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In the Platter



Dr. A. JAYATHILAK IAS Chairman

Dear friends,

he hike in the Anti-Dumping Duty for frozen shrimps from India as per the preliminary results of 12th Administrative Review to 2.34% is a bit worrisome for, otherwise smooth flowing, shrimp trade with the US market. Pending the final results, if the rates are retained upon final review, the hike in the duty may make the Indian shrimps dearer, when the market witnesses a situation of ample supply of shrimps as per the market reports. A probable dip in the demand for shrimps in the US market could influence Indian marine products export performance in 2018-19, as shrimp is the principal commodity of export and the US is the market numero uno. Under such situations, the industry may have to think of regulating the production and supply to keep the demand and prices firm. Unless we take measures to regulate shrimp supply to different markets and involve in further processed steps towards adding value, India may not be able to sustain its growth pattern in the long run.

Though the weather was adverse, which has affected the turn out, MPEDA has put up an excellent pavilion in the Seafood Expo North America held at Boston during the month. Thirty two exporters from India have participated along with MPEDA under the India pavilion in the show as co-exhibitors and co-participants. We are hopeful of expanding the participation base in the next edition of the show. Meanwhile, MPEDA has also geared up for participating in the largest seafood show of the globe, Seafood Expo Global at Brussels that is slated for the last week of April with over 30 exporters participating under MPEDA umbrella.

I had the opportunity to lead a trade delegation with 12 exporter members to Russia during the month. During the delegation, we held meetings with the Federal Customs Authorities of Russia, Russian Federal Service for Veterinary and Phytosanitary Surveillance, Chambers of Commerce and senior Embassy officials and discussed various issues related to seafood trade with Russia, and to explore ways and means to enhance our trade volume to that country. On the last day of delegation, the Embassy had also arranged a buyer-seller meet, in which eleven Russian importers have participated. I am glad to inform you that the visit has been very successful in getting detailed information about the market requirements and Customs preferences. I take this opportunity to thank His Excellency Mr. Pankaj Saran, Embassy of India to the Russian Federation and other officials of the Embassy for making all the arrangements for delegation visit to make it a grand success.

Thank you.



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MPEDA participates in Seafood Expo North America at Boston



A view of SENA exhibition held at Boston, USA

Seafood Expo North America – 2018 held at Boston was a real opportunity for showcasing marine products and services, engaging in discussions and deliberations, comparison of products among the companies, learning about new products and its markets, exploring the possibilities of improvements in production, processing, maintenance, packing etc. It helped in establishing direct contacts and maintaining customer relations, new trading, updating knowledge by the buyers and sellers.

n its ride for popularising quality products internationally and expanding its export market, India has been continuously watching the worldwide market trends. In this course of action, MPEDA, the government's flag bearer for seafood exports, has been co-ordinating and passionately participating in the international export promotional programmes for the past several years.

MPEDA participated in the Seafood Expo North America - 2018, the world's second-biggest seafood mega exhibition

show organised at Boston, USA during March 11 to 13, 2018. The expo was very important and successful for its international role in fulfilling the essential requirement of bringing the world's seafood champions under one umbrella.

United States of America has been a major target of export for Indian seafood. In 2016-17 U.S. imported 1,88,617 MT of Indian seafood, accounting for 29.98 percent in dollar terms. Export to USA registered a growth







of 22.72 percent in quantity, 33 percent in value in rupee and 29.82 percent in terms of U.S. dollars.

The three-day exhibition - Seafood Expo North America (SENA) was organised at the Boston Convention and Conference Centre. It was splendid with around 1346 companies exhibiting their products and services. There were demonstration of the operation of machinery and display of cooked seafood items. The exposition was sponsored by the National Fisheries Institute.

Boston is Massachusetts' capital and one of the oldest cities in U.S. It hosts a number of restaurants specializing

in fresh seafood, including the oldest restaurant in America.

The Seafood Expo North America/Seafood Processing North America is North America's largest seafood exposition. Thousands of buyers and suppliers around the world attended the annual exhibition to meet, network and to nurture their business. Participants represented were from the field of importers, exporters, wholesalers, restaurants, supermarkets, hotels, and other retail and foodservice companies. The suppliers offered the newest seafood products, processing and displayed/packaging equipment, and services available in the seafood market.





(L to R): Mr. P. V. Hari Krishna, Director EP (MP), DOC, Mr. John Kingsly, Trade Promotion Officer, MPEDA New York and Dr. K. Gopal Anand, Assistant Director, MPEDA in MPEDA stall

The 2018 edition of the exposition featured 1,341 companies from 57 countries including newcomers such as Fiji, Oman, Ukraine, and Venezuela. The exhibition was spread across 258,360 square feet of space. There were more than 25 sessions, as well as a series of special events including a master class presentation, a chef demonstration, the 12th Oyster Shucking Competition and the Seafood Excellence Awards competition for the Best New Retail Product and the Best New Foodservice Product.

More than 90 percent of seafood consumed by U.S. is imported, making Seafood Expo North America a sizable sales opportunity for suppliers from everywhere to bring their products to buyers from restaurants, supermarkets, catering firms, seafood markets, hotels, airlines, cruise lines and more.

THE INDIAN PARTICIPATION

MPEDA has set up an Indian Pavilion in which six exporters participated as co-exhibitors displaying a variety of seafood products from India and 26 exporters had taken tablespace. The Indian Pavilion was located at the stall no. 1453 and covered a floor space of 1200 sq. ft. The co-exhibitors participated in the event are M/s. Forstar Frozen Foods Pvt. Ltd, Mumbai; M/s. Pasupati Aquatics Pvt. Ltd, Kolkata; M/s. Nila Seafoods Pvt. Ltd, Tuticorin; M/s. Rams Assorted Cold Storage Ltd, Bhubaneswar; M/s. West Coast Frozen Foods Pvt. Ltd, Mumbai and M/s. Gadre Marine Export Pvt. Ltd, Ratnagiri.

In addition to the above, there were two other Indian stalls registered and installed separately by exporters namely M/s. Choice Canning Company, Kerala and M/s. Silver Marine Exports, Andhra Pradesh.

The participation of MPEDA and the exporters in SENA 2018 was arranged by Mr. John Kingsly IAS, Trade Promotion Officer, MPEDA New York, Mr. P.V. Hari Krishna, Director EP (MP) Section, Ministry of Commerce & Industry and Dr. K. Gopal Anand, Assistant Director, MPEDA.

MPEDA has taken much care and made its maximum efforts in choosing the frozen products befitting the U.S. market. The focus was on businessmen to have new ventures on quality Indian products. MPEDA has displayed 71 varieties of frozen and chilled seafood items in the stall.



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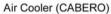




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Breading machine (Line)



Automatic Pan separating Conveyor



Cooking Machine(Water&Steam)



Tunnel Powder Coating Machine



Contact Window:

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The visitors were interested to know about the Indian seafood and its products. The products were demonstrated to the visitors who were very keen to know about the treasures of Indian Seafood Items. The major enquiries were about shrimp, L. vannamei, P. monodon, chilled fish items, cuttlefish, squid, tuna, chilled crabs, Pomfret, Seabass, Croaker, etc. Most of the visitors were interested in frozen products whereas a few have asked for chilled items from India. The authentic discussion along with product demonstration has made most of the visitors, traders and exporters more enthusiastic and they informed that they really want to do business with the Make in India initiative. The the personnel's from the USA, Europe, Russia, China, Taiwan, Japan, Singapore, Korea, Latin America, Middle East, etc. were partaken the discussion.







About 153 trade enquiries were received at the show are separately listed in the concerned section of this Newsletter. More than 3500 delegates visited the MPEDA stall and had the MPEDA's brochures printed in English, details of Indian exporters and their products and the information on Indian Seafood Resources. Most of the visitors had shown keen interest in knowing about the traceability and certification systems in place in India for Sustainable Aquaculture. Brochures on Seafood Show, registration forms, website details, contact information, etc. were distributed among the interested visitors.

Discussions were carried out in two round tables in the stall by the two officers, simultaneously, as most of the time the stall was crowded for getting information. The officers have demonstrated the products displayed in the stall, engaged in discussions and cleared their queries on various aspects. There were two major meetings attended by Director, MoC&I and Resident Director of TPO, MPEDA, New York, which were with Wakefern and Aquaculture Alliance organisations.

