



MPEDA

Newsletter

VOL.VIII / NO.1&2/APRIL / MAY 2020

**One Step by Japan, One
Leap for India's Black
Tiger Shrimp**

**High-Pressure Processing
in Seafood Industry**

**New Protocols to Check
Formalin Adulteration**

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Pioneering Successful and Profitable Shrimp Aquaculture

APRIL - MAY 2020

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K. S. Srinivas IAS
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Dear friends,

The sudden outbreak of Covid-19 has shaken the seafood sector to a great extent. Indian seafood exporters had been facing a lull in demand from USA, Europe and the Chinese markets ever since the Covid-19 became a pandemic. The increase in the instances of infections here has prompted the Government of India also to clamp a nation-wide lockdown from 25th March 2020. The lockdown has disrupted the entire production, supply and process chain of seafood sector. MPEDA, through its timely interventions, stood by the sector and tried to keep trade related activities buoyant. The entire offices and labs of MPEDA functioned even during the lockdown effectively utilizing the digital platforms, so that its functions including certifications related to export as well as pre harvest testing of farmed shrimps remained unaffected, and has helped the trade to a great extent. In addition, we have also interacted with State Governments, Central Departments and even Embassies abroad to see that all the trade related activities are carried out without significant interruption.

The disruption in international flights due to the pandemic has forced cancellation of major seafood fairs scheduled in Boston as well as Brussels. The lack of flight connectivity has affected the chilled fish and live fish exports, which are mainly done by small players of the industry. The seafood trade situation was worse in April, but has shown slight recovery in May, bringing in hopes that things will improve as the time pass by. As there was panic harvest in shrimp farms, the demand for seed also has risen for which MPEDA has re-started the operation of its Aquatic Quarantine Facility in Chennai without much delay to quarantine the imported vannamei shrimp brood stock. All these measures were taken to support the seafood trade, which is a bread winner for hundreds of thousands of our countrymen.

Amidst this chaos, the Government of India has come out with the Atmanirbhar package, which became a big respite for the seafood sector as most of the units will be now covered under the ambit of MSME sector. At this moment, it is for all of us to pray and hope that this crisis will be over enabling the trade to be back to normalcy at the earliest.

Thank You.

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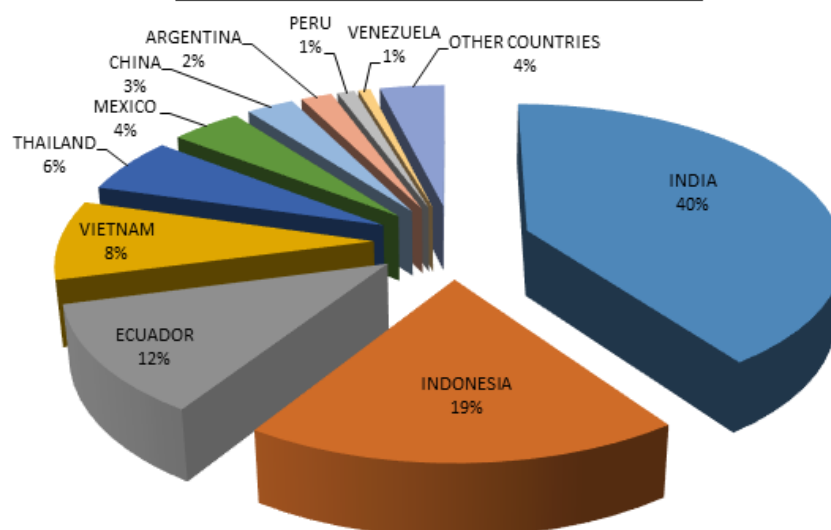
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US Shrimp Imports : 2019

During the calendar year 2019, US imported 6,98,445 MT of Shrimp, out of which 40% was from India. India alone exported 2,82,584 MT of Shrimps to US, which has showed a growth of 14.04% in MT compared to the same period last year. India is the major Shrimp supplier to USA followed by Indonesia, Ecuador, Vietnam, Thailand, Mexico, China etc. The details are given in the following table below:-

USA SHRIMP IMPORTERS DURING JANUARY-DECEMBER IN METRIC TON					
Rank	Country Name	% Share in 2019	JAN-DEC 2019	JAN-DEC 2018	Growth %
1.	INDIA	40.46	282,584	2,47,783	14.04
2.	INDONESIA	19.07	133,165	1,32,317	0.64
3.	ECUADOR	11.88	82,955	75,893	9.31
4.	VIETNAM	8.62	60,230	58,383	3.16
5.	THAILAND	6.06	42,296	49,686	-14.87
6.	MEXICO	4.23	29,555	24,884	18.77
7.	CHINA	2.87	20,032	50,814	-60.58
8.	ARGENTINA	1.88	13,155	11,033	19.23
9.	PERU	1.05	7,357	10,532	-30.15
10.	VENEZUELA	0.73	5,104	3,616	41.15
	OTHER COUNTRIES	3.88	27,116	34007	-20.26
	TOTAL	100.00	698,445	6,95,332	0.45

SHRIMP IMPORTERS TO US : 2019



SOURCE: NOAA FISHERIES: OFFICE OF SCIENCE & TECHNOLOGY

From the figures it is clear that the total shrimp imports to USA have not increased substantially, however it showed marginal increase of 3,113 MT. In nutshell, the increase in market share of Indian and Ecuadorian shrimp may be viewed as a market shift mainly from China due to the prevailing trade issues between US and China.



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Japan lifts inspection order for black tiger shrimps from India



Japan has lifted inspection order for Indian black tiger shrimps after the export consignments of this shrimp were found free from any residue of synthetic anti-bacterial drug furazolidone. This was based on a proposal mooted by MPEDA effectively using its Trade Promotion Office in Tokyo. The Ministry of Health, Labour and Welfare (MHLW) of Japan has also reduced import inspection sampling frequency for black tiger shrimp to 30 per cent from the current 100 percent.

Black tiger shrimp, commonly known as the giant tiger prawn or Asian tiger shrimp, is a popular seafood delicacy the world over and also forms an important segment of India's marine products export basket. Japan consumes nearly 40% of India's black tiger shrimp exports, while it enjoys niche markets in EU and

USA also. A two-member expert team had surveyed the black tiger shrimp hatcheries, and farms, and processing units that export the variety during March 2-6, 2020 ahead of this order.

Mr. K. S. Srinivas IAS, Chairman, MPEDA said it is a validation of the relentless efforts undertaken by MPEDA in raising the request at various platforms and through its trade promotion office in Tokyo while welcoming the decision by Japanese MHLW. Srinivas said the MPEDA has also been making sustained efforts to revive the production of black tiger shrimps by supplying high health seeds of the variety. The present decision by Japan will give an impetus to the farming and export of black tiger variety which has been shadowed by the mass production of exotic vannamei variety during the last 10 years.



Expert team from Japan along with Indian officials, during the survey of Black tiger shrimp hatcheries and farms in India.



Sea safety and navigation training for fishermen

With an aim to sensitize fishermen on safe fishing practices and the importance of life saving equipment, the Network for Fish Quality Management and Sustainable Fishing (NETFISH) of MPEDA, organized a sea safety & navigation training programme at Deshapran fishing harbour, Purba Medinipur in West Bengal. The training programme for boat owners, skippers and assistant skippers was inaugurated by Mr. Somnath Banerjee, Indian Coast Guard Officer, Haldia HQ, on 14th January 2020.

Inaugurating the programme, Mr. Banerjee spoke on the rules and regulations for safe fishing, the do's & don'ts while fishing and necessary documents and life-saving equipment to be kept in the fishing boat. He also demonstrated usage of various life-saving equipment such as life jackets, lifebuoy, Distress Alert Transmitter (DAT) etc. Addressing the attendees, Mr. Singh, OIC, Junput Coastal Police Station & Mr. S. Mahapatra, Sub Inspector, Marine Police spoke about the legal documentation process for fishing, various safety and security issues at sea while fishing and protected areas for fishing. Mr. A. Sengupta, Special Officer, Deshapran Fishing Harbour delivered a lecture on harbour issues and safety.

During the programme, State Fisheries Officer briefed the fishermen on the importance of registration and licensing of fishing boat. State Coordinator gave a presentation on safety measures onboard, use of life jacket, life buoy, life raft, Distress Alert Transmitter (DAT) machine, VHF, HF & MF transmission system, different communication measures during distress, rules of road and various day and night light signals for safe

navigation at sea. Documentary films on 'navigation of fishing vessel' and 'safety at sea' were also shown during the programme. NETFISH distributed training kit and books on safety & security at sea to all the participants.

In Andhra Pradesh, a training programme on sea safety and navigation was conducted on 7th January 2020 at SIFT, Kakinada in association with Department of Fisheries & DFYWA. About 42 stakeholders including members from fishermen associations, boat owners and students attended the programme. NETFISH's State Coordinator delivered a talk on sea safety and navigation and also explained MPEDA's subsidy scheme for Vessel Monitoring System. During the programme, M/s. Electronic Labs, Visakhapatnam demonstrated the use of the latest Vessel Monitoring System (VMS) equipment for the participants. Mr. Srinivasa Rao, Assistant Director, Department of Fisheries explained the use of safety equipment and its importance in an emergency situation. Different kinds of equipment such as lifebuoy, life jacket and water proof torch were displayed during programme.

Sea safety and navigation trainings were conducted in Kerala as well, during January 2020. The training programmes were organized at Purakkad, Arattupuzha, Chavara and Ponnani in the state to create awareness among fishermen regarding the necessity of life saving equipment in fishing boats. NETFISH's state coordinator led classes on basic life-saving equipment, navigation equipment, navigation signals, rules of the road, importance of license, etc. and also demonstrated the use of life jacket.



Suitability of high pressure processing in seafood industry

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Introduction

High pressure (HP) is a non-thermal technology capable of inactivating vegetative cells of pathogenic and spoilage microorganisms, modifying enzymatic activity, reducing losses of desirable compounds, thus preserving freshness and nutritional values of foods. Its application in fish and fish products is based on the ability to render inactive parasites and microorganisms, to increase shelf life, and provide increased performance of the shucking process of bivalves and crustaceans, promoting easier and complete removal of meat. HP studies were initially reported in 1899 for milk conservation, and rose to industrial scale in 1990 in Japan, in the processing of jams, jellies, and sauces, and later in the USA. It has been applied to an increasing range of food products, including smoothies, ham, rice products, fish and shellfish.

