



MPEDA

Newsletter

Vol.VII/No.3/ JUNE 2019

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K. S. Srinivas IAS
Chairman

Dear friends,

During the month MPEDA has got an opportunity to present its vision before the NITI AAYOG and in front of a group of senior Ministers of the Cabinet, which were effectively utilized in conveying the activities and programmes of MPEDA, and the proposed action plans to scale up aquaculture production of the country thereby increasing the export of marine products. The targets presented aimed to tap the resources effectively, and by infusing advanced technology, to achieve exponential growth in production and exports, while not deviating from the motto 'export with sustainability'. I would like to add 'traceability' also to that.

The market report indicates that the shrimp consumption in US is steady after the initial lull. Further it is noticed, that there had been an increased supplies from Ecuador and Indonesia compared to the increase shown by the Indian exports in the market. The coming months will spell out where India stands in the shrimp supply to USA. The market data for the year pegs India as the lead supplier of frozen shrimps in the US market.

The Chinese market also shows tremendous potential registering close to 300% growth year-on-year in Indian seafood exports. This is a welcome sign in our efforts for diversification of markets though certain small issues still remain to be resolved. The preparation for Aqua Aquaria India, 2019 is progressing well and the response from entrepreneurs and farmers is very encouraging. The development of aquaculture has transformed the coastal states in leaps and bounds. MPEDA is hopeful that showcasing of advance technologies and allied sectors in an inland state like Telangana will provide a broad insight for the farmers and interested entrepreneurs in Telangana and adjoining regions about aquaculture sector and the associated economic benefits. The tagline of the show is kept as "Taking Blue revolution to India's hinterland". Organizing Aqua Aquaria India in Hyderabad will provide an impetus to handhold the inland areas of the country to the world of scientific good aquaculture practices, and will help to provide increased export supplies from those regions through judicious exploitation of resources there. Scientific aquaculture development, as happened in coastal regions, would catalyze the social gains in transforming the lives of the rural folk in the inland.

I request the wholehearted cooperation of all in making Aqua Aquaria India, 2019 a grand success.

Thank you.

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Recession and Indian Seafood Exports: A bane or boon?

SHYAM S. SALIM

Indian Fisheries sector, one of the major contributors of foreign exchange earnings through export plays a major role in the global seafood export among the Asian countries. India exported 13.8 lakh tons of seafood worth an all-time high of US \$ 7.08 billion (Rs. 45,000 crores) in 2017-18.

The economic recession, since 2008 caused a downturn all over the world, resulted a significant decline in the economic activity spread across the country, normally visible in real GDP growth, real personal income, employment, industrial production, and wholesale-retail sales. Like other sectors there was an innate fear of decrease in the export growth rate of sea food due to recession, since Asian Economic Crisis had given negative impacts to fisheries and any fisheries-related business all round the world.

Exporters, processing companies, and any type of fish dealers suffered extreme market slump. Their financial positions worsened, which caused a sharp decline in fish prices in production sites. After the outbreak of global economic crisis, demand for Indian fisheries has suddenly declined in foreign markets. The wholesale prices of Indian fish import sharply fell and also had a toll on the fishing industry of Veraval. Incidentally, Veraval has a large number of fish processing factories, which export prime quality seafood to USA, Japan, China, South East Asia, Gulf and European countries.

THE RECESSION DID NOT HAMPER THE GROWTH OF INDIAN EXPORT AND THE EXPORT TRADE CONSISTENTLY GROW AROUND 10-15 PER CENT DURING THE LAST DECADE.

The study revealed that, amidst the global recession

and economic meltdown, the sector performed well. Frozen shrimp registered the highest growth rate in quantity from 3.15 per cent to 18.95 per cent in the pre-post-recession period. India continues to be the world largest exports of shrimp and economic recession across the world since 2008. The recession did not hamper the growth of Indian export and the export trade consistently grow around 10-15 per cent during the last decade. Moreover, the study advocated for government interventions in regulating fish exports and the development of a real time fish market grid for the integration of domestic and international markets to ensure more sustainability of fisheries trade and export.

Introduction

India plays a major role in the global seafood export among the Asian countries. The marine products exports from India reached 13 lakh tons worth USD 7.08 billion in 2017-18 and registered an impressive double digit growth rate of 20 per cent in value terms since 2007-08.

India exports frozen shrimp, squids and finfish in dried, live and chilled forms to different destinations. With the current demand pattern of major seafood markets and with modern machinery for freezing and processing, several exporting firms have started development and exports of processed value added products. Among the different items exported, frozen shrimp and frozen fin fish accounted for about 75 per cent of the total volume of sea food exports from India.

However, a global economic meltdown, known as "Great Recession", affected almost all the countries of the world during 2007. The Great Recession was a global economic downturn that devastated world. The crisis led to increases in home mortgage foreclosures worldwide and caused millions of people to lose their life savings, their jobs and their homes. It is generally considered to be the longest period of economic

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decline since the Great Depression of the 1930s. Economic Recession is "a significant decline in the economic activity spread across the country, lasting more than a few months, normally visible in real GDP growth, real personal income, employment, industrial production, and wholesale-retail sales" (Shyam S. Salim, R. Narayanakumar, 2012). A recession normally takes place when consumers lose confidence in the growth of the economy and spend less. This leads to a decreased demand for goods and services, which in turn leads to a decrease in production, lay-offs and a sharp rise in unemployment. Investors spend less as they fear stocks values will fall and thus stock markets fall on negative sentiment.

Recession Impacts on Fisheries in India

The Asian economic crisis gives negative impacts to fisheries and any fisheries-related business. In domestic fish markets, demand for fisheries products is on sharp decline. Wholesale and retail prices sharply fell down. Export of Indian fisheries products mainly for Asian markets is in a severe slump. Exporters, processing companies, and any type of fish dealers suffer from extreme market slump. Their financial positions get worse, which causes a sharp decline in fish prices in production sites. Moreover, fishers and fish farmers find it very hard to raise capital for investment and operation, by depending on fish traders. Since prices of productive materials rise, the rate of profit decreases. Before the crisis, exporters were prevented from further expansion of trading products with lower additional value. In a much contrast, domestic-oriented production remained in depression (Apu Das, et al., 2012).

QUANTITY EXPORTED IN THE YEAR OF 2006-07 WAS 612 THOUSAND TONS AND IT HAS BEEN REDUCED IN THE YEAR 2007-08 TO 541 THOUSAND TONS, IT SHOWS THE NEGATIVE IMPACT OF ECONOMIC CRISIS ON FISHERIES EXPORT.

However, the decline or slowdown in exports cannot be entirely attributed to the economic recession. Quantity exported in the year of 2006-07 was 612 thousand tons and it has been reduced in the year 2007-08 to 541 thousand tons, it shows the negative impact of economic crisis on fisheries export. After the outbreak of global economic crisis, demand for Indian fisheries

has suddenly declined in foreign markets.

It is reported that, in European Union, wholesale prices of Indian fishes imported sharply came down. Collectors had to reduce their scale of transaction and reduce purchase prices of Indian fishes/shrimp. Farm gate price was almost half of the highest at peak. This caused damage to small-scale fishers who are engaged in catching fry and young fish (Apu Das, et al., 2012).

Initially there was a lot of pressure to survive in the economically challenging time, but the quality together with various other factors helped the seafood industry of India to survive. The country's exports grew significantly in terms of dollar despite the decline in aquaculture production and a slump in fish landings, mainly on account of unit value realisation.

Even though the domestic fish marketing in India is steeply increasing and there also exists a paradox of export. The impact of recession in this sector has a huge role. The impact of recession was assessed in terms of the export performance of Indian marine products during the pre and post-recession periods in terms of geographic and commodity diversification.

The study is based on the secondary data, which included marine fish landings sourced from different published sources including FAO Year Book of Fishery Statistics, Statistics of Marine Product Export from India, published by the Marine Products Export Development Authority (MPEDA, Cochin), Ministry of Commerce, Government of India, and National Marine Living Resource Data Centre, Central Marine Fisheries Research Institute. The study was conducted based on the data from 1995 to 2017. The study was designed to be conducted via pre and post-recession periods. The assessment was done using econometric tools which included growth rate analysis, instability to identify the trend in export of marine products during the pre – post recession periods. The export performance of the marine products for both commodity-wise and market-wise have been analysed for assessing the effect of recession in the Indian seafood export.

Result and Discussion

The export growth over the different time period was assessed commodity and market wise and the results are discussed under the following heads.

Export growth of marine products – Commodity wise

In the time of continued uncertainties in the global sea food trade, India has been able to maintain its

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position as a leading supplier. Almost 99 per cent of the export quantity from India is sent as frozen form to the different destinations.

In table 1, the commodity-wise export of marine products indicated that considering the total export the post-recession period (2008-2017) performed better than the pre-recession period (1995-2007). Overall the growth rate of quantity in pre-recession period has increased from 4.98 to 7.84 percent during the post-recession period.

It was found that the unit value realisation in dollars registered a negative growth rate of -0.66 per cent during the pre-recession period have shown a positive growth rate of 6.58 percent during the post-recession

period. Among the different commodities, frozen shrimp registered the highest growth rate in quantity from 3.15 percent in pre-recession to 18.95 percent in the post-recession period.

The important reasons for significant growth in frozen shrimp can be attributed to increased landings, culture of about 70 per cent frozen shrimp, higher price realisation and widened markets.

Also there is a steep decline in the growth rate in quantity of Fr. fin fish (4.51 percent to 1.51 percent), Fr. cuttle fish (3.98 percent to 2.82 percent), dried items (9.90 percent to 5.51 percent), chilled items (9.26 percent to 1.80 percent) and others (19.45 percent to 3.45 percent) during the pre – post recession periods.

Table 1. Commodity-wise export of marine products

Year	Pre-recession (1995-2007)	Post-recession (2008-2017)
Total		
Quantity in ton	4.98* (2.59)	7.84* (3.59)
Value (Crore)	6.49* (4.10)	20.71* (5.16)
US\$ Million	4.29* (3.02)	14.93* (4.15)
Unit Value (Rs)	1.43*** (0.91)	11.94* (3.43)
Unit Value(\$)	-0.66***(-0.53)	6.58* (2.74)
Fr. Shrimp		
Quantity in ton	3.51* (3.79)	18.95* (8.95)
Value (Crore)	4.37* (1.87)	28.47* (4.48)
US\$ Million	2.21* (2.32)	22.29* (4.06)
UV (Rs)	0.83*** (0.39)	8.00* (1.94)
UV(\$)	-1.26** (-0.96)	2.80*** (0.78)
Fr.Fin Fish		
Quantity in ton	4.51** (1.07)	1.51*** (0.37)
Value (Crore)	8.26* (1.99)	10.56* (2.55)
US\$ Million	6.04** (1.29)	5.29** (1.20)
UV (Rs)	3.59* (3.06)	8.91* (3.16)
UV(\$)	1.47*** (0.57)	3.72* (1.96)
Fr. Cuttle fish		
Quantity in ton	3.98* (1.97)	2.82** (0.99)
Value (Crore)	9.57* (2.98)	11.73* (4.61)
US\$ Million	7.29* (1.54)	6.32* (1.76)
UV (Rs)	5.37* (3.09)	8.66* (2.63)
UV(\$)	3.18** (0.97)	3.40*** (0.77)

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Fr. Squid		
Quantity in ton	1.12*** (0.44)	4.95* (1.47)
Value (Crore)	5.76* (2.16)	16.23* (3.04)
US\$ Million	3.55** (1.00)	10.45* (1.84)
UV (Rs)	4.59* (5.69)	10.76* (3.34)
UV(\$)	2.40** (1.18)	5.25* (1.62)
Dried items		
Quantity in ton	9.90* (1.87)	5.51*** (0.72)
Value (Crore)	17.26* (3.99)	4.91*** (0.67)
US\$ Million	14.87* (2.63)	1.66*** (0.22)
UV (Rs)	6.70* (1.79)	-0.57***(-0.10)
UV(\$)	4.52** (1.28)	-3.65***(-0.63)
Live items		
Quantity in ton	3.19* (1.61)	5.65* (1.48)
Value (Crore)	8.18* (3.18)	15.13* (3.02)
US\$ Million	5.97* (2.44)	9.70* (2.59)
UV (Rs)	4.84* (2.03)	8.97* (1.53)
UV(\$)	2.69* (1.75)	3.84*** (0.84)
Chilled items		
Quantity in ton	9.26* (2.48)	1.80*** (0.32)
Value (Crore)	13.93* (3.10)	16.18* (3.03)
US\$ Million	11.66* (2.55)	10.61* (2.56)
UV (Rs)	4.27* (1.53)	14.12* (2.84)
UV(\$)	2.20** (1.09)	8.65* (1.79)
Others		
Quantity in ton	19.45* (6.13)	7.94* (3.00)
Value (Crore)	19.39* (6.81)	12.30* (3.90)
US\$ Million	16.96* (6.40)	6.57* (1.82)
UV (Rs)	-0.05***(-0.03)	4.04* (1.69)
UV(\$)	-2.09***(-0.78)	-1.27***(-0.68)

* indicates the significance level if p value < 0.05, ** if p value < 0.01 and *** if p value < 0.001 respectively.