The discussions were progressive and useful as per the feedback received from co-participated exporters. Majority of the trade enquires with MPEDA were on white leg shrimp, tiger shrimp, squid, cuttlefish and mud crab, etc.

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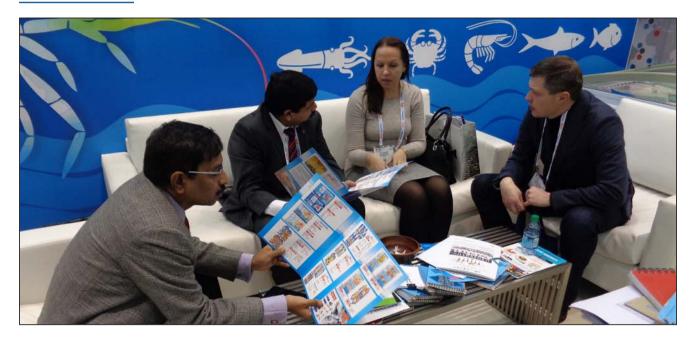
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POTENTIAL FOR EXPORT GROWTH

USA's seafood consumption is increasing day by day. On the other hand, the country is issuing suitable guidelines on monitoring fish catch and aquaculture production. The responsible handling by the industry for the preservation of environment and sustainability in farming and fishing activities is in the talks most often. This in turn can bring a reduction in aquaculture production and new developments may see some hindrances. Hence it is very much essential for the seafood industry to tune our products and procedures so as to be well suited to meet the international benchmark.

The per capita seafood consumption has increased considerably in the U.S. and younger generations are looking for luxury seafood from other countries with a clean environment and water resources. India has high potential for providing quality products to the USA and the world over, the Indian exporters may have to rise to act so as to exploit the situation and assist in increasing export to the USA to meet their requirement.

There is a huge demand for Indian seafood and its value-added products in the U.S. market. The potential of Indian aquaculture needs to be tapped with more diversification and suatainable fishing. According to Indian exhibitors, the participation in North America's Seafood Expo has opened the doors for them for more export and business growth and most of them had a very fruitful time with their clients.

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The Seafood Expo North America - 2018 was well organised. The Indian pavilion had an overwhelming response from buyers, participants and the visitors, it was truly the worlds best show with enormous scope for business and market promotion.

The seafood consumption is increasing annually matching rising import levels and income. Consumption of shrimp, the number one seafood, increased by 92 percent between 1987 and 2006, global per capita fish consumption has risen to above 20 kilograms a year. In the 1960s, the figure was an average of 9.9 kg and in the 1990s, it was around 14.4 kg. Americans consumed 14.9 pounds of seafood per capita in 2016, while that number is slightly lower than figures seen in 2015. When Americans consumed 15.5 pounds of seafood per capita, the USA's seafood imports are expected to exceed the current figure by 2020. Seafood imports are increasing hence it is the best time to tap the potential before any restrictions on privileges to Indian export to the U.S. are enacted.

These all show the high scope and potential to play a better role by Indian expoters in USA's seafood import market. Seafood companies in India need to overcome the challenges, take advantage of opportunities to expand the market, push the seafood exports to reach all time high.



Eco-friendly Fish Aggregating Devices for conservation of cuttlefish/squid in Palk Bay



SCUBA divers.

The Palk Bay, located in South East coast of India, offers a space for the natural breeding of many fish species including cuttlefish and squids which are having high export value. However, increased fishing pressure and lack of sustainable fishery practices lead to the decline of fishery productivity. Hence a training programme was conducted by NETFISH along with OMKAR Foundation to improve the cephalopods fisheries in Palk Bay by employing eco-friendly Fish Aggregating Devices (FADs). A one-day stock enhancement programme was conducted on January 29, 2018, at Pillayarthidal in Thanjavur district, which was attended by 11 fishermen.

On the onset of the programme, Dr. Vinoth S. Ravindran, State Coordinator, NETFISH briefed the concept to the participants and explained the importance of cuttlefish/ squid stock enhancement in the present scenario. He also elaborated the deleterious effects of destructive jigging of mother cuttlefish/squid using FAD's made up of non-bio degradable materials. During the demonstration session, FADs were deployed at a distance of about 2 km from the shoreline, with the scientific intent that FADs deployed in the near shore waters, increase the cuttlefish/squid population. Cuttlefish/Squid Aggregating Device made of coconut leaves which is cost effective and biodegradable were deployed at a depth of about 4 metres. Deployment of FADs was carried out in selected sites without affecting normal near shore fishing activities. FAD mooring lines and attachment ropes were fixed using jute ropes and deployed on the seafloor using 25 kg sandbag by

Monitoring of FADs will be carried out by SCUBA divers on a monthly basis throughout the summer (March-May 2018). Each coconut leaf will be visually examined to count the number of eggs and brooders. The training helped the fishermen to gather knowledge on the importance of eco-friendly FADs and the need to avoid jigging of mother cuttlefish/squid and destruction of egg masses.



NETFISH installs 'Minimum Legal Size' signboards at harbours



A The MLS Signboards fixed at harbours by NETFISH

onsidering the grave situation of drastic decline of pristine fish species like Oil sardine, Government of Kerala in the year 2015 came up with the strong decision of controlling the juvenile fishing by way of implementing Minimum Legal size (MLS) for 14 fishery species, out of the recommendations given to the Government by the CMFRI, Kochi. This was followed by many workshops and discussions with the participation of scientists, policymakers and stakeholder groups for the effective implementation of MLS in Kerala. NETFISH too joined hands in this effort and as an initiation conducted a state level workshop on the 'Effective Implementation of Minimum Legal Size (MLS) in the Marine Fisheries Sector in Kerala' with the cooperation of the State fisheries department, CMFRI and CIFT during August 2016.

One of the major recommendations of the workshop was to implement the MLS for more species, as suggested

by CMFRI. In 2017, the Government of Kerala notified MLS for additional 44 species. Further to its efforts NETFISH popularized MLS among the fishers and made them aware of the MLS in the marine fisheries sector. As a continuation of these popularization campaigns, recently a few signboards were installed at major harbours of Kerala, depicting information on the MLS notified for 58 fishery items. Huge signboards of size 19 x 5 sq. ft was fixed inside the Munambam harbour, near to the entrance and in Chettuva harbour as well, to reach the masses.

Another big signboard was installed at Sakthikulangara harbour, on the outside wall of the auction hall during February 2018. If MLS is implemented effectively, it would be creating a new chapter by Kerala state in the history of marine fisheries resources management in India and it could be emulated to other maritime states in the country.



Application of possible novel technologies in shrimp peeling

BHARGAVI PRIYADARSHINI, SRINU RATHLAVATH, G. PRAVEEN KUMAR K. A. MARTIN XAVIER



Shrimp has long been considered a rare, refined and expensive food. With the development of aquaculture, the shrimp market has increased rapidly. Shell-loosening is an important step in the processing of peeled shrimps. Structurally, the shell is tightly attached to the epidermis by attachment fibers (intracuticular fibers), and the epidermis is securely attached to the muscle by extensive inter-digitations (Talbot et al., 1972). In seafood industries, shrimp peeling is done manually which results in broken meat and shell, low yield of meat, low organoleptic quality, high proportion of the shell remaining on the meat, and high energy/labour consumption due to re-peeling. Therefore, shell loosening is an important step requiring an intensive consideration (Dang et al., 2017).

CONVENTIONAL PEELING METHODS

HEAT TREATMENT

Heat treatment is also able to break the connective tissue to some extent and facilitates easy removal of shell from shrimp. Heat treatment reduces the peeled meat yield due to the loss of bound water from muscle.

ICING

Ice maturation on peeling had been reported by Stern (1958), that shrimps matured one day on the ice was easier to peel compared to freshly landed shrimps. It was suggested that ice maturation allows enzymatic degradation of the connective tissue between the shell and the muscle, resulting in solubilisation of some parts of the tissue and loss of the solubles during intense washing in a peeling machine (Taylor, 1993). In this aspect, phosphates were used to retain protein and moisture, thus reducing the yield loss and also functioning as a peeling agent.

