachhata Hi Seva’ campaign. The programme was inaugurated by Mr. K.J. Maxy, Mattancherry MLA, Ms. Sangeetha N.R., State Coordinator, welcomed the gathering. Mr. S. Sreekumar, ATM of Cochin Fisheries Harbour, presided over the function and Mr. Abilash, Sub-inspector of Police, Thoppumpady, and Mr. A.M. Noushad, President of Gillnet Buying Agent Association, spoke. After the inauguration function, all the participants, including harbour workers, net menders, fishers etc., with the aid of one excavator machine and 5 outsourced labourers, carried out the cleaning activity. This was done mostly at the net mending area situated towards southern end of the harbour.

NETFISH conducted a harbour clean-up drive at Munakakadavu landing centre in Thrissur district as part of ‘Swachhata Hi Seva’ programme on October 16. The programme was organised in association with the Labour Union Coordination Committee of Munakkakadavu harbour. The cleaning programme was inaugurated by Mr. P.K. Basheer, President of Kadappuram Grama Panchayat, in a function presided over by Mr. Santhosh N. K., NETFISH State Coordinator, and in the presence of Grama Panchayat ward members Mr. Ashkar Ali and Ms. Sreeba Ratheesh. Mr. P. A. Siddiq, President, Labour Union Coordination Committee, welcomed the gathering and Mr. Manaf, Treasurer, Labour Union Coordination Committee, proposed the vote of thanks. With the active participation of harbour workers, the overgrown grasses were cleared and all sorts of solid litter were removed from the harbour premises. Later on they washed and sanitized the auction hall and the compound. Hand gloves, face masks and cleaning materials were provided for the 40 harbour workers from different unions, who had participated in the cleaning activity.
As part of ‘Swachhata Hi Seva’ campaign, a clean-up event at Mudga fishing harbour, Amdalli, Uttara Kannada District was held on October 5, in association with SCODWES. More than 60 fishers of Mudga fishing harbour participated in the event. The event included a brief talk on harbour sanitation, then a clean-up drive and finally leaflets distribution.

Ms. Nidhi Naik, Field Co-ordinator, SCODWES, welcomed the dignitaries and fishers. Mr. P. Nagaraju, Deputy Director, Fisheries, Karwar, inaugurated the programme and urged the fishers to cooperate with the department in keeping the harbour clean. Mr. Narayana K. A., State Co-ordinator, NETFISH, talked about the objectives of the harbour clean-up programme and NETFISH activities in Karnataka with respect to quality management and sustainable fisheries. He also advised the fishers to practice hygienic fish handling on-board and inside the harbour. Mr. Chandrakanth Mangre, Secretary, Fishermen Co-operative Society, Mudga, advised the fishers to properly utilize the facilities provided to them in the harbour. After the inaugural session a demonstration on how to clean the fishing harbour and auction hall was arranged with the help of fishers. Following this, the auction hall, wharf and harbour premises were cleaned. As much as 50 hygiene kits consisted of liquid hand wash, hair oil, comb, tooth paste and brush were also distributed among beneficiaries selected from different boats at the function.

NETFISH, along with Nagarik Bahu Uddeshiy Seva Pratishthan, Sindhudurg and with the involvement of youths from fisher community, successfully planned and executed a clean-up programme under ‘Swachhata Hi Seva’ Mission at Dandi Sea Beach in Malvan, Sindhudurg on October 11. During the clean-up activity, plastic bottles, glass bottles, chappals and shoes, monofilament net pieces, pieces of thermacol, thermacol dishes, plastic carry bags, pieces of FRP, pieces of cartons, tin cans, plastic sheets, waste clothes, school bags, plastic cups, plastic glasses, plastic dishes, etc. were collected from the beach area and disposed off. T-shirts printed with Swachhata Hi Seva slogan and NETFISH-MPEDA logo and name were distributed among the participants along with caps bearing NETFISH logo.

A harbour and beach clean-up event was organized by NETFISH and B.A.Y.E.R.D.F.T at Chorwad Landing centre on October 4, to mark ‘Swachhta Hi Seva’ campaign. Around 60 participants, including students from Government School of Chorwad, took active participation in this programme. The president of fishermen community inaugurated the clean-up programme. Around 500-700 kgs of solid waste were collected during this clean-up and the landing centre was sanitized. The event helped to pass a message to the entire fisher community on the importance of cleanliness and to save marine environment and ocean resources by keeping it free from unwanted materials. The programme concluded as Mr. Jignesh Visavadia, State Coordinator, NETFISH proposed the vote of thanks.
FOCUS AREA

‘Swachhata Pakhwada’ observed at fishing harbours

The Ministry of Commerce and Industry, Government of India, declared that ‘Swachhata Pakhwada’ fortnight would be observed from November 1 to 15. In this connection, the Marine Products Export Development Authority (MPEDA), in association with the Seafood Exporters Association of India (SEAI) and with the coordination of the Network for Fish Quality Management & Sustainable Fishing (NETFISH), organised clean-up programmes at two harbours in Kochi, Kerala.

Cochin Fisheries Harbour

A day-long cleanliness drive was carried out at Cochin Fisheries Harbour, Thoppumpady on November 13 in this connection. More than 35 participants, including MPEDA staff, SEAI staff, NETFISH staff and staff from nearby seafood processing factories, took part in the programme. One excavator machine and five labourers were also engaged for carrying out the clean-up.

The whole team removed all sorts of wastes such as plastic bottles, carry bags, plastic packets, broken nets, thick grass, fallen leaves from the harbour premises and disposed them safely. The wharf area and auction halls were washed clean using water.

Munambam Harbour

Another clean-up event was organised at Munambam harbour on November 14, where more than 30 participants including MPEDA staff, NETFISH staff and staff from nearby seafood processing factories, attended. Five workers were also employed to assist in the work. Mostly bushes, grasses, fallen leaves were removed from the harbour area during the programme, along with a few plastic wastes strewn around the harbour.

The auction hall and wharf area were also cleaned. Caps with Swachh Bharat logo, gloves and mouth pieces were provided to the participants of the programmes. Cleaning equipment and trolleys were also arranged to aid the clean-up process.
A two-member technical team from US Department of State and NOAA, Department of Commerce accompanied by Deputy Minister Counselor, US Embassy, New Delhi visited West Bengal on November 01 and 02 in connection to implementing Section 609 of the US Public Law, US Sea Turtle Conservation programme for shrimp capture mechanisms.