Export of marine products – Marketwise

In the case of market-wise analysis of export of marine products during post-recession period (2008-2017) showed impressive growth in terms of Quantity, Value, Value in Dollar, Unit value and Unit value in Dollar with 8.60, 23.06, 16.72, 13.32 and 7.48 percent respectively. The United States and South East Asia maintained its top most position in marine products exports in terms

of quantity and value respectively. During the post-recession period, the United States emerged as the major buyers of the Indian marine products relegating Japan to the second position.

South East Asia also registered a significant higher growth rates during the post-recession period in terms of value and quantity and the unit value realisation has increased by 2.96 percent. The higher export value and

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unit value realisation even at a decline in quantity in European Union indicated the quality consciousness and higher value for the premium products. In general, the analysis of the export growth revealed that there is considerable increase in the export and diversification

of commodities and also market recession the world-over had not hit the exports from India.

Table 2 shown below indicates the market wise export growth of Indian marine products.

Table 2. Export growth of Indian Marine products (Market wise)

Year	Pre-recession(1995-2007)	Post-recession(2008-2017)
Total		
Quantity in ton	4.98* (2.59)	8.60* (2.87)
Value (Crore)	6.49* (4.10)	23.06* (5.22)
US\$ Million	4.29* (3.02)	16.72* (3.89)
UV (Rs)	1.13*** (0.63)	13.32* (3.61)
UV(\$)	-0.66***(-0.53)	7.48* (2.82)
Japan		
Quantity in ton	-0.09***(-0.04)	3.73** (1.27)
Value (Crore)	-5.22* (-1.50)	11.97* (2.97)
US\$ Million	-7.18***(-2.41)	5.97** (1.35)
UV (Rs)	-5.13* (-2.32)	7.94* (2.34)
UV(\$)	-7.10* (-4.89)	2.16*** (0.77)
USA		
Quantity in ton	12.10* (1.79)	42.03* (4.83)
Value (Crore)	9.76* (1.92)	34.74* (4.09)
US\$ Million	1.46*** (0.41)	27.28* (5.36)
UV (Rs)	-2.09** (-1.23)	-5.12* (-3.38)
UV(\$)	-9.49* (-3.14)	-14.81**(-1.77)
European Union		
Quantity in ton	9.22** (9.22)	2.53* (1.63)
Value (Crore)	13.88* (2.87)	13.64* (4.13)
US\$ Million	11.52* (2.04)	7.76* (2.97)
UV (Rs)	4.27* (5.03)	10.84* (3.58)
UV(\$)	2.11* (1.34)	5.10* (1.98)
China		
Quantity in ton	3.38*** (0.66)	-14.78* (-4.05)
Value (Crore)	8.11* (1.58)	-1.08***(-0.22)
US\$ Million	5.95** (1.20)	-6.06** (-1.21)
UV (Rs)	4.57* (2.18)	16.08* (5.27)
UV(\$)	2.48*** (0.87)	10.23* (3.88)
South East Asia		
Quantity in ton	5.83* (1.73)	20.79* (2.03)

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Value (Crore)	8.23* (2.77)	38.41* (3.65)
US\$ Million	5.99* (2.51)	31.33* (2.96)
UV (Rs)	2.26 *** (0.64)	14.58* (2.86)
UV(\$)	0.15 *** (0.06)	8.72* (2.52)
Middle East		
Quantity in ton	7.15* (1.98)	10.16* (2.33)
Value (Crore)	14.60* (3.86)	21.62* (3.77)
US\$ Million	12.23* (3.01)	15.48* (3.05)
UV (Rs)	6.95* (3.44)	10.41* (2.23)
UV(\$)	4.74* (1.54)	4.83** (1.21)
Others		
Quantity in ton	13.62* (4.07)	4.37** (1.04)
Value (Crore)	21.46* (11.25)	18.29* (2.97)
US\$ Million	18.96* (6.16)	12.25* (2.29)
UV (Rs)	6.90* (2.61)	13.34* (2.94)
UV(\$)	4.70* (2.40)	7.56* (1.79)

* indicates the significance level if p value < 0.05,** if p value < 0.01 and *** if p value < 0.001 respectively

Export instability of Indian marine products: Commodity-wise

The export performance of a market during the pre-post-recession period was also measured based on the extent of variability or fluctuations in addition to the point of view of the increase in quantity, value and unit value. The results in table 3 indicated that the degree

of instability in quantity was more pronounced during the pre-recession period with 15.97 percent in terms of value and unit value even though more growth was associated there exists an increase in the degree of instability from 11.53 percent to 15.58 percent and 8.28 percent to 13.78 percent during the pre- post-recession periods respectively.

Table 3. Instability indices of Indian Marine Products Export (Commodity-wise)

Particulars	Pre-recession(1995-2007)	Post-recession(2008-2017)
Total		
Quantity in ton	15.97	8.77
Value (Crore)	11.53	15.58
Unit Value	8.28	13.78
Unit Value (\$)	10.78	16.73
Frozen Shrimp		
Quantity in ton	5.76	11.28
Value (Crore)	11.23	25.19
Unit Value	12.45	16.68
Unit Value (\$)	8.69	26.48
Fr.Fin Fish		
Quantity in ton	37.91	16.41

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Value (Crore)	33.40	16.92
Unit Value	7.43	14.94
Unit Value (\$)	32.93	17.20
Fr. Cuttle fish		
Quantity in ton	14.12	14.23
Value (Crore)	17.27	13.09
Unit Value	8.98	15.66
Unit Value (\$)	20.01	18.86
Fr. Squid		
Quantity in ton	14.90	23.16
Value (Crore)	15.75	28.95
Unit Value	6.92	16.01
Unit Value (\$)	16.14	29.04
Dried items		
Quantity in ton	33.08	39.43
Value (Crore)	26.09	48.29
Unit Value	27.70	32.39
Unit Value (\$)	29.49	53.75
Live items		
Quantity in ton	16.49	20.16
Value (Crore)	23.19	24.59
Unit Value	12.49	21.54
Unit Value (\$)	19.61	19.48
Chilled items		
Quantity in ton	35.15	57.87
Value (Crore)	41.26	27.30
Unit Value	15.76	35.16
Unit Value (\$)	45.30	22.32
Others		
Quantity in ton	14.56	11.18
Value (Crore)	17.54	17.41
Unit Value	11.28	12.43
Unit Value (\$)	18.26	20.51

* indicates the significance level if p value < 0.05, ** if p value < 0.01 and *** if p value < 0.001 respectively.

Frozen shrimp registered higher export quantity variation (11.28 per cent) during post-recession period, when compared with pre-recession period (5.76 per cent)

suggesting that there exists severe competition among the different exporters and the exports are very much responsive to the prices. In addition, the essentiality

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of a buyers' market and lesser number of importers paved the way for higher instability.

Contrary to the instability behaviour of frozen shrimp, there existed a lower degree of export quantity variation with respect to frozen squid, frozen cuttlefish and Fr. Fin fish. The widening of European Union domain and trading with South East Asian countries seemed to generate lesser instability. The analysis suggested the need for diversification of commodities, which would reduce the degree of instability.

Export instability of Indian marine products: Market-wise

The results of instability analysis of the Indian marine products – market-wise is indicated in table 4 and shows that the post-recession period shows a higher degree of instability in terms of value (17.19 per cent), when compared to the pre-recession period (11.53 per cent). Whereas the quantity of export showed lower degree of instability during the post-recession period

(12.79 per cent) than pre-recession period (15.97 per cent), which point out that the quantity of export was more stable than the value. Amidst of these, recession has not affected the quantity of export of the Indian marine products.

USA, a more stable market during the pre-recession period as indicated by the instability index in quantity and value became lesser volatile during the post-recession period for quantity, value except for the unit value. Japan on the other side, become lesser volatile during the post-recession period in terms of value and except for all other export parameters.

The major markets that have gained considerable reduction in the instability of export were that of European Union, China and Middle East in all the export parameters excluding the unit value. The South East Asia had generated a significant growth in all the export parameters leading to an alarming increase in the degree of instability.

Table 4. Export instability of Indian Marine Products: Market-wise

Year	Pre-recession(1995-2007)	Post-recession(2008-2017)
Total		
Quantity in ton	15.97	12.79
Value (Crore)	11.53	17.19
Unit Value	8.28	13.27
Unit Value (\$)	10.78	19.25
Japan		
Quantity in ton	11.10	12.52
Value (Crore)	18.46	14.97
Unit Value	11.57	12.21
Unit Value (\$)	17.27	18.81
USA		
Quantity in ton	24.80	30.79
Value (Crore)	21.49	34.17
Unit Value	7.13	6.16
Unit Value (\$)	13.04	12.29
European Union		
Quantity in ton	31.89	5.61
Value (Crore)	31.67	11.75
Unit Value	6.01	10.45

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Unit Value (\$)	30.87	12.44
China		
Quantity in ton	50.63	23.66
Value (Crore)	42.61	26.64
Unit Value	13.08	14.29
Unit Value (\$)	41.92	25.74
South East Asia		
Quantity in ton	22.56	29.97
Value (Crore)	15.78	32.64
Unit Value	20.97	18.93
Unit Value (\$)	15.47	34.19
Middle East		
Quantity in ton	27.41	17.66
Value (Crore)	35.02	14.34
Unit Value	16.59	16.83
Unit Value (\$)	37.56	14.01
Others		
Quantity in ton	16.79	24.05
Value (Crore)	13.02	19.71
Unit Value	11.06	23.47
Unit Value (\$)	12.22	20.20

The impact of recession was studied and it was found that recession has not affected India's seafood trade. The major reasons for the same had been India's economic stimulus, strength of banking system and the economic status of developed countries. While the purchasing power and employment rate decreased by around double digits, the demand for retailing went up and lower demand for ready to serve and ready to cook. The demand for food stamps (PDS increased in the developed countries including US and EU) amidst massive economic stimulus provided added demand for Indian imports.

The stronger Chinese Yuan and more productivities and governmental regulation in the South East Asian remain unaffected. The Indian seafood export was not affected due to the increased demand for raw fish rather than value-added products from the retail outlets, declining international market arrivals by over 10 per cent globally in the buyer countries. It can be inferred that the export of fishery products is on its hike during the recession period commenced from 2007. Exports have increased from 541.7 million dollars in

2007-08 to 928.45 million dollars in 2012-13. India exported 13 lakh MT of seafood worth an all-time high of USD 7.08 billion (Rs 45000 crore) in 2017-18 as against 9.45 lakh tons and 4.69 billion dollars a year earlier. USA and South East Asia continue to be the major importers, while the demand from the European Union (EU) grew substantially during the period.

One of the important lessons learnt is to be self-reliant. Even though World Trade Organisation (WTO) propagates free trade, India must adopt protective measures in the economy to prevent recession affecting in different parts of the world. In the event of recession, it could also be note that some of the high value fishes fetch a premium price in the domestic market too. The low demand from US and EU economies hit hard by the global crises has decelerated the country's export growth sharply in 2008. Export markets get subjected to high risk in terms of rejection and low price risk and loss of damage in transit or variation in foreign exchange values. The setback experienced could be minimised in future only by a well-developed internal marketing system.

MARKETING NEWS

Moreover, the expansion of *L. vannamei* culture has been rapid in recent years, it has led to reduced value of harvested shrimp. Recent worldwide trends have been towards the integration of the industry, in response to the ever increasing requirement for traceability and control within the culture system. There has been increasing demand for shrimp in world markets, as capture fisheries stagnate and people became more affluent and conscious of healthy food choices.

Despite the increased demand, the price for *L. vannamei* has been declining steadily. In the future, the market for *L. vannamei* is expected to become more competitive, mainly due to the saturation of export markets and reduction in world economic growth, as well as the emergence of non-tariff barriers in shrimp trade.

Additionally, the industry will need to accommodate

importing countries requirements on chemical residues, food safety and certification, traceability eco-labelling and environmental sustainability.

The shrimp farmers have slowly become aware of the growing need to farm shrimp in a responsible, traceable and low impact manner which can enhance biosecurity, and help protect the environment, whilst producing shrimp in a cost efficient manner.

The newly developed intensive bacterial floc and super-intensive systems, Better Management Practices, HACCP in processing units may have potential to address all of these concerns and should be investigated more thoroughly. In order to continue the growth of shrimp farming smoothly in the long term, domestic consumption should be promoted to supplement the complex export markets.

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Prevailing misconceptions on hepatopancreas in clam

SETHULAKSHMI C.S., ANJU A.V., NIKITA GOPAL, BINDU J. AND SREEJITH S.



'Clam' is a generic term for a range of bivalve molluscs, having two shells connected by adductor muscles and a powerful burrowing foot. They dwell on the muddy and sandy bottoms of water bodies and move using their muscular foot. Clams have no heads or biting mouth parts. A short oesophagus leads from the mouth opening to the stomach, which is a hollow chambered sac with several openings. They are filter feeders, feeding on phytoplankton and algae in the water.