HIGH PRESSURE PROCESSING

High-pressure processing (HPP) or high hydrostatic pressure processing (HHPP) is a novel non-thermal preservation/processing technique. Ultra-high pressure could disrupt protein conformation and inter-/intramolecular interactions, including hydrogen bonds, electrostatic bonds, hydrophobic interactions as well as disulphide bonds, resulting in the structural change and the functional modification, such as protein

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solubilisation, aggregation, denaturation, gelation, or depolymerisation. Studies have reported that major changes in the quaternary structure, the tertiary structure, and secondary structure generally take place at mild pressure (150 MPa-200 MPa), moderate pressure (above 200 MPa), and relatively high pressure (300 MPa-700 MPa), respectively (Aertsen et al., 2009). Ultra-high pressure treatment has several advantages, including higher muscle integrity, increased meat yield, and enhanced safety due to the inactivation of enzymes and microorganisms with the minimum loss of colour, taste, juicy, and nutritional content (Cruz-Romero et al., 2007).

Treatment at 200 MPa for 5 minutes is the optimum for crayfish shucking and maintaining the meat gualities (Shao et al., 2018). Based on the research results, it was concluded that shucking condition of HHP at 200 MPa for 3 min could obtain 100 percent detachment, undetectable natural microorganisms and minimum change of adductor muscle. Overall, these results provided the usefulness of HHP in bay scallop shucking with quantitative parameters in order to explore the application of this process (Yi et al., 2013). Yang et al. (2010) described that high-pressure processing offered a significant improvement in peelability, tail integrity, drip loss and colour changes of white shrimp (Penaeus vannamei Boone). Pressure treatment at 200 MPa for 3 minutes was found adequate for peeling purpose and resulted in a high integrity of the tail of the peeled shrimps. The quality of the HP processed (200 MPa, 3 min) shrimps were further improved as the drip loss

was reduced by half as compared with fresh, untreated shrimps and the colour did not change. It was assumed that the pressure facilitated water movement into the shrimp resulted in protein denaturation which enhanced water holding capacity due to exposure of water binding sites at the protein surface.

ULTRA SOUND ASSISTED PEELING

The food industry has recently shown interest in the application of power ultrasound for food processing (Chemat, 2011). It has been proved a green technique with higher efficiency and environmental friendliness compared with conventional methods. It had been widely used in freezing, cutting, drying, tempering, bleaching, sterilizing, and extracting (Wang et al., 2018). Highintensity ultrasound involves intensities >1 W/cm2 and is performed at frequencies ranging from 18 to 100 kHz. Cavitation is considered the main mechanism by which this form of ultrasound enhances heat and mass transfer phenomena (Kim et al., 2004). Stable cavitation can lead to the formation of bubbles, creating microagitation without imploding. If it is unstable, there is an implosion of the bubble with increased pressure and temperature, releasing microjets with high energy content, able to accelerate chemical reactions, damage cells and affect macromolecules and enzymes (de Lima Alves et al., 2017). The sonication (ultrasound: frequency of 20 kHz, intensity power of 750 W) with longer sonication time (10-15 min) enhanced the efficacy of melanosis inhibition in treated shrimp and also microbiological

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analyses revealed that pre-cooked shrimps treated with EGCG solution using ultrasound showed lower total viable count, psychrophilic bacteria (Sae-leaw et al., 2018).

ENZYME ASSISTED PEELING

The intrinsic enzymes in the shrimp and enzymes from microorganisms during post-mortem storage are accountable for enhancing shell. Addition of enzymes from external sources e.g., microorganisms, plants and animals, to the maturation process may be a potential approach in accelerating shell-loosening.

Fehmerling (1970) applied a mixture of protease, carbohydrase, and cellulase to whole body crustaceans with the support of vacuum, whereas Gallant et al. (2001) applied a strong concentration (~55%) of protease to the head of crustaceans to loose the shell. Proteolytic enzymes facilitated the shell-loosening and improved the shrimp peelability in terms of peeling work, completely peeled shrimps and meat yield. Maturing shrimps in the endoprotease Endo3-solution generally resulted in the highest peeling efficiency with the lowest peeling work, highest proportion of completely peeled shrimps and a considerably high meat yield compared to the exoprotease, most likely due to the non-specific activity of the endoprotease, which cleaves the peptide bonds of non-terminal amino acids. A combination of an endoprotease and an exoprotease, i.e., Endo3 and Exo, considerably facilitated the shell-loosening as all shrimps were peeled completely (Dang et al., 2018).

MICROWAVE

Microwave heating has vast applications in the field of food processing over a period of several decades. The applications of microwave heating in food processing include drying, pasteurization, sterilization, thawing, tempering, baking of food materials, etc. Microwaves are electromagnetic waves whose frequency varies within 300 MHz to 300 GHz. Domestic microwave appliances operate generally at a frequency of 2.45 GHz, while industrial microwave systems operate at frequencies of 915 MHz and 2.45 GHz (Datta, 2001). Microwave heating is caused by the ability of the materials to absorb microwave energy and convert it into heat. Microwave heating of food materials mainly occurs due to dipolar and ionic mechanisms.

The presence of moisture or water causes dielectric heating due to the dipolar nature of water. When an oscillating electric field is incident on the water molecules, the permanently polarized dipolar molecules try to realign in the direction of the electric field. Due to the high frequency of the electric field, this realignment occurs at a million times per second and causes internal friction of molecules resulting in the volumetric heating of the material (Chandrasekaran et al., 2013). In seafood industry, microwave treatment is used for shrimp thawing instead of the conventional method where the shrimps are thawed under running water. The peeling yield of shrimp thawed by microwave was 1.7% lower compared to the shrimp thawed under water. However, the microwave method not only used less water for thawing, but also resulted in higher protein retention during the following cooking process (Bezanson et al., 1973). MW heating is more accepted for rapidly heating small sized food products but found to be less satisfactory for heating larger sized ones.

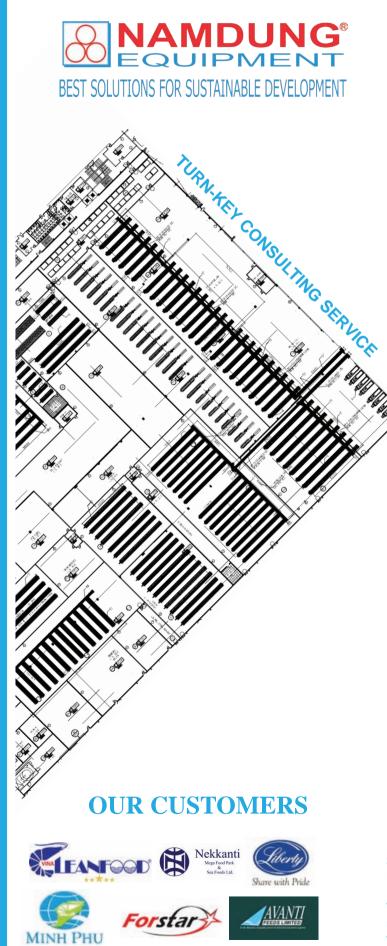
OHMIC HEATING (OH) TECHNOLOGY

Ohmic Heating is a novel thermal process in which food acts as an electrical resistance between two electrodes. An alternating current is passed directly through a conductive food, which in turn leads to internal heat generation. Due to the nature of the Ohmic process, the heat generated is more uniformly and efficiently distributed through the product being cooked, compared to the heating process achieved by either hot water bath or stream. Some previous research has been performed on the application of OH for the processing of shrimp, especially for thawing purposes.

Currently, Ohmic Heating is used as a thermal method to preheat, to blanch and to pasteurize and sterilize vegetable products, fruit preparations and meat products (Ramaswamy et al., 2014). The process is based on using the electrical resistance of the food being treated. Dissipation of the electrical energy when an electric current flows through food causes heat to be released (Joule effect). The amount of dissipated heat is directly related to the applied voltage and the electrical conductivity of the product or individual product fractions (Ohm's law) (Varghese et al., 2014).

CONCLUSION

Studies on high-pressure processing and enzymes have been studied in shell loosening of shellfish. The reports on the study of microwave, ultrasound and Ohmic Heating have not been studied in regard to the peeling of the shrimp but several researchers have studied these technologies in peeling of fruits and vegetables. In future, the optimization of operational conditions at which the novel technology offers the best peeling efficiency along with quality and safety is a huge challenge for shrimp industries and researchers.