The team members were Mr. Joseph A Fette, Environment Officer, Office of Marine Conservation, section 609 Turtle Exclude Devices (TEDs) Programme, US Department of State, Bureau of Oceans and International Environmental and Scientific Affairs; Mr. Jeff Gearhart, Research Fisheries Biologist, National Marine Fisheries Service Centre, Mississippi laboratory, USA and Ms. Isabella, Deputy Minister Counselor, US Embassy, New Delhi.

On November 1, the US team along with MPEDA officials comprising of Mr. John Kingsly IAS, Resident Director, MPEDA, New York; Dr. Ram Mohan M.K., Joint Director; Mr. S.S. Shaji, Deputy Director and Mr. Archiman Lahiri, Deputy Director, visited Rajendranagar, Andulpota, North 24 Parganas to oversee the filtration system of harvest of black tiger shrimp (*Penaeus monodon*).

The team made a survey of the water body of Mr. Saheb Ali and group farmers residing at Rajendrapur village, who are practicing traditional shrimp filtration based on tidal dynamics and natural stock entry. The team later had a detailed discussion with the farmers, and saw a practical demonstration of the traps been set and harvested from the water bodies.

The team later had a meeting with the Secretary of Fisheries at the office of the Secretary, Benfish Complex. Chairman, MPEDA; Resident Director, MPEDA; Secretary, MPEDA; senior officials from the Department of Fisheries along with other MPEDA Officials and leading exporters from the region attended the meeting.

Mr. Saptarshi Biswas, Deputy Director, DoF, made a presentation on the fisheries scenario in West Bengal. This was followed by a presentation on turtle conservation approaches in India by Dr. Ram Mohan M.K., Joint Director, MPEDA.
A detailed presentation on Section 609 was also presented by Mr Joseph A. Fette. The presentations were followed by discussion.

On second day, the US team visited Deshapran fishing harbour, Purba Medinipur. The team was welcomed by the Harbour Officer, Block Development Officer, Assistant Director of Fisheries and Secretary, Fishermen Association at the harbour. The queries were answered by MPEDA officers and Mr. Shyamsunder Das of Fishermen Association. After extensive discussions, US team inspected the trawlers and Dol netters, and also checked the gears such as trawl net, gill net and dol net in the harbour. Mr. Atanu Ray, State Coordinator, Netfish and Mr. Lahiri explained how these three nets are operated.

After visiting the harbour, the team visited the processing facility of M/s. KNC Agro Pvt. Ltd., Pichhabani, and left for Bhubaneswar on November 3.

**West Bengal Fisheries Secretary meets stakeholders in fisheries sector**

Dr. Ravi Inder Singh IAS, Secretary, Department of Fisheries, Government of West Bengal, met the stakeholders in fisheries sector at the Conference hall of his office on October 26. The meeting was convened as per the request of MPEDA, in view of the impending visit of the officials of US Department of State (DOS) during 1-2, November 2018.

The US officials are visiting to see the measures taken by India to conserve Marine turtles during harvest of other marine products, especially shrimps, be it in ocean or it in aquaculture. As requested by MPEDA, Petuaghat harbour in East Medinipur has been selected for the visit of delegates from US. Dr. Singh reviewed the progress of minor maintenance work in the harbour with the concerned officials and ensured that it will be over by October 30. He instructed the Managing Director of the State Fisheries Development Corporation (SFDC) to make a field visit on the next day to assess the progress of the work.

Chairman, MPEDA thanked Dr. Singh for convening such a meeting and explained the importance of visit of delegates from USA. He also emphasized that India is serious about conservation of sea turtles, while harvesting fish from wild and aquaculture farms.

A brief itinerary of the visiting officials was presented. He sought the cooperation all the stakeholders for the forthcoming visit of US delegation. The meeting was attended by exporters, farmers, fishermen, boat owners apart from State fisheries department officials, harbour department officials and MPEDA officials.
Brainstorming on Sustainable Shrimp Farming

A brainstorming session on sustainable shrimp farming was organised by the MPEDA Regional Division, Vijayawada along with the one-day meet for progressive farmers meet at Karlapalem, Guntur District, Andhra Pradesh on October 31.

Mr. P. Anil Kumar, Joint Director, MPEDA, Regional Division, Vijayawada briefed the farmers on the activities of MPEDA with regards to antibiotic issue, improving export markets etc. Around 10 farmers from Guntur district attended the brainstorming session, in which they were given some recommendations.

This included the antibiotic and disease-free certification of PL from hatcheries to be done by MPEDA, about exporters doing PHT before purchasing irrespective of whether exported to EU or not, that PHT should be made mandatory, MPEDA setting up Elisa Lab at Bapatla, field trails to be conducted to demonstrate strategies to prevent crop failure and to implement farm traceability including enrolment, antibiotic campaigns through capacity building of aquaculture professionals.

The participants were alerted that use of farm raised Brood stock by hatchery could result in the spread of disease-carrying seed. The MPEDA-RGCA brood stock may be supplied to hatcheries at a reduced price to compete with farm raised Brood stock to improve seed quality, it was suggested.

Earlier, Mr. P. Anil Kumar inaugurated the one-day meet, in which around 100 farmers, aquaculture technical professionals and officials of the Department of Fisheries, Andhra Pradesh, attended. The main objective was to create awareness among the farmers on current issues facing shrimp farming sector in Karlapalem Mandal.

Besides Mr. P. Anil Kumar, Mr. P. Brahmeswara Rao, Assistant Director, MPEDA, Regional Division, Vijayawada; Mr. K. Arivukkarasu, Assistant Director, MPEDA, Regional Division, Vijayawada; Mr. Kishore, Fisheries Development Officer, Bapatla and Dr. V. Ratnaprakash, KVK led the classes.

Mr. P. Anil Kumar made a presentation on Seafood Import Monitoring Programme (SIMP) and its importance on seafood export. He explained about non-tariff trade barriers on issue imposed by importing nations on the seafood export. Mr. Brahmeswara Rao’s presentation was on the importance of farm enrolment for better future of aquaculture products. He also explained about certification scheme to be implemented by MPEDA for Better Management Practices (BMP) at hatchery/farm.

Mr. K. Arivukkarasu talked about the issues of using antibiotics in shrimp industry and also on the exchange portal for getting better prices for farm products. Dr. V. Ratnaprakash spoke about diseases that affect shrimp farming and explained about proper management during the detection of diseases. The participants were administered an oath for healthy and safe practices in shrimp farming. The programme ended with Mr. Brahmeswara Rao proposing the vote of thanks.
Mr. C. T. Nayak, Regional Deputy of Fisheries, Belgaum had inaugurated the three-day training programme for 20 farmers from Raibag in Belgaum district of Karnataka on October 11.

