



# MPEDA

## Newsletter

VOL. X NO. 9 DECEMBER 2022



### MAIN STORY

**FDA's Food Traceability Final Rule**

**Promoting Secondary  
Fish Processing**


**Software for  
Seafood Business**


**Poor Alkalinity:  
A Hidden Threat**





From 15<sup>th</sup> - 17<sup>th</sup> February 2023  
Kolkata


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## On the Platter

### Mr. Dodda Venkata Swamy Chairman

As I pen my thoughts for this issue, the beautiful Olive Ridleys arrive for nesting at Gahirmatha Marine Sanctuary in Odisha. This underlines the fruitfulness of our conservation efforts to sustain the Turtle population in Indian waters. MPEDA's key priority is the promotion of Sustainable and Quality seafood production and processing systems.

As US extend the implementation Marine Mammal Protection Act to 1<sup>st</sup> January 2024, we get more time to strengthen our initiatives to protect marine mammals. MPEDA, in consultation with government agencies, has furnished the replies in time to the clarifications sought by NOAA on the Comparability Finding Application filed in the NOAA portal, a year back.

A United Kingdom mission will visit India from 16<sup>th</sup> - 27<sup>th</sup> January 2023 to assess the country's seafood production and processing systems. I expect this mission to be helpful to enlist more seafood establishments and to reduce sampling frequency for aquaculture material. MPEDA take several steps to strengthen our quality production systems. The Microbiology lab of MPEDA at Kochi has successfully completed an international proficiency ring test to detect 5 major shrimp pathogens by PCR techniques, organized by Aquaculture Pathology Laboratory of the University of Arizona, USA.

MPEDA- RGCA has signed a MoU with the Government of Andhra Pradesh to transform the carp hatchery in Anantapur district into a GIFT hatchery of 3 million seeds capacity. The first hatchery owned by the state for GIFT will supply quality seeds Andhra Pradesh and neighbouring Karnataka farmers.

MPEDA Shaphari certification programme is an initiative to strengthen traceability and quality. I was exhilarated when I handed the first-ever certificate to Dr. Manoj Sharma, MD of Mayank Aquaculture Pvt. Ltd., located at Mandroi village in Surat district, Gujarat. They became the first Shaphari certified aquaculture farm. The remarkable feat will surely prompt more farmers to follow in his footsteps.

In November 2022, my team and I officially visited the Lakshadweep islands. There I met Ms Bharathi, a research scholar, and her associates stationed at the Agati centre of ICAR National Bureau of Fish Genetics Research (NBFG). I was impressed by the professionalism and passion of the team in developing innovative technologies for the propagation of various species on an island with logistic challenges. The ICAR – NBFG has established a Live Resource Centre for Marine Ornamental invertebrates in collaboration with the Centre for Marine Living Resources and Ecology, Department of Biotechnology, GoI and Department of Fisheries, Lakshadweep. The NBFG has also set up a marine ornamental fish breeding centre on the same premises.

The collective efforts of these organisations to partner with local women to ensure sustainable livelihoods are praiseworthy. I assure you that RGCA and NETFISH will take the initiative in addressing the existing gaps in the Islands and collaborate with all partners. MPEDA organised a Buyer Seller Meet with the mainland's exporters on 4<sup>th</sup> November 2020 to promote ornamental fishes from those islands. We should remember the famous quote of Hellen Keller - "Alone we can do so little; together we can do so much".

MPEDA organised three Buyer Seller Meets virtually with the importers of Spain, Japan and Russia. The efforts taken by MPEDA and other stakeholders in various buyers' seller's meetings need to be crystallised. India International Seafood Show provides a platform to traverse ahead on that path.

The 23<sup>rd</sup> edition of the India International Seafood Show will be held at Biswa Bangla Mela Prangan Conventional Centre in Kolkata from 15<sup>th</sup> to 17<sup>th</sup> February 2023. Of the 350 stalls available for exhibitors, over 72% are occupied. MPEDA plans to have Buyer Seller Meet between Indian seafood exporters and importers of G-20 countries to mark the occasion of India chairing the G-20. Special seminars on the regulations of leading markets among G-20 nations are also planned.

Team MPEDA is eagerly waiting to engage with all stakeholders in the event and strengthen our values and beliefs on sustainable and quality production and processing systems. Season's greetings to all.