SHRIMP PROCESSING EQUIPMENT

- PRE-PROCESSING CONVEYOR
- WASHING MACHINE
- HLSO GRADING MACHINE
- PUD GRADING MACHINE
- SOAKING TANK



FREEZING EQUIPMENT

- FEEDING MACHINE
- IQF FREEZER
- GLAZER
- RE-FREEZER



VALUE ADDED PRODUCTS

- COOKER
- CHILLER
- BOILER
- NOBASHI LINE
- SUSHI CONVEYOR
- SUSHI CUTTER

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Fishermen get training in GPS handling



▲ GPS Training program in Poombuhar, Tamil Nadu

etwork for Fish Quality Management and Sustainable Fishing (NETFISH), in association with its member NGOs and with the support of technical experts from GPS traders, executed a few training programmes on the handling of Global Positioning System (GPS) for the fishermen in Tamil Nadu and Karnataka during February 2018. The GPS will help fishermen improve their position while undertaking fishing in mid-sea. The major objectives of the training were to provide systematic training to fisher-folks on GPS handling and troubleshooting techniques to improve their fishing efficiency and to ensure safe navigation as well.



GPS Training program in Pondicherry, Tamil Nadu

In Tamil Nadu, six GPS training programmes were conducted by NETFISH, through its partner NGOs, M.S. Swaminathan Research Foundation (MSSRF) and Society



🔨 GPS Training program in Cuddalore, Tamil Nadu

for Occupational Health, Environment and Social Security (SOHES), at Poombuhar, Cuddalore and Pondicherry on February 12th, 18th and 19th respectively. Thirty fishermen had benefitted by each of these programmes and a total of 120 fishers were made aware on the following aspects such as 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





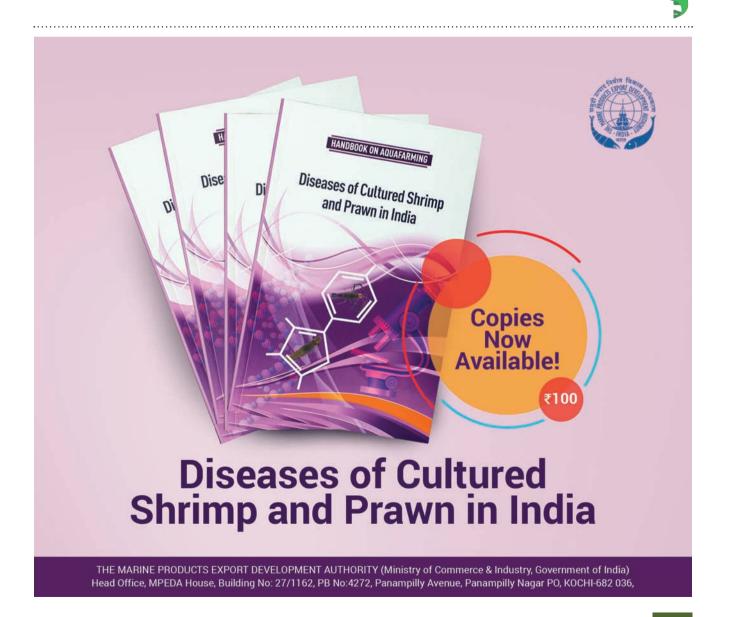
GPS training program in Karnataka

GPS waypoints in rescue situations, function of proximity alarm, troubleshooting, etc. Also, the trainees were

explained about latitude, longitude and how it relates to the degree, minutes and seconds of GPS coordinates.

In Karnataka, awareness on the operation of GPS was conducted at Gangolli, Honnavar, and Malpe during February 21-22 in which a total of 85 participants including fishing vessel crews and boat owners were benefitted. Mr. K. A. Narayana, NETFISH State Coordinator in Karnataka along with Mr. Santosh Patil, AGM, Furuno, Moloobhoy, Mumbai handled the training sessions and helped the trainees to have a better understanding on the operation and usage of GPS in fishing vessels.

The combination of theory and practical sessions enabled the beneficiaries to understand many options and features available in GPS and its uses.



21

Highlights of marine fish landings in selected harbours of India during February 2018

SUBHRAKANTA MOHAPATRA, V. V. AFSAL, N. J. NEETHU, JOICE V. THOMAS NETFISH-MPEDA

INTRODUCTION

Increase in fishing pressure coupled with climate change scenario has profoundly impacted the sustainability of fishery resources and thus sustainable harvesting has turned out as the need of the hour. Effective monitoring of the catch is an inevitable part of fishery management. Information on boat arrivals and fish landings at the major fishing harbours along the east and west coasts of India is recorded by NETFISH as part of MPEDA's catch certification system. NETFISH monitors the marine fish capture along Indian coast by recording the boat arrivals and fish landings at 46 major harbours and landing centres (Table 1) from the 9 maritime states in the country. The data collected are processed to arrive at a species-wise, state-wise, region-wise and harbourwise evaluation of landings using MS office (excel). This report highlights the marine fish landings at major harbours of India during February 2018.

SI. No.	State	Fishing harbour
1		Beypore
2		Puthiyappa
3		Thoppumpady
4	Kerala	Munambam
5	Kerala	Sakthikulangara
6		Thottapally
7		Kayamkulam
8		Vizhinjam
9		Mangalore
10		Malpe
11	Karnataka	Gangoli
12		Tadri
13		Karwar
14	Maharashtra	Harne

15		New Ferry Wharf
16	Maharashtra	Ratnagiri (Mirkarwada)
17		Sasson Dock
18		Veraval
19	Gujarat	Porbandar
20		Mangrol
21		Digha (Sankarpur)
22		Deshapran
23	Mart Dan wal	Namkhana
24	West Bengal	Sultanpur
25		Kakdwip
26		Raidigi
27		Paradeep
28	Odisha	Balaramgadi
29		Bahabalapur
30		Dhamara
31		Kakinada
32	Andhra Pradesh	Machilipatnam
33	Anuma Pradesn	Nizampatnam
34		Visakhapatnam
35		Chennai
36		Pazhaiyar
37		Nagapattinam
38		Tuticorin
39	Tamil Nadu	Cuddalore
40		Mandapam
41		Colachel
42		Pondicherry
43		Karaikal



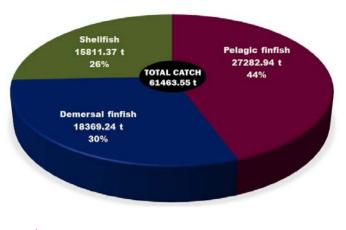
44	Tamil Nadu	Chinnamuttom
45		Cutbona
46	Goa	Malim

ESTIMATES BASED ON FISH LANDINGS

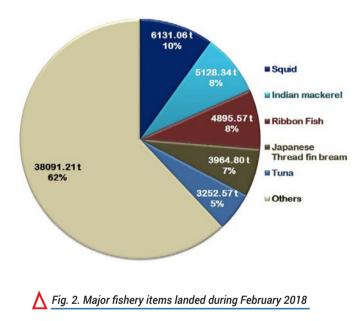
In February 2018, a total landing of 61,463.55 tons of marine fishery resources was recorded from the 46 landing sites, of which the contribution from Pelagic finfish resources was the highest with a share of 27,282.94 tons (44%) and followed by Demersal finfishes and Shellfish resources with a contribution of 18,369.24 tons (30%) and 15,811.37 tons (26%) respectively (Fig. 1).

The landings consisted of 111 marine fishery items, among which the top five contributors, in the chronological order, were Squid, Indian mackerel, Ribbon fish, Japanese threadfin bream and Tuna (Fig. 2), which together formed 38% of the total catch. In addition to the above listed 5 major contributors, the Indian oil sardine, Cuttlefish and Croaker too shared a good percentage (more than 4%) of the total catch, with a landing of 3107.66 tons, 2924.56 tons and 2891.34 tons respectively. The Deep sea lobster was the fishery item which recorded the least landing during the month (0.12 tons).

The category-wise quantity of various fishery items recorded during February 2018 is given in Table 2. Among pelagic finfish resources, the Indian mackerel recorded the highest landing which was followed by Ribbonfish and Tuna. In the case of demersal finfishes, the major contributors were Japanese threadfin bream, Croakers, and Bull's eyes. The Molluscan stock comprised of Squid, Cuttlefish and Octopus formed 62% of the shellfish landing and the rest 38% were of Crustaceans. Among Crustaceans, Penaeid shrimps were the major contributor, wherein *Karikkadi* shrimp had the highest share (1,267.92 tons).