While feeding, sand and clay particles are also ingested by them. The stomach is surrounded by the digestive gland, a dark mass of tissue that is frequently called the "hepatopancreas". This digestive gland is often misunderstood as that part of body of the organism harbouring faecal remnants and generally the black/dark portion in the meat of the clam is pressed and removed before cooking by most consumers. In fact, it is a vital site of intracellular digestion in bivalves and within these structures there is a continuous two-way flow with material enter into the gland for intracellular digestion and absorption and the waste leave in route

to the stomach, intestine and finally through anus to exterior. The dark colour of the gland is attributed to the presence of pigmented vacuoles.

As part of a project by ICAR-CIFT, Cochin an intervention was carried out in Perumbalam village in Alappuzha district, Kerala. The village is an island on the Vembanad Lake and the black clam fishery is an important livelihood activity of about 250 fisher families here. A clam processing facility has been set up on the island involving important activities in the process chain like a depuration facility; steaming and shucking equipment; and a mechanical meat shell separator.

The shucked, clean, safe calms can be packed, stored and marketed. Since the clams are depurated the product does not have grit and other remnants in the digestive tract of the clam. However, when test marketing was done, there were queries regarding the 'black portion' of the clams. Consumers were not willing to accept the product in whole form and still insisted that this portion be removed before cooking.

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To assess the reasons for this view, a rapid visual perception survey was conducted among 90 respondents (30 clam fishers from Perumbalam, 30 consumers from Perumbalam, and 30 consumers outside the island) and their opinions assessed on whether the portion can be retained or not before cooking and consumption.

The survey revealed that most respondents identified hepatopancreas of clam as faecal matter (41%). Some of them thought it was clay and sand (31%), intestine (13%), egg (6%), fat (4%) or calcium (4%). About 60% of consumers outside the island and 40% of consumers on the island thought this to be faecal matter. Even 23% of clam fishers from Perumbalam island thought so. The main reason was the dark colour of the gland. Another major perception was that this was clay and sand content the reason being that since clam is a benthic organism buried in clay, they frequently ingest clay and sand along with planktonic matter in the water. Majority (73%) of the clam consumers prefer to remove the gland prior to cooking. Almost 90% of the clam consumers outside the island remove the glands prior to cooking, the reason being their belief that it would


cause gastrointestinal problems. Consumers, mostly clam fishers from Perumbalam, who never removed the gland before cooking added that they had not faced any health issues by consuming the clams with gland. It is essential that awareness on this aspect is created among consumers so that misconceptions are removed. While there is possibility of grit in the undepurated clam, the depurated clam is free from this and is safe for consumption.

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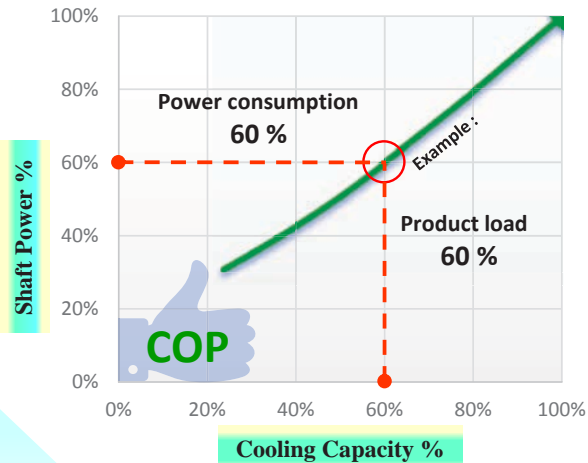
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Highlights of marine fish landings in selected harbours of India during April 2019

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

NETFISH, the extension arm of MPEDA, keep a record of boat arrivals and marine fish landings happening at the major harbours of India. This report describes the analysis results of harbour data obtained during April 2019.

Data Collection & Analysis

The fish catch and boat arrival data were obtained on a day-to-day basis by the Harbour Data Collectors stationed at selected harbours across the nine maritime States of India (see Table 1). The name, registration number and type of fishing vessels arrived as well as the approximate quantity of major fishery items landed at the harbour were recorded by primary and secondary modes. The data were further analysed using online applications and MS office (Excel) tools to arrive at species-wise, region-wise, state-wise and harbour-wise estimations. During April 2019, data from 43 harbours along the 9 coastal states were obtained, which were analysed for this report.

Table 1. List of landing sites selected for data collection

Sl. No.	State	Fishing harbour
1	West Bengal	Deshapran
2		Namkhana
3		Raidighi
4		Digha (Sankarpur)
5	Odisha	Paradeep
6		Balaramgadi
7		Bahabalapur
8		Dhamara

9	Andhra Pradesh	Visakhapatnam
10		Nizampatnam
11		Machilipatnam
12		Kakinada
13	Tamil Nadu	Nagapattinam
14		Karaikal
15		Chennai
16		Pazhaiyar
17		Cuddalore
18		Pondicherry
19		Chinnamuttom
20		Mandapam
21		Tuticorin
22		Colachel
23	Kerala	Thoppumpady
24		Vizhinjam
25		Thottappally
26		Kayamkulam
27		Beypore
28		Sakthikulangara
29		Munambam
30	Puthiyappa	
31	Karnataka	Tadri
32		Mangalore
33		Honnavar
34		Malpe
35		Gangoli

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36	Goa	Cutbona
37		Malim
38	Maharashtra	Ratnagiri (Mirkarwada)
39		Sasson Dock
40		Harne
41	Gujarat	Veraval
42		Mangrol
43		Porbandar

Estimations on fish landings

A total of 50678.31 tons of landings of marine fishery resources was recorded from 43 landing sites during April 2019, which was composed of 19289.46 tons (38 per cent) of Demersal finfishes, 16788.53 tons (33 per cent) of Shellfishes and 14600.32 tons (30 per cent) of Pelagic finfish resources (Fig. 1). The shellfish landing

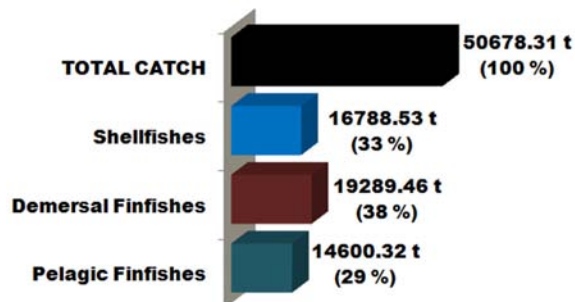


Fig. 1. Category-wise fish landings during April 2019

included 68 per cent of Molluscs and 32 per cent of Crustaceans.

The total catch was comprised of 116 varieties of fishery items, among which the top five contributors were Squid, Japanese thread fin bream, Red-toothed Filefish, Ribbon fish and Indian mackerel (Fig. 2). These five fishery items together formed 46 per cent of the total catch. The other major contributors to the catch were Cuttlefish and Lizard fish each recording more than 2500 tons. The species, which registered least landing during the month was the Double barred spine foot, with a quantity of 0.10 tons.

Table 2 enlists the quantity of various fishery items recorded during April 2019. Among the Pelagic finfish resources, Ribbon fish and Indian Mackerel were the major contributors and in the case of demersal finfishes, it was Japanese threadfin bream and Red-toothed Filefish which contributed more. Major items among Shellfish resources were Squid, Penaeid Shrimps and Cuttlefish.

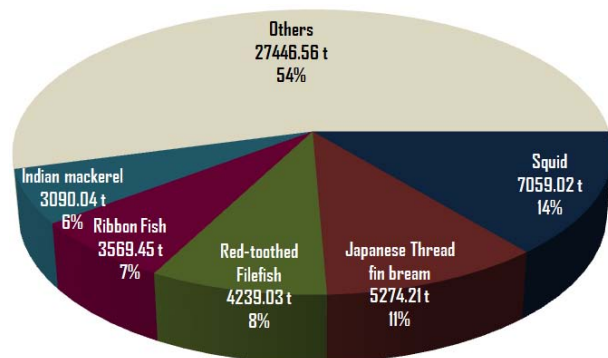


Fig. 2. Major fishery items landed during April 2019

Table 2. Category-wise landing of various fishery items during April 2019

Fishery item	Quantity in tons
Pelagic finfish	
Ribbon Fish	3569.45
Indian mackerel	3090.04
Tuna	1853.69
Horse mackerel	1052.44
Leather jacket	775.09
Anchovies	728.13
Trevallies	628.08
Seer Fish	506.66

Scad	467.44
Indian Oil Sardine	447.54
Barracuda	362.58
Dolphin fish	174.03
Oriental Bonito	156.10
Bombay Duck	152.66
Sail fish	149.86
Lesser sardines	97.55
Marlins	61.67
Queen fish	56.11
Needle fish	43.70

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Indian ilisha	39.46
Mullet	37.13
Herrings	36.85
Hilsa	32.95
Indian salmon	27.33
Black king fish	24.86
Silver sillago	10.71
Sea bass	8.37
Flat needle fish	4.20
Milk fish	3.10
Rainbow runner	2.20
ladyfish	0.40
Total	14600.32
Demersal finfish	
Japanese Thread fin bream	5274.21
Red-toothed Filefish	4239.03
Lizard fish	2816.26
Croakers	2075.43
Cat fish	1307.34
Sole fish	960.43
Bull's eyes	785.95
Moon fish	571.61
Reef cods	317.34
Snapper	197.02
Goat fish	175.39
Pomfrets	160.82
Eel	139.02
Pony fishes	106.48
Rays	90.06
Indian Halibut	13.89
Glassy perchlet	11.72
Whip fin silver biddy	11.50
Ghol	11.40
Emperor Bream	10.75
Tiger Perch	6.13
Parrot fish	2.79
Long spine sea-bream	1.50
Ocean Triggerfish	0.85

Yellow fin sea bream	0.80
Black tip shark	0.66
Spine foot	0.60
Batfish	0.50
Total	19289.46
Shellfish	
<i>Crustaceans</i>	
Penaeid Shrimps	4675.44
Non-penaeid shrimps	324.82
Sea Crab	391.52
Lobster	18.86
Mud Crab	1.10
<i>Total Crustaceans</i>	5411.74
<i>Molluscs</i>	
Squid	7059.02
Cuttlefish	2867.05
Whelk	803.00
Octopus	647.73
<i>Total Molluscs</i>	11376.80
Total Shellfish	16788.53
Grand Total	50678.31

Region-wise landings

In April 2019, the maximum quantity of fish landings was recorded from the North West coast, where a total of 24499.74 tons (49 per cent of total catch) was reported from the selected harbours of Maharashtra and Gujarat. The South West coast comprised of Kerala, Karnataka and Goa had contributed 21426.53 tons (42 per cent) to the total catch. In South East coast, landings recorded from the select harbours in Tamil Nadu and Andhra Pradesh were totalled to 3714.77 tons (7 per cent), whereas along the North East coast 1037.86 tons (2 per cent) of fish catch was recorded altogether from the eight harbours in West Bengal and Odisha (Fig. 3).

State-wise landings

When looked at the State-wise catch, the maximum landing recorded was from Gujarat which was to the tune of 20253.53 tons (40 per cent of total catch) (Fig. 4). This was followed by Karnataka with 13998.68 tons (28 per cent) and then by Kerala with a contribution of 4980.15 tons (10 per cent). The State which reported least landing during the period was Odisha, where

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only 408.38 tons (1 per cent) of marine fish catch was recorded. The West coast States together formed more than 91 per cent of the total catch.

The major five fishery items which had contributed significantly to the landings in each state during the month are given in Table 3.