Thank you,

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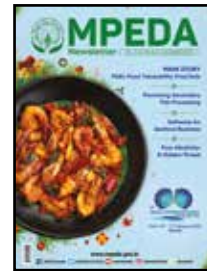
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# MPEDA organized Virtual Buyer Seller Meets

**M**PEDA organized Six Virtual Buyer Seller Meets (VBSM) for Indian exporters on 17<sup>th</sup>, 18<sup>th</sup> and 20<sup>th</sup> of October, 2022 and another on 3<sup>rd</sup> November 2022 with China, Russia and Spain.

### China

MPEDA organized 4 VBSMs in association with Embassy of India, Beijing on 17<sup>th</sup> and 18<sup>th</sup> of October, 2022 with Chinese buyers. There were total of two buyers for each day. On the first day the morning session of the VBSM was with a buyer from M/s. Guangxi Senyu Food Co. Ltd., which was represented by Mr. Guo Xiuping. Their main requirement was Vannamei and other Shrimps HLSO. Seven exporters were present in the meeting.

The afternoon VBSM session was with M/s. Shengshi Haiteng Trading Co. Ltd. represented by Mr. David Yang. They focused on exporters who can provide them with White shrimps and Basa fishes. A total number of 5 exporters joined the meeting.

On the second day the morning session was with Mr. Du Kuifeng who represented the company named M/s. Hebei Huijufeng Trading. Their primary requirements were White pomfret, headless shrimp and ribbon fish. They intend to purchase directly from the exporters.

Afternoon session was with M/s. Huachu Science and Technology Ltd. The company was represented by Liu Yinhong. Headless shrimp was the major requirement for them. They requested to share all the photos of the exporter's products and packaging to ensure quality. There were a total of 15 exporters present in the VBSM on the second day.

All the exporters explained about the variety of products they offer, the quality of the products, the facilities they

offer, achievements, countries to which they export etc. to the buyer. Dr. T R Gibinkumar, Deputy Director (MP & Statistics) moderated all the VBSMs with China.

### Russia

MPEDA organized a Virtual Buyer Seller Meet with Ms. Akja Potdyeva, Importer Manager of the private company "Gozly" from Russia on 20<sup>th</sup> October 2022. The VBSM was conducted as a follow up of the meeting conducted by Mr. Rahman, Director of the company with MPEDA officials at the World Food Moscow held on September 2022. The requirement of the buyer was big sized vannamei shrimps and Black tiger. Eight exporters participated in the meeting. The exporters presented according to the requirement of the buyer. They presented the variety of products they offer, their farms, storage facilities, production and achievements to the buyer.

The meeting was moderated by Mrs. Anju, Deputy Director (MP & Development).

Gozly is specialized in marketing cum distribution of seafood along with frozen vegetables and fruits. They have their own warehouses with refrigeration equipment. They also have a network of supermarkets "Halk Market" (People's Market) in Turkmenistan. Gozly work as distributors of international companies and are engaged in direct deliveries of food products throughout Turkmenistan.

Gozly is a small conglomerate of 12 entrepreneurs and have been working with large companies. They are the official distributors of Chumak in Ukraine; Greisenger sausages; Landhof & Zott yogurt in Germany; Savencia fromage and dairy & Valio in Russia & Finland; Yore in Turkey; Kalleh in Iran and several other Russian companies such as Russian caviar house; Putina caviar; Barline; Sensoy; Ogo euro



## MARKETING NEWS

prestige; Virtex - food; Korner; Novaproduct; Darsil Kinto; Altay - organic; Lubyatovo Kellogg's; Tamaki Sushi World; Seasoning; Family bin; Uvelka; United confectioners; Miratorg; B.Yu. Aleksandrov Syrky & Svitlogorye Syrki.

In addition, Gozly have a subsidiary company "Balam", which is engaged in children's clothing, toys and confectionary products.

### Spain

On 3<sup>rd</sup> November 2022, MPEDA organized a VBSM with M/s. Ancavico Spain. The company was represented by Mr. Nacho. The requirement of the buyer was Yellowfin tuna and sword fish. A total number of 3 exporters joined the meeting who presented their credentials to the buyer. The exporters presented the products, the quantity which they can give, the facilities available in the plant, certificates of the company etc. to the buyer. Mrs. Anju, Deputy Director (MP & Development) moderated the meet.