Traditional preservation methods such as drying, smoking and canning result in detrimental effects on the taste and appearance of seafood making it unacceptable to many consumers. HP-treated foods retain the appearance, flavour, texture and nutritional qualities of the unprocessed product (Murchie et. al., 2005). Applied pressure between 500 and 600 MPa can be effective for stabilization of meat, providing pasteurization conditions (Guyon et. al., 2016).



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Principles

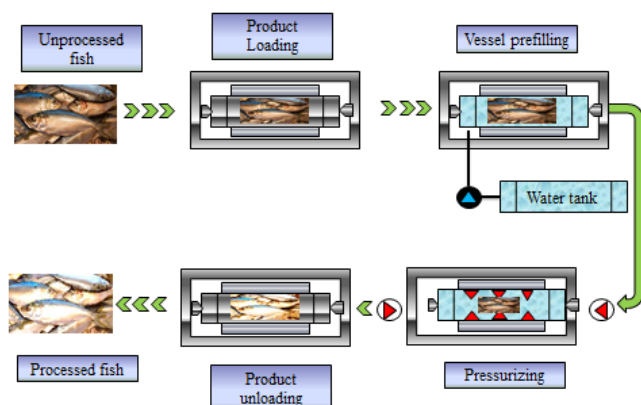
There are three main principles involved in this process.

Isostatic principle: The pressure is transferred uniformly and instantaneously to the entire sample independent of its size, shape, or rheology, without gradient inside the equipment, between the equipment and the sample, and between different locations in the sample.

Le Chatelier principle: If a constrain is applied to a system in equilibrium, the equilibrium will shift so as to tend to counter the effect of the constrain. Hence, in order to minimize the pressure effect, reactions that have a final volume smaller than the initial volume, such as protein compaction, fat solidification, reorganization of water molecules into smaller volume arrangement, are favoured in the sample. However, volume reduction is not enough to completely compensate pressure effect and then temperature raises.

Adiabatic Heat: Although it is considered a non-thermal technology, slight heating may occur according to pressure levels, food composition, and initial temperature (pure water at 25 °C and 90 °C can increase 3 °C / 100 MPa, and 5.3 °C / 100 MPa, respectively, and high-fat foods can present temperature increases from 6 to 8.7 °C / 100 MPa, even though after depressurization, the temperature returns to initial values close to, or slightly lower, due to heat losses during the process.

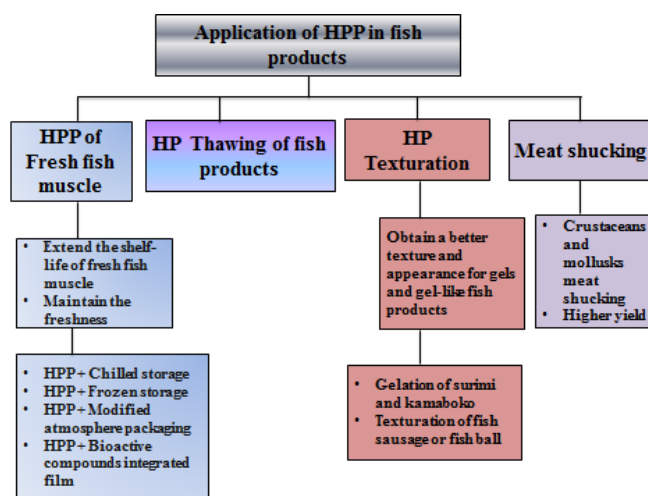
High Pressure Process



The HP system consists of a pressure chamber, a generation and intensification pressure systems, and a compression fluid (usually water or alcoholic solution). During operation, the compression fluid which increases the pressure is forced into the chamber containing the sample. The industrial food processing

equipment is around 500 liters capacity, capable of operating at maximum pressures of 900-1200 MPa, although the most common is around 400- 600 MPa. Usually, most of the pressurized samples are already packaged in flexible plastic material prior to the high pressure processing.

Application



Advantages

- Characteristics of the fresh product are retained, sensorial and nutritional properties remain almost intact: Better food quality.
- Destroys pathogens (*Listeria*, *Salmonella*, *Vibrio*, *Norovirus*, etc.): Food safety and exportation.
- Extends product shelf life: Lower rejections, improved customer satisfaction.
- Avoids or reduces the need for food preservatives: Additive Free.
- Able to shuck molluscs or extract crustacean meat without boiling: Higher yields, fresh flavour, minimum hand labour.

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- Once the required pressure is reached, it can be maintained with no additional energy input: Energy efficient
- Only needs water (which is recycled) and electricity: Environmentally friendly

Disadvantages



- High infrastructure is required
- Production cost is more
- The high resistance of spores
- Some enzymes are very resistant to pressure such as polyphenoloxidase.
- Residual oxygen in the food as well as enzyme activity can lead to degradation

Conclusion

High pressure processing is a promising method of preservation without compromising the nutritional characteristics of fish products. In the last decade, HPP technology has proved to be a useful tool to improve seafood safety and quality. Seafood processors are increasingly using HPP to inactivate bacterial pathogens and viruses in shellfish and to increase the extraction yield. Processors of crustaceans are using HPP to shuck lobsters and crabs, completely recovering meat from the shell, thereby increasing the processing efficiency and product yield and creating new markets. Texturizing effects over proteins has also been used to enhance the characteristics of already existing products and the development of new formulates. Combined with other process such as pre-packing under vacuum, thermal treatment and subsequent refrigerated storage is effective in sterilizing product with limited impact on their nutritional and sensory qualities.

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Highlights of marine fish landings in selected harbours of India during March 2020

NETFISH collects data on the quantity of fishery items landed and the details of boats arrived at major harbours of India on a daily basis through the Harbour Data Collectors deployed at the harbours.

Currently, data is obtained from 98 fish landing sites across the country. The name and registration number of the fishing vessels as well as the approximate quantity of major fishery items landed by each fishing vessel are collected through primary or secondary sources. This report presents the species-wise, harbour-wise and state-wise estimations arrived at on analyzing the data for March 2020.

Estimations on fish landings

The marine fish landings from 98 selected harbours during the month of March 2020 totalled to 50,868.56 tons, which was comprised of 17,123.27 tons (34%) of Pelagic finfishes, 19,929.82 tons (39%) of Demersal finfishes and 13,815.47 tons (27%) of shellfish resources (Fig.1). The shellfish landing was composed of 7,626.87 tons of crustaceans (shrimps, crabs, lobsters) and 6,188.60 tons of molluscs (squid, cuttlefish, octopus).

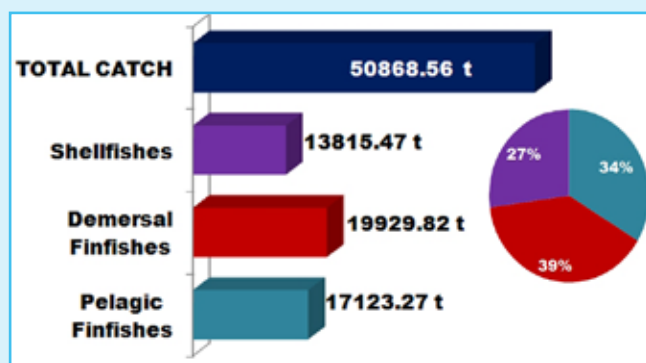


Fig. 1. Category-wise fish landings during March 2020

About 253 species of fishery items were reported as landed and marketed during the month, of which the major species were Croaker (*Johnius* Spp.), Japanese thread fin bream (*Nemipterus japonicus*), Squid (*Loligo duvauceli*), Indian mackerel (*Rastrelliger kanagurta*) and Sea Catfish (*Arius* Spp.) (Table 1).

Sl. No:	Common name	Scientific name	Quantity in tons
1	Croaker	<i>Johnius</i> Spp	5164.14
2	Japanese thread fin bream	<i>Nemipterus japonicus</i>	3186.18
3	Squid	<i>Loligo duvauceli</i>	2050.98
4	Indian mackerel	<i>Rastrelliger kanagurta</i>	1802.15
5	Sea Catfish	<i>Arius</i> Spp	1755.75

Table 1. Major fish species landed during March 2020

Considering the contributions of various fishery items in general, croakers, coastal shrimps, squids, tunas and Japanese thread fin bream were the major items landed during the period and these fishery items had together formed 42% of the total catch (Fig 2).

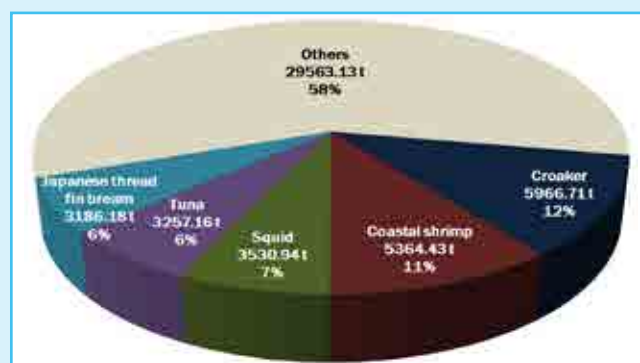


Fig. 2. Major fishery items landed during March 2020

Table 2. presents the quantity-wise catch of various categories of fishery items recorded during March 2020. Among the Pelagic finfish resources, Tunas, Ribbon fish and Indian Mackerel were the major contributors whereas among Demersal finfishes, the major contributors were Croakers and Japanese threadfin

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bream. Major items among Shellfishes were Coastal shrimps, Squid and Cuttlefish. The highest contributor among the coastal shrimps was the Karikkadi shrimp which registered a landing to the tune of 1487.46 tons.