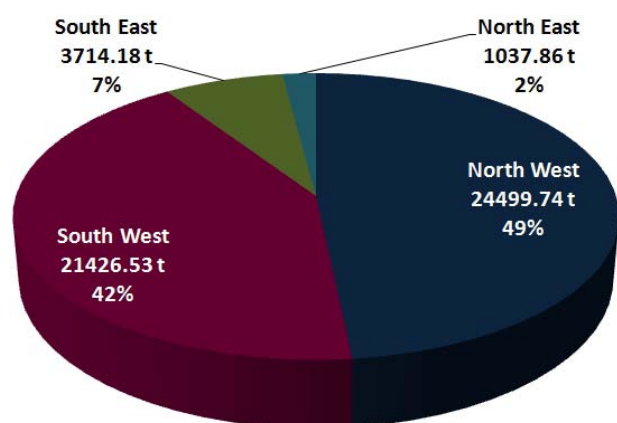


Fig. 3. Region-wise landings (in tons) recorded during April 2019

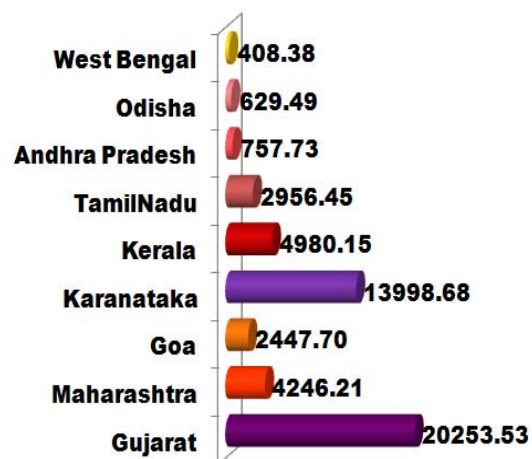


Fig. 4. State-wise fish Landings (in tons) during April 2019

Table 3. Major items landed in various states during April 2019

Item	Quantity in tons	% of total landings of the state
Kerala		
Whelk	803.00	16.1
Deep sea Shrimp	450.66	9.0
Poovalan Shrimp	438.76	8.8
Squid	316.94	6.4
Cuttlefish	303.44	6.1
Karnataka		
Red-toothed Filefish	4235.13	30.3
Japanese Thread fin bream	2693.20	19.2
Lizard fish	1337.29	9.6
Squid	1069.60	7.6
Indian mackerel	993.09	7.1
Goa		
Indian mackerel	567.90	23.2
Horse mackerel	337.50	13.8
Moon fish	293.80	12.0
Squid	227.92	9.3
Japanese Thread fin bream	211.60	8.6
Maharashtra		
Squid	927.35	21.8
Japanese Thread fin bream	666.57	15.7

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Indian mackerel	523.09	12.3
Horse mackerel	294.89	6.9
Lizard fish	254.71	6.0
Gujarat		
Squid	3975.00	19.6
Ribbon Fish	2765.40	13.7
Cuttlefish	1916.70	9.5
Japanese Thread fin bream	1502.00	7.4
Croaker	1326.60	6.5
Tamil Nadu		
Tuna	624.56	21.1
Squid	423.74	14.3
Cuttlefish	408.06	13.8
Octopus	112.52	3.8
Indian Oil Sardine	102.39	3.5
Andhra Pradesh		
Tuna	137.40	18.1
Brown Shrimp	90.77	12.0
Japanese Thread fin bream	68.14	9.0
Squid	61.39	8.1
Sea Crab	33.71	4.4
Odisha		
Croaker	218.39	34.7
<i>Karikkadi</i> Shrimp	56.79	9.0
Ribbon Fish	41.47	6.6
Cat fish	31.86	5.1
Sea Crab	29.85	4.7
West Bengal		
Croaker	60.39	14.8
Bombay Duck	39.98	9.8
Squid	38.06	9.3
<i>Karikkadi</i> Shrimp	33.10	8.1
Poovalan Shrimp	25.62	6.3

Harbour-wise landings

Figures 5 and 6 represent the fish landings recorded during the month at the select harbours of West and East coasts respectively. Of the 43 harbours, Porbandar harbour in Gujarat registered the maximum landing

of 8105.83 tons (16 per cent) and it was followed by Mangalore harbour in Karnataka with a landing of 7026.13 tons (14 per cent). Along the East coast, Chennai harbour recorded the maximum catch, which was to the tune of 1434.83 tons. During the month, only 11 out of the 43 harbours registered more than 1000 tons of fish catch.

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The least quantity of marine fish catch was recorded from Mandapam harbour in Tamil Nadu (15.00 tons).

Estimations on boat arrivals

A total of 25764 boat arrivals were recorded during April 2019, of which the highest recording was from

Porbandar harbour (3409) and it was followed by Veraval harbour with 3274 boat arrivals. More than 76 per cent of the fishing vessels which landed their catch at the harbours belonged to the category of trawlers and the remaining landings were by purse seiners, gill netters, long liners and traditional crafts.

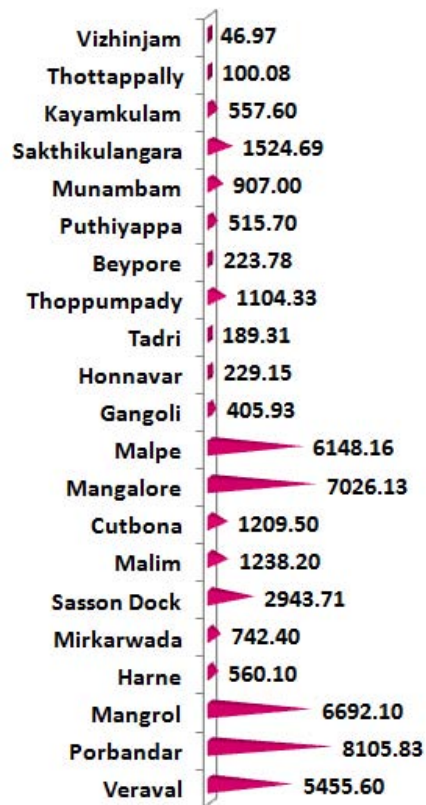


Fig. 5. Landings (in tons) recorded at harbours in west coast during April 2019

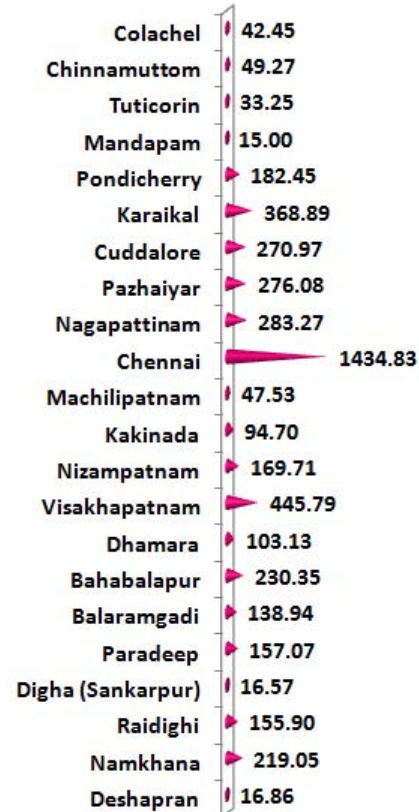


Fig. 6. Landings (in tons) recorded at harbours in east coast during April 2019

Comparative Analysis

Table 4 presents the comparison of data of April 2019 with that of previous months. In April, the total fish catch was decreased by more than 11500 tons in comparison with that of March, and it was the lowest for the last three months. With regard to catch composition, the Demersal finfishes continued as the highest contributor and the pelagic finfishes remained in the third position. The percentage share of Demersal finfish had increased by 3 per cent with a corresponding decrease of 2 per cent in Shellfish share and 1 per cent in Pelagic finfish share. Squid continued as the topmost contributor among the various fishery items landed during the period. Gujarat also retained its prime position among the maritime states. Among harbours, Porbandar harbour

overtook Veraval harbour with regard to quantity of fish landed. The total number of boat arrivals recorded decreased by more than 1208 in April when compared to that of March.

Summary

In April 2019, a total landing of 50678.31 tons of marine fishery resources were registered from the 43 major fishing harbours of India, where in Demersal finfish was the major contributor than the Shellfish and Pelagic finfish stocks. Considering the fishery item-wise landings of the month, squid had contributed the most. About 91 per cent of the total catch recorded during April was from the West coast and the maximum catch was reported from the North West region. The least

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contribution from the East coast can be attributed to the fishing ban period started on April 15. Gujarat recorded maximum landing during the period and

among the harbours, Porbandar harbour registered the highest landing as well as the maximum number of boat arrivals.

Table 4. Comparative analysis of the data

Parameter	February 2019	March 2019	April 2019
Total Catch	53451.49 t	62334.97 t	50678.31 t
Landing of Pelagic finfishes	17474.47 t (33%)	18768.66 t (30%)	14600.32 t (29%)
Landing of Demersal finfishes	18940.67 t (35%)	21838.37 t (35%)	19289.46 t (38%)
Landing of Shellfishes	17036.35 t (32%)	21727.94 t (35%)	16788.53 t (33%)
Species recorded highest landing	Squid (12%)	Squid (15%)	Squid (14%)
State recorded highest landing	Gujarat (37%)	Gujarat (44%)	Gujarat (40%)
Harbour recorded highest landing	Mangrol (15%)	Veraval (16%)	Porbandar (16%)
Total Boat Arrivals	30299	26972	25764

..... *Percentage of total catch



PMKVY training programmes at Bhimavaram



A view of the participants

The Regional Division of MPEDA in Bhimavaram organised three programmes related Pradhan Mantri Kausal Vikas Yojana (PMKVY) in April and May.

The first programme seafood processing technicians was held at M/s. Sandhya Marines Ltd. (Unit - I), Palakol Mandal, West Godavari district, Andhra Pradesh from April 23-26, 2019.

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MPEDA officials explaining the programme

A pre-screening of participants was held at the company premises under the leadership of Mrs. Biji, Junior Technical Officer, MPEDA, in which 33 processing workers attended. This was done to assess the skill gaps of the candidates.

After the pre-screening, details of the candidates like Aadhar number, bank account number and address were uploaded in the NSDC site, following which batch was created and 30 candidates were enrolled for the RPL (Recognised Prior Learning) training. The date of training for the processing workers of first batch was intimated to the District Collector, as required by the procedure.

The trainees were issued PMKVY kits, comprising of PMKVY caps and aprons along with the required stationery. The sessions were handled by Dr. Pau Biak Lun K., Assistant Director and Maheta Mukesh J., Technical Officer, MPEDA, based on syllabus in the National Occupational Standards (NOS) issued by National Skill Development Corporation (NSDC) and FICSI.

On the final day, an assessment was made by the external assessor Mr. Maharajan, Quality Assurance Manager. Theoretical and practical assessments were made by the assessor in the presence of the trainers. The proceedings of assessments including photos, videos and other documentations as required were uploaded during the assessment time itself.

The second training session was held at M/s. Sandhya

Aqua Exports P. Ltd., Kurumaddali, Pamaruru, Krishna district from April 30, 2019 to May 2, 2019.

A pre-screening of participants was held at the company premises under the leadership of Mrs. Biji, Junior Technical Officer MPEDA, in which 36 processing workers took part. This was done to assess the skill gaps of the candidates. After collecting the details, 33 candidates were enrolled for the RPL training. The sessions were handled by Maheta Mukesh J., Technical Officer. based on syllabus in the National Occupational Standards (NOS) issued by National Skill Development Corporation (NSDC) and FICSI. On the final day, an assessment was made by the external assessor Mr. Sainadh.

The third PMKVY training session was held at M/s. Satya Sea Foods P. Ltd., East Godavari district, Andhra Pradesh from May 14-16, 2019. A pre-screening of participants was held at the company premises by Mrs. Biji, Junior Technical Officer MPEDA, in which 40 processing workers took part, following which batch was created and 38 candidates were enrolled for the RPL training.

The sessions were handled by Maheta Mukesh J., Technical Officer, and the final assessment was done by Mr. Sainadh, based on the assessment criteria for assessment of trainees issued in the NOS of NSDC and FICSI.



Stakeholders Consultation Meeting with Shrimp Farmers



Shrimp farmers are the actual market for the seeds produced from the hatchery. As the end users of the product from the hatchery, it is very important to listen to the views of the farmers on the hatchery seed production and certification. With the aim of reaching out to this segment, three stakeholders' consultations with the farmers were planned to be held in Tamil Nadu.

The first of these meetings was planned and conducted at Pattukottai on May 7, 2019, which is the centre point and meeting place of the majority of the farmers from Thanjavur and Thiruvarur districts. Incidentally, more scientific and organized shrimp farming is done in these districts.

The meeting was attended by 82 farmers from different parts of Thanjavur and Thiruvarur districts, who actively participated in the discussions. Presentations on the ill-effects on the use of antibiotics in aquaculture and the need for certification and also a presentation on the certification scheme of the hatchery was done by Mr. C. Wilson, Deputy Director, MPEDA, Regional Division, Nagapattinam. Farmers' doubts on the scheme were clarified. The farmers expressed their happiness on

the certification scheme and offered their suggestions on the scheme.

Similar programme was conducted at Velankanni on May 08, which was attended by 84 farmers. Velankanni was selected, as it is the centre place for the farmers from Vedaranyam, Kilvelur and Nagapattinam and Karaikal taluks, where shrimp farms are mostly concentrated. A few farmers from other areas also attended the meeting. This region has very small to large farms, though average size of the farms in this region is small. Mr. C Wilson, Deputy Director, MPEDA, RD, Nagapattinam, made presentations here too.

The final meeting in the series was held at Sirkali on May 09, 2019 in which 75 farmers, from North Nagapattinam District and Cuddalore district besides a few farmers from other areas, attended. Mr. C Wilson, Deputy Director, made presentations in the meeting and another presentation on the certification scheme was presented by Mr. G. Alexander, Junior Technical Officer, MPEDA, Regional Division.

The farmers came forward with many valid suggestions at all the three meetings. They suggested that provision

AQUACULTURE SCENE

should be made in the scheme to check the over production of seed by the hatcheries than that of their production capacity, as over production affects the quality and require the use of antibiotics for their production.