During his inaugural address, Mr. Nayak outlined the schemes that are being implemented for promoting fisheries activities by the State Fisheries Department. He sought the farming community’s cooperation in implementing these schemes effectively. He requested the farmers to make use the MPEDA schemes also for promoting inland fisheries and augmenting Indian export for earning foreign exchange to the nation. He requested MPEDA to conduct such programmes in other taluks also so that more farmers are benefitted.

It was pointed out that fish culture could be used to make optimum use of low saline soil land and alkaline water locked land to generate additional income.

The workshop was organised on the basis of a request placed by Mr. Sanjay Arekare, Assistant Director of Fisheries – Grade II, Chikodi. Addressing the participants, Mr. Babi Bopanna, Sr. Assistant Director of Fisheries, Belgaum talked in detail about the Indian Common Carp culture operations.

He emphasized the importance of the feed and feed management as it contributes 60% of the production cost. Mr. Manjunath, a progressive farmer involved in development of poultry, agriculture and fisheries and who had also participated in interstate tour programme last year to Andhra Pradesh, shared his experience and talked about what he learnt during the study tour.

Mr. Sanjay Akarere led the classes on IMC culture with special reference to the alkaline water-locked area. He covered topics like pre-stocking management, seed selection, seed stocking protocols, detail of water parameters, fish health management and post harvesting technology and market. Mr. G. Ramar, Junior Technical Officer led a class on site selection of shrimp farms, construction of the shrimp ponds with special reference to water controlling structures, pre-stocking management, seed selection, seed stocking protocols, detail of water parameters, shrimp health management, banned antibiotic in aquaculture farms, protocol of harvest management.

On the second day, Mr. Adarsha H.S., SMS-Fisheries, ICAR- BIRDS KVK Takkaratti, Gokak Taluk, Belgaum, delivered a lecture on water quality management and seed selection and stocking. Mr. Shivakumar K. Kambar, Consultant, Agricultural Technical Management Agency, Karageni talked about cultivable fishes in India and difference between IMC and other cultivable species. A field visit to Diggewadi and Exampa villages for getting first-hand information on fish farming operations was held on the final day of the programme.

Mr. Sanjay Akarere distributed the participation certificates and stipend to the trainees. Mr. G. Ramar proposed the vote of thanks.
The Sub Regional Division of MPEDA at Ratnagiri organised awareness programmes for farmers on November 2. The programme covered the issue of banned antibiotics and diversification of aquaculture in two sessions.

Dr. T. R. Gibinkumar, Deputy Director, MPEDA, Sub-Regional Division, Ratnagiri welcomed the participants and explained about various schemes of MPEDA available for the benefit of farmers. Talking about the role of MPEDA in the development of aquaculture, he informed the participants about the opening of MPEDA’s new Sub-Regional Centre at Ratnagiri for the benefit of farmers and exporters in Ratnagiri, Sindhudurg and neighbouring districts.

Dr. Vishnudas R. Gunaga, Junior Technical Officer, presented the list of antibiotics and chemicals banned in aquaculture and explained the consequences of using the same.

In the second session, Dr. Vishnudas narrated the purpose of conducting awareness campaign programme on diversification of aquaculture and explained the farming techniques involved in seabass, crab and tilapia etc.

Mr. Shaji George, Assistant Director advised the farmers to practice aquaculture in an eco-friendly sustainable manner without using any banned antibiotics.

After the classes, trainees interacted and clarified their various doubts on diversification of aquaculture and farm techniques involved in seabass, crab, tilapia etc. as well as antibiotic issues with MPEDA officials. The programme was attended by 10 participants from Ratnagiri and Sindhudurg.
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Mr. Gautham, Assistant Director of Fisheries, Basavakalyan, inaugurated a three-day training programme for farmers engaged in inland fisheries at Basavakalyan, Bidar district in Karnataka on November 15.

Situated on the northern parts of Karnataka, Bidar district has two river basins – Godavari and Krishna. Major parts of the district are covered by Godavari basin, which includes its two major tributaries namely the Manjra and the Karanja rivers. The Godavari basin extends to over 4,411 sq. km., of which Manjra covers up to 1,989 sq. km. and Karanja up to 2,422 sq. km.

The Krishna basin covers 585 sq. km., of which Mullamari river basin covers 249 sq. km. and Gandarinala river basin covers 336 sq. km. The Manjra river is a perennial river that flows over a distance of 155 km in the central part of the district and flows in eastern direction with a meandering course.

The Karanja river flows in northwestern direction for 74 km, with Karanja reservoir being major water source. Mullamari river originates near Matala village of Basavakalyan taluk and flows eastwards for 38 km before flowing into Kalaburgi district and joins the river Kagna.

The district has got 15 fishermen societies registered with the Department of Fisheries. The farmers in the region are extensively taking up aquaculture ventures in Indian Major Carp in ponds and reservoirs. The workshop was organised to spread awareness on other options in inland fisheries as well as L. vannamei culture in fresh waterbody, alkaline or low saline soil.

The State Government had earlier identified 8558 hectares as either alkaline land or water-logged region, which might not be used for agricultural purposes. Since most of the reservoirs are not perennial water-logging areas, scampi seeds are stocked as additional income along with carp seed. In his inaugural address, Mr. Gautham talked about various schemes being implemented by State Fisheries Department to promote fisheries activities. He also listed the schemes offered and the project for promotion of scampi culture.

Mr. Vijaykumar Yaragal, Deputy Director, MPEDA led the class on IMC culture, with special reference to the alkaline water-locked area. He was covered topics like pre-stocking management, seed selection, seed stocking protocols, detail of water parameters, fish health management and post-harvesting technology and market.

On the second day of the training programme, a field visit was arranged to a reservoir and the participants were explained about the installation of cage for export-oriented candidate species and fish farming operation in all respects. The farming community was urged to release scampi seed along with carp seed to generate additional income. Mr. Madiwalappa P.S., Executive Officer of Basavakalyan Taluk Panchayat was invited as Guest of Honour for the valedictory function of the training programme.

In his address, Mr. Madiwal appreciated the MPEDA effort to organise this programme in a remote place like Bidar. He requested the farming community to utilize the funds meant for fisheries promotional and development effectively without letting the funds return unutilised back to the government.

He requested the Assistant Director of Fisheries to come with viable proposals and utilize the same for development of fisheries sector. He also distributed the participation certificates and stipend to trainees. Mr. G. Ramar, Junior Technical officer, proposed the vote of thanks.
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The MPEDA Regional Division, Kolkata organized a 3-day training programme on “eco-friendly and sustainable shrimp farming” at Hasnabad, North 24 Parganas district from 23-25, October 2018.