Table 2. Category-wise landing of various fishery items during March 2020

Fishery item	Quantity in tons	% of total catch
Pelagic finfishes		
Tuna	3257.16	6.40
Ribbon fish	2496.85	4.91
Indian Mackerel	1904.29	3.74
Scad	1835.13	3.61
Anchovies	1733.06	3.41
Bombay Duck	935.83	1.84
Oil Sardine	924.60	1.82
Lesser sardines	474.14	0.93
Sword fish	444.17	0.87
Sail fish	365.58	0.72
Seer fish	361.33	0.71
Shad	325.82	0.64
Mahi mahi	267.75	0.53
Barracuda	260.30	0.51
Herring	246.65	0.48
Seerfish	225.73	0.44
Trevally	192.23	0.38
Marlins	138.58	0.27
Indian Salmon	128.40	0.25
Mullet	115.98	0.23
White fish	113.52	0.22
Cobia	85.73	0.17
Barracudas	83.59	0.16

Needlefish	66.60	0.13
Queenfish	34.89	0.07
Lesser Sardine	32.14	0.06
Silver Biddy	19.50	0.04
Flying Fish	18.44	0.04
Half beak	10.97	0.02
Milk fish	9.92	0.02
Sillago	7.17	0.01
Barramundi	5.48	0.01
Marlin	1.30	0.00
Wahoo	0.24	0.00
Sweet lip	0.16	0.00
Pompano	0.07	0.00
Total	17123.27	33.66
Demersal finfishes		
Croakers	5966.71	11.73
Japanese thread fin bream	3186.18	6.26
Lizard fish	2363.47	4.65
Catfishes	2246.40	4.42
Sole fishes	1018.01	2.00
Reef cods	939.87	1.85
Pomfrets	659.78	1.30
Thread Fin Breams	567.78	1.12
Moon fish	478.77	0.94
Bulls eyes	471.50	0.93
Trigger fishes	423.84	0.83
Sharks	323.32	0.64
Goat fishes	286.43	0.56
Rays	205.83	0.40

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Pony fishes	178.76	0.35
Eel	168.94	0.33
Sea breams	133.50	0.26
Snappers	94.61	0.19
Silverbelly	70.08	0.14
Indian Threadfin	51.51	0.10
Perches	32.45	0.06
Spinefoots	21.47	0.04
Leatherjacket	17.94	0.04
Groupers	8.29	0.02
Parrot fishes	7.00	0.01
Flat head	6.23	0.01
Surgeon fish	0.52	0.00
Rabbit fish	0.48	0.00
Threadfish	0.11	0.00
Sickle fish	0.08	0.00
Total	19929.82	39.18
Shellfishes		
Coastal shrimp	5364.43	10.55
Squid	3530.94	6.94
Cuttle fish	2313.63	4.55
Sea Crab	1115.81	2.19
Deepsea shrimp	1101.32	2.17
Octopus	312.06	0.61
Whelk	31.97	0.06
Lobster	30.11	0.06
Mud Crab	15.19	0.03
Total Shellfish	13815.47	27.16
Grand Total	50868.56	100.00

Harbour-wise landings

The total fish catch reported during the month from the selected harbours are presented in Table 3. Of the 98 harbours, the New Ferry Wharf in Maharashtra had registered the maximum landing of 5746.06 tons (11%) and it was followed by the Mangrol and Veraval harbours in Gujarat with landings of 3784.45 tons (7%) and 3560.04 tons (7%) respectively. The least quantity of marine fish catch was recorded from Belekeri harbour in Karnataka (3.55 tons).

Table 3. Harbour-wise catch quantity reported during March 2020

Sl. No.	State	Harbour	Quantity (tons)
1	Gujarat	Mangrol	3784.45
2		Veraval	3560.04
3		Porbandar	3241.09
4		Vanakbara	1420.21
5		Kotada	1705.20
6		Jafrabad	667.88
7		Dwarka Rupen	324.50
8		Sutrapada	155.28
9		Dholai	150.24
10		Chorwad	92.33
11		Ghoghla	76.87
12		Umargam	27.67
13	Maharashtra	New Ferry Wharf	5746.06
14		Sasoon Dock	1405.53
15		Satpati	562.31
16		Ratnagiri	535.05
17		Harne	442.00
18		Arnala	201.28
19		Versova	107.34
20		Uttan	185.48

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21		Alibagh Koliwada	196.76	43		Sakthikulangara	661.82
22		Sakharinate	110.21	44		Vypin	654.19
23		Malvan	108.49	45		Neendakara	595.57
24		Vasai	116.81	46		Bey pore	257.81
25		Onni Bhatti Dabhol	25.41	47		Puthiyappa	74.58
26		Dahanu	28.66	48		Azheekkal	78.42
27		Taramumbri Devgad	27.51	49		Chellanam	62.63
28	Goa	Malim	974.55	50		Ponnani	132.27
29		Cutbona	348.64	51		Cheruvathur	70.68
30		Vasco	222.43	52		Kayamkulam	90.10
31		Chapora	26.39	53		Chettuva	74.23
32	Karnataka	Mangalore	1449.26	54		Mopla Bay	46.68
33		Malpe	2572.11	55		Thangassery	79.05
34		Gangolli	75.64	56		Thottappally	79.09
35		Amdalli	11.38	57		Vaadi	43.19
36		Honnar	120.32	58		Koyilandi	141.89
37		Tadri	63.67	59		Vizhinjam	25.81
38		Bhatkal	46.41	60	Tamilnadu & Pondi-cherry	Nagapattinam	1686.22
39		Karwar	59.89	61		Chennai	1528.54
40		Belekeri	3.55	62		Thengaipattinam	822.80
41	Kerala	Thoppumpady	1614.89	63		Colachel	346.87
42		Munambam	1005.13				

FOCUS AREA

64		Tharuvaikulam	341.45
65		Cuddalore	70.43
66		Pazhayar	68.87
67		Chinnamuttom	77.20
68		Poompuhar	292.40
69		Mudasalodi	55.80
70		Pamban	117.85
71		Kodiyakarai	23.87
72		Rameswaram	83.05
73		Pulicat	49.58
74		Mallipatnam	34.56
75		Mandapam	20.70
76		Tuticorin	5.52
77		Kottaipatnam	22.61
78		Karaikal	445.05
79		Yanam	274.08
80		Pondicherry	104.91
81	Andhra Pradesh	Visakhapatnam	833.52
82		Kakinada	169.89
83		Nizampatnam	157.07
84		Vodarevu	185.51

85		Machilipatnam	158.80
86		Pudimadaka	76.10
87	Odisha	Paradeep	626.21
88		Dhamara	191.31
89		Balramgadi	543.46
90		Bahabalpur	464.71
91	West Bengal	Balugaon	111.19
92		Fraser Ganj	518.45
93		Petuaghat Deshpur	478.44
94		Namkhana	1028.01
95		Raidighi	1017.11
96		Digha Sankarpur	469.78
97		Soula	172.10
98		Kakdwip	427.69

State - wise landings

The Gujarat state recorded the highest marine landings during the month, which was to the tune of 15205.75 tons (30%) (Fig. 3). Maharashtra held the next position with a contribution of 9798.90 tons (19%) and the Tamil Nadu & Pondicherry region in the third position registered a landing of 6472.33 tons (13%). The state which reported least landing during the period was Goa, with a contribution of 1572.01 tons (3%) of marine fish catch.

FOCUS AREA

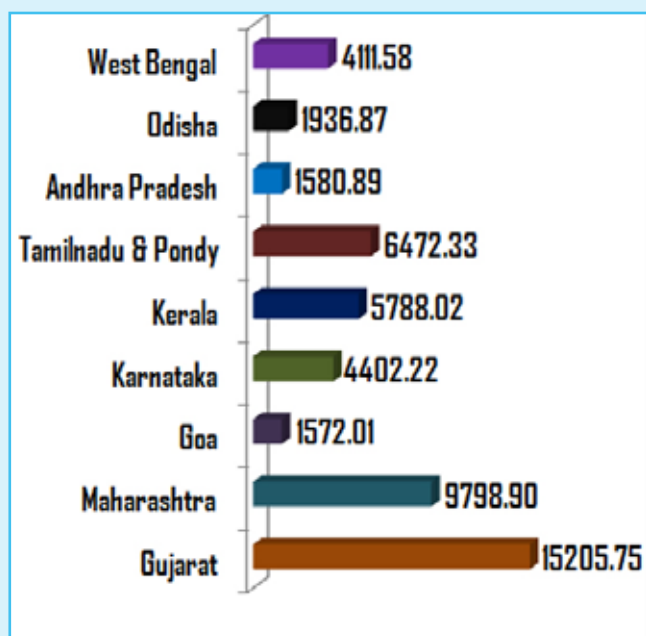


Fig. 3. State-wise fish landings (in tons) during March 2020

Estimations on boat arrivals

A total of 30,659 numbers of boat arrivals were recorded during March 2020, of which the highest recording was from Mangrol harbour (1,936 nos.), and it was followed by Veraval harbour with 1,740 numbers of boat arrivals and Porbandar harbour with 1,388 boats. The Tuticorin harbour had registered the least boat arrival (16 nos.) during the month. The top ten harbours in terms of boat arrivals are enlisted in the table 4.

Table 4. List of top ten harbours which recorded more boat arrivals during March 2019.

Sl. No.	Harbour	No. of boat arrival
1	Mangrol	1936
2	Veraval	1740
3	Porbandar	1388
4	New Ferry Wharf	1110

5	Sakthikulangara	814
6	Umargam	792
7	Malpe	644
8	Vanakbara	620
9	Neendakara	594
10	Harne	568

Summary

In March 2020, a total of 50,868.56 tons of marine landings and 30,659 nos. of boat arrivals were reported from 98 major fish landing sites of India. Though Demersal finfishes were the major contributors to the landings and Croakers and Coastal shrimps were the most landed fishery items in general. The state of Gujarat had recorded the maximum landing during the month. The New Ferry Wharf harbour in Maharashtra reported the highest fish landing whereas the maximum boat arrivals had occurred at the Mangrol harbour.



Rewriting norms for sustainability

Experts discuss possible amendments to Karnataka Marine Fishing Regulation Act

In a constantly changing world, regulations cannot remain rigid. They must be flexible enough to address the present-day needs of the people. MPEDA-NETFISH organized a workshop on 3rd January 2020 at Udupi in Karnataka to draw the attention of all stakeholders including policymakers towards the need for amending the state's Marine Fishing Regulation Act in order to make marine fisheries sustainable.

The workshop, organized with the financial assistance of the National Fisheries Development Board (NFDB), Hyderabad and the support of the State Fisheries Department, had the participation of major fishery stakeholder groups, senior state fishery officials and scientists from fishery research institutes. With the experts and stakeholders under one roof, the workshop served as a platform for them to deliberate on the

amendments to be made to the existing Karnataka Marine Fishing Regulation Act (KMFRA) 1986.