Fish item	Qty. in tons	% of total catch
Pelagic finfish		
Indian mackerel	5128.34	8.34
Ribbonfish	4895.57	7.96
Tunas	3946.62	6.42
Indian oil sardine	3107.66	5.06
Horse mackerel	2083.24	3.39
Anchovies	2015.35	3.28

Table 2. Category-wise Landing of various fishery items during January 2018

Seer fish	1164.71	1.89
Scads	1051.31	1.71
Barracuda	816.63	1.33
Dolphin fish	661.64	1.08
Lesser sardines	501.64	0.82
Bombay duck	391.71	0.64
Trevallys	289.92	0.47
Herrings	140.25	0.23

Oriental bonito	132.80	0.22		
Leather jacket	127.59	0.21		
Queen fish	124.18	0.20		
Cobia	108.23	0.18		
Mullet	104.63	0.17		
Needle fish	103.82	0.17		
Marlins	100.71	0.16		
Sail fish	80.28	0.13		
Hilsa	74.47	0.12		
Indian ilisha	46.90	0.08		
Sea bass	28.16	0.05		
Indian salmon	27.16	0.04		
Flat needle fish	18.54	0.03		
Silver sillago	7.45	0.01		
Rainbow runner	2.84	0.00		
Fusilier	0.60	0.00		
Total	27,282.94	44.39		
Demersal Finfish				
Japanese threadfin bream	3964.80	6.45		
Croakers	2970.39	4.83		
Bull's eyes	2835.00	4.61		
Cat fish	1774.49	2.89		
Sole fish	1696.02	2.76		
Lizard fish	1694.08	2.76		
Moon fish	804.41	1.31		
Reef cod	787.23	1.28		
Snapper	668.74	1.09		
Pomfrets	496.36	0.81		
Pony fishes	227.47	0.37		
Eel	138.05	0.22		
	133.96	0.22		
Goat Fish				
Goat Fish Rays	111.80	0.18		
	111.80 11.32	0.18 0.02		
Rays				

Indian halibut	7.47	0.01			
Parrot fish	6.48	0.01			
Black tip shark	5.42	0.01			
Tiger Perch	5.36	0.01			
Silver biddy	4.45	0.01			
Batfish	2.30	0.00			
Sea bream	1.75	0.00			
Filefish	0.65	0.00			
Total	18,369.24	29.89			
Shellfish					
Crustaceans					
Penaeid shrimps	5233.66	8.52			
Sea Crab	766.23	1.25			
Lobsters	12.06	0.02			
Mud Crab	7.21	0.01			
Non-penaeid shrimps	1.95	0.00			
Total Crustacean	6,021.11	9.80			
Mollusc	Mollusc				
Squid	6131.06	9.98			
Cuttlefish	2924.56	4.76			
Octopus	734.64	1.20			
Total Mollusc	9,790.26	15.93			
Total Shellfish	15,811.37	25.72			
Grand Total	61,463.55	100.00			

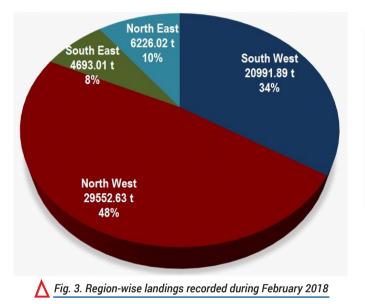
REGION-WISE LANDINGS

Among the four fisheries zones, the North West coast, comprised of 7 selected landing sites in Maharashtra and Gujarat coasts, was found to record the maximum landings of 29,552.63 tons (48%) during the month than the other regions. Next to it was the South West zone (comprised of 15 selected harbours in Kerala, Karnataka and Goa), where 20,991.89 tons of landings was registered. Thus the landings from West coast zones together formed 82% of the total catch (Fig. 3). From the South East coast (comprised of 14 harbours in Tamil Nadu and Andhra Pradesh), a total quantity of 4,693.01 tons of marine catch landings (only 8% of the total catch) was recorded during the period. The North



East region consisting of 10 of the selected landings sites in Odisha and West Bengal recorded a quantity of 6,226.02 tons (10%).

Pelagic finfishes dominated the landing in all four regions, with South West coast recording a notably high quantity (Fig. 4). The Demersal finfish landings stood in



the next position in South West, North West and North East regions, whereas in South East coast the shellfish landings was higher than that of demersal finfishes.

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

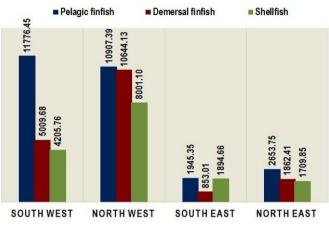


Fig. 4. Comparison of category-wise contribution (in tons) to the total landings of each region

Table 3.	Major fishery	v items landed	l in each region	during February 2018
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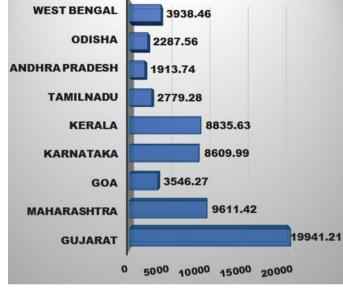
Item	Quantity in tons	% of total landings of the region			
South West					
Indian mackerel	3249.10	15.48			
Indian oil sardine	2476.82	11.80			
Squid	1740.03	8.29			
Japanese threadfin bream	1584.85	7.55			
Tuna	1230.77	5.86			
North West	North West				
Squid	3848.36	13.02			
Ribbonfish	3843.20	13.00			
Japanese threadfin bream	2183.66	7.39			
Horse mackerel	1631.33	5.52			
Bull's eye- dusky finned	1615.50	5.47			
South East					
Tuna	747.04	15.92			
Cuttlefish	494.60	10.54			

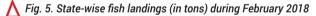
White prawn	292.74	6.24			
Squid	284.48	6.06			
Ribbonfish	259.17	5.52			
North East	North East				
Croaker	882.31	14.17			
Indian oil sardine	491.42	7.89			
Ribbonfish	442.31	7.10			
Golden anchovy	362.43	5.82			
<i>Karikkadi</i> shrimp	362.20	5.82			

STATE-WISE LANDINGS

Among the nine maritime states in the main land of India, the state of Gujarat had recorded the maximum marine fish landing during the month, which was to the tune of 19,941.21 tons, forming more than 32% of the total catch (Fig. 5). Next to Gujarat, the state of Maharashtra recorded a quantity of 9,611.42 tons which was around 15% of the total quantity recorded from all the states. Kerala held the third place with a total landing of 8,835.63 tons (more than 14%). The West coast states together formed more than 82% of the total catch. In East coast, the highest landing was reported from West Bengal, which was 3,938.46 tons (more than 6%). The state which recorded the least landing during the month was Andhra Pradesh where merely 1,913.74 tons of marine fish catch was recorded.

The major five fishery items which had contributed significantly to the landings in each state during February 2018 are given in Table 4.





18.69 18.51

15.97

9.10 7.57

29.26

ltem	Quantity in tons	% of total	Karnataka		
		landings of the state	Indian mackerel	1609.37	
Kerala			Indian oil sardine	1593.61	
Indian oil sardine	822.36	9.31	Japanese threadfin bream	1374.95	
Squid	675.90	7.65	Squid	783.87	
Tuna	619.71	7.01	Indian scad	651.45	
Indian mackerel	602.23	6.82	Goa		
Cuttlefish	573.90	6.50	Indian mackerel	1037.50	

Table 4. Major fishery items landed in various states during February 2018

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Moon fish	544.10	15.34		
Tuna	499.60	14.09		
Horse mackerel	327.80	9.24		
Squid	280.26	7.90		
Maharashtra				
Horse mackerel	1487.73	15.48		
Squid	901.86	9.38		
Indian mackerel	789.31	8.21		
Croaker	641.78	6.68		
Brown shrimp	599.90	6.24		
Gujarat				
Ribbonfish	3278.00	16.44		
Squid	2946.50	14.78		
Japanese threadfin bream	1665.50	8.35		
Bull's eye- dusky finned	1615.50	8.10		
Cuttlefish	1542.00	7.73		
Tamil Nadu				
Cuttlefish	462.90	16.66		
Tuna	338.44	12.18		
Squid	231.65	8.33		
Indian oil sardine	131.95	4.75		
Snapper	107.59	3.87		
Andhra Pradesh				
Tuna	408.60	21.35		
White prawn	218.70	11.43		
Ribbonfish	194.17	10.15		
Brown shrimp	172.04	8.99		
Pink shrimp	128.85	6.73		
Odisha				
Croaker	506.42	22.14		
Ribbonfish	193.74	8.47		
Golden anchovy	182.26	7.97		
Sole fish	169.33	7.40		