The main objective was to educate the farmers on adoption of farming methods for eco friendly and sustainable in aquaculture with special emphasis on diversification in culture practices.

Mr. Dhirit Ekka, Assistant Director, MPEDA Regional Division, Kolkata inaugurated the programme. Talks related to the subject were delivered by Mr. Dhirit Ekka and Mr. Johnson D’Cruz, Assistant Directors, MPEDA, Regional Division, Kolkata, Mr. Pradip Maity, Field Manager, NaCSA, Mrs. Nandita Mallick, Field Extension Officer, Hasnabad and Mr. Somnath Manna, Assistant Manager CP Feeds, Hasnabad.

On the last day, detailed discussions were followed up with sessions marked out for clearing doubts that participants had. Certificates and stipend to 20 farmer trainees who attended the programme were distributed at the valedictory function.

Distribution of certificates to the trainees
ICAR-CIBA entered into a strategic alliance with Aditi Enterprise, Porbandar, Gujarat by transferring Shrimp and Seabass Feed Processing Technologies to spread its feed biotechnology footprints in the West coast of the country. CIBA has developed cost effective and quality feed using indigenous feed ingredients for shrimp and seabass farming, and these technologies are being transferred to series of private entrepreneurs for up scaling and commercial production, on a non-exclusive basis. Adding to the list, Aditi Enterprise, Porbandar, Gujarat signed MoU with ICAR-CIBA for shrimp and seabass feed processing technology.

‘Aditi enterprise’, having its presence in the field of aquaculture and fisheries for the last one decade with hatchery, processing unit and an integrated feed mill envisaged to produce ‘Vanami Plus’ and ‘Seebass Plus’ feed with the technical collaboration of CIBA. The feed will cater to the need of aquaculture farmers of West coast of the country, particularly the small and marginal farmers, who cannot afford the high cost feed. The proposed concept of ‘factory to farm’ promoted by CIBA would help the farmer to source the feed directly from the feed mill, enabling the farmers to save the usual marketing cost also. During the signing of the MOU, Dr. K.K. Vijayan, Director, ICAR-CIBA, impressed upon the quality of feed vis-a-vis cost of production. Further, he emphasized that this integrated feed mill initiative being the first in the West coast region, would be a boon for the aqua farmers in increasing their profitability and falls under the Prime Minister’s initiative of doubling of farmers income. Dr. K. Ambasankar, Principal Scientist and team leader for the Nutrition and Feed biotechnology programmes of CIBA, briefed about the significance of this MoU and highlighted the genesis of this initiative and opined that the success of this ‘desi feeds’ would create a win-win situation for the feed makers and the farmers. Earlier, Dr. T. Ravishankar, Principal Scientist and PI, Institute Technology Management Unit (ITMU)-ABI Unit, welcomed the clients and introduced them to the audience, all the HODs, Scientists from Nutrition group attended the function, which concluded with vote of thanks by Dr. De, Principal scientist, fish nutrition unit.
ICAR-CIBA Signed MoU for the Technology Transfer of Seabass Fish Hatchery Technology

Hatchery technology developed by ICAR-CIBA for the production of seabass seed and nursery rearing technology for the fingerlings, has been transferred to a young entrepreneur, Mr. Nishanth Reddy from Nellore, Andhra Pradesh through a MOU on October 30, at CIBA Headquarters, in the presence of Dr. J K Jena, DDG (Fy. Science), ICAR, New Delhi. Dr. J.K. Jena expressed the market potential of seabass, which is profitable and also contribute to our effort in increasing the farmed fish production.

He has congratulated CIBA and the client for handholding initiative to start the first seabass hatchery in Andhra Pradesh. Dr. K.K.Vijayan Director, CIBA has emphasized the importance of setting up seabass hatchery in the private sector, as this would enable the supply of quality seabass seeds for the fish farmers, which is one of the major limiting factors in the expansion of seabass farming in the country.

Director appreciated the entrepreneurial attitude of Mr. Nisahanth Reddy, in taking up the startup programme and training under CIBA to gather experience in the hatchery technology and economic benefits. Mr.Nishanth Reddy envisaged his interest in taking up seabass hatchery and farming, as an alternative model to shrimp farming, as a sustainable and profitable aquaculture venture. He thanked CIBA for extending support and hand-holding him for his initiative in fish farming.

This novel initiative which will facilitate increased fish production, generation of employment and income, in tandem with the Central Govt. programme of doubling the farmers’ income. Earlier, Dr. M. Kailasam, Principal Scientist & Head-in-Charge, Fish Culture Division, briefed about the significance of this MoU and welcomed the gathering. This event was coordinated by the Institute Technology Management Unit- ABI unit of CIBA and the Fish Culture Division scientists. HODs and Scientists of the institute participated in the event. Dr. P.K. Patil, ITMU, proposed the vote of thanks.

- ICAR – CIBA
Warming of the Indian Ocean at a fast pace owing to climate change poses a threat to the multi-million dollar blue economy of India, scientists said in Kochi on November 08.

Climate change is affecting fisheries through change in stock productivity and its distribution, they said during the opening session of a ‘Winter School on Climate Change in Marine Fisheries’ being organised by the Central Marine Fisheries Research Institute in the city.

The change in climate change is causing floods and drought across the globe, Vice-Chancellor of Kerala University of Fisheries and Ocean Studies, A Ramachandran said while inaugurating the 21-day school which would provide a platform for an academic-oriented discussion on the effect of climate change on marine species.

Increased water temperature and higher carbon dioxide concentration make the ocean more acidic, he said. There would be a drop in productivity of marine species as there was a gradual damage being caused to the ecosystem and biodiversity, the Vice-Chancellor said. Commitment of the stakeholders and coordinated efforts were required for the growth of the blue economy in a sustainable way, he said.

Indian Ocean is warming at 0.11C per decade faster than the Atlantic (0.07C) and the Pacific (0.05C) and the temperature of the sea surface of the Indian Ocean would increase by 0.60 C by 2050, said director of Central Marine Fisheries Research Institute A Gopalakrishnan. “However, Indian marine fish harvesting is more eco-friendly than the global scenario. Our marine fisheries is emitting 17.5 per cent less carbon footprints than the global average when it comes to fishing material involved in fishery,” he said.

The institute has catalogued resource-wise information and the institute was in the process of predicting fish bio-mass changes in Indian oceans in future, he said.

It has also prepared adaptation strategies to climate change with action plan and research on estimating primary productivity of Indian exclusive economic zone (EEZ) for assessing the carrying capacity in Indian waters with respect to climate change was also underway, Gopalakrishnan said.