The workshop was inaugurated by Mr. Ganesh K., Deputy Director, Department of Fisheries, Udupi District, Karnataka. In the inaugural address, he highlighted the need to strengthen the fisheries sector by helping the fishing community to make use of fishing vessel tracking devices or vessel monitoring programmes in order to prevent Illegal, Unregulated and Unreported (IUU) fishing. He stressed on conservation of marine bio-diversity while emphasizing on the need for certain amendments in the Karnataka Marine Fishing Regulation Act 1986, in line with the amendments enacted in the Kerala MFR Act 1980. Addressing the gathering, Dr. Joice V. Thomas, CE, NETFISH expressed concern over the declining trend



A view of the inaugural session

FOCUS AREA



Presentation on "Present Status of Marine Fisheries and Management Measures" by Dr. Prathibha Rohith, Principal Scientist, CMFRI



Presentation on KMFR Act amendments by Dr. Joice V Thomas, CE, NETFISH



Fisher leader from Malpe Fishermen Association & Fisher leader from Purse Seine Fishermen Association, Mangalore giving their inputs during discussion



of marine catch during the last several years. He urged the fishers to take immediate action to preserve the natural resources through sustainable fishing for future livelihood. The inaugural function was presided over by Dr. S. Shassi, Assistant Director, MPEDA, Mangalore, Karnataka. In her address, she urged the fishers to ensure hygienic handling of the fishes both onboard vessels and in fishing harbours, while focusing on conservation of fish resources. She also advised the fishers to make the best use of MPEDA schemes for satellite phones and square mesh cod ends.

The inaugural session was followed by a presentation on the 'Present status of marine fisheries and management measures' by Dr. Prathibha Rohith, Principal Scientist, CMFRI, Mangalore. Mr. Ganesh made a presentation explaining the existing Karnataka MFR Act and the need to amend the trawl net cod end mesh size, fishing boat registrations and fishing license fees etc. in the Act. Dr. Joice V. Thomas, in his presentation, explained the 'Kerala MFR (Amendment) Act 2017' and 'Kerala MFR Rules 2018' with respect to fleet size, engine horsepower, gear size, mesh size, minimum legal size, setting up of fisheries management council and implementation of vessel monitoring system (VMS). He also noted that the amendments were made as per the

fishing fleet and availability of fish species in Kerala. He added that it may not be same for Karnataka State and hence the recommendations put forward should be as per the fisheries profile of the Karnataka state. The presentations were followed by discussions in which senior officials from State Fisheries Department, Scientists from CMFRI, Professors from fisheries institutes, representatives from EIA and SEAI, plant managers from fish processing/ ice factories, fish merchant/ workers associations, leaders & members of mechanized and motorized fishing vessel owners' associations and fishermen associations from all the major fishing harbours actively participated. All the major stake holders recommended amending the existing Karnataka MFR Act. Implementation of Minimum Legal Size (MLS), reasonable increase in boat registration and fishing license charges, regulation of size of fishing fleet and ban on registering new fishing boats were among the major suggestions put forward by attendees.

The feedback and suggestions will be taken up at other regional level meetings and will also be presented at the national -level workshop this year. The workshop was coordinated and organized by the State Coordinator, member NGO and HDCs of NETFISH, Karnataka.



Farmer's meet discusses scope of export-oriented aquaculture in hinterlands

Coastal aquaculture plays a significant role in marine products exports in India. But, at the same time, the land-locked states in the country also hold vast scope for export-oriented aquaculture. As part of MPEDA's efforts to expand export-oriented aquaculture to hinterland, Regional Division of Bhubaneswar organized a farmers' meet on 2nd February 2020 at Farmers' Training Centre (Department of Fisheries, Government of Jharkhand) in Ranchi.

The meet was inaugurated by Dr. H. N. Dwivedi, Director of Fisheries, Jharkhand. More than 100 participants including farmers and entrepreneurs attended the programme. Dr. Manoj Kumar, Joint Director of Fisheries, Mr. Ashok Kumar, DDF, District Fisheries Officers, senior officers, Mr. U. C. Mohapatra, Deputy Director, MPEDA, Bhubaneswar and Mr. P. Srinivas Rao, Assistant Project Manager, RGCA, Vijayawada were also present. Delivering the welcome address, Mr. Ashok Kumar, briefed the participants on the purpose of the meet. He urged them to gain insights for starting production of export-oriented aquaculture species from experts at the meet.

In his inaugural address, Dr. H. N. Dwivedi termed the meet as the beginning of a new journey for Jharkhand fisheries sector with the active support from MPEDA-RGCA. He noted that it will be a growth journey towards export market through commercial production of exportable fish species. While giving a brief account on the pond/reservoir/RAS fisheries in the state, he appreciated MPEDA-RGCA for facilitating higher production of exportable species viz; Scampi, GIFT tilapia and Seabass in suitable areas. He requested everyone to interact with the experts during the deliberations and help Jharkhand fisheries to reach new heights by removing obstacles.

Speaking on the occasion, Mr. U. C. Mohapatra briefed the participants on MPEDA's activities for promotion of seafood exports from the country and called upon Jharkhand to join hands with other states in contributing to the export basket. Ms. Ritu Ranjan, AFO made a presentation on the present status of fisheries development in Jharkhand state and its growth over the years to achieve 208,450 MT in 2018-19 from 14,000 MT in 2001-02. Highlighting significant achievements in in-situ spawn production, Internet-of-Things, ornamental fish breeding units etc, she pointed out the bottlenecks like rain-fed and silted ponds, acidic/sandy soil, climatic conditions - mostly temperature fluctuation, non-availability of adequate seeds of seabass, GIFT, scampi and shortage of skilled manpower.

Making a presentation on 'increasing seafood exports-MPEDA initiatives', Mr. U. C. Mohapatra touched upon topics like species diversification, new technologies, taking aquaculture to inland areas, extension programmes, adoption of global standards, showcasing Indian aquaculture in exhibitions, establishing testing laboratories, farm enrollment and traceability. He also informed the participants about schemes on certification of primary production. Mr. P. Srinivas Rao briefed the participants on the scientific culture practices of GIFT tilapia, Seabass and Scampi in detail while dealing with its practical aspects.

The presentations were followed by discussions where the participants interacted with officials/experts. During the interactive session, Mr. Krishna, a farmer, shared his experience in Tilapia farming and was keen on Seabass culture with technical support from MPEDA-RGCA. Mr. Pradip Kumar, DFO and Chief of the Farmers training Centre proposed the vote of thanks.




Species diversification in export-oriented aquaculture: Training programme in Jharkhand

Aquaculture has emerged as one of the fast growing food-producing sectors in the world. It has a share of 41% of the total aquatic products consumed at present and is the major alternate source of fish food production because of stagnation in fish catch from natural resources. Asia dominates aquaculture production with plenty of water sources conducive for aquatic animal growth in the temperate countries and contributes 87% of the global cultured finfish production.

India plays a major role in fish production both by capture & culture, ranks third in the world with more than 10% of global fish biodiversity. Major carps in inland areas and shrimp in brackish water areas are the dominate species of aquaculture in India. Keeping in

view the sustainable production and supply of fish and fishery products to the export market, new technologies are being developed for culture production of shell & finfishes with export potential.

As part of MPEDA's mission to promote aquaculture of a exportable species in inland areas, its Regional Division in Bhubaneswar extended its activities to the neighbouring state of Jharkhand and organized a farmers' meet in Ranchi in early February 2020. After thorough discussions with the State Fisheries Department of Jharkhand, it was decided to take follow up actions including organizing farmers' training by Regional Division of Bhubaneswar, training for few entrepreneurs/officers by RGCA and establishing a GIFT hatchery with RGCA consultancy.

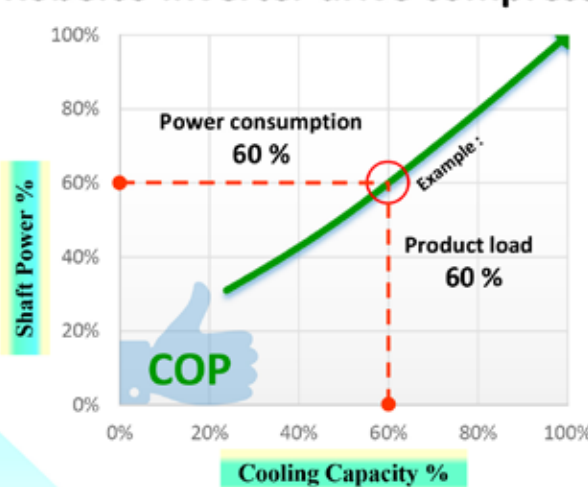


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AQUACULTURE SCENE

Training Programme in Bhubaneswar

Further to the farmers' meet, MPEDA Regional Division at Bhubaneswar organized a three-day training programme on 'Species diversification in export-oriented aquaculture' at KVK Sujani, Deoghar, Jharkhand from 16th March 2020 to 18th March 2020. Two batches of 20 beneficiaries each from the district participated in the training programme. Mr. U. C. Mohapatra, Deputy Director, MPEDA, Bhubaneswar, Dr. P. K. Sanigrahi, Programme Coordinator, KVK, Sujani, Dr. Anil Kumar Ray, Dr. Punam Soren, Dr. Ranjan Ojha, senior scientists from KVK, Sujani, Dr. Prasant Kumar Deepak, DFO and CEO, FFDA, Deoghar, Department of Fisheries, Jharkhand attended the inaugural session. Dr. H. N. Dwivedi, Director of Fisheries, Jharkhand, could not attend the programme due to preparations to contain COVID-19. Delivering the welcome address, Mr. U. C. Mohapatra gave a brief account on the present status of aquaculture in the country and MPEDA's promotional activities for the promotion of export-oriented aquaculture.

Inaugurating the training programme, Dr. P. K. Sanigrahi appraised the farmers of the importance of fish and scampi culture. He touched upon problems faced by the sector like the unavailability of seeds on time and lack of skilled manpower and requested State Government and MPEDA to find a solution to these obstacles faced by farmers by encouraging entrepreneurs to set up hatcheries. Dr. Prasant Kumar Deepak thanked Director while giving a brief account on the potential areas available in the district for aquaculture. Senior scientists Dr. Anil Kumar Ray,

Dr. Punam Soren and Dr. Ranjan Ojha also spoke on the occasion. Mr. Sibasish Mohanty, Junior Technical Officer, MPEDA proposed vote of thanks. The inaugural session was followed by training classes, which were led by Mr. U. C. Mohapatra, Mr. Sibasish Mohanty, Dr. Prasant Kumar Deepak, Mr. Ramendra Nath Sahay, FEO, Deoghar & Scientists from KVK Sujani.