<i>Karikkadi</i> shrimp	156.41	6.84			
West Bengal					
Indian oil sardine	407.13	10.34			
Croaker	375.89	9.54			
Indian mackerel	280.41	7.12			
Bombay duck	250.32	6.36			
Ribbonfish	248.57	6.31			

HARBOUR-WISE LANDINGS

The fish landings recorded during the month at the selected harbours along West and East coasts are presented in figures 6 and 7 respectively. Of the 46 harbours, Veraval harbour registered the maximum landing of 8,556.00 tons (14%) and it was followed by Porbandar harbour with a contribution of 6,373.21 tons (10%). Mangalore harbour recording a quantity of 6,263.97 tons (10%) and Beypore harbour with a quantity of 6,004.50 tons (9%) held the subsequent positions. Along East coast, the harbour which recorded the highest landing was Visakhapatnam where 1,405.02 tons (2%) was landed. Eleven out of the selected 22 harbours in the West coast recorded more than 1000 tons of catch whereas only 3 out of 24 harbours of East coast had recorded over 1000 tons of catch. The least quantity of landings was recorded from Chinnamuttom harbour (30.20 tons).

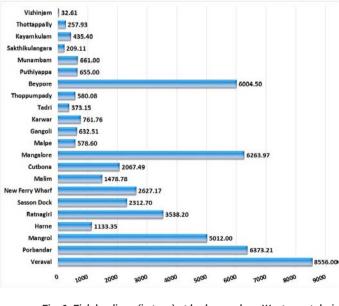


Fig. 6. Fish landings (in tons) at harbours along West coast during February 2018



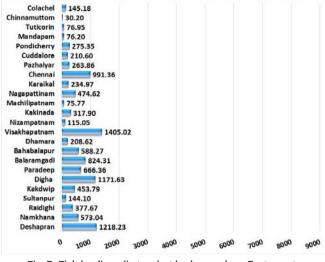


Fig. 7. Fish landings (in tons) at harbours along East coast during February 2018

ESTIMATES BASED ON BOAT ARRIVAL

A total of 26,964 boat arrivals were recorded during February 2018, of which the highest of 4,133 boat arrivals was from Veraval harbour. Next to Veraval was the Porbandar harbour where 2,820 numbers of boat arrivals had occurred. Only 5 out of the 46 harbours had recorded more than 1000 boat arrivals during the period, the details of which are given in table 5. Around 74% 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, Ring seiners, Gill netters, Long liners and Traditional crafts.

Table 5. Fishing harbours which recorded				
> 1000 boat landings during February 2018				

SI. No.	Fishing harbours	State	Number of boat landings
1	Veraval	Gujarat	4133
2	Porbandar	Gujarat	2820
3	Mangrol	Gujarat	2302
4	Mangalore	Karnataka	2142
5	Harne	Maharashtra	1211

COMPARATIVE ANALYSIS

Table 6 shows the comparison of the data of February 2018 with that of the previous months. The total fish catch had decreased by more than 25,000 tons during February 2018 when compared to that of January 2018. The Pelagic finfish continued as the top contributor to the total catch and showed an increase by 1% in share. The percentage share of Demersal finfish resources had decreased by 2% whereas the percentage share of shellfish landing increased by 1%. Squid attained the position of topmost contributor during the period and the Ribbonfish was moved to the third position. The state of Gujarat continued in the top position in terms of landings and the Veraval harbour in Gujarat could attain the prime position by recording the maximum catch. The total number of boat arrivals recorded had decreased in February 2018 by over 6,600 boats when compared to that of January 2018.

	December 2017	January 2018	February 2018
Total Catch	82,849.37 t	86,568.64 t	61,463.55 t
Landing of Pelagic finfishes	39,510.15 t (48%)	37,443.01 t (43%)	27282.94 t (44%)
Landing of Demersal finfishes	23,492.34 t (28%)	27,540.88 t (32%)	18369.24 t (30%)
Landing of Shellfishes	19,846.87 t (30%)	21,584.75 t (25%)	15811.37 (26%)
Species recorded highest landing	Indian oil sardine (10%)	Ribbonfish (9%)	Squid (10%)

Table 6. Comparative analysis of the data



State recorded highest landing	Gujarat (30%)	Gujarat (30%)	Gujarat (32%)
Harbour recorded highest landing	Veraval (13%)	Beypore (13%)	Veraval (14%)
Total Boat Arrivals	32,115	33,568	26,964

*Percentage of Total Catch

SUMMARY

In February 2018, a total landing of 61,463.55 tons of marine fishery resources were recorded from 46 major fish landing sites of India, wherein pelagic finfishes contributed more quantity than demersal finfishes and shellfish stocks. The fewer landings along South West coast during the period can be attributed to the eight days strike held by the mechanized fishing sector of Kerala. Considering the fishery item-wise landings, Squid recorded as the major contributor. Landings from the West coast states together formed more than 82% of the total catch, and the North West coast contributed the maximum share of more than 48%. The state of Gujarat recorded the highest catch among the 9 maritime states. Among the 46 selected harbours, 14 harbours recorded more than 1000 tons of fish landings and the Veraval harbour registered the highest landing as well as the highest number of boat arrivals.





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AQUACULTURE SCENE

Banned antibiotics in aquaculture: Awareness campaigns organized in Odisha



Mr. Naresh Tambada, Assistant Director, Regional Division, Bhubaneswar addressing the farmers at Ajagarpatia

PEDA Regional Division, Bhubaneswar has conducted two awareness campaigns in Ajagarpatia and Krishnapriyapur villages in Kendrapara district of Odisha for shrimp farmers against the use of banned antibiotic in aquaculture.



A view of the trainees

The awareness campaign organized at Ajagarpatia village on February 26, 2018 was attended by 45 farmers. The adverse impacts of banned antibiotics in shrimp culture were explained to the farmers and requested them to enroll the farms with MPEDA for better traceability. Mr. Naresh Tambada, Assistant Director, Regional Division, Bhubaneswar clarified their doubts and detailed the process of availing subsidy for sludge pumps, aerators, pumps, bird fencing, etc. Mr. Suresh Mohanty, Lascar translated the discussions into the vernacular language. Farmers thanked MPEDA officials for conducting such a meeting at a very remote village.

The awareness campaign at Krishnapriyapur (Gupati) village in Kendrapara was organized on February 27, 2018 and was attended by 44 farmers. In the meeting discussed enrolment of farms, availability of testing facility for seeds before stocking, facility of PCR lab at Gopalpur, Ganjam, adverse impact of banned antibiotics in aquaculture, etc. The doubts raised by farmers were clarified by MPEDA official.





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NEWS SPECTRUM

Oil sardines are back in the milieu

Oil sardines, the backbone of the traditional marine fisheries in Kerala, is showing early signs of a recovery after recording the lowest level of catch in two decades in 2016.

Scientists at the Central Marine Fisheries Research Institute (CMFRI) said on 20/03/2018 that the total oil sardine landings went up to 1.25 lakh tones in 2017, a remarkable turnaround from the 45,000-ton level last year.

Given the current trend, oil sardines catch should go up to substantially healthier levels by 2020 though there was no guarantee against the cyclical nature of the fisheries, said a member of the team of scientists at the CMFRI studying oil sardine fisheries, among other issues.

Senior Scientist Dr. V. Kripa attributed the oil sardine recovery to human intervention in better resource management as well as to environmental factors such as better food availability and higher oxygen levels in the sea off the Kerala coast. There had been concerted efforts to end juvenile fishing despite differences of opinion on the issue among stakeholders.

At the same time, the scientist warned that a collapse in catch like the one seen recently could not be allowed to be repeated given the intricacies of problems such as climate change. Even as the sea conditions appeared to have improved in favour of oil sardine fisheries.