Course Director of the Winter School and head of the Demersal Fisheries division of the Marine Fisheries Research Institute P U Zacharia said the country experienced 24 extreme climatic events around the Indian coasts resulting in loss of life and property.

“Estimate of climate change impact is essential to devise climate change policies and suggest adaptation and mitigation measures,” he said.

The Winter School is aimed at equipping scientists, researchers and other stakeholders with the tools and requisite knowledge to assess and adapt to the changes occurring because of climatic variations, said the Central Marine Fisheries Research Institute.

As many as 25 researchers and teachers were participating in the programme.
ICAR–Central Institute of Fisheries Technology, Kochi, in collaboration with The Kerala State Co-operative Federation for Fisheries Development Ltd. (MATSYAFED) has conducted a three-day long skill development programme on “Value addition of fish and fishery products” from November 14 to 16 at Cherai village of Ernakulam district. The programme conducted with the assistance of National Fisheries Development Board (NFDB), Hyderabad was attended by 24 participants from coastal areas like Cherai, Munambam, Edavanakkad, Malipuram etc. Mr. A.B. Shaji of Cherai Fishermen Co-operative Society inaugurated the programme on 14 November 2018.

Mr. George, Manager, Matsyafed, Ernakulam District, offered felicitations on the occasion. Sessions on hygienic handling of fish, nutritional benefits of fish consumption, drying, handling, preprocessing, drying using solar dryers, quality evaluation and packaging, waste utilization, fish for alleviating malnutrition, entrepreneurship development, anti-microbial resistance and personal hygiene were conducted. Preparation of value added products like fish pappad, fish soup and hygienic drying using solar dryers were demonstrated.

The valedictory function of the programme was conducted on November 16. Mr. K.C. Rajeev, Board Member, MATSYAFED, was the chief guest for the function. Mr. Rajeev pointed out the importance of translating the learning to action and offered all the support from MATSYAFED in the future endeavors. He also appreciated the effort of ICAR-CIFT in reaching out to the fisherfolks with innovative technologies.

All the participants expressed their satisfaction at the end of the training programme. Participants demanded more trainings in the same line. Some of the participants expressed their willingness to initiate small scale enterprises based on the learning from the programme and by further updatations. The certificates of participation were distributed by the chief guest and other resource persons. Dr. Suseela Mathew, Head, Biochemistry and Nutrition Division, ICAR-CIFT and Coordinator of the programme appreciated all the participants and MATSYAFED Officers for their wholehearted support during the programme. She urged the participants to make use of the learning in their day-to-day life and to initiate small scale venture. She assured the support of ICAR-CIFT in providing technical know-how related to value addition of fish and fishery products.
ICAR-CIFT, Cochin observes WAAW at Kumbalam, Kerala

ICAR-Central institute of Fisheries Technology, Cochin observed ‘World Antibiotic Awareness Week’ (WAAW) from November 12 to 18. As a part of it a one-day workshop was organized for the benefit of 26 fisherwomen of Kumbalam village, 30 kilometres away from Cochin on November 16. Scientists of ICAR-CIFT, who organized the programme, included Dr. Suseela Mathew, Principal Scientist & Head of Biochemistry and Nutrition Division, Dr. M.M. Prasad, Principal Scientist & Head of Microbiology, Fermentation and Biotechnology Division, Dr. K.K. Asha, Principal Scientist, Biochemistry and Nutrition Division, Dr. V.K. Sajesh, Scientist, Extension Information and Statistics Division and Mrs. T. Muthulakshmi, Scientist, Microbiology, Fermentation and Biotechnology Division.

Dr. Suseela Mathew dealt with the topic on nutritional importance of fish, while Dr. Asha spoke on the role of fish in Indian diet, in which fish is consumed by more than 70% of the Indian population. Ms. Muthulakshmi emphasized on personal hygiene and its importance in prevention/occurrence of diseases. Dr. Prasad described the development of antibiotic resistance due to improper use, low quality antibiotics, without prescription of authorized medical practitioners and how it can impact socio-economic conditions whenever a person is infected with resistant bacteria. This included Disability Adjusted Life Years (DALY). He added that aquaculturists should shun the use of antibiotics for prevention and prophylactic measures in aquaculture that can translate into development of multi-drug resistant bacteria. Translational facility of the talk into local language (Malayalam) was given by Dr. Suseela Mathew. At the end, all the participants pledged that they will not purchase any over-the-counter antibiotics and will take only upon prescription by the authorised doctors. The President of Kumbalam Gram Panchayat and Ward Member also spoke on the occasion.

- ICAR-CIFT

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ICAR-Central Institute of Fisheries Technology, Cochin celebrated ‘World Fisheries Day’ on November 21 to create awareness on conservation of fisheries resources and protection of environment among students of fisheries. As part of the celebrations, a one-day workshop on “Responsible fishing” was organized at ICAR-CIFT. The programme was attended by 44 graduate and post-graduate students of fisheries from local colleges in and around Cochin along with scientists and staff of the Institute. Dr. Leela Edwin, Head, Fishing Technology Division welcomed the gathering and gave an insight on the theme. Dr. C.N. Ravishankar, Director in his address elaborated about the importance of World Fisheries Day and also about the various activities of ICAR-CIFT and its efforts towards promoting responsible fishing. Three lectures were delivered on the occasion: 1) Responsible use of energy in fishing – Dr. Leela Edwin, HOD, FT and Principal Scientist, 2) Juvenile fish catches: Implications and mitigation measures – Dr. V.R. Madhu, Principal Scientist and 3) Ghost fishing and plastic pollution in our seas - Dr. Saly N. Thomas, Principal Scientist. In the afternoon, a quiz competition on ‘Fish and Fisheries’ was conducted for the graduate and post-graduate students of fisheries. The programme ended with vote of thanks by Dr. K.M. Sandhya, Scientist.
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Autohaus Pvt. Ltd./Move Stone Services Pvt. Ltd.  
No.607, Changxing Science Technology Park, Zhejiang, China  
Mob: +86 18697081499/+86 1370630848  
E-mail: glorylamb@163.com  
Croaker (Sample)

14. Sherry Li  
Linkbest Foods Limited (HongKong)/Zheng Zhou Linkbest Foods Limited/Beijing Linkbest Foods Limited  
Zhaili, Songzhuang Town, Tongzhou District, Beijing, China  
Mob: +86 15801573604  
E-mail: sherry@linkbestfoods.com  
Ribbon fish