Mr. U. C. Mohapatra gave an introduction to GIFT farming, general biology of fish & pond preparation, seed selection, stocking, water quality management and water analysis and fish health management, feed management, economics, harvest & post-harvest handling. Mr. Sibasish Mohanty delivered lecture on the good pond management practices involving least water exchange, knowledge on the probiotics and medicines being used. Among the trainees, progressive farmer Mr. Amit Kumar who established a bio-floc unit at Devpur, Basmandih, Deoghar in collaboration with NFDB & Jharkhand Fisheries explained the activities at his RAS for pangasius culture. A visit to the unit was also organized.

On the third and final day of the programme, leading farmers of Deoghar Mr. Rajendra Kumar and Mr. Amit Kumar narrated their experience. Mr. Ramendra Nath Sahay proposed the vote of thanks at the valedictory function. Leaflets detailing the adverse impacts of abuse of antibiotics in aquaculture, BMP's in aquaculture, GIFT culture practice & economics were distributed among the trainees. They were also awarded stipend and training certificates.



The advertisement features a book cover on the left and a promotional graphic on the right. The book cover is titled 'Diseases in Brackishwater Aquaculture' and has a red and yellow design. The promotional graphic has a dark background with a large yellow and orange bubble containing the text 'ORDER YOUR COPY!'. Below this, the book title is repeated in yellow. A yellow oval at the bottom indicates the price '₹100'. At the very bottom, small text provides the publisher's details: 'THE MARINE PRODUCTS EXPORT DEVELOPMENT AUTHORITY (Ministry of Commerce & Industry, Government of India), Head Office, MPEDA House, Building No. 27/1162, PS No 4272, Panampilly Avenue, Panampilly Nagar PO, KOCOT 682 036'.



Training on sustainable shrimp farming and aquaculture of diversified species

MPEDA's Regional Division Panvel in Raigad district of Maharashtra, organized a three-day training programme on 'Shrimp farming and aquaculture of diversified species', which was attended by 24 beneficiaries. The training programme, held at MPEDA Office at New Panvel from 17th February to 19th February 2020, started off with a session led by Mr. Rajakumar Naik, Deputy Director, MPEDA. Mr. Atul Raosaheb Sathe, Field Supervisor, made a presentation on the importance of pond preparation in aquaculture. This was followed by another presentation by Ms. Maangal Patil, JTO, on selection and screening of PLs of shrimp, stocking, nursery rearing: management – methods & feed management in aquaculture. Mr. Mangesh Mohan Gawde, Field Supervisor, led a session on Mangrove Crab aquaculture – nursery rearing, pre-grow out & grow out farming, soft shell crab farming, harvest and marketing. Asian Seabass aquaculture - nursery rearing – options, grading, weaning of feed management, grow out farming methods were explained by Mr. S. Pandiarajan, Assistant Director.

On the second day of the training programme, the participants, along with Mr. Atul Raosaheb Sathe, undertook a field visit to Khar Land Research Station in Panvel. At the Research Station Dr. Ravindra Bondre briefed them on the technologies used in fish culture

in pond and cage, nursery rearing and ornamental fish business. They also visited a *Penaeus vannamei* farm, and interacted with farm manager Mr. Uday Redij, and discussed topics including reservoir, water lifting, pumping station, stocking, water quality management, feeding management and auto feeder operation.

On third and final day of the training, Mr. Naresh Vishnu Tambada, Assistant Director, MPEDA made a detailed presentation on 'Criteria for selection of site, design, construction of ponds and infrastructure requirements for aquaculture'. Later, Mr. Pandit Chavan, a progressive fish farmer from Nira in Pune District shared his experience on GIFT Tilapia farming. This was followed by a session by Mr. Mangesh Mohan Gawde on economics of shrimp farming, Seabass culture, GIFT Tilapia and Mangrove Crab aquaculture. Dr. S. J. Meshram, Associate Professor, Department of Aquaculture, College of Fisheries, Ratnagiri, spoke on bio-floc in aquaculture. Dr. Vivek Vartak, Fisheries Scientist, Khar Land Research Station, Panvel made a presentation on Pangasius fish farming in ponds & cages.

The training programme concluded with a group discussion by participants and closing remarks by Deputy Director, Regional Division, Panvel.



Farmer's meet on eco-friendly and sustainable shrimp farming



Mr. Bhagvandas Tandel, President, Valsad Aquaculture Farmers Association delivering the inaugural address



A view of the participants

A total of 70 farmers from Valsad in Gujarat participated in the Farmers' Meet organized by the Regional Division of MPEDA on 'eco - friendly and sustainable shrimp Farming on 27th February 2020. The participants of the meet, held at Rajiv Gandhi Hall, Zilla Panchayat, Valsad, were fish farmers from Hingraj, Kosamba, Danti, kakwadi, Malvan, Palsana villages. The main objective of the meet was to discuss the emerging problems faced by farmers in shrimp culture. Welcoming the participants, Mr. Maruti D. Yaligar, Deputy Director, MPEDA briefed them on the importance of sustainable brackish water shrimp culture while urging them to take up culture in scientific and eco- friendly manner.

Inaugurating the Meet, Mr. Bhagvandas Tandel, President, Valsad Aquaculture Farmers Association, explained the role of MPEDA and Farmers Association in promoting sustainable shrimp farming in the district. He stressed on the importance of better management practices (BMPs) in aquaculture and the requirement of bank finance for shrimp culture unit. Mrs. Jaysriben, Assistant Superintendent of Fisheries, Valsad spoke about the activities of Gujarat Fisheries Department and urged the farmers to apply for renewal of CAA license without any delay.

Mr. Vandarbhai Thumbar, official from LDM section, Bank of Baroda, Valsad, briefed the participants on Kisan Credit Card loan scheme for shrimp farmers. He distributed loan applications to attendees, who are in need of finance. Speaking on the occasion, Mr. Sagarbhai Tandel, Secretary, Valsad Aquaculture Farmers Association, recommended eco- friendly and sustainable aquaculture for producing high quality shrimp for export. He also urged farmers to select

good quality and tested seed. The inaugural session concluded with vote of thanks by Mr. Upen K Pandya, Assistant Director, MPEDA.

Technical session began with a presentation by Mr. Maruti D. Yaligar, Deputy Director who explained about the emerging problems in shrimp culture such as land allotment for brackish water aquaculture, renewal of land lease, SPF *Penaeus vannamei* seeds, diversification in aquaculture and electricity tariff for aquaculture on par with agriculture. He also pointed out the corona virus outbreak and its impact on shrimp export. The presentation also touched upon India's current status in aquaculture farming. Mrs. Jaysriben spoke on the Coastal Aquaculture Authority license and its importance in shrimp farming. She also briefed the farmers on the guidelines and CAA license application among other things.

Mr. Upen K. Pandya, delivered a lecture on disease control and bio security measures and the importance of disease diagnostics in shrimp culture. He advised the participants to stock only SPF seed for shrimp culture. Mr. Bhavin M. Gheravara, Field Supervisor, delivered a lecture on the adoption of code of practices on antibiotic-free shrimp production and urged the farmers not to use any banned antibiotic in shrimp farming. Farmers actively participated in the question-answer session. On the issue regarding electric tariff, the officials advised farmers to give representation at appropriate level.

Mr. Bhagvandas Tandel thanked MPEDA and Bank of Baroda for extending Kisan Credit Card loan scheme to shrimp farmers. Mr. Upen K. Pandya delivered the vote of thanks.



Exporter's Meet: High cost of certification, freight among concerns raised



A view of the meeting

Six exporters from Tuticorin region attended a meeting arranged by MPEDA Sub Regional Division, Tuticorin on 19th February 2020. High freight charges and cost of certification were among the major concerns raised by the exporters at the meeting.



Promoting eco-friendly and sustainable aquaculture: Training programmes in Kolkata

Purbhamidnapur |||

With an aim to educate farmers to adopt eco-friendly and sustainable aquaculture practices, MPEDA's Kolkata Regional Division conducted two training programmes from 12th February to 14th February 2020 at Brajalalchak in Haldia (Purbhamidnapur district). The training programmes also put special emphasis on diversification in aquaculture. On the first day, 20 candidates registered for the programme.

Dr. Y. Bangaramma, Junior Technical Officer, MPEDA Regional Division, Kolkata, inaugurated the programme. Dr. G. Biswas, Sr. Scientist, Central Institute of Brackishwater Aquaculture (CIBA), Kakdip, led a session on CIBA activities regarding water, soil, and disease as well as technical assistance and advices offered online and also by telephone.

Mr. Suman Kumar Saha, FEO, Department of Fisheries, Haldia delivered a lecture on polyculture, especially on Liza parsia, Milkfish and *Penaeus Vannamei*. Leading a session, Dr. Y. Bangaramma explained about MPEDA's activities, Pre-harvest Testing (PHT), enrollment, abuse of banned antibiotics and diversification in aquaculture.

Mr. R. Karim, Field Manager, NaCSA explained about AOC Labs and its activities. On the final day of the training programme, an interactive session with participants was held which was followed by valedictory function. Certificates and stipend were distributed to the participants by Mr. Suman Kumar Saha.

North 24 Parganas |||

Two training programmes on eco-friendly and sustainable aquaculture practices with special emphasis on diversification were organized by MPEDA's Kolkata

AQUACULTURE SCENE

Regional Division at Hasnabad in North 24 Parganas District. The training programmes were held from 2nd March 2020 to 6th March 2020 for farmers of SC/ST category. On the first day, 41 candidates registered for the programmes, which were inaugurated by Dr. Y. Bangaramma.

During the five-day-long training, the sessions were handled by Mr. Archiman Lahiri, Deputy Director, MPEDA Regional Division, Kolkata, Dr. Y. Bangaramma, Mrs. Nandita M., Field Extension Officer, Hasanabad

and Mr. Debojoyti Giuria, Field Supervisor, Regional Division, MPEDA.