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## Shrimp farm gate price

**O**n the last week of October, prices in Ecuador have seen an increase for larger sizes, both for HOSO and HLSO. In India, prices saw an uptick for all sizes in Andhra Pradesh, whereas in Gujarat, prices increased for the larger sizes whereas the medium and smaller sizes saw a drop. In

Indonesia, prices dropped for most sizes in both East Java, Lampung, and Sulawesi.

In Vietnam, prices for Pacific White shrimp and Black Tiger shrimp dropped for all sizes. In China, prices dropped last week in both Guangdong and Fujian for all sizes.

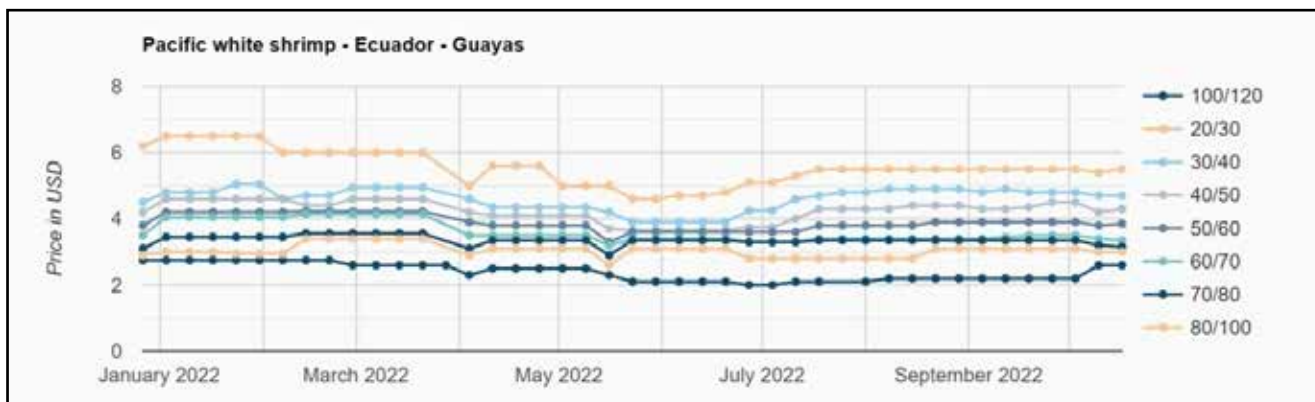
Country	count (HOSO)	Week 42	Week 41	vs last week
Ecuador	30/40	\$4.70	\$4.70	0.0%
Ecuador	40/50	\$4.30	\$4.20	2.4%
Ecuador	21/25 (HLSO)	\$6.61	\$6.28	5.3%
Ecuador	31/35 (HLSO)	\$5.51	\$5.51	0.0%
Vietnam	30	\$7.00	\$7.25	-3.5%
Vietnam	60	\$4.43	\$4.64	-4.5%
Indonesia (EJ)	40	\$4.34	\$4.54	-4.4%
Indonesia (EJ)	60	\$4.01	\$4.07	-1.6%
India (AP)	40	\$4.71	\$4.58	2.7%
India (AP)	60	\$3.70	\$3.64	1.7%
Country	count (HOSO)	Week 41	Week 39	vs last week
China (Guangdong)	60	\$7.24	\$7.61	-4.9%
China (Guangdong)	100	\$5.82	\$6.08	-4.3%

(as on 24<sup>th</sup> October 2022)

### Ecuador

This week, prices for HOSO products saw a small uptick for larger- and medium-sized shrimp, while some