15. Max Kniaziev  
Xiamen High Line Trading Co. Ltd.  
Room 2604, T1, SOHO 1, Taidi Haixi, Haicang District, Xiamen City, Fujian Province, China  
Tel: +0592 2280359  
Mob: 18650433940  
E-mail: max@highlinetrading.com  
QO-1790795451  
Red mullet

16. Gun Jun  
Sea Star International Aquatic Products Trading Company  
Shanghai Yangpu District 2855 Military Road, 19-12  
Fax: +021-65899771  
Mob: 13601613499  
E-mail: 1012790517@qq.com  
Ribbon fish

17. Kevin Tao  
Qingdao Jiazhijie Aquatic Products Co. Ltd.  
Tel: +0532 8355 3286  
Mob: 13964216330  
E-mail: 512655572@qq.com  
Frozen cobia

FISH MEAL/FISH OIL

1. Cathy Chen  
Wuhancoland  
Tel: +027 59903990  
Mob: 15927477804  
E-mail: cathychanchan@163.com  
Web: www.coland-wuhan.com.cn  
Fish meal

2. Fuyan Bai  
Minghui Seafood  
YangshougouTieshan Street Lvshun, Dalian, China  
Tel: 18624382266  
Fax: +0411 86211399  
E-mail: 18624382266@163.com, minghuiseafood@yeah.net  
Frozen octopus

3. Xiaofeng Liu  
Milae ML (China) Corp.  
Room 2606, Xing Yuan International Building B, No.222, Wang Jing XiYuan ChaoYang District, Beijing, 100102  
Tel: +86 10 5246 6294  
Fax: +86 10 6475 0510  
Mob: +189 1126 1025  
E-mail: Liuxiaofeng85@163.com  
Squid

4. Qingdao Rishengcang Co. Ltd.  
Tel: +0532-66569271/89657126  
Fax: +0532-89657126  
Mob: 15306396118/18906399711  
E-mail: xin1982.3@163.com, rscfoods.1688.com  
Web: www.rscfoods.com.cn  
Cuttlefish
<table>
<thead>
<tr>
<th></th>
<th>Name</th>
<th>Address</th>
<th>Contact Details</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Clement Chew</td>
<td>Lam Kee Fisheries Pte Ltd. 121 Defu Lane 10 Singapore 539231</td>
<td>Tel: +65 9272 1374, +65 6288 0111 Fax: +65 6382 0383 E-mail: <a href="mailto:lamkee@singnet.com.sg">lamkee@singnet.com.sg</a> Web: <a href="http://www.lamkeeseafood.com">www.lamkeeseafood.com</a></td>
<td>Ready to eat curry</td>
</tr>
<tr>
<td>2</td>
<td>David</td>
<td>Integrity Import &amp; Export Trade Fisheries Company</td>
<td>Tel: +0086 18105908322 E-mail: <a href="mailto:90992531@qq.com">90992531@qq.com</a>, <a href="mailto:Sdc88872136@126.com">Sdc88872136@126.com</a></td>
<td>Frozen whole blue crab, Silver pomfret, Baigai</td>
</tr>
<tr>
<td>3</td>
<td>Liliya A. Kuropteva</td>
<td>Fish Company &quot;Skif&quot; 24, Rydzinskogostr, Yakutsk city Republic of Sakha (Yakutia)</td>
<td>Tel/Fax: +7 (4112) 430 540 Mob: +7 (914) 235 70 19 E-mail: <a href="mailto:skifish@bk.ru">skifish@bk.ru</a>, <a href="mailto:lili8693@mail.ru">lili8693@mail.ru</a></td>
<td>Ready to eat curry</td>
</tr>
<tr>
<td>4</td>
<td>Wanida Anekrithi</td>
<td>Wealthy &amp; Healthy Foods Company Ltd. 34/20 SoiPrachautid 13, Prachautid Road, Donmuang, Bangkok, 10210, Thailand</td>
<td>Tel: +02 928 2696 98 Fax: +02 928 2880 E-mail: <a href="mailto:wanidaweanly@gmail.com">wanidaweanly@gmail.com</a> Web: <a href="http://www.wh-foods.com">www.wh-foods.com</a></td>
<td>Baigai, Mud crab, Short neck clam, Mackerel, Shrimp</td>
</tr>
<tr>
<td>5</td>
<td>Mary Shen</td>
<td>Qingdao ShengshiKangyuan Import and Export Co. Ltd. Room I, 12 Floor, TianZhi Building, Qingdao Free Trade Port Area, China - 266555</td>
<td>Tel: +86 532 8676 6171 Fax: +86 532 8676 8832 Mob: 18663994996 E-mail: <a href="mailto:18663994996@163.com">18663994996@163.com</a></td>
<td>All kinds of seafood</td>
</tr>
<tr>
<td>6</td>
<td>Baoxing Lin</td>
<td>Fujian Dingxing Industry Co. Ltd. Office Building in Fujian Fuzhou Mawei bonded zone 7</td>
<td>Tel: +0591 83968128 Fax: +0591 83653128 Mob: 1380955922, 13600898898 E-mail: <a href="mailto:info@zbaidikw.com">info@zbaidikw.com</a> Web: <a href="http://www.zbaidikw.com">www.zbaidikw.com</a></td>
<td>Shrimp (sea caught)</td>
</tr>
<tr>
<td>7</td>
<td>Gwoli Chen</td>
<td>ToYo International Trading Inc. 29 New York Ave., Westbury NY 11590</td>
<td>Tel: +516 333 2662 Fax: +888 323 8155 Mob: 9175180348 E-mail: <a href="mailto:info@zbaidikw.com">info@zbaidikw.com</a> Web: <a href="http://www.zbaidikw.com">www.zbaidikw.com</a></td>
<td>All kinds of seafood</td>
</tr>
<tr>
<td>8</td>
<td>Fares Ahmed Bugammaz</td>
<td>Zbaid Al Kuwait Fisheries Co. Tel: +965 22452839/ +965 99699399</td>
<td>E-mail: <a href="mailto:fares@zbaidikw.com">fares@zbaidikw.com</a>, <a href="mailto:info@zbaidikw.com">info@zbaidikw.com</a> Web: <a href="http://www.zbaidikw.com">www.zbaidikw.com</a></td>
<td>Dried fish, Shrimp</td>
</tr>
<tr>
<td>9</td>
<td>Martin Xu</td>
<td>Shenzhen Hisealink Food Trading Co. Ltd. 21G. C. Building World Food City Pinglang Road, Longgang District Shenzhen, Guangdong</td>
<td>Tel: +0755 28349985 Mob: +86 136 3158 8958 E-mail: <a href="mailto:ceo@hisealink.com">ceo@hisealink.com</a>, <a href="mailto:rosie.he@hisealink.com">rosie.he@hisealink.com</a> Web: <a href="http://www.hisealink.com">www.hisealink.com</a></td>
<td>All kinds of seafood</td>
</tr>
<tr>
<td>10</td>
<td>Bobo Phang</td>
<td>Lee’s Frozen Food Sdn Bhd Corporate Office, B-09-03 Menara Bata, PJ Trade Centre, No. 8, Jalan PJU 8/8A, Bandar Damansara Perdana, 47820 Petaling Jaya Selangor Darulehsan</td>
<td>Tel: +03 7725 0788 Fax: +03 7725 0877 E-mail: <a href="mailto:bobophang@leesfrozen.com">bobophang@leesfrozen.com</a> Web: <a href="http://www.leesfrozen.com">www.leesfrozen.com</a></td>
<td>All kinds of seafood</td>
</tr>
<tr>
<td>11</td>
<td>Gu Yuan</td>
<td>Dandong Yuanyi Refoned Seafood Co. Ltd. No. 73 Jianshe Road, Donggang, Liaoning</td>
<td>Tel: +86 415 7182567 Fax: +86 415 7188687 Mob: 13945108002 E-mail: <a href="mailto:guyuan@ddyyhc.com">guyuan@ddyyhc.com</a> Web: <a href="http://www.ddyyhc.com">www.ddyyhc.com</a></td>
<td>Dried seafood</td>
</tr>
<tr>
<td>12</td>
<td>Yangjie Lu</td>
<td>Ningbo Destfound Aquapicks Catering Management Co. Ltd. No.29, Dachang Road, Liyang Town, Ninghai Country</td>
<td>Tel: +86 0574 6532811 Mob: +188 1800 8517 E-mail: <a href="mailto:Lyj920817@126.com">Lyj920817@126.com</a></td>
<td>Surimi products</td>
</tr>
<tr>
<td>13</td>
<td>Ken Chen</td>
<td>Kung Her Trading Co. Ltd. 1FL, No.4, Alley6, Lane300, Samin Street, Sanchung, Taipei, Taiwan</td>
<td>Tel: +86 2 29806751 Fax: +886 2 2981 1143 Mob: +886 911 503 121 E-mail: <a href="mailto:Keshan-chen@umail.hinet.net">Keshan-chen@umail.hinet.net</a></td>
<td>Surimi</td>
</tr>
<tr>
<td>14</td>
<td>Hui Xikai</td>
<td>Shandong Meijia Group Co. Ltd. RizhaoJiatianxia Foodstuff Co. Ltd. No.3, Binzhou Road, Rizhao, Shandong, China, P.C. 276826</td>
<td>Mob: +86 158 6336 5514 E-mail: <a href="mailto:huixikai@rzmeijia.com">huixikai@rzmeijia.com</a> Web: <a href="http://www.rzmeijia.com">www.rzmeijia.com</a></td>
<td>Imitation products (surimi), Black tiger</td>
</tr>
<tr>
<td>15</td>
<td>Jade Yoon</td>
<td>Handong Foods (China) Co. Ltd. Rm2711, Youhao Mansion, Zhongshan District, Dalian, Liaoning, China, P.C. 116001</td>
<td>Tel: +86 411 8252 0572/8252 0573 Fax: +86 411 8252 2569 Mob: +86 139 9861 0817 E-mail: <a href="mailto:jadeyoon@handongfoods.com">jadeyoon@handongfoods.com</a> Web: <a href="http://www.handongfoods.com">www.handongfoods.com</a></td>
<td>Dried fish, Dried shrimp, Reef cod</td>
</tr>
</tbody>
</table>
16. Johnson Liu
197, Giffort Street, New Westminster
B.C. V3M 6S1, Canada
Tel: +1 604 777 0612
Fax: +1 604 777 0692
Mob: +1 778 999 7280
E-mail: johnson@jtjmotor.com
Web: www.jtjmotor.com
Shrimp, Pomfret, Mahi Mahi, Other seafood