On 5th March, a field visit was organized for the participants to the shrimp farms and Monosex Tilapia hatchery farm of Mr. Deben Biswas at 4 No. Jharkhali, S. 24 Paraganas District. The final day of the training programmes witnessed farmers actively participating in the interactive sessions. This was followed by valedictory function and distribution of certificates/ stipend Mr. Archiman Lahiri.



Farmer's Meet on certification schemes, enrollment and issues in export-oriented species farming



A view from the Farmer's Meet



Mr. Dhirit Ekka, Assistant Director, MPEDA, Regional Division, Kolkata explaining PHT farm enrollment



Mr. Archiman Lahiri, Deputy Director, Regional Division, Kolkata analyzing problems and prospects in aquaculture market

Kolkata Regional Division of MPEDA organized a Farmers' Meet on certification schemes, enrollment and issues in export-oriented species farming on 18th February 2020 at Nandigram in East Medinipore District, West Bengal.

The Meet was attended by 136 farmers. Mr. Debo Joyti Guria and Mr. Angshuman Manna, Field Supervisors, MPEDA coordinated registration procedures of farmers.

Welcoming the participants, Mr. Dhirit Ekka, Assistant Director, Regional Division, MPEDA Kolkata, explained about certification schemes, purpose of farm enrollment and traceability. Presiding over the inaugural function, Mr. Archiman Lahiri, Deputy Director, MPEDA Kolkata

shrimp price situation in international market and also explained about aquaculture status, farm enrollment and traceability. Dr. Y. Bangaramma, Junior Technical Officer, MPEDA delivered a lecture on the impact of banned anti-biotics on health, shrimp farming and exports.

During the meet, the farmers were sensitized on the need for enrolling their farms and on the implications of introduction of SIMP by the USA. Technical sessions were followed by farmers' interactive session. The farmers requested MPEDA to provide technical and market related inputs for Better Management Practices in aquaculture. The meet concluded with a vote of thanks delivered by Dr. Y. Bangaramma.



Farmer's Meet on farm enrollment and antibiotic issues in aquaculture

Katrenikona Village, East Godavari District, Andhra Pradesh



Dr. K. Gopal Anand, Assistant Director, MPEDA addressing the gathering



Mr. Ch. Rambabu, Fisheries Development Officer, Amalapuram explaining the Andhra Pradesh State fisheries schemes



Speakers of the program

MPEDA Sub Regional Division, Bhimavaram organized a one-day Farmer's Meet at Katrenikona Village of Katrenikona Mandal in East Godavari district, Andhra Pradesh on 6th March 2020. The main objective of the Meet was to create awareness about farm enrollment and the adverse impacts of banned antibiotics in aquaculture. The programme was attended by 110 stakeholders including farmers, traders, aqua technicians and officials.

The programme was inaugurated by Mr. R.V.S.P. Prasad Rao. Dr. K. Gopal Anand welcomed the participants and briefed on the objective of the programme. Mr. R.V.S.P. Prasad Rao spoke on the adverse impacts of the use of antibiotics in aquaculture. Mr. B. Narasimha Rao made a presentation on diversification in aquaculture

and prospects of various candidate species for export-oriented aquaculture and disease management. Dr. K. Gopal Anand explained the issues related to the use of antibiotic in aquaculture and rejection of consignments from EU and the USA. He also explained about SIMP and its implications on aquaculture export, and requested all the farmers to enroll their farms with MPEDA. Speaking on the occasion, Mr. Ch. Rambabu, said farmers must enroll with MPEDA for betterment of shrimp exports and explained about the schemes being implemented by state fisheries. Mr. Meena Kumari, V.F. Assistant, Dept. of Fisheries, East Godavari District also attended the programme.

An interactive session was arranged for the participants towards the end.

AQUACULTURE SCENE

Rayakuduru Village, West Godavari District, Andhra Pradesh

MPEDA's Sub Regional Division in Bhimavaram organized a Farmers' Meet on 21st March 2020 at Rayakuduru Village, Veeravasaram Mandal, West Godavari District. Over 100 participants including farmers, traders, aqua technicians and officials took part in the Meet in which officials from MPEDA and State Fisheries Department explained about the importance of farm enrollment and the issues arising out of use of banned antibiotics in aquaculture.

Dr. K. Gopal Anand, welcomed the participants and briefed on the objectives of the programme. The Farmers' Meet was inaugurated by Mr. Heera Naik, Joint Director of Fisheries, Department of Fisheries, West Godavari District. Mr. Heera Naik explained the participants about the activities of Taskforce Committee and the inspection of aqua shop in West Godavari district for controlling the sale of banned antibiotics.

Addressing the Meet, Mr. Thirupataiah, Assistant Director, Dept. of Fisheries, West Godavari District requested farmers to enroll their farms with MPEDA immediately and suggested not to use any banned

antibiotics in culture. He also requested the farmers to purchase seeds from registered hatcheries.

Dr. K. Gopal Anand briefed the participants on the issues arising out of antibiotic use, rejection of consignment from EU and the USA, SIMP and its implications on aquaculture export and the importance of farm enrollment. He also made a presentation on the introduction of SIMP programme by the USA. He urged the stakeholders to focus on new markets such as China, Russia and South East Asian countries. Presentation on MTCS certification schemes and diversification in aquaculture were arranged in the afternoon session.

Mr. A. Venkata Ramana, Field Manager, NaCSA, West Godavari district, explained the procedures for forming aqua farmers' societies, the role of NaCSA in implementing BMPs and financial support for the societies. Mr. K. Ramanjaneyulu, Junior Technical Officer, Mr. K. Anjaiah and Mr. G. Gopala Krishna, Field Technical Officers, MPEDA, Sub Regional Division, Bhimavaram also attended the programme.



Mr. Heera Naik, Joint Director of Fisheries, Dept. of Fisheries, West Godavari District. addressing the farmers



Mr. Thirupataiah, Assistant Director, Dept. of Fisheries, West Godavari District addressing the farmers



Dr. K. Gopal Anand, Assistant Director, MPEDA, Sub Regional Division, Bhimavaram during a presentation



View of participants



Training programme on BMPs and diversification in aquaculture

A five-day training programme was organized by MPEDA Sub Regional Division, Bhimavaram on “Better Management Practices and diversification in aquaculture” at Gollavanitipa village in Bhimavaram Mandal of West Godavari District from 17th February to 21st February 2020 for SC/ST beneficiaries.

The main objective of the training programme was to educate the farmers on BMPs and diversification in aquaculture. Twenty beneficiaries attended the programme.

On the first day, Mr. N. C. Pradeep, Assistant Director, MPEDA led a session on selection of good quality seed, biosecurity measures, feeding management and antibiotics issues in aquaculture. He also explained the schemes and services offered by MPEDA. Delivering a lecture on the second day of the programme, Dr. Sugunna, Principal Scientist, SVVU, Undi, West

Godavari district explained about disease management in shrimp culture and maintenance of quality of the shrimp during the harvest period. On the third day of the training, Mr. K. Ramanjaneyulu, JTO, MPEDA took classes on pond preparation, seed stocking and Better Management Practices to follow in aquaculture.

A session on formation of aqua society, its procedures and benefits was conducted by Mr. Veerana, Field Manager, NaCSA, West Godavari district on the fourth day of the programme. A field trip was arranged for trainees to gain more practical knowledge on biosecurity measures and preparation/ construction of pond before stocking.

On the final day, Mr. V. I. Hakkim, Deputy Director, MPEDA delivered a lecture on MPEDA's role in promoting Better Management Practices in shrimp culture. The training concluded with group discussion and distribution of certificates and stipends to attendees.



Prof: Suguna Tummala, Principal Scientist, SVVU, Undi



A view of farmers



Mr. V. I. Hakkim, Deputy Director, MPEDA speaks to the participants



MPEDA develops protocols to check formalin adulteration in seafood

The Quality Control laboratory of the Marine Products Export Development Authority (MPEDA) has developed a testing protocol for formaldehyde adulteration in seafood.



The lab in Kochi is now equipped to detect the presence of formaldehyde, which is wrongly used for preserving seafood meant for human consumption. Formaldehyde has been categorized by the WHO as “a potential health hazard for human beings”.

Expressing concern over repeated incidents of the presence of formaldehyde to preserve seafood in various domestic markets in India in recent times, K S Srinivas, Chairman, MPEDA, said it poses serious challenges on food safety and has the potential to become an irritant in India’s seafood exports. “MPEDA

Kochi laboratory, accredited by NABL and approved by Export Inspection Council, has developed and validated a method for detecting formaldehyde in seafood using high-performance liquid chromatography (HPLC) method” Chairman stated in a press release

This method is able to quantify formaldehyde in fish and fishery products and meets the national requirement as per FSSAI. In addition, the Kochi lab also has facilities for the screening of farmed shrimp samples for banned antibiotics under the Pre-Harvest Test certification programme.

QUALITY FRONT

Microbiology lab



In another major step, MPEDA has also started formally extending testing services in the field of microbiology from its Microbiology laboratory to the seafood exporters and other stakeholders of the industry. The lab is capable of testing various microbiological parameters in water, fish and fishery products and spices. The laboratory has also got a molecular biology section that can handle testing of pathogenic

viruses in shrimps. The lab has well-trained samplers for drawing samples from farms and processing units for analysis and skilled technicians for analysis of the samples. The need for such a laboratory has become imperative because the US, the EU and other major seafood importers are tightening their quality norms to safeguard the health of their consumers, he added.



An advertisement for a book titled "Breeding, Seed Production and Farming of Mud Crab". The book cover is shown on the left, featuring a green background with a photograph of mud crabs. The text on the cover includes "HANDBOOK ON AQUAFARMING" and "Breeding, Seed Production and Farming of Mud Crab". To the right of the book cover is a large orange arrow pointing right with the text "ORDER YOUR COPY!". Below the arrow, the title "Breeding, Seed Production and Farming of Mud Crab" is written in large, bold, green letters. Underneath the title, the price "₹50" is displayed in a yellow oval. At the bottom, the publisher's information is provided: "THE MARINE PRODUCTS EXPORT DEVELOPMENT AUTHORITY (Ministry of Commerce & Industry, Government of India) Head Office: MPEDA House, Building No: 27/1162, PB No: 4272, Panampilly Avenue, Panampilly Nagar PD, KOCHI-682 036". The MPEDA logo is visible in the top right corner of the advertisement.