Dr. Kripa did not rule out the existence of adverse sea conditions highlighted by jelly fish blooms abetted largely by human activity.

Oil sardines constitute about 80% of the catch by ring seines. Oil sardines also decide the fate of more than two lakh traditional fishermen in the State, where the fish is considered a delicacy, accessible even to the lowest income groups.

The scarcity of oil sardines in 2015-16 resulted, though briefly, in import of sardines from Oman for local consumption and the fish from Oman was sold at a marginal premium.

Oil sardine landing has come down from as high as about four lakh tons in 2012 to a little over 45,000 tons in 2016. A report by the CMFRI in 2015, submitted to the State government, said that the fisheries sector in Kerala lost about Rs. 150 crore due to the sharp drop in oil sardine catch.

Traditional fishermen had claimed that the cumulative loss due to the fall in oil sardine catch was in the range of Rs. 10,000 crore.

-www.thehindu.com



NEWS SPECTRUM

Exporters fish for smaller shrimp to meet demand

Rising demand for smaller shrimp is compelling Indian seafood exporters to tweak their shipments to suit the global palate. India has been traditionally strong in the big-size farmed shrimp ranging from 20 to 40 counts per kg, but now they are encouraging farmers to go for multiple harvests to meet the requirement for small shrimps, which could help the farmers in the long run.

"Sharp decline in the sea-caught shrimps, especially from Kerala, which are generally of small size is one reason for this. Farmed shrimps are filling up the vacuum," said Kenny Thomas, MD of Jinny Marine Traders.

Small shrimp lend themselves to many value-added shrimp products. "You can't make Japanese dish sushi with big shrimps," said Thomas.

Sizes from 50 to even 120 counts are becoming popular. Most of the Southeast Asian countries are focusing more on farming small shrimps and India is now shifting towards this trend. Exporters said it is a win-win situation as farmers get paid for multiple harvests while they will be able to export more consignments.

India is currently the top supplier of farmed shrimps in the world. Among the shrimps imported by the US, the share of Indian shrimps is 40%.

"The buyers have to pay less as the size is smaller. The farmers, in turn, can increase the number of harvests reducing the risk of diseases. They can also keep the cost of feed down," said Anwar Hashim, Managing Director of Abad Fisheries.

Experts suggest that producing small shrimps may help augment domestic consumption as the local preference is for lower sizes. "At present, about 42,000 to 45,000 tons are absorbed by the local market. If we can double that, there will be less pressure on exports," said S. Chandrasekar, President of the Society of Aquaculture Professionals.



NEWS SPECTRUM

Three new freshwater fish species discovered in Assam, Manipur

Three new freshwater fish species - *Garra biloborostris, Garra clavirostris* and *Garra substrictorostris* - have been discovered by a research team from Assam and Manipur, an international journal Zootaxa has reported.



Garra clavirostris

The first two species were discovered from Assam's Brahmaputra tributaries, Kanamakra stream bordering Bhutan and Diyung River near Haflong, while the third one was found in Leimatak stream, a tributary of the Barak in Manipur.



Garra biloborostris

"Our papers on the new discoveries were submitted some time back, but most of them were accepted only recently following thorough examinations by international reviewers," said researcher Narengbam Roni of Manipur University.

This 7-8 inch long newly discovered fish species found mostly in torrential hill streams, were known as Ngamu Sangum in Manipur and as Sil Toka (Nahlo in Dimasa and Nah Kanda in Bodos) in Assam. According to Prof. W. Vishwanath, a member of the International Union for Conservation of Nature's (IUCN) freshwater fish specialist group who guided the researchers, the identification of the new species was examined and evaluated by an expert panel, including one from the IUCN, and submitted to the London-based International Commission on Zoological Nomenclature, which allocates a unique identification key to the species.

Garra clavirostris was discovered jointly by researchers Narengbam Roni and Thaosen Sarbojit of Assam's Haflong Government College from Diyung River while *Garra biloborostris* and *Garra substrictorostris* was discovered by Roni from Kanamakra (Assam) and Leimatak (Manipur) streams.



Both Roni and Sarbojit have received extensive training in fishery science under Prof. Vishwanath.

"So these three fish species can be distinguished from the recently described species and are new to the world," said Prof. Vishwanath, who is also the head of the fishery unit in Manipur University's life science department.

"In fact, North-East India, with its diverse hill streams has rich species diversity and is home to 32 species out of the 200 recognised (Garra variety in the world). Many more species are awaiting discovery," he said.

With the new discoveries, Prof. Vishwanath's team has so far discovered nearly 85 freshwater fish species since the discovery of Puntius jayaremi, locally known as Heikak Nga, in Manipur in 1986, adding to the around 250 fish species (including 200 endemic fish species) in Manipur alone.

- www.hindustantimes.com



2018 MARCH MPEDA NEWSLETTER

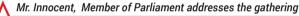
Fishing implements distributed by ICAR-CIFT, Cochin



Fishing implements sponsored under the Tribal Sub Plan project were distributed to members of Vazhachal CFR Coordination Sangham by Mr. Innocent, Honourable Member of Parliament, Chalakudy Constituency on 3rd March, 2018. The function was held at the Schedule Tribe Community Centre, which was presided over by Mr. B. D. Devassya, Hon.ble MLA, Chalakudy. Speaking on the occasion, Mr. Innocent highlighted on the importance of responsible fishing. He also appreciated the grass root level activities of ICAR-CIFT for implementation of responsible fishing and also for the upliftment of tribal



Distribution of inputs



fishermen throughout the country.

Mr. Tiju C. Thomas, Associate Coordinator, WWF India welcomed the gathering. Mr. Devassya alerted the tribal fishermen against the exploitation of the middlemen, which is the major reason for the slow pace in the development activities.

Dr. C. N. Ravishankar, Director, ICAR-CIFT urged the participants for the judicial exploitation of common resources from forest and water bodies for sustainability. He stresses the need for hygienic fish handling ethics to be followed in the marketing of fishery products.

Dr. M. P. Remesan, Principal Scientist, ICAR-CIFT requested the Hon'ble MP to take necessary actions to retain the TSP and allocate sufficient funds for the Institute so that the poor people get direct benefit. Dr. V. R. Madhu, Principal Scientist and Mr. Aravind S. Kalanguthkar, Technical Officer of ICAR-CIFT also participated in the function. Improved and selective gillnets and accessories arranged by ICAR-CIFT intended for responsible fishing were later distributed among the 50 members of the Vazhachal CFR Coordination Sangham.



NEWS SPECTRUM

Online fish sale gets momentum in Bengal

The traditional fish market is shifting to digital space with online order of fish and doorstep delivery slowly becoming the norm in the city. Besides the West Bengal government's Smartfish app for online shopping of fish, six engineering students from different premier institutions have launched an online retail shop where one can get fresh fish and meat along with groceries and some other food stuff. "We can provide you 75-80 types of fish and different varieties of chicken and mutton. The only thing you need to do is to place your order by 9 PM the day before and your order will be delivered the next day within two hours of procurement from the market," founder of Delybazar Abhirup Basak said. Delybazar has around 22,000 registered customers with an annual turnover close to Rs. four crore. It can be availed through website and app.

"Even as there are some other online national grocery

stores, the utmost USP of Delybazar is you get fresh, unprocessed and unpreserved fish and meat from here like nowhere else," Basak claimed. The West Bengal government's Smartfish app to book fish online was launched earlier this year by the State Fisheries Development Corporation. Using the app, one can get fish delivered at doorstep in any form - fillet, dressed, dry or pickle.

SFDC Director, Soumyajit Das had said after the app was launched in January, that 22 varieties of fish, seven categories of dried fish and fish pickle would be sold through this app. "This is the first time a government organization has launched a fish app to sell varieties of fish. The fish will be delivered directly once the consumer makes the choice," he said. In a trial run of the app, SFDC sold fish in several parts of north eastern part of Kolkata including pockets of satellite township Salt Lake.

-www.indiatoday.in





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NEWS SPECTRUM

Fatty fish could help drastically reduce risk of multiple sclerosis: Study

Lower you risk of multiple sclerosis (MS) by consuming fish just once a week, researchers say.