17. Sha
Lingergy Fisheries
Meibo Complex, Hunsi West, Guangzhou, China
Tel: +0086 13560414859
E-mail: shaping1@hotmail.com
Frozen crab flakes, Blue crab

18. Xiao Shan
Tel: +021 66182225
Mob: 18502182288
E-mail: xtai-75@163.com
Whole blue crab

19. Libin Lu
Thai Union China Co., Ltd.
Room A1810, No. 596 of Mid Longhua Rd,
Xuhui District, Shanghai
Tel: +86 21 3177 9766-601
Mob: +86 189 1611 5160
E-mail: Libin.Lu@thaiunion.com
Dried shrimp, Fish maws

20. Annop Michael Kettratad
House of Crabs
32/6 Moo 8, Naikkhlong Bang PlaKot
PhraSamutChedi, Samut Prakan 10290 Thailand
Tel: +66 8 9499 0024
E-mail: michael@houseofcrabs.net
Web: www.houseofcrabs.net
Live mud crab

21. David
Integrity Import and Export Trade Fisheries Company
Tel: +0086 18105908322
E-mail: 90992531@qq.com, sdc88872136@126.com
Fish maws

22. Sarah
Qingdao Haoda Marine Biotech Co. Ltd. 188 Nanliu Rd., Chengyang, Qingdao, China
Post Code : 266 108
Tel: +0086 532 80699888
Fax: +0086 532 80699188
E-mail: 32121339@qq.com
Web: www.haoda.com.cn
Ready to eat product (curry)

23. Jiang Li Qing
Liaoning Sinotrust IMP & Exp. Co. Ltd. Jiefang ST. No.9 Zhong Shan District, Dalian, China
Zip Code : 116001
Tel: +0411 82644576/82644526
Fax: +0411 82644586
Mob: 13998642208
E-mail: trustcenter@163.com
Dried shrimp. Ready to eat

24. Liu Guanghe
Dalian KingbrineSeafoods Co. Ltd.
Dalian LongxiangSeafoods Co. Ltd. Houshi Village Dawejjia Town Jinpui New Area Dalian, China P.C. – 116110
Tel: +0086 411 87896180
Fax: +0086 411 87896711
E-mail: kingbrine@aliyun.com
Web: www.kingbrine.com
Surimi

25. Manas Chand Medisetty
Enjoy Trading Corp.
1710 Flushing Ave. #11, Ridgewood, Ny 11385, USA
Tel: +1-718-628-8688
Fax: +1-718-628-8288
Mob: 16495800817
E-mail: manasmedis@gmail.com
Web: www.ehlinens.com
Croakers (white & yellow), Pomfret (silver & Chinese), Ribbon fish, Eel, Sole