MPEDA's demo farm sets new standard in seabass production

Setting a new standard, a demonstration farm of the Rajiv Gandhi Centre for Aquaculture (RGCA), which works under the MPEDA, has produced 15 tons of seabass from just one-hectare area.

MPEDA officials said that the initiative would encourage the farming community to grow this delectable fish as an alternative species for shrimp aquaculture and earn lucrative prices from its huge demand in domestic and foreign markets.

The demonstration farm of MPEDA-RGCA, established at Karaikal in Pondicherry, had stocked seabass seeds (1.5 to 2.0 cm) produced from the hatchery in the said area. In a period of mere 10 months, 15 tons of fish having an average body weight of 1.2-1.5 kg were raised.

The fish were fed with artificial floating pellet feeds and the food conversion ratio (FCR) was found to be extremely encouraging at 1:1.8. The production cost was ₹300 per kg and the fishes were sold at the farm gate for ₹420-450 per kg. A profit of ₹17 lakh was earned from the seabass fish produced from the demo farm area.

Option for diversification

Enthused by the results of the demonstration farm, MPEDA Chairman Mr. K. S. Srinivas said: "Seabass is a boss of diversified aquaculture. It will induce aquaculture farmers to diversify their cultivation choices, especially as an alternative to shrimp farming." Seabass (*Lates calcarifer*) is traditionally produced as plate fish for the restaurant trade, but it is now largely sold as fillets for direct sales to major supermarkets. It is an ideal fish for farming in freshwater, brackish water, and saline waters, and can be cultured in the open pond as well as in cages. It has white flaky flesh and milky flavour, highly preferred by consumers, and fetches around ₹400-500 in local markets. It has good demand and value in both the domestic and export markets. The RGCA operates a three-million fry/fingerlings capacity state-of-the-art seabass hatchery at Thoduvai in Tamil Nadu's Nagapattinam district, the first of its kind in India. So far 18 million seeds have been produced and supplied to the farming community across the country as an alternative species for shrimp aquaculture.

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Rare band-tail scorpion fish found live for first time in Indian waters

The rare band-tail scorpion fish found from Tamil Nadu

In a major development, the researchers at the Central Marine Fisheries Research Institute (CMFRI) have found a rare fish from Sethukarai coast of Tamil Nadu in the Gulf of Mannar. The band-tail scorpionfish (*Scorpaenospsis neglecta*), a rare marine species well-known for the stinging venomous spines and the ability for changing colour, was found during an underwater exploratory survey of the seagrass ecosystem in the region. This is the first time this particular species was found live in the Indian waters.

Ability to change colour

This very rare fish has a handful of characteristics that may draw the attention of marine enthusiasts. It has the ability to change its colour and blend with its

surrounding environment to escape from predators and while hunting its preys. "It started changing its colour since the moment we disturbed it by touching a dead coral fragment. It was noticed that within four seconds, the skin of the fish changed from white to mottled black colour," said Dr R Jeyabaskaran, Senior Scientist at CMFRI who led the team.

The fish is called 'scorpionfish' because its spines contain neurotoxic venom. "When the spines pierce an individual, the venom gets injected immediately and eating this fish would lead to fatal death." A nocturnal feeder, the band-tail scorpionfish feeds during night time with an ability to attack and suck its prey in lightning speed.

-www.newindianexpress.com



Scheme to promote "Blue Revolution" gets Cabinet nod

With a target to double the income of fishermen, fish farmers and workers by 2024, the Union Cabinet chaired by Prime Minister Narendra Modi on 20.05.2020 gave its nod to the implementation of Rs 20,050- crore Pradhan Mantri Matsya Sampada Yojana (PMMSY), a scheme to promote "Blue Revolution" in the country through sustainable development.

The scheme will be implemented in the next 5 years from FY 2020-21 to FY 2024-25.

Out of the Rs 20050 crore, the share of the Central government will be Rs 9,408 crore and the state governments" Rs 4,880 crore while the share of beneficiaries will be Rs 5,763, according to the Union Ministry of Fisheries, Animal Husbandry and Dairying.

The Ministry said in a statement that the PMMSY will address the critical gaps in the fisheries sector and aid it in realizing its potential.

The scheme is expected to create direct gainful employment opportunities to about 15 lakh fishers, fish farmers, workers, vendors and other rural/urban populations in fishing and allied activities. Besides, it promises to offer indirect employment opportunities, including enhancement of incomes, said the Ministry.

It will help in augmenting fish production and productivity at a sustained average annual growth rate of about 9 per cent to achieve a target of 22 million metric tons

by 2024-25 through sustainable and responsible fishing practices, said the Ministry. The scheme also aims to improve availability of certified quality fish seed and feed, traceability in fish and including effective aquatic health management and help in creation of critical infrastructure, including modernization and strengthening of value chain.

The PMMSY, a 5-year scheme, will be implemented as an umbrella scheme with two separate components - as a Central sector scheme (CS) and (b) Centrally-Sponsored Scheme (CSS).

The entire project/unit cost will be borne by the Central government (i.e. 100 per cent Central funding). Wherever direct beneficiary-oriented i.e. individual/group activities are undertaken by the entities of the Central government, including the National Fisheries Development Board (NFDB), the Central assistance will be up to 40 per cent of the unit/project cost for general category and 60 per cent for SC/ST/women category, said the Ministry.

In northeastern and Himalayan states, the Centre will contribute 90 per cent of the scheme while states" share will be 10, but in other states, the Centre"s share will be 60 per cent and state"s 40 per cent.

In Union Territories, 100 per cent financial assistance will be given by the Centre.

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India unveils financial plan to support fisheries sector

India's government has committed a financial support plan designed to help its fisheries sector survive the difficulties caused by the lockdown measures applied from 25 March to 18 May in response to the corona virus. The scheme is part of the relief package of more than USD 260 billion (EUR 239 billion) announced on 12 May by the government to mitigate impacts by the COVID-19 pandemic.

As part of the package, Finance Minister Nirmala Sitharaman on 15 May said more than USD 2.6 billion (EUR 2.39 billion) will be allocated via the Pradhan Mantri Matsya Sampada Yojana (PMMSY) program to support the integrated, sustainable, inclusive development of marine and inland fisheries.

Of the total, around USD 1.45 billion (EUR 1.33 billion) will be used to fund marine, inland fisheries and aquaculture, with the remainder dedicated to fisheries infrastructure such as fishing harbors, cold chain, and market development, News18 reported on 15 May.

The allocation of funds for the fisheries sector is expected to create jobs for more than 55 million people and double India's fisheries export value to around USD 13 billion (EUR 12 billion).

In a statement released on 18 May, India's Central Marine Fisheries Research Institute (CMFRI) said the funds from the package may be channeled to help

reform local marine fisheries. Fishermen are likely to be given assistance to modernize their fishing vessels by upgrading marine safety and navigation systems, such as VMS, and adding fish-finding technology, as well as increasing the ability and capacity of Indian fishing vessels to handle and store fish onboard hygienically.

According to CMFRI, the package may put priority on mariculture, particularly cage farming, given its ability to absorb large capital investments.

Projects under consideration for funding include brood banks of marine fish, hatcheries, and auxiliary facilities for cage fish-farming. "Mariculture and coastal aquaculture also has the potential to provide gainful employment to a section of the jobless return migrants from other countries," CMFRI Director A Gopalakrishnan said. "Seaweed mariculture can get a [boost] from the proposed reforms in contract farming laws."

Gopalakrishnan said additional funding may be allocated to upgrade landing centers and wholesale facilities. "[The] financial package needs careful tinkering and strategic roll-out so as to achieve desired results in a sector that is severely battered by the prolonged COVID 19-induced lockdown and associated multiple ramifications," Gopalakrishnan added.

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Three new species of fishes found in Western Ghats

New research employing an integrative approach of evidence-gathering using morphological and genetic analysis and based on a fresh collection of *Dawkinsia*, a genus of cyprinid fish specimens from the Western Ghats, has resulted in the discovery of three new fish species.

Scientists from the Bombay Natural History Society (BNHS), the Kerala University of Fisheries and Ocean Studies (KUFOS) and the Indian Institute of Science Education and Research (IISER), Pune, have unravelled the diversity in the filament barbs of the Western Ghats. Filament barbs are a group of small freshwater fishes found in the rivers of peninsular India and Sri Lanka, where nine species are known under the genus *Dawkinsia*. They are popular among aquarium hobbyists and are wild-collected and captive-bred for trade. The scientific paper presenting the result was published on Saturday in the international journal *Vertebrate Zoology*, which is published from Senckenberg Museum in Germany.

"This research has also cleared long-standing taxonomic confusions associated with the small cyprinids of the genus *Dawkinsia*, paving the way for improved conservation prioritisation and attention for these species," the BNHS said in a statement.

"It took almost eight years of extensive field work, examination of historic specimens in museums, both in and outside India, and genetic analysis to understand the true diversity of these charismatic freshwater fishes, which are much sought-after globally as aquarium pets," said Unmesh Katwate, Fish Scientist, Freshwater Research Unit, BNHS, and Ph. D. student at KUFOS, who led the study.

The research has also helped to stabilise the identity of *Dawkinsia assimilis* and *Dawkinsia lepida*, the species of filament barbs described by British ichthyologists in the 1800s.

"This study on filament barb, a lesser-known group of freshwater fish, led by a BNHS scientist, is a remarkable contribution to Indian ichthyology. This new study will help us in delineating important freshwater key biodiversity areas, and help prioritise conservation initiatives for the Western Ghats freshwater biodiversity," BNHS Director Deepak Apte said. "This study also highlights the urgent need to conserve the Western Ghats freshwater resources as several unknown and plausibly narrow endemic species are still getting described," he said in a statement.

"Despite this updated publication, the taxonomy of fishes of the genus *Dawkinsia* remains poorly known and further intensive explorations and research will, no doubt, yield more new species from this group," said Rajeev Raghavan, Assistant Professor at KUFOS, and the South Asia Coordinator of the IUCN Freshwater Fish Specialist Group, who co-supervised the project.