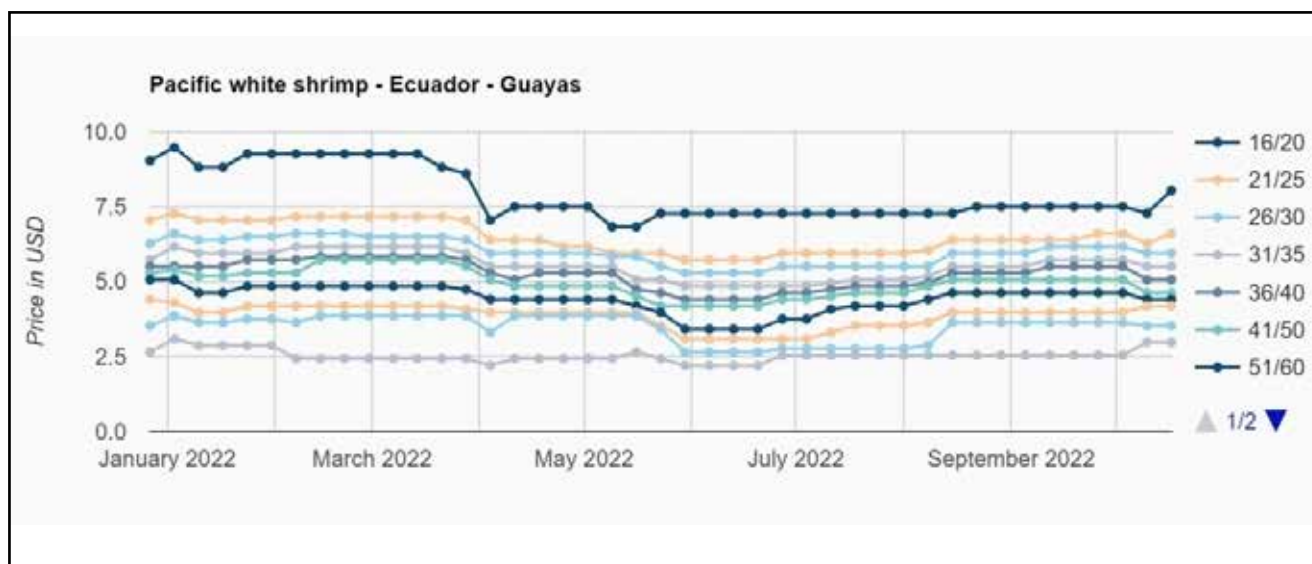
smaller sizes saw a small drop. Prices for 20/30-counts and 40/50 counts each saw an uptick of \$0.10 to reach \$5.50/kg and \$4.30/kg, respectively.



## MARKETING NEWS

Prices for HLSO remained relatively stable from last week, except for the larger sizes. Prices for 16/20-count saw an uptick of \$0.77 to reach \$8.05/kg and prices

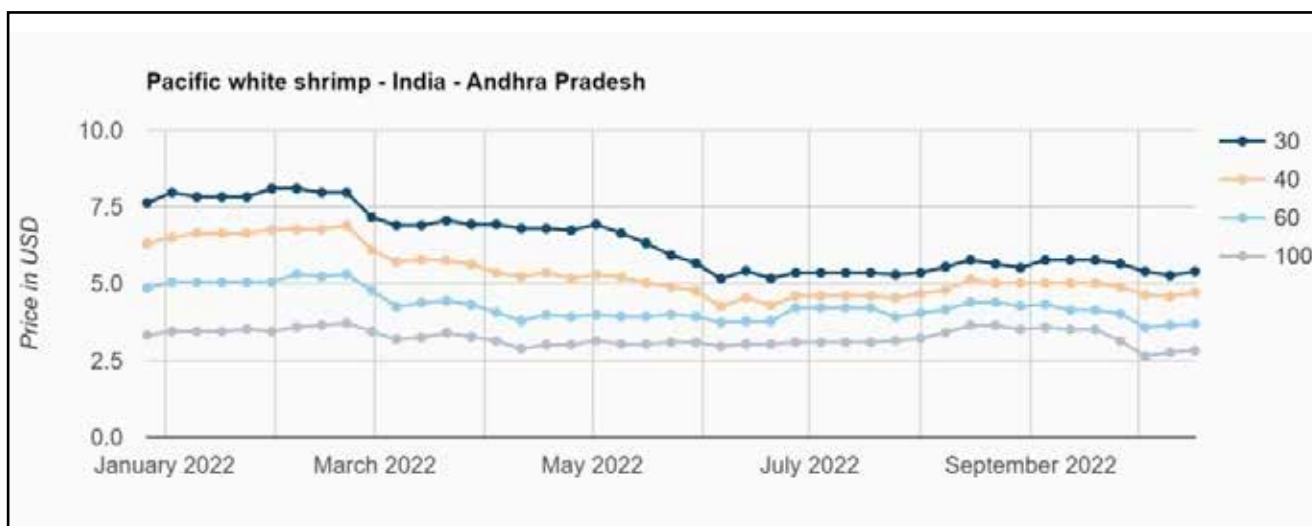
for 21/25-counts saw an increase of \$0.33 to reach 6.61/kg.