26. Lauren Chen
Chung Kee Pharmaceutical Co. Ltd. Blk 29#101-112, Kang Mei Chinese Herb Market, Puning City, Guangdong Province, P.R. China 515300
Tel: +86 663 2920002
Fax: +86 663 2920007
E-mail: chenluyun.94@yahoo.com
Dried fish, Fish maws, Shrimp (dried)

27. Jian Jiao
Beijing Tong Ren Tang Health (Dalian) Seafoods Co. Ltd. No.2 Haijun Road, Economic and Technological Development Zone, Lvshunkou District, Dalian City Liaoning Province, PR China
Tel: +0411 86201888
Fax: +0411 86245678
Dried fish maws

28. Mary Shen
Qingdao Shengshi Kangyuan Import & Export Co. Ltd.
Room I, 12 Floor, TianZhi Building, Qingdao Free Trade Port Area, China 266555
Tel: +86 532 8676 6171
Fax: +86 532 8676 8832
Mob: 18663994996
E-mail: 18663994996@163.com
Ribbon fish, Pomfret

29. Suki Cheah
PiauKee Live & Frozen Seafoods Sdn Bhd, Lot 6, Jalan 10, Off JalanKuari, Kg CherasBaru, 56100 Kuala Lumpur, Malaysia
Tel: +603 4293 8888
Fax: +603 4293 1888
Mob: +6012 9692665
E-mail: suki@piaukee.com
Web: www.piaukee.com
All kinds of seafood
30. Alvin Zang  
GEFCO Forwarding China Limited  
Room 10-1, United Mansion,  
No.9 Nanjing Road, Southern  
District, 266071, Qingdao, China  
Tel: +86 532 85711990  
Fax: +86 532 6688 6096  
Mob: +86 187 5325 7713  
E-mail: Alvin.zang@gefco.net  
Shrimp, Fish

31. Hai Tao Zhang  
Jalan Tuna 6 Blok A, No.2  
MuaraBaru  
RM 29, Building No.9, No2  
Gangqian Rd, Huangpu District,  
Guangzhou, China  
Seafood Sale Department  
Mob: +62 (0) 81288889698,  
+86 13826116787  
E-mail: 2223491641@qq.com  
Frozen baby cuttlefish, Frozen  
baigai, Pomfret

32. Amy  
A3208, 4/F, Main Tower,  
2-12 Huacheng Avenue,  
Zhujiang New City, Guangzhou,  
China 510623  
Tel: +8620 38299000  
Fax: +8620 38299661  
Mob: +86 17061703076  
E-mail: aaa1810xx@sina.com  
Yellow croaker, Mackerel, Whole  
squid, Black pomfret, Ribbon fish,  
Cuttlefish, Baby octopus

33. Wenzhou Yiding Food Co. Ltd.  
Tel: +86 1577 8812999/8812099  
Mob: 15988712345  
E-mail: 36933778@qq.com  
Fish maws

34. Eric Zhou  
Room 27F, No.295 Jiahe Road,  
Siming District, Xiamen,  
Fujian, China  
Mob: +86 18290517360  
Tel: +86 0592 6037553  
E-mail: Eric@tzhseafood.com  
All kinds of seafood

35. Barry Wang  
Ewfresh Network Technology  
(Beijing) Co. Ltd.  
No.17, Jingsheng Middle St.,  
Tongzhou District, Beijing,  
China, 10112  
Tel: +86 002 6788/  
+86 10 56592733  
Mob: +86 18618428283  
E-mail: barrywang@sunkfa.com,  
info@sunkfa.com  
Web: www.sunkfa.com,  
www.ewfresh.com  
All kinds of seafood

36. Connor Dumont  
China Domestic Sales Representative  
PO Box 97  
16797 SE, OR 97015  
Clackamas, OR 97015  
Tel: +503 906 4500  
Mob: +86 186 1671 3568  
Mud crab

37. Akbar Ashraf  
Zbaidi Ali Kuwait Fisheries  
Tel: +965 2252839  
E-mail: akbar@zbaidikw.com,  
info@zbaidikw.com  
Web: www.zbaidikw.com  
Dry fish, Shrimp, Seer fish

38. Evgeny Malgin  
Units 01-04, 36th Floor  
41 Heung Yip Road, Hong Kong  
Mob: +86 132 4981 4387  
E-mail: evgeny.malgin@x5.ru  
Web: www.x5.ru  
All kinds of seafood

39. S Aravinthan  
Suganth International Pvt. Ltd  
65/352A, Vystwyke Road,  
Colombo 15, Sri Lanka  
Tel: +94 11 2521059, +94 11 2521153  
Fax: +94 11 252132  
E-mail: suganth@slt.lk  
Web: www.suganth.net  
Fish maws

40. Zhao Wentao  
Yangzhou street No. 19,  
Shahekou District, Dalian  
Tel: +86 411 8870 2857  
Fax: +86 411 8388 6998  
Mob: +86 188 4113 3900  
E-mail: globalreal@126.com  
Tuna, Snapper, Octopus, Chinese  
pomfret, Live/chilled crab

41. Huizhong Seafood  
No.10, Anle East Road, Shuidong  
Town, Dianbai District, Maoming  
City, Guangdong Province, China  
Mob: +86 18138039335  
Tel: +86 668 5788688  
Fax: +86 668 5788039  
E-mail: henryseafood@qq.com  
Web: www.huizhongseafood.com  
Tilapia, Squid

42. Kuei Feng Chen  
Daton Seafood Co. Ltd.  
Dachen Seafood Co. Ltd.  
17F, No.240, Datong Rd, Xinzhi  
Dist, New Taipei City, 221, Taiwan,  
R.O.C.  
Tel: +886 2 86461000  
Fax: +886 2 86462000  
Mob: +0930 410930  
E-mail: Domon19901010@gmail.com  
Baigai

43. Shen Ha  
Deep Ocean Seafood Import  
Export  
Tel: +86 13338770886, +84 1253775998  
Mob: +86 7707676008  
E-mail: DeepOceanSeafood@gmail.com,  
YangShenSeafood@gmail.com  
Web: www.DeepOceanSeafood.com,  
YangShenSeafood.1688.com  
Groupers, Ribbon fish, Pomfret

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Corporate Office: Avanti Feeds Limited
G-2, Concord Apartments 6-3-658, Somajiguda, Hyderabad - 500 082, India.
Ph: 040-2331 0260 / 61 Fax: 040-2331 1604. Web: www.avantifeeds.com

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