There is currently no cure for MS, a debilitating disease of the nervous system. The condition damages the fatty protective sheaths around nerves and impairs the brain's communication process along with the rest of the body. "We wanted to see if this simple lifestyle modification, regularly eating fish and taking fish oil supplements, could reduce the risk of MS," study author Dr. Annette Langer-Gould of Kaiser Permanente Southern California and a member of the American Academy of Neurology, told the Daily Mail.

The study found people who ate fish often had a 45% reduced risk of developing MS.

The study suggests changes to your diet can have a huge impact in preventing the disease.

Adding fish like salmon, sardines, albacore tuna and late trout and daily fish oil supplements could make a huge difference.

Previous research has also indicated that fatty acids or oil from fish can help prevent MS symptoms.

- www.deccanchronicle.com



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2. Janet Lai

Purchasing Manager Gem Ocean Seafood Corporation 5F, No, Kuo-Kuang Rd., Chien Chen Dist., Kaohsiung, Taiwan, R.O.C. Tel: 886 7 335 0176 #101 Fax: 886 7 335 0176 #101 Fax: 886 7 335 0157 Mob: 886 932 728713 E-mail: janetlai@import-marketing.com Web: www.gemoceanseafood.com Shrimp

3. Yang Xue

General Manager First Catch Fisheries Co. Ltd. 667 Barnes Dr, Goffs, NS, Canada B2T 1K3 Tel: 902 873 2400 Mob: 902 402 9684 E-mail: yang@firstcatch.ca Shrimp

4. Magnus Ottenborn

President Otten's Seafood Tel: 1 312 833 4585 Fax: 1 773 247 9744 Int: 46 0 70 26 28 392 E-mail: magnus@ottenseafood.com *Penaeus monodon*

5. Javier Gonzalez

Owner Pier Dynasty The Freshest Catch & Harvest Delivered, USA E-mail: javier@pierdynasty.com Web: pierdynasty.com *Penaeus monodon*

6. Nobuyuki Tsujii

Senior Vice President Jintatasu Foodstuff Co. Ltd. 5F, Fujishin Bldg, 4-4-18, Kitanagasa-st, Chua-ku, Kobe,6500012, Japan Tel: 81 78 326 8118 Fax: 81 78 326 8110 Mob: 81 80 3859 6887 E-mail: n.tsujii@jintatsu.co.jp Web: www.jintatsu.co.jp Dry shrimp

7. Jordan Xu

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11. Pablo Andres Pizarro Canas

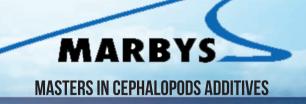
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12. Clynn Whitworth CPM, CFPM

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15. George Weeden

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19. Bonnie

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21. Charles Jesurun Trader

Indar Sa International Trading Company Calle Aquilino de la Guardia PH American International Piso 5 Panama, Republic of Panama Tel: 599 9 5113644 E-mail: indartradingsa@gmail.com *AFD shrimp powder*



22. Matt Chatigny

Sales Northern Fisheries Little Compton, Rhode Island (RI) 02837 Tel: 401 592 0600 Fax: 401 635 2976 Mob: 617 943 2035 E-mail: matt@northfishltd.com Web: www.northernfisheriesItd.com White shrimp all sizes

23. Olga Serdjuk

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24. Sundance Yoakum

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44. Tomas Kavaliauskas

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46. Thomas Eadon

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51. Sergio Nates Senior VP Menon P.O Box 910033, San Diego, CA 92191 Tel: 1 858 675 9990 Shrimp

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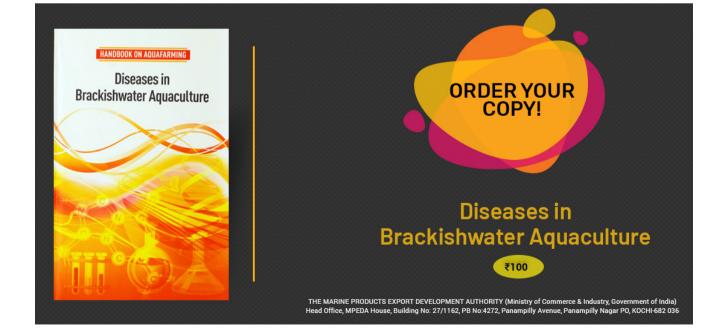
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30. Seafood Market

5201 N State Rd 7, Tamarac, FL 33319 Tel: 954 714 6646 Mob: 954 234 6688 *Mud crab, Penaeus monodon, Pomfret*

31. Dick Ong

Kaypee Spartan Enterprises Corp. 117-B South Washington Ave, Bergenfield NJ,07621 Tel: 1 646 492 0006 E-mail: dco16888@gmail.com *Mackerel, Shrimp*

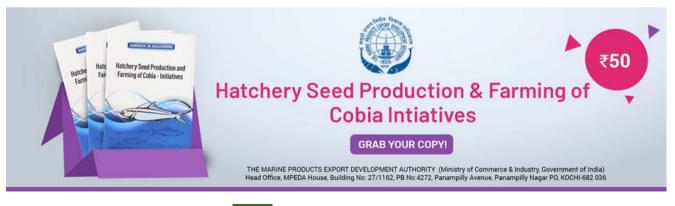
32. Kenjiro Sakamoto

Sales Manager Okaya (U.S.A) Inc. 9335 Airway Road, suite 105 San Diego, CA 92154 Tel: 619 882 2463 Fax: 619 882 2476 Mob: 619 820 3734 E-mail: ksakamoto@okaya-usa.com Web: www.okaya.co.jp Shrimp, Tuna

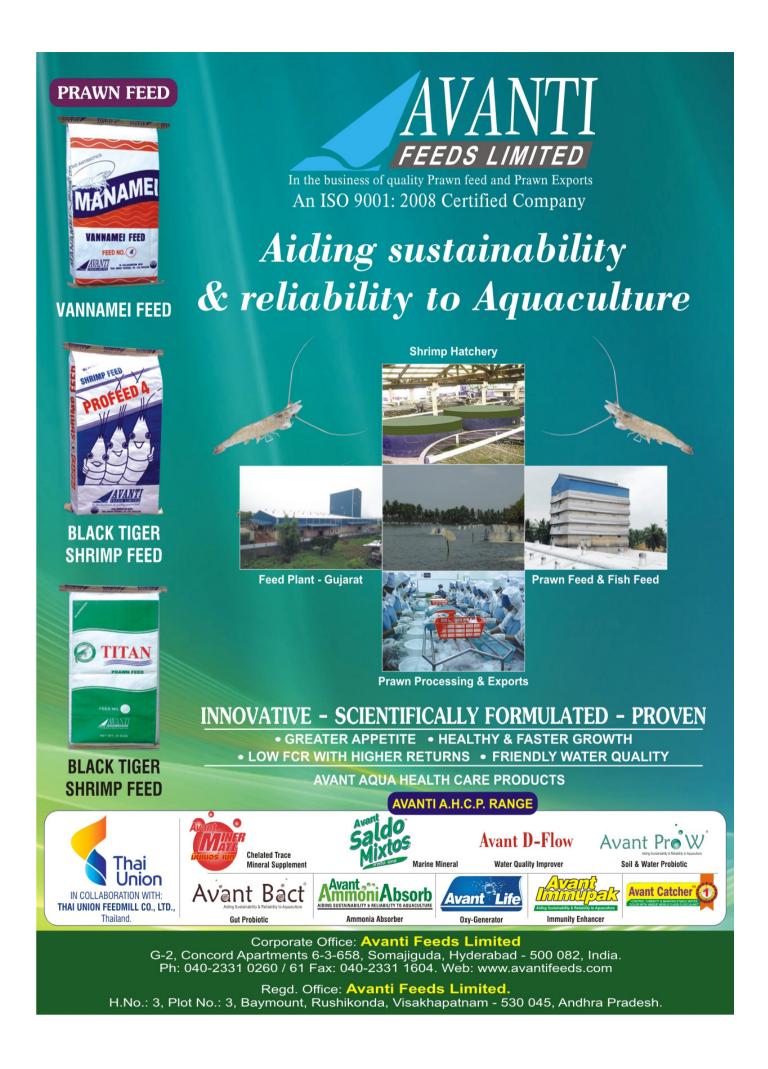
33.Yuan Fang

USA Tel: 1 626 503 9802 Mob: 0086 1370 438 1878 E-mail: 896219713@qq.com *Mackerel, Shrimp*

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