As the PL size of the seeds supplied to the farmers are differing from the one as specified by the hatcheries, the farmers suggested that there should be a provision to ensure that the correct size of the seed will be supplied from the hatchery.

As the quality of the seeds are checked by the lab owned by the hatcheries or private labs, the quality cannot be assured and hence government labs should be established for checking the quality of the seeds and also antibiotics.

There was a suggestion to have a provision for getting compensation by the farmers when there is a loss to the farmer due to the quality of the seeds supplied from a certified hatchery.

The participants at these meeting suggested to have a model in line with the successful one adopted by Amul for diary industry. Shrimp health issues also have to be included in the certification of the hatchery as the possibility of using antibiotics is more in the weak PLs.

A display board containing the details of brood stock imported and the seed produced and also the details of stock in the ponds should be displayed at the reception for the farmers to check.

It was suggested that inputs to be used in the hatcheries should also be certified and should be free of antibiotics. As there is possibility of misuse of the nauplii transferred from on hatchery to other, the same should be properly recorded in both the hatcheries and be verified during the audit. Nauplii transported from one hatchery to another may be quarantined before stocking in the next hatchery.

Farmers were of the opinion that ranking of the hatcheries should be done on the basis of an audit. There should be a provision for the farmers to check the quality and get the seed before taking the seed from hatchery. The culling of the used spawners should be recorded and documented for verification by the auditors and there should be provision to check the use of farm reared brooders in the seed production be made in the scheme.

It was also suggested that a representative of the farmers also should be there in the audit committee for the certification of the hatchery.



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Hatchery Operators' Meet

MPEDA Regional Division, Kochi organised a shrimp hatchery operators meet on May 16, 2019 that was attended by leading shrimp hatchery operators and owners from Kerala. Officials of Matsyafed, ADAK and RGCA also participated in the meeting, which was convened to discuss about the modalities on implementation of for the Hatchery Certification Scheme for production of antibiotic-free quality shrimp seeds in hatchery.

The meeting started with an introduction by Dr. A. S. Upadhyay, Joint Director, MPEDA Regional Division, Kochi, on the purpose behind the Hatchery Certification Scheme and its importance in production of antibiotic-free shrimp to boost our export earnings. This was followed by a detailed presentation on the "MPEDA certification scheme for antibiotic-free shrimp seed production" and also the initiatives behind avoiding antibiotics in shrimp hatchery seed production by Mrs. Elsamma Ithack, Assistant Director, MPEDA.

An interaction session was held with the participants after the introduction in which valid points related to the topic were discussed.

It was noted at the meeting that almost all shrimp hatchery located in Kerala are heavily dependent upon shrimp nauplii resourced from other States, mainly from Andhra Pradesh and Tamil Nadu.

The hatchery operators raised serious apprehension on quality of nauplii and about their disease-free status. The participants suggested that, it is important to bring all shrimps nauplii production and supply units under a compulsory registration and monitoring system so as to assure supply of good quality disease and antibiotic-free nauplii to hatchery operators for quality seed production.

There was also suggestion for introducing a mechanism to have check on nauplii production centres, who are producing and supplying poor quality diseased nauplii to different hatcheries.

There was mention at the meeting about supply of various hatchery inputs and supplements in different names, which does not have any regulatory mechanism resulting in presence of even certain banned antibiotics in them. Therefore,

it was suggested that all inputs and supplements supplied to shrimp and prawn hatchery must compulsory be registered and monitored, so as to avoid use of any banned antibiotics during the hatchery production system.



The Shrimp Hatchery Operators also requested that MPEDA and RGCA should take a lead role in supply of diseases-free quality nauplii to all those shrimp hatcheries in order to produce healthy and antibiotic-free shrimp seeds to the farmers. They also suggested certain incentives for improving infrastructure in the process of Hatchery Certification scheme.

Considering the fact that most of the tiger shrimp brooders in wild are infected with WSSV Virus, there is need to have tiger shrimp multiplication centres in order to have assured supply of SPF brooders and hatchery production of shrimp seeds, the participants said.

Mr. V. Vinod, Assistant Director, Regional Division, Kochi; Dr. Manoj, Project Manager, Rajiv Gandhi Centre for Aquaculture, Mr. Bijimon P., Field Supervisor, and Mrs. Manjusha K., Field Supervisor, also participated in the deliberation and interaction with the hatchery operators. The programme was concluded with vote of thanks proposed by Mr. Bijimon P.

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सत्यमेव जयते

Stakeholder Consultation on Antibiotic Free Certification of Hatcheries



Mr. P. Anil Kumar, Joint Director, MPEDA addressing the farmers at Bhimavaram

The coastal districts of Andhra Pradesh, mostly West Godavari, East Godavari and Krishna, have been playing a vital role in the country's GDP through their aquaculture produce and its exports. The State has been the front runner in achieving enormous quantities of shrimp production through advanced scientific aquaculture methods.

The prominence and versatility of the name "Bhimavaram shrimp" itself shows the kind of popularity the area has gained in the shrimp global market over the years. It is common knowledge that sustainability is directly proportional to the level of standards maintained in the industry, not just to survive but also to thrive. Any shortfalls would lead to an incomprehensible dynamic losses.

This is where aquaculture need to introspect, as things have not gone well with the industry in the recent past. Issues related to disease outbreaks, antibiotic misuse, improper culture methods, and lack of technical trainees have led to the downward trend of the production in this area. With the spread of disease outbreaks, farmers started looking at increasing the survivability by applying inputs like antibiotics. This may help for the time being, but the repercussion of the practice will have long term impact on the industry. So it was left for MPEDA to make constructive interventions and elevate the industry standards on par with international standards.

The condition of aquaculture industry in Andhra Pradesh had prompted MPEDA to take up the antibiotic misuse issues seriously, before any severe damage is done.

The present situation runs a parallel to the one faced with *Penaeus monodon* in the 1990s. MPEDA has come up with a certification scheme for both farmers and hatchery operators to create the complete traceability and compliance of the Indian aquaculture industry. This is expected not only to improve the standards but also to give farmers good market access.

The antibiotics free awareness campaigns and programmes on certification schemes are being well received by all the stakeholders. The industry is beginning to realise and feel the importance of traceability and certification. The awareness is slowly spreading across industry stakeholders that MPEDA certification scheme is the need of the hour, if one goes by the responses of farmers and hatchery operators who participated in the different consultation workshops. MPEDA is relentlessly working towards the goal of achieving complete Antibiotic Free (AbF) shrimp production by 2020 through a series of awareness campaigns meant to educate the farmers all over Andhra Pradesh.

MPEDA's Sub Regional Centre at Bhimavaram has successfully conducted seven stakeholder consultation meets on 'Antibiotic Free Certification of Hatcheries' at Bhimavaram, Amalapuram, Kakinada and Visakhapatnam, which were led by Mr. P. Anil Kumar, Joint Director. Apart from these, MPEDA is continuously monitoring the areas with the disease incidence and conducting awareness campaigns against the use of banned antibiotics. Recently, two more campaigns were conducted in Pippara, and Kesavaram of West Godavari district.



Farmers' Meets on 'Antibiotic-free Shrimp Hatchery Certification'

In an effort to give a fillip to aquaculture scene in the country, MPEDA designed a new certification scheme for hatcheries for the production and supply of healthier as well as disease-free and antibiotic-free seeds. The draft scheme with standards and procedures was published on the websites of MPEDA, RGCA, NASCA and NETFISH. This will be available for 60 days for the stakeholders and public to give suggestion and make comments.

In connection with this, Ratnagiri Sub Regional Division of MPEDA organised two meetings of stakeholders to acquire feedback from the farmers.

The meetings were held to collect suggestions to improve the scheme structure and implementation procedure too. First meeting was held at the office of MPEDA, Sub Regional Division Ratnagiri on April 25, 2019 and the second meeting was held at Shiroda in Sindhudurg District on May 1, 2019.

The meet started with introductory speech by Mr. Shaji George, Assistant Director, Sub Regional Division, Ratnagiri on the certification scheme going to be introduced by MPEDA for the benefit of aquaculture sector as a whole.

Dr. Vishnudas R. Gunaga, Junior Technical Officer explained the objectives of the certification scheme and made a detailed presentation on misuse of antibiotics in aquaculture. He explained the guiding principles of standards for certification, operating guidelines for hatcheries and process of certification as mentioned in the draft.

During interactive session, farmers clarified their various doubts on certification process with MPEDA officials, and farmers were visibly happy that MPEDA is coming up with a certification scheme for hatcheries for improving the quality of the production and supply seeds.



Introductory speech by Mr. Shaji George, Assistant Director on the certification scheme

Mr. Pradeep Pawar, a shrimp farmer said, "supply of low quality seed from the hatcheries is the root cause of all the problems in shrimp farming and so, this initiation taken by MPEDA to improve the quality of seed is appreciable."

Mr. Mangesh Chawan, a crab farmer, asked for stringent action on hatchery operators who do not supply disease and antibiotic-free seed to the farmers.

Mr. Rajanish Mahagaonkar, another crab farmer, stressed the need of this sort of certification for the sector and said that everybody would benefit from this in the long run.

Ratnagiri

The meeting was attended by shrimp, crab and fish farmers, new entrepreneurs, feed dealers and faculty from College of Fisheries, Ratnagiri. All the 21 participants, who attended the programme, offered their feedback.

Dr. Pagarkar, Professor, College of Fisheries, Ratnagiri, said that even though the residual antibiotics found in seed disappears during culture period, the quality of seed reared using antibiotics would be inferior than that of seed reared without using antibiotics.

Feedback was collected from the participants on the certification scheme at the end of the programme.

AQUACULTURE SCENE

Shiroda, Sindhudurg

Dr. Vishnudas R. Gunaga gave introductory speech as well as presentation on the hatchery certification scheme to mark the start of the programme at Shiroda. During interaction, Mr. Sanjay Patil, a lead shrimp farmer, Redi, requested MPEDA to make the hatchery certification scheme mandatory. He said that MPEDA is collecting NRCP samples from only enrolled farmers, and they only will get pulled for any positive results.

free shrimp seed production at the CM Hero Show Room, Contai in Purba Medinipur, West Bengal was attended by more than 100 participants representing hatchery operators, Exporters, farmers, fishermen, and feed dealers.

Mr. Debasish Roy, Junior Technical Officer, Sub Regional Division, Contai started the session with his welcome address. The workshop was attended by Mr. Archiman Lahiri, Deputy Director, Regional Division, Kolkata; Mr.



Dr. Vishnudas Gunaga, Junior Technical Officer, MPEDA giving a power point presentation

"Farmers of Maharashtra region are getting seed from other States, as there are no hatcheries in Maharashtra. Due to this reason, small farmers of Maharashtra are dependent upon middlemen for seed procurement and due to this, farmers are not getting quality seed," Dr. D.P. Gosavi, another lead shrimp farmer said.

After a detailed discussion and interaction, feedback was collected on the certification scheme from 34 farmers, who attended the meet.

West Bengal

The Regional Division of MPEDA in West Bengal held three sessions on spreading awareness about the Certification of Hatcheries. The session at Purba Medinipur was held on 16th May 2019, at Old Court Complex, Kakdwip, South 24 Parganas on May 28, 2019 and at the Tea Board Building, Kolkata on May 30, 2019. The workshop on certification of hatcheries for antibiotic-

Chintamani Mondal, a shrimp farmer and feed dealer cum exporter; Mr. Kamdeb Jana, shrimp farmer, feed dealer, fishing boat owner and exporter; Mr. Shyam Sunder Das, Secretary, Digha Fishermen and Fish Trade Association, among others.

Mr. Archiman Lahiri made presentations on subjects like "why do we stop antibiotics in hatchery" and "certification process for shrimp hatcheries". He also spoke in detail about ill effects of using antibiotics in aquaculture.

Mr. Johnson D' Cruz, Assistant Director, Regional Division, Kolkata, made presentations on "the general presentation on certification of hatcheries" and "certification schemes of MPEDA" and explained the enrolment process of MPEDA and its importance.

The grading system of hatcheries and their publication in the MPEDA website was generally welcomed by

AQUACULTURE SCENE

the participants. They all were of the opinion that such certification process should also be done in farms in near future. The session ended with Mr. Dhirit Ekka, Assistant Director, Regional Division, Kolkata, proposing a vote of thanks.

Kakdwip

More than 110 farmers, fishermen and feed dealers participated in the workshop on certification of hatcheries for antibiotic-free shrimp seed production held at Old Court Complex, Kakdwip, South 24 Parganas district.

Mr. Dhirit Ekka, Assistant Director, Regional Division, Kolkata welcomed the audience and Mr. Johnson D' Cruz, Assistant Director, Regional Division, Kolkata; Mr. Vivekananda Panda, shrimp farmer and feed dealer; and Mr. Pradip Maity, Field Manger, NaCSA, spoke.

Mr. Johnson D' Cruz made presentations on "why do we stop antibiotics in hatchery" and "certification process for shrimp hatcheries" and cautioned about the negative market implications on detection of antibiotics from export aquaculture product.



A view of the programme at Kakdwip

Mr. Dhirit Ekka, Assistant Director, Regional Division, Kolkata made presentations on "the general presentation on certification of hatcheries" and "certification schemes of MPEDA" and explained the enrolment process of MPEDA and its importance. Mr. Pradip Maity, Field Manger, NaCSA made presentation on setting up of Aqua One lab in Kakdwip.

During discussions that followed, most of the farmers raised the issue of how to identify whether a particular product has antibiotics or not. They were advised to use CAA-approved product. Even though consultants and technicians insist for illegal application of unlabelled products in their farms, but this might invite unnecessary troubles for them in the future, it was pointed out. Mr. Johnson D' Cruz proposed vote of thanks.

Kolkata

More than 40 farmers, feed dealers, exporters, shrimp seed nursery rearing unit owners and commission agents participated in the workshop held at the Board Room of Tea Board, Building, Kolkata.



Mr. Dhirit Ekka, Assistant Director, MPEDA Regional Division, Kolkata making the Power point presentation

Mr. Dhirit Ekka, Assistant Director, Regional Division, Kolkata started the meeting with his welcome address. Mr. Archiman Lahiri, Deputy Director, Regional Division, Kolkata; Mr. Rajashee Banerjii, President and Mr. Parvez Ahmed Khan, Secretary, Seafood Exporters Association, West Bengal chapter, spoke on the occasion.

Mr. Archiman Lahiri gave a brief introduction on the certification schemes of MPEDA, before going on for a detailed talk on enrolment scheme of MPEDA and detection of antibiotics in aquaculture in India. Mr. Rajashee Banerjii talked about the difficulties faced by exporters due to detection of antibiotics in shrimp export consignments. He advised avoiding usage of antibiotics in all stages of aquaculture, starting from hatchery to the processing plant.

Mr. Parvez Ahmed Khan, who is also a farmer and an exporter, gave a quick recap of the history of seafood export from India with special reference to West Bengal. He said that unless the presence of antibiotics is controlled, the export of seafood from India would take a serious beating and all the players in the field right from hatchery operators to exporters would suffer. Mr. Archiman Lahiri made a presentation on "why do we stop antibiotics in hatchery", Mr. Dhirit Ekka made a presentation on "certification of hatcheries" and Mr. Johnson D' Cruz, Assistant Director, Regional Division, Kolkata "process of certification of hatcheries".

The shrimp nursery operators were demanding the enrolment of their units with MPEDA and they were all appreciative of the efforts taken by MPEDA for certifying the aqua units in India. Mr. Johnson D' Cruz proposed vote of thanks to end the meeting.



Awareness campaign on banned antibiotics



A view of the participants

Sub Regional Division of MPEDA at Kannur organised a one-day awareness campaign against the use of banned antibiotics in aquaculture, importance of farm enrolment and certification scheme of MPEDA on May 30, 2019.

The meeting was held at the Public Library, Parapram Road, Kolad, Thalassery in Kannur, in which 19 aqua farmers from Kolad, Dharmadom, Eranholy, Parapram and Melur regions attended.

Mr. S. Arul Raj, Field Supervisor, handled the technical session and explained in detail about the farm enrolment, certification scheme of MPEDA, about the misuse of banned antibiotics in aquaculture and how it affects the export of our country.

Farmers interacted and discussed these subjects with

the MPEDA official and cleared their doubts on feeding and water quality issues during Vannamei culture. They were also given marketing tips.

Mr. Rauph, a leading shrimp farmer in the region, requested the farmers to enrol with MPEDA and avail of certification scheme benefits. During the campaign, the farmers were told about the availability of good quality tiger shrimp seeds from the RGCA Hatchery at Vallarpadom.

Farm enrolment application, advance approval application form for certification scheme and leaflet regarding misuse of antibiotics in aquaculture were distributed among the participants. The programme ended with Mr. Rameshan K.V., a shrimp farmer from Dharmadom, proposing the vote of thanks.



An advertisement for a handbook titled "Living Jewels: A Handbook on Freshwater Ornamental Fish". The background is a dark purple with a grid pattern. On the left, there is an image of the handbook cover, which features a collage of colorful fish. To the right of the cover is a yellow arrow pointing right with the text "ORDER YOUR COPY!". Further right, the title "Living Jewels" is written in large white font, followed by the subtitle "A Handbook on Freshwater Ornamental Fish" in yellow. Below this, the price "₹150" is displayed in a yellow rounded rectangle.

Training programme held on 'Sustainable Shrimp Farming and Aquaculture of Diversified Species'



Mr. Laxman Tari, explaining raft culture of oyster during field visit

MPEDA Sub-Regional Division, Ratnagiri organised a three-day training programme on "sustainable shrimp farming and aquaculture of diversified species" at Mond village in Sindhudurg district of Maharashtra from May 10-12, 2019. The main objective was to educate the trainees on eco-friendly and sustainable farming, BMPs and further developmental scope in aquaculture with special emphasis on diversification in aquaculture practices. The training programme was attended by 24 participants.

Mr. Kashinath Tukaram Tari, Secretary, Maharashtra Aqua Farmers' Association, Maharashtra, inaugurated the programme. Different topics related to the subject right from site selection, species selection, farm construction and farm management were discussed in depth by MPEDA officials during the sessions.

Mr. Kashinath Tari was the resource person and he spoke on 'techniques involved in shrimp farming'. Other resource persons who spoke at the training programme were Mr. Jaffer Wadkar, a progressive crab farmer, delivered a lecture on 'vertical crab farming'; Mr. Milind

Sarang, an entrepreneur, talked about 'ornamental fish and its breeding' and Mr. Arun Alsaie, a progressive fresh water farmer, shared his experience of Vannamei culture in low saline lands of Kolhapur.

The trainees were taken out on a field trip on the second day of the training programme to the shrimp farm owned by Mr. Kashinath Tari, MAFA near to the training venue. The practical aspects related to farm such as bio-security measures, Good Management Practices (GMPs) and use of field equipment of testing of various water quality parameters were explained to the trainees. After that, trainees were taken to crab and oyster culture units located at Taramumbri. Mr. Laxman Tari, the caretaker at the farm, explained the techniques involved in the culture of crabs in pens and raft culture of oyster.

The three-day training programme concluded with the valedictory session in which Mr. Shaji George, Assistant Director, Sub Regional Division of MPEDA, Ratnagiri distributed the certificates to all the 24 trainees, who attended.



Awareness campaigns held at Gatadwadi village in Maharashtra

Sub Regional Division of MPEDA at Ratnagiri organised two awareness campaign programmes at Gatadwadi village in Sangli district of Maharashtra on May 21, 2019. Sangli, along with Kolhapur and Satara districts of Maharashtra, is famous as agrarian areas.

These districts, coming under the upper Krishna basin, were extremely productive and most farmers were into continuous culture of sugar cane as a mono crop. However, excessive use of fertilizers and chemicals has made the ground water saline and not suitable for irrigation. Most of the sugar industries in the area also release their effluents in the river water and causes water pollution.

The awareness workshops on aquaculture were held in this backdrop, the first programme was on the 'misuse of antibiotics in aquaculture' and the second programme on the 'diversification of aquaculture'.

MPEDA started a demonstration farm in the Akiwat village at Kolhapur in April 2017, where 1.70 lakh Vannamei seeds were stocked in nursery of 0.05

Ha WSA for 2 months. A survival of 72.5 per cent was observed in nursery phase and they were then transferred to grow-out pond with 0.20 Ha WSA. The crop was harvested after rearing 129 days in grow-out pond. The seeds have grown to an average size of 29.2 g. As much as 1,796 kg of shrimp was harvested and procured by M/s. West Coast Frozen Foods P. Ltd, Surat Gujarat. The overall survival rate was only 36.5 per cent, but the productivity was very high.

After MPEDA's demonstration, many entrepreneurs from inland areas showed interest in taking up Vannamei culture in their fields. Following this, MPEDA Sub Regional Division, Ratnagiri initiated a series of awareness campaigns and proposed training programmes in the region. The programme organized at Gatadwadi was the part of this initiative.

Dr. T. R. Gibinkumar, Deputy Director, MPEDA Sub Regional Division, Ratnagiri, welcomed the participants and explained the purpose of conducting such programmes along with the advantages of the area. He explained the various schemes of MPEDA available for the benefit of farmers and role of MPEDA in the development of aquaculture. Dr. Vishnudas R. Gunaga, Junior Technical Officer, presented the list of banned antibiotics and chemicals in aquaculture and explained the consequences of using them. He cautioned the farmers that if banned antibiotics were used during culture practices, it would be accumulated in the tissues of shrimps and detected in the consignments sent to different foreign destinations. And such consignments would be rejected or destroyed causing economic losses in addition to the loss of country's reputation. He also explained the purpose of conducting awareness campaign programme on diversification of aquaculture and the farming techniques involved in seabass, crab, tilapia, mussels, oysters etc.

Mr. Arun Alase, a progressive freshwater farmer and owner of the farm where Vannamei demonstration was conducted, talked about the advantages of shrimp farming and explained the variety of risks involved during the culture practices. He also advised the farmers to practice aquaculture in an eco-friendly and sustainable manner, without using any banned antibiotics.

The participants were given a chance to interact with



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AQUACULTURE SCENE



Field visit to potential farm area

MPEDA officials and clarify their doubts on antibiotic issues, diversification of aquaculture, farming techniques involved in seabass, crab and tilapia. All the 17 potential aqua farmers were taken on a field inspection to nearby saline-affected agriculture farm was also conducted. MPEDA is taking a positive and crucial role in popularising shrimp aquaculture in the saline inland areas and tilapia culture in inland fresh water areas of Maharashtra through sustainable approach without affecting the surrounding environment and, most importantly, in the interest of local stakeholders.

In this aspect, MPEDA is proposing to promote cluster farming with a clear road map on implementation. As the first step, the potential area, which has been made unfit for agriculture due to salinisation of soil, in Kolhapur, Sangli and Satara districts need to be identified through a survey and collection of available

date with departments concerned.

Water and soil samples should be collected and tested for different parameters, keeping in view of the land suitability for Vannamei and tilapia culture before meeting interested entrepreneurs and different department officials from banks, revenue, agriculture and fisheries. Selection of beneficiaries for cluster farming and training them on Vannamei culture will follow.

MPEDA is also promoting steps like culture practice without using common salt, stocking density less than 25 nos. per square meter, zero percent draining of harvested water to the creek by the adoption of recirculation system to tackle the environmental issues.

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Stakeholders meet on disease-free shrimp seed



Mr. A. Kumar, representative of CP Feed Ltd. sharing his experience

A stakeholders' meet was organised to discuss the certification of disease-free healthy shrimp seed production and supply on May 14, 2019 at Kundapura. Around 75 shrimp and fish farmers, entrepreneurs and aquaculture traders from Udupi and Mangalore districts attended the meet and shared their views in containing the banned antibiotics in aquaculture farms. Shrimp hatchery operators and owners and progressive shrimp farmers were represented by Mr. Krishna Prasad Adayanthi, M/s. Popular Aqua farms, Tallaru; Mr. Gautham Pai, Director, M/s. Priya Hatcheries, Manki; Mr. Pradeep Shetty, M/s. Deejay Hatchery & Breeding farm, Bailur and Mr. Sridhar Hedge, Shrimp Farmer Association, Koni Village, Kundapura.

Mr. Vijayakumar Yaragal, Deputy Director, MPEDA made a technical presentation on statistical figures of frozen shrimp exports from the country, as the frozen shrimp contributed 60 per cent of the total marine export. His presentation also covered the details of frozen shrimp export from the competing countries like as Vietnam, Thailand, Taiwan and rejections of consignments by importing regions like the European Union, USA and Japan.

He explained the economic loss caused due to rejections of consignments and reasons for rejections along with suggestions to avoid such rejections. He sought the farming and allied community to extend necessary cooperation for smooth exports.

Mr. Gautham Pai, M/s. Priya Hatchery and Mr. Pradeep Shetty, M/s. Deejay Hatchery & Breeding Farms, assured that they were ready to supply premium quality and

residue-free seed to the farmers, subject to confirmed supply orders. Hatcheries operating from the Karnataka now depend on the nauplii from outside regions like Tamil Nadu or Pondicherry or Nellore in Andhra Pradesh. They also agreed to extend necessary cooperation in production and supply of antibiotics and disease-free seed to the farmers. The seed price is being fixed based on the production cost of the hatchery and so, the price for high quality seed will be slightly higher, they said. Mr. Krishna Prasad Adayanthi, a leading farmer, requested the State Government to consider providing facilities like full-fledged Aqua lab in coastal area of Kundapura and Karwar and timely supply of diseases and residue-free seeds at competitive price from the locally-operated hatcheries to farmers for increasing shrimp production, along the lines of facilities provided by Andhra Pradesh and Orissa.

Mr. G. Ramar, Junior Technical Officer, made a presentation on certification of high health antibiotics free-seed production. The presentation mentioned that that during current year, 30 shrimp hatcheries were likely to be awarded for certification by grade system-based performance of production of disease-free high quality seed.

Certified hatcheries will be publicised in the MPEDA's website, thus encouraging the farming community to buy seed from these hatcheries only and not from other uncertified hatcheries. Certification will be valid for only two years. Mr. Ramar also proposed the vote of thanks.



Stakeholder meetings on “Certification Scheme for Antibiotic-Free Seed Production in Hatcheries”



Mr. Rajkumar Naik, Deputy Director, MPEDA Regional Division, Panvel addressing the meet

The Regional Division of MPEDA in Panvel organised two stakeholder meetings to invite suggestions on the certification scheme for antibiotic-free seed production in shrimp hatcheries.

A meeting held at the headquarters on April 5, 2019 decided to organise two meetings at Alibag and Palghar districts during the first or second week of May. In connection to the preparations for this, a public advertisement was released in Maharashtra Times on April 24, 2019 about 'Certification of Hatcheries for Quality and Antibiotic-Free Seeds' and was posted in websites of MPEDA, RGCA and NACSA.

Mr. Rajkumar Naik, Deputy Director, Regional Division, Panvel welcomed the participants at the first meeting held at Khajani village, Roha taluk in Raigad district on 9th May 2019. Mr. Yuvraj Chaugule, Regional Deputy Commissioner, Konkan Region, Department of Fisheries, Maharashtra and Ms. Smital Kamble, Assistant Fisheries Development Officer, Alibag, Raigad, were present for the meeting, which was attended by 32 stakeholders, including aquaculture consultants.

Briefing about the objectives of the meeting, Mr. Rajkumar Naik highlighted the status and importance of antibiotic issues in export market for India with special reference to European and USA.

Mr. Yuvraj Chaugule, briefed the stakeholders about the potential of Raigad for shrimp farming. Mr. Mangesh Patwardhan, a shrimp farmer and consultant from Raigad, shared his experience of shrimp farming and expressed the need for a shrimp seed hatchery and disease diagnostics as well as soil and water testing lab in Raigad.

Mr. Mangesh Gawde, Field Supervisor, Regional Division, Panvel made technical presentations on 'why certification is required in India', 'purpose and scope of the certification', 'guiding principles of standards for certification', 'operating guidelines for hatcheries' and 'process of certification – three levels of audit'.

Stakeholders came up with suggestions like speeding up the accreditation procedure and process for hatcheries. It should not be time consuming as there will be many



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AQUACULTURE SCENE



View of Participants in Stakeholders' Meet at Khajani in Raigad District

cycles and rearing tanks from one hatchery, it was suggested. Mr. Atul Raosaheb Sathe, Field Supervisor, Regional Division, Panvel, proposed the vote of thanks to end the session.

The second stakeholders' meeting on certification of hatcheries for farmers in Thane and Palghar districts of Maharashtra region was held at Dhahnu on May 13, 2019.

Mr. Naresh Tambada, Assistant Director, MPEDA Regional Division, Panvel, welcomed the officials from the Department of Fisheries and stakeholders from the Palghar Region. He also briefed the objectives of the meeting and highlighted the status and importance of antibiotic issues in export market for India with special reference to European Union and USA.

Mrs. Puja Salvi, Assistant Fisheries Development Officer, Palghar, explained the potential of Palghar for shrimp farming to the stakeholders and appreciated the MPEDA initiative to organise a meeting like this.

Mr. Jagannath Vaze, representative from shrimp farmers from Palghar, shared his experience of shrimp farming in the region and expressed the need of Elisha lab, shrimp seed hatchery and disease diagnostics as well as soil and water testing lab there. He also suggested setting up a mobile lab for testing of seed, water and soil quality for collection and diagnosis of diseases. The need for certified seed was repeated by Mr. Tanmay Bari, representative from shrimp farmers of Dahanu. He suggested bar-coding of each batch of brood stock or seed produced in the certified hatchery. He also appreciated MPEDA's move to take up the

issue of "quality and antibiotic seed production and certification of hatchery".

Mr. Atul Sathe, Field Supervisor, Regional Division, Panvel made technical presentations on topics like 'why certification is required in India', 'purpose and scope of the certification', 'guiding principles of standards for certification', 'operating guidelines for hatcheries', 'process of certification – three levels of audit, pre-certification/pre qualification audit, certification audit/committee audit', etc.

The meeting, which was attended by 50 stakeholders also came up with suggestions like bar coding of brood stock and each batch of seed produced in the certified hatchery, not repeating the brooder once used for seed production again and control method or procedure for the brooder and close monitoring of tanks in hatchery. Mr. Atul Raosaheb Sathe, Field Supervisor, Regional Division, Panvel, proposed the vote of thanks to end the proceedings.



Participants in Stakeholders' Meet at Dahanu, Palghar District

Stakeholders' meeting for Shrimp Hatchery Operators



Mr. P. Anil Kumar, Joint Director, MPEDA addressing the audience

MPEDA convened stakeholders' consultation meeting at Pondicherry on May 15, 2019, to gather opinion and suggestions of the hatchery operators on the proposed hatchery certification scheme. All the hatchery operators from Tamil Nadu region were invited for the meeting and forty-two hatchery operators, including the president and secretary of the All India Shrimp Hatchery Association, attended the meeting.

The meeting started with a welcome address and introductory remark by Mr. C. Wilson, Deputy Director, MPEDA, Regional Division, Nagapattinam. Mr. P. Anil Kumar, Joint Director, MPEDA, made presentations

on the needs for eliminating antibiotics from the aquaculture produce and the steps taken by MPEDA along this line. Mr. Viswakumar, Assistant Director, MPEDA, made presentation on the details of the hatchery certification scheme and invited the hatchery operators to offer their suggestions.

Following the presentations, the participants got a chance to clarify their doubts with Mr. P. Anilkumar, Joint Director, MPEDA. The hatchery operators made suggestions like having provisions in the certification scheme to prevent the entry of antibiotics through the inputs used in the hatchery.



A view of the participants

First HACCP Basic Training held in Ratnagiri



Inaugural session of HACCP training

MPEDA Sub Regional Division, Ratnagiri organised a four-day basic training programme on 'Seafood HACCP', a first of its kind, at Ratnagiri from April 9 to 12, 2019. This training programme was organised for the benefit of the technologists, plant managers and supervisors working in the seafood processing facilities in the region and was attended by 26 candidates working in various seafood processing plants in Ratnagiri, Sindhudurg and Mumbai.

The programme started with an inaugural session on April 9, to which Dr. T. R. Gibinkumar, Deputy Director, MPEDA, Sub Regional Division, Ratnagiri welcomed the candidates to the training programme. Mr. S. S. Shaji, Deputy Director (QC), MPEDA Head Office, gave the introductory remarks and explained the overall structure of the training programme to the participants. Mr. V. Vinod, Assistant Director (QC), MPEDA, Regional Division, Kochi and Mr. Vaniya Kishore, Technical officer (QC), MPEDA, Regional Division, Mumbai, were present. Inaugural session concluded with Mr. Shaji George, Assistant Director, Sub Regional Division, Ratnagiri, proposing the vote of thanks.

The inaugural session was followed by training sessions which covered topics like Introduction to HACCP, Pre-requisite Programmes and Preliminary Steps, CGMP and SSOP. The first day concluded with the work session on SSOP. The second day covered session like Hazards, Hazard Analysis and Control Measures, Critical Control Point, Critical Limit, CCP Monitoring and Corrective Action. A work session covering the topics discussed on second day was conducted at the end of the day.

On the third day of the training, sessions like Verification, Record Keeping, US Seafood Regulation, National Standards/EU Regulations and Traceability were covered which was followed by the work session on day three topics. On the final day of the programme, a session on HACCP Plan Development and Guidelines for Preparation of HACCP Manual was conducted. Following this, the trainees were divided into four groups and given the task of preparing SSOP, HAW and HACCP Plan on specific products. After that the group representatives gave individual presentations of the matter they have prepared and these were thoroughly discussed among the trainees and suggestions by the trainers were incorporated.

The four-day training programme on Seafood HACCP concluded on April 12 with a valedictory function, where certificates were awarded to the candidates who completed the training programme.



Mr. S. S. Shaji, Deputy Director (QC), MPEDA addressing the programme

After a decade, black tiger shrimp stages a comeback in Kerala



File photo

Authorities said that MPEDA's efforts to revive the production of black tiger shrimps on a mass sale of its seeds have been receiving encouraging feedback. Ending a decade's slide in the production of black tiger shrimps, Kerala is experiencing a comeback of the top healthy seafood, thanks to a much-needed initiative of the Marine Products Export Development Authority (MPEDA) launched earlier this year.

The MPEDA's efforts to revive the production of black tiger shrimps on a mass sale of its seeds have been receiving encouraging feedback, according to authorities with the statutory body that functions under the Union Governments Ministry of Commerce & Industry.

The mass sale of seeds since the past 100 days shows a rapidly growing interest among the farmers to raise the disease-free variety, the authorities said.

The Kochi-headquartered MPEDA began on February 18 supplying black tiger shrimp seeds from its new multi-species aquaculture complex (MAC) at Vallarpadam.

The inaugural sale was done by MPEDA chairman K.S. Srinivas by handing over one lakh seeds to former Kerala Director-General of Police Hormis Tharakan, a progressive shrimp farmer.

On 17th June 2019, Mr. Srinivas noted, the black tiger prawn supplied from the nine-acre MAC has been showing 'excellent' performance in various parts of the State.

We knew that increased production of the black tiger variety can boost India's shrimp exports in the long run. We are seeing the early signs of it happening, he said. Recently, I visited some of the aquaculture farms to understand the field performance of the seeds from our facility. Our seeds are doing well. The farmers' comments are encouraging," he said.

Mr. Tharakan, buttressing the point, said the seeds showed good performance during the three months of culture period.

"They [seeds] gained an average weight of 38 gm,

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thanks to the quality. I got 260kg of shrimp in the 90 days from an area of 50 cents by stocking 10,000 seeds. Currently, we are rearing another 90,000 seeds, he said. This is in happy contrast to my facing a continuous crop loss for the last three years, he said.

The Rs. 7.26-crore MAC, which was inaugurated on December 8, 2018, features a hatchery with an annual production capacity of 20 million black tiger shrimp seeds, besides nurseries for four varieties of fin fishes. C.V. Mathew, another farmer who has been into shrimp cultivation for 16 years in his native Kumbalangi suburb, said black tiger seeds from MAC attained 25gm size in the first 50 days.

In 86 days, the animals reached an average size of 40 gm, he said. I have never experienced such a growth rate of my crop. No different has been the feedback from the farmers from down State Kollam and Kannur in north Malabar after culturing the seeds taken from the Vallarpadam hatchery, top MPEDA officials said.

It was from 2010 that the black tiger shrimp, an endemic species to south-east Asia, began to face a slump in its traditional reputation as a major variety of cultivated shrimp item in India. That was after aquaculture farmers in the country began to focus on growing the exotic Vannamei species of shrimps in a big way.

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India accounts for 6.3% of global fish production: Fisheries dept

India is the second largest fish producing country in the world as it accounts for 6.3 per cent of the global fish production, a release by the Fisheries Department said on 17th June 2019.

It also said the fisheries sector in the country is growing at the rate of 7 per cent, sustaining 14.5 million fishermen.

The release quoted Rajni Sekhri Sibal, Secretary, Department of Fisheries, as saying that there is a

huge potential in harnessing tuna and tuna-like species in the Indian Exclusive Economic Zone (EEZ).

In her inaugural address at the 23rd session of the Indian Ocean Tuna Commission (IOTC), Sibal said 30 per cent of the Indian EEZ is spread across the Andaman, Nicobar and Lakshadweep Islands, but only 1 per cent comprises production of tuna fish.

Emphasising the need for regional cooperation between IOTC member

countries, the official said there is a need for responsible and sustainable management of tuna. The IOTC has to ensure that there is a level playing field between developed and developing nations, she said.

Sibal added that fisheries is a sun rise sector in India, considering the commercially viable global tuna market which stood at USD 11.38 billion in 2017 and is projected to reach USD 13.75 billion by 2023, the release said.

www.business-standard.com



CMFRI develops anti-hypertension product from seaweed

In a major development in utilizing the medicinal prospects of marine organisms, the Central Marine Fisheries Research Institute (CMFRI) has now come up with a nutraceutical product from sea to combat hypertension. The product, Cadalmin TM antihypertensive extract (Cadalmin TM AHe), was developed from seaweeds, which are commonly available in the Indian coastal waters and are known for their extraordinary medicinal properties.

Bioactive pharmacophore leads from seaweeds were used to develop this product, which can be administered orally to regulate hypertension. This is sixth in the series of the nutraceutical products developed by CMFRI. The institute has already developed and

commercialised natural products for diseases such as diabetes, arthritis, cholesterol and hypothyroid.

Dr. Trilochan Mohapatra, secretary, department of agriculture research and education and director general of Indian Council of Agricultural Research (ICAR) released the product at a function held at CMFRI.

"The extract contains 100 per cent natural marine bioactive ingredients from selected seaweeds by a patented technology, and would be made available in 400 mg capsules. This nutraceutical does not have any side effects as established by detailed preclinical trials. It is the only product made by cent per cent natural marine bioactive ingredients from seaweeds

as a natural remedy of hypertension", said Dr Kajal Chakraborty, senior scientist at CMFRI who developed the product.

Dr A. Gopalakrishnan, Director, ICAR-CMFRI said that entrepreneurs and start-ups are welcome to upscale and market this product by expression of interest (EOI) with CMFRI. "The institute is in the process of developing more health products from the underutilized seaweeds. Efforts are on for standardizing and promoting seaweed farming all along the Indian coasts as a livelihood option for the coastal communities. This is expected to compensate for the dip in income for the fishermen during lean season," he said.

www.economictimes.indiatimes.com



Shrimp farming should avoid antibiotics, says expert

The aquaculture-based shrimp farming, the mainstay of the USD 7-billion marine products export from the country, must focus more on a sustainable farming culture without using any antibiotics, according to Shaji Baby John, a pioneer of aquaculture shrimp farming in the country. He told reporters here that the quality standards in the main export destinations were getting stringent everyday and "we needed to be ready to face the situation."

"The countries in European Union have already instructed exporters that antibiotics presence will not be tolerated and such consignments will be rejected in future," said Shaji, who is also the chairman and managing director of Kings Group of companies. Other major export destinations like the US and Japan will also adopt such quality standards soon, he said. Projecting a bright future for the Indian marine products industry, he said that the sector needed to be organised on a sustainable model with adoption of latest technology standards.

"We can take on China, the global leader in aquaculture production, with proper planning and technology adoption and diversification of products," Shaji said.

The formation of a department of fisheries by the union government is a positive step in this direction, he added. China has a production of 49 million tons of aquaculture while India is way below with 6 million tons.

The need of the hour is a technology up-gradation fund for sustainable aquaculture development (TUFSA), he opined. TUFSA coupled with an integrated management approach comprising coastal and inland aquaculture would be a fillip in bettering the livelihood, employment prospects and protein intake of rural population.

Kings Group recently launched its STQC (sustainable, traceable, quality certified) aquaculture hub model at Chippikulam, Tuticorin in Tamil Nadu, ensuring responsibly grown fishes, whose back history could be traced back. "We are expanding this to larger areas by transferring technology developed by our R&D to farmers. It covers the entire gamut of seafood exports' value chain right from brood stock availability," Shaji said.

Technology transfer includes setting up of open-cycle re-circulating aquaculture systems incorporating biological controls and aqua-mimicry for a disease-free multi-tropic farming practice.

www.deccanchronicle.com



'Vannamei' to make State a leading hub for aqua exports

Even as seafood growth is expected to slow down to 17 per cent during 2019-20 from 20 per cent recorded during the past two years, Vannamei exports from Andhra Pradesh will make the State a leading hub for aquaculture exports.

The overall growth of seafood exports will come down mainly due to stringent guidelines imposed by the United States under its Seafood Import Monitoring Programme by withdrawing preferential trade treatment and levying anti-dumping duties forcing exporters from the country to explore new markets.

"Vannamei (white-leg shrimp), an exotic species known

for its taste and low cost, is most sought after in the export market and we are doing extremely well in culturing it," Association of Indian Fishery Industries president Y.G.K. Murti told The Hindu.

Andhra Pradesh, specifically, the Krishna, West Godavari and East Godavari districts, account for 25 per cent of the country's aquaculture. It leads in shrimp farming, with production of over 300,000 ton of Pacific whittail or Vannamei in 2018. The State leads in seafood exports, with shrimp accounting for close to 95 per cent of exports.

"The AP government has been focussing on making

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shrimp culture a long-term sustainable industry. So, in many ways, it has avoided the mistakes that other States, notably Tamil Nadu, made, by allowing rampant unregulated shrimp farming to take place. AP has taken steps to regulate new shrimp farms, as well as to shut illegal hatcheries," said Pushkar Mukewar, co-founder and co-CEO of Drip Capital, which offers a data and technology-driven working capital solution to SME exporters.

Steps to improve quality

He said State authorities were working closely with the Central authorities to ensure that brood-stock was not contaminated. The State was planning to use technology, including block chain, to help improve quality and productivity to give a further fillip to shrimp culture.

Mr. Mukewar said Vizag had been topping the list in terms of seafood exporting ports. However, the government's plan to modernise and upgrade Vizag Fishing Harbour could impact this position and make the city a world leader in seafood exports.

In trouble

He said the Indian shrimp had been in trouble with American and European authorities for unsanitary processes, as well as high levels of antibiotics used. State governments were now using technology to help maintain quality standards in shrimp cultivation. Companies in this business were also taking steps to improve the supply chain, and reducing the overuse of antibiotics and other chemicals. Some States were providing land to shrimp hatcheries to encourage more companies to enter shrimp cultivation, he stated.

- www.thehindu.com



Farmers reap a bumper mussels harvest under CMFRI

After a major setback in the last year's flood, farmers in Moothakunnam in Ernakulam district have had a bumper harvest of mussels under the guidance of Central Marine Fisheries Research Institute (CMFRI). Five self-help groups in the region reaped a total yield of 6.5 tons of mussels in as many as five farming units. The farmers — most of them are women — started the farming in January using a structure made of bamboo with a size of five metre each width and length.

The farmers, who turned into bivalve farming as an additional livelihood option, had suffered a severe loss owing to last year's devastating flood. Their oyster farming units were completely destroyed. They were also worried that post-flood changes in the aquatic ecosystem may affect the mussel farming. But, farmers are now relieved with

a good harvest this time and are hopeful of compensating the loss last time.

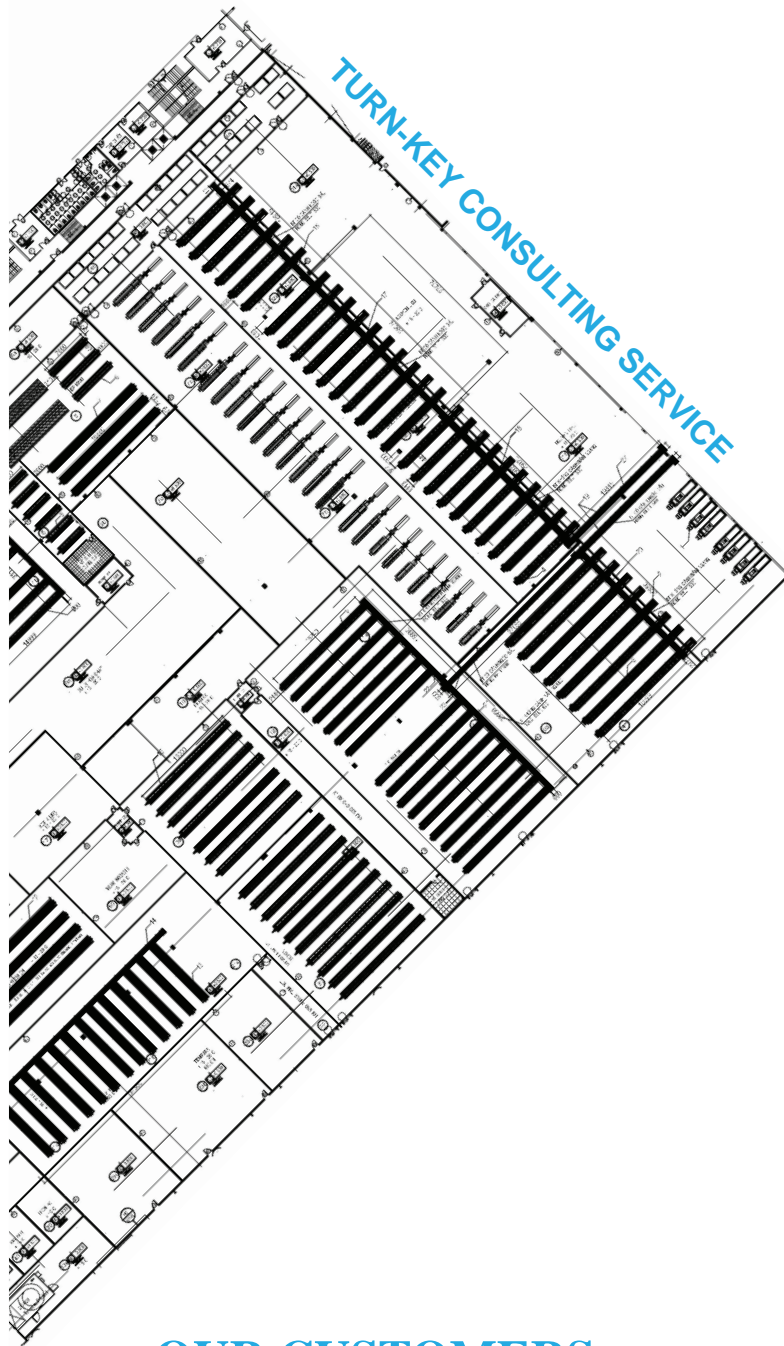
The farming that lasted 5 months was carried out under the guidance of the Molluscan Fisheries Division of the CMFRI. After the harvest, the produce was undergone depuration, a scientific process of expelling contaminants from gills and guts of mussels by providing them with good purified seawater before they are used for consumption which was also developed by the CMFRI. As there is no need for feeding, the bivalve farming is less expensive compared to fish farming. However, the initial capital to set up the farming units is the major expense of the farming.

Mussels are rich in protein, lipids, carbohydrates, minerals (calcium, iron, copper, zinc, phosphorus) and vitamins.

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Ensure equity in tuna fishing, India tells IOTC

India has asked the Indian Ocean Tuna Commission, a global tuna management association, to ensure equity and democratic processes, letting the voices of the smaller countries heard.

India, a smaller player in the global tuna trade, felt that the global body must facilitate a level playing field, allowing the smaller players to tap the potential. Despite a huge coastline and the exclusive economic zones in the seas, the country is yet to tap the tuna opportunity.

IOTC meet

Addressing the 23rd session of the IOTC being held here, Rajni Sekhri Sibal, Secretary (Fisheries), Government of India, said it would be tough for developing countries to compete with big players. Their tuna fishing ships are almost like floating factories, which process and pack the catch inhouse.

The tuna and tuna-like species had a global market size of \$11.38 billion in 2017. "This is projected to grow to \$13.75 billion by 2023, with a compounded annual

growth rate of 3.2 per cent," she said. The session, which began here on June 9, will conclude on June 21. The IOTC, which has 31 countries as members, discusses the issues and the proposals made by member countries and other stakeholders.

Overfishing alleged

Environmental activists and organisations such as Blue Marine Foundation that are working in the area have been asking the consumers to shun consumption of yellowfin tuna procured from the Indian Ocean. They contend that the tuna species has been overfished and that it is on the brink of collapse.

"Fisheries managers must act to protect Indian Ocean yellowfin. The scientific evidence regarding the status of Indian Ocean yellowfin is well-documented and disconcerting," the International Seafood Sustainability Foundation (ISSF) has said.

In a statement issued to mark the IOTC conference, it said that the IOTC has the power to adopt management measures that will rebuild this stock.

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ICAR-CIBA commercialize technology of Plankton Plus, a value-added product from fish waste as a part of 'Waste to Wealth' concept under Swatch Bharat

Fish waste processing technology developed by ICAR-CIBA for the production of PlanktonPlus from fish waste sourced from fish markets has been transferred to aqua-entrepreneurs, Sri Nagakishore Mudedla and Sri Syamala Rao Maradani, from Gudivada, Krishna district, Andhra Pradesh, through an MoU on May 16, 2019, at CIBA Headquarters, Chennai.

Under the agreement, the ICAR-CIBA will transfer the PlanktonPlus production technology on a non-exclusive basis and also provide the necessary training to the entrepreneurs for producing PlanktonPlus. Dr. K K Vijayan, Director, CIBA, who executed the MoU for CIBA, along with farmer entrepreneur Sri Nagakishore Mudedla, highlighted the importance of Plankton^{Plus}, a product for boosting plankton production in aquaculture rearing systems. He expressed his confidence that this model will be a successful and sustainable model for converting the fish waste to value-added products,

which will also help in cleaning the environment aligning the program on Swachh Bharat. He recalled the partnership of CIBA with the Nambikkai Fish Farmers Group, Nambikkai Nagar, Chennai, for recycling fish waste to wealth as an alternative livelihood activity for the fishers in their village.

Dr. Debasis De, Principal Scientist and team leader for the PlanktonPlus development program of CIBA briefed about the significance of this MoU and outlined the genesis and advantages of the technology in aquaculture. Sri Nagakishore Mudedla and his partner Sri Syamala Rao Maradani, expressed their satisfaction in using the product during the field trials, in both fish and shrimp farms in A.P. This technology has the potential in cleaning the fish markets across the country and also in providing alternative livelihood to produce wealth from waste as a concept of the circular economy.

- ICAR-CIBA



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