### India

After a drop in larger and medium-sized shrimp last week of October in Andhra Pradesh, prices saw \$0.06 to reach \$3.70/kg and \$2.82/kg. The stocking in

Andhra Pradesh is still ongoing but is on the slow side due to unfavorable weather. In Gujarat, only prices for 30-counts increased this week, whereas the medium and smaller sizes saw a drop.



### Indonesia

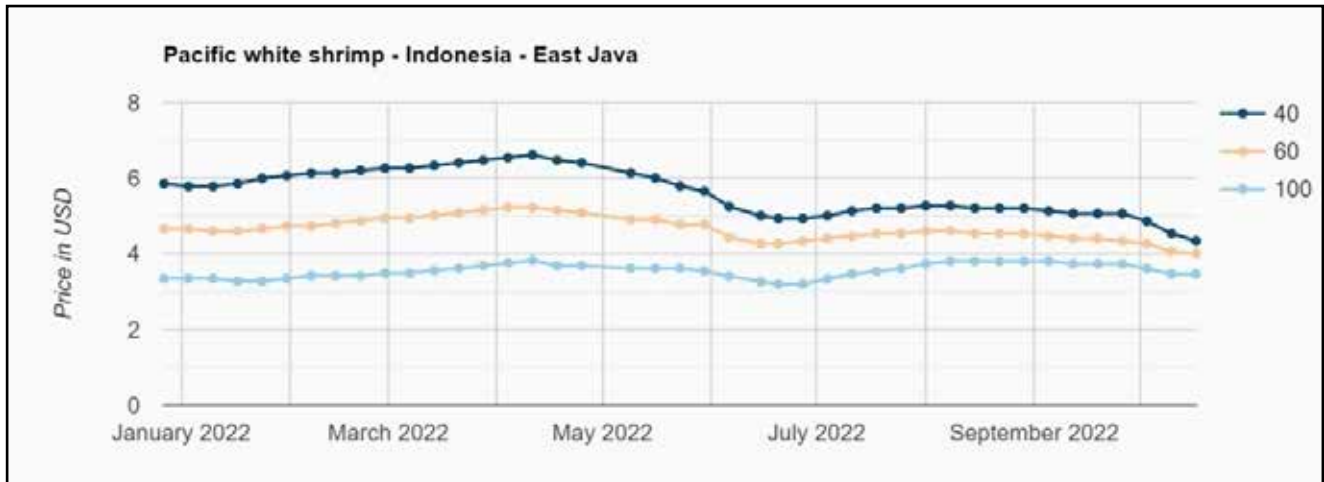
Prices in East Java saw a further drop for both 40- and 60-counts, whereas prices for 100-counts remained stable. Prices for 40-counts saw the largest drop and decreased by \$0.20 to reach \$4.34/kg, while prices for 60-counts saw a smaller drop of \$0.06 to reach

\$4.01/kg and for the first time in a few weeks, prices in Sulawesi saw a drop in prices for all sizes.

The drop in prices is mainly due to a sluggish market demand for Indonesian shrimp from the US market, as well as they are facing strong competition from Ecuador.



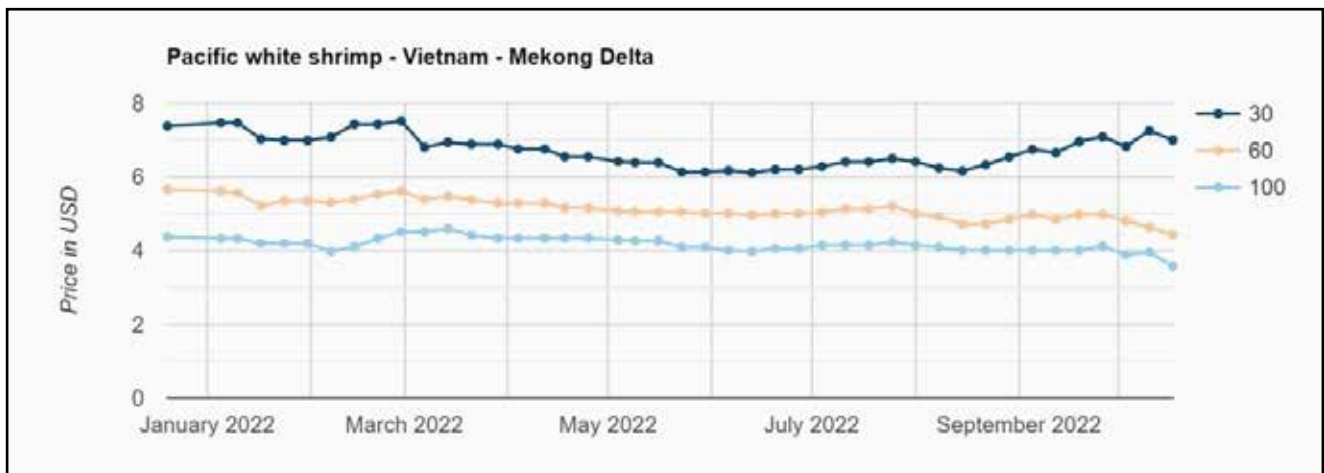
## MARKETING NEWS



### Vietnam

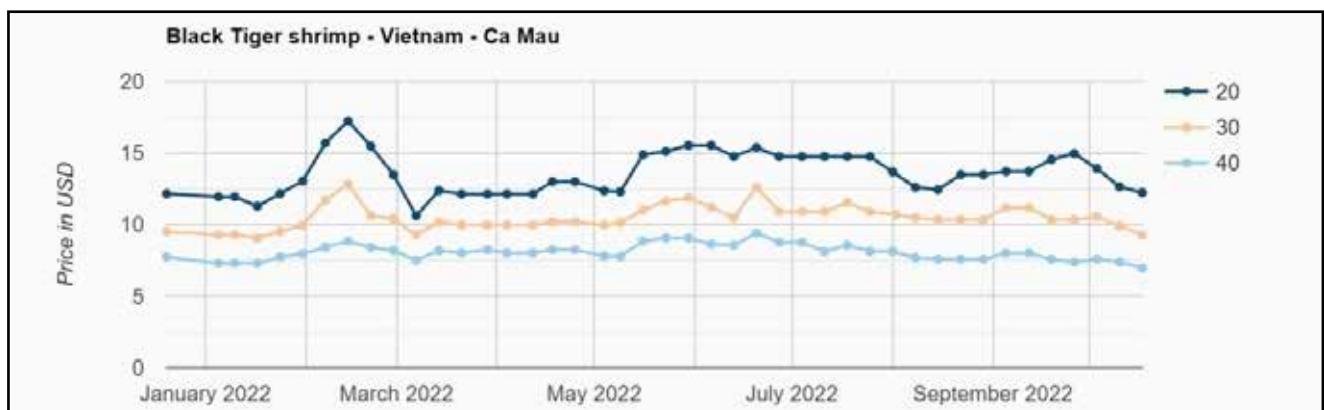
In Vietnam, prices for Pacific White shrimp saw a drop for all sizes this week. Prices for 30- counts dropped

by \$0.25 to reach \$7.00/kg, while prices for 60-counts dropped by \$0.21 to reach \$4.43/kg and 100-counts dropped by \$0.38 to reach \$3.58/kg.



Prices for Black Tiger shrimp saw a further drop for all sizes this week. Prices for 20-counts and 40-counts each dropped by \$0.42 to reach \$12.23/kg and

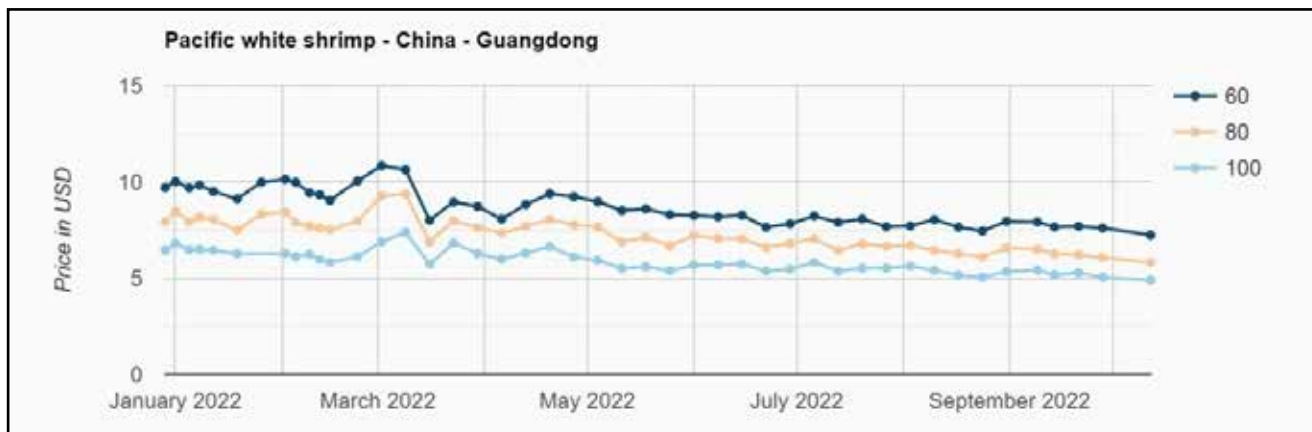
\$6.96/kg, while 30-counts dropped by \$0.63 to reach \$9.28/kg.



## MARKETING NEWS

Last week, prices in Guangdong saw a drop for all sizes. Prices for 60-counts dropped by \$0.37 to reach \$7.24/kg, prices for 80-counts saw a \$0.26 decrease and reached \$5.82/kg, and 100-counts saw a drop of

\$0.14 to reach \$4.91/kg. In Fujian, prices for 60-counts dropped by \$1.71 to reach \$5.92/kg, and 80-counts dropped by \$0.64 to reach \$5.06/kg.



There have been challenges with shrimp diseases in several areas across China. Additionally, there has been a surge of COVID-19 cases after the

National Day, which has led to a weaker demand from HORECA.

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# Monthly Outlook Forecast Report

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## USDINR

USDINR remains sidelined close to 82.70, mostly unchanged on the day, even as bulls try to defend the weekly gains ahead of the US Fed's much-awaited monetary policy decision later in the day. Asian and EM peers started mixed in the initial trades of November. The hints from Fed Chair Jerome Powell on the path forward.

Fed futures now point to an almost even chance of whether the central bank's next move will be a (50-75) bps hike. US benchmark 10-year treasury yields recovered to 4.04%, after data reflected US consumer and business spending slowed in the 3<sup>rd</sup> quarter, indicating a possible peak in inflation that could allow the US Fed to ease its stance on aggressive rate hikes. The US JOLTS Job Openings rose to 10.717M in Sep versus the 10.0M forecast and upwardly revised 10.28M last readings.

The Nifty advanced and cross the psychological level above 18,000 and the Sensex sustained at 60,860. Indian shares registered their 2<sup>nd</sup> straight weekly gain last week, boosted by automobile and energy stocks. RBI came up with an unscheduled policy meeting on 3<sup>rd</sup> Nov 2022- just after US Fed monetary policy decision.

After hiking by 50 bps on 30 Sep, it will be interesting to watch whether RBI comes up with a surprise rate hike or just discuss a reply to the government, explaining the reasons for its failure to contain inflation up to the threshold of 6%. If RBI comes up with any rate hikes, then we could see a knee-jerk rising move in the rupee, but eventually, it will depreciate.

Oct'22 has witnessed Rupee weakening to its all-time lows of 83.29 (20 - October). Our beloved rupee declining to all-time lows is becoming a regular phenomenon. With surging dollar bond yields and consequently super strong dollar index, weakness in other currencies is a natural extension. In fact, rupee has been an outperformer, weakening less than other comparable currencies like Chinese Yuan, South Korean Won, Thai Baht, Malaysian Ringgit, etc.

On the USDINR daily candlestick chart, price up gap (pink horizontal lines) formed at 81.905 (6 - Oct - 22) – 82.17 - (7 - Oct - 22) is partially filled. The other price up gap at 79.99 (21 - Sep - 22) – 80.28 (22 - Sep - 22), highlighted by blue horizontal lines is yet to be filled. Persistent price rise has sent the momentum indicators of RSI, MACD and Slow Stochastics into the overbought territory. The momentum indicators have been hovering around the overbought territory in the entire month of October.

No sense in offering a directional indication. Focus should be on adhering to one's risk management policy. Exporters should maintain adequate hedge ratios – market levels are extremely comfortable and one should capitalize. Exporters should avoid keeping large unhedged exposures in anticipation of more rupee weakness.

For dollar importers, these are extremely testing times. Vanilla options are the best hedging instruments now. Option volatility is high and as such, option premium cost will be expensive. Dragons are rarely tamed with fishing nets.





# FOCUS AREA

## EURUSD



The EURUSD pair gained for a second week in a row, ending the last week of the month at about 0.9960. After market players were dissatisfied by the top competition from Europe and the US on Thursday, things began to change. Central banks were still in the calm before the storm as of Thursday, when the European Central Bank (ECB) announced its monetary policy decision. The increasing momentum of the EUR/USD hit its first roadblock at 1.0992 before the major ECB meeting slated for later on Thursday.

Due to the slightly stronger-than-expected October ISM Manufacturing PMI report and the dollar's ability to hold steady during the second half of Tuesday's trading session, EUR/USD was forced to give up its daily gains. Germany's unemployment rate remained unchanged in October at 5.5%. Germany's Manufacturing PMI for October from S&P Global/Final BME was revised from 45.7 estimates to 45.1.

Germany's inflation was reported by the Eurozone to have increased substantially in October by 11.6% YoY, exceeding expectations of 10.9% at the end of the month. Investors will also be keeping an eye on the important events the GDP(YoY) and CPI(YoY).

It was a tough month for the EUR/USD pair, concluding the session off best levels against its US counterpart for the second consecutive day, is consequently testing the spirit of a trend line resistance-turned

support on the daily timeframe, extended from the high of \$1.1495. Front and centre, of course, however, is trend direction. Price action on the weekly timeframe has been entrenched in an unmistakable bear trend since pencilling in a top in early 2021 with heavy-handed pullbacks in short supply.

Out of the H1, Tuesday burrowed through \$0.99 and tested at \$0.9864. With the aforementioned level appearing on shaky ground, support at \$0.9826 is poised to welcome price, closely followed by a 50% retracement ratio at \$0.9816, a 61.8%. Support from \$0.9864 is on the verge of ceding ground, a move that is supported by the overall downtrend and thus could encourage short-term breakout selling towards support at \$0.9826

## GBPUSD

Another dramatic month for the GBP -USD pair as it started the month trading at 1.1156. Initially, the pair gains as some dip-buying occurred around the 1.1280 level. The momentum pushes spot prices to a two-week high and was back over the 1.1400 mark. On the 10<sup>th</sup> day of the month, some modest buying was seen in the cable pair, which has just experienced a major pullback from near the psychological level of 1.1500. The BoE declares that the Temporary Expanded Collateral Repo Facility is now operational (TECRF). As a result, the British pound gains somewhat and

## FOCUS AREA



the GBP/USD pair rises more than 50 pips over the 1.1050 level. Entering into the last week of the month Liz Truss, the prime minister of the United Kingdom, resigned on Thursday as a result of a failed tax-cutting budget that shook the financial markets and sparked a rebellion within her own Conservative Party.

After winning the election, Rishi Sunak, the third British prime minister to be chosen in less than two months, told his followers that the country would be in a "severe economic crisis." Some key economic events for the next months are BoE interest rate decision, Services PMI (Oct), Composite PMI (Oct), Construction PMI, Manufacturing Production (MoM) (Sep), GDP (YoY) (Q3), GDP (QoQ) (Q3), CPI (YoY) (Oct) and Retail Sales (MoM) (Sep).

This is the first month in last ten where GBP registered a gain, added nearly 300 pips during this month. After a massive downtrend we are seeing a some relief rally for the pound. Looking at the charts rally might continue till 1.1750 while on the downside 1.1360-65 could play a role of major support for the pair as 50 days SMA is there breaking of these levels would put more pressure and might push the pair towards 1.10 levels.

We believe that is the situation where you will continue to see a lot of volatility in the pound as Bank of England has a lot of work ahead, growth is going to be an issue in the United Kingdom as inflation is an issue, Energy is going to be an issue this winter as well. Overall picture seems to be negative for the British currency. On the daily chart momentum indicator MACD trading in a neutral zone while RSI is in slight overbought zone.

### USDJPY

The USDJPY pair started the month at 144.748 level and reached its highest at 151.946 during the week. At the beginning of the month, the pair gained strength and surpassed recent highs. The Bank of Japan then interfered, and the pair later corrected and struck the bottom 143.528 level. After using 15% of the bank's foreign exchange reserves, the BoJ appears to have acknowledged that they can only do so much to slow the yen's depreciation.

The Japanese Ministry of Finance's dramatic measures adopted in September to stop the yen's bleeding appear to have had a very short shelf life. Their main concern is that