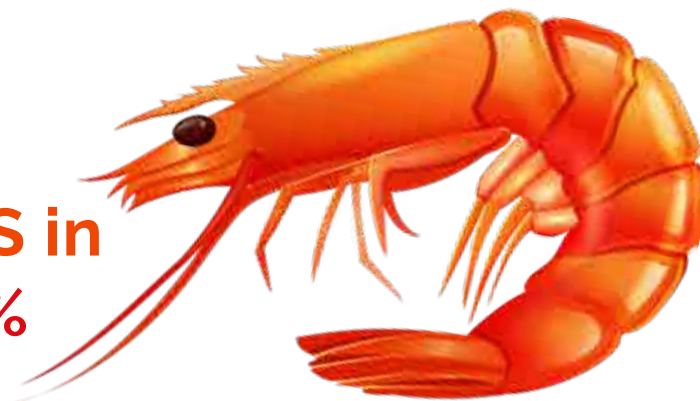
"This study has also highlighted the importance of using an integrative approach to understanding the taxonomy of complex groups of fishes, especially those that are cryptic and difficult to distinguish by external morphology," said Neelesh Dahanukar, Visiting Faculty Member, IISER, and a co-supervisor of the project.

"Only by combining advanced molecular studies with the traditional morphology can we understand the true diversity of our freshwater ecosystems," he said.

- www.thehindu.com



Shrimp exports to US in April higher by 25%



According to the latest data of US agency National Oceanic and Atmospheric Administration, India exported 22,229 ton of shrimp during April 2020 as against 17,749 ton in April 2019.

Indian shrimp exports to the US during April this year is seen higher by 25% or 4,480 ton when compared with the figures of April last year. According to the latest data of US agency National Oceanic and Atmospheric Administration, India exported 22,229 ton of shrimp during April 2020 as against 17,749 ton in April 2019. US imported 51,634 ton during the month this year as against 48,613 ton in April 2019. India is the largest exporter of shrimps to the US, followed by Indonesia with 13,804 ton. India is the largest producer of farmed shrimps in the world and accounts for nearly 6% of the global fish production.

During 2019, India accounted for 282,584 ton of shrimps from the total US import of 698,445 ton. Jagdish Fofandi, National President of Seafood Exporters Association of India (SEAI), said that April data may not be a correct indicator as the shipments made in April would have been harvested and

processed some days before the real lockdown began. During the initial days of the lockdown, the seafood sector was working at 20-25% capacity with most of the laboratories closed. Labour and vehicle movement were also constrained in most of the coastal states. "I think the real impact of the lockdown will be felt in the May and June shipment because of the labour and other constraints. The achievement in April is really good given the overall constraints," he said. "Indian exports, especially to the US, are likely to increase in the coming months with the Indian processors being proactive in the retail market in the recent past."

He added the consumption of seafood in the retail sector in the US and EU has been higher for April and May with people stocking more in anticipation of a shortage. Indian seafood exports to the US has been hampered in the recent past due to higher anti-dumping duty and impact of the implementation of Seafood Import Monitoring Programme (SIMP). SIMP for shrimp exports to the US mandates stringent data requirements to trace the entire supply chain of seafood from the point-of-harvest to the point-of-entry in the US.

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Visakhapatnam to get India's first Coastal Resource Management Centre

To increase the fish stock in Bay of Bengal while maintaining the ecological health along the coastline, Visakhapatnam is set to have a Coastal Resources Management Centre – the first-of-its-kind in the country.

“This would be the first coastal resources management centre in the country and we want to make it a model, which every state can follow. If everything works according to plan then the centre might come up by the end of the year, or early next year,” Anupam Ghosh, the secretary general of Asian Marine Conservative Association (AMCA), which has the special consultative status of the United Nations Economic and Social Council.

Earlier, several experts have attributed the dip in fish stock off the Visakhapatnam and Andhra coastline to pollution and overfishing. Pollution has an adverse effect on the growth of the planktons – food for small marine creatures and fishes – that are, in turn, food for big fishes, which humans consume. “Such a centre would be established to reverse the decline in capture fishery production along the coast of Visakhapatnam.

For the last three decades we have been demanding for such a centre and finally, it seems, it would become a reality. An organisation from Norway has already showed interest to invest and a team might visit Visakhapatnam as soon as the lockdown norms are relaxed,” Ghosh added. Among several activities, the centre would primarily concentrate on two important roles. First, they would try to find out and implement ways to reduce marine pollution and second, they would try to find alternative ways to reduce human dependence on marine fishes.

Recently, at the Ocean Day meeting organized by United Nations Economic and Social Commission for Asia and the Pacific in Bangkok, AMCA emphasised the urgent need to deploy coastal resource management throughout Asia and Pacific nations for faster job generation, higher production of coastal agriculture and coastal captured fishery produce. “Our points were highly appreciated and countries like Fiji have invited us to prepare the draft for coastal resource management centres in their country,” Ghosh said.

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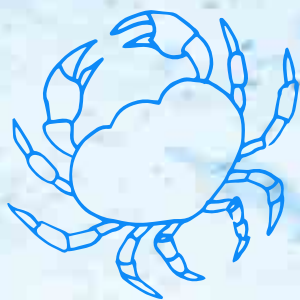
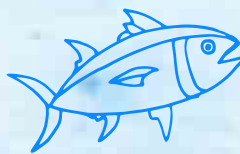
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UN: The world is producing and consuming more seafood, but overfishing remains rife



Global seafood production reached a level of 179 million metric tons (MT) in 2018, with all but 23 million MT going to human consumption. Consequently, average consumption has crept up to 20.5 kilograms per capita, the Food and Agriculture Organization of the United Nations (FAO) estimated in the 2020 edition of its biennial publication, “The State of World Fisheries and Aquaculture,” released on 8th June.

In the SOFIA report, the U.N. body states that with a yearly growth rate of 3.1 percent, fish consumption has been outpacing both the world population expansion rate of 1.6 percent since 1961 and the 1.1 percent meat consumption rise.

The rise in consumption has been driven by multiple factors, it said. In addition to increased production, there have been technical developments in terms of processing and logistics, reduced raw material waste, and better utilization, and also an increased demand for seafood, which is, in turn, linked to greater consumer

awareness of the health benefits of fish as food. It is also recognized that urbanization continues to shape consumption trends in many markets, with urban inhabitants typically having more disposable income to spend on animal proteins like fish.

With regards to actual production, global capture fisheries production reached its highest-ever level of 96.4 million MT in 2018, with the top seven fishing nations of China, Indonesia, Peru, India, the Russian Federation, the United States, and Vietnam accounting for almost 50 percent of the total.

World aquaculture production also set a new record with 114.5 million MT, including 82.1 million MT of aquatic animals and 32.4 million MT of algae. Asia has been the dominant force in the aquaculture sector, with an 89 percent share in the last two decades.

In consumption terms, aquaculture accounted for 52 percent of the fish consumed by the world population, with capture fisheries contributing 48 percent.

Aquaculture growth slows

Looking ahead, the SOFIA report projects that total fish production will increase by a further 26 million MT or 15 percent by 2030 to reach 204 million MT and that aquaculture will “continue to be the driving force” behind this growth.

The total volume produced by the farming sector is expected to increase by 32 percent to reach 109 million MT by the turn of the next decade, although the report suggests that its average annual rate of growth will reduce from the 2007-2018 level of 4.6 percent to 2.3 percent.

A number of factors should contribute to this slowdown, it said. These include: broader adoption and enforcement of environmental regulations; reduced availability of water and suitable production locations;

increasing outbreaks of aquatic animal diseases related to intensive production practices; and decreasing aquaculture productivity gains.

Meanwhile, the projected deceleration of China's aquaculture production is expected to be partially compensated by an increase in production in other countries. Capture fisheries production is projected to stay at high levels, with some fluctuations over the next decade linked to the El Niño phenomenon. However, it's not expected that the volume produced in 2030 will exceed current levels.

The share of fish production destined for human consumption is expected to continue to grow, reaching 89 percent by 2030. As such, FAO projects that the per capita consumption will rise to reach 21.5 kilograms in the next decade. Moreover, the per capita fish consumption will increase in all regions except Africa



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(with a decline of 3 percent). The highest growth rates are projected for Asia (9 percent), Europe (7 percent), and Latin America and Oceania (6 percent each).

Tuna turns a corner

Introducing the new SOFIA report on World Oceans Day, FAO Director-General Qu Dongyu said that “fish and fisheries products are recognized not only as some of the healthiest foods on the planet, but also as some of the less impactful on the natural environment,” and should therefore play a more central role in food security and nutrition strategies.

With SOFIA's benchmark analysis finding that some 32 percent of stocks are now being fished at biologically unsustainable levels and that the situation is not improving globally, he pointed to “growing evidence” that effective fisheries management results in robust or rebuilding fish stocks, while failure to implement such measures threatens their contribution to food security and livelihoods. The report confirms that tuna catches reached their highest level of around 7.9 million MT in 2018, and that two-thirds of these stocks are now fished at biologically sustainable levels, representing an increase of 10 percent in two years.

“The improvement, the fruit of contributions from many stakeholders, attest to the importance of active management to reach and maintain biological sustainability, and serves to underscore how urgently we must replicate such approaches in fisheries and regions where management systems are in poor shape,” FAO Fisheries and Aquaculture Director Manuel Barange said. “Not surprisingly, we notice that sustainability is particularly difficult in places where hunger, poverty, and conflict exist, but there is no alternative to sustainable solutions.”

In regard to the U.N.'s Sustainable Development Goals (SDGs), SOFIA states that it is “unlikely” that SDG Target 14.4 – to end overfishing of marine fisheries by 2020 – will be achieved.

Coronavirus impacts

While the latest edition of the SOFIA report provides analysis through to 2018, it acknowledges that at the time of writing – March 2020 – the COVID-19 pandemic had affected most countries in the world, with “severe impacts” on the global economy and the food production and distribution sector, including fisheries and aquaculture.

According to an addendum, the global fishing activity may have declined by about 6.5 percent as a result of restrictions and labor shortages due to the health emergency. Regionally, though, in parts of the Mediterranean and Black Sea, more than 90 percent of small-scale fishers have been forced to stop their operations due to an inability to sell their catches, widely exacerbated by falling prices. At the same time, the FAO said the disruption of international transport has particularly affected aquaculture production for export, while greatly reduced tourism and restaurant closures have dramatically impacted distribution channels for many fish types, although retail sales have remained stable or increased for frozen, canned, marinated, and smoked fish with a longer shelf-life. Additionally, input markets, migrant labor issues, and risks linked to crowded fresh markets have all hindered fisheries output and consumption, with informal supply chains under great stress due to the absence of contractual relationships and established cold chains, it said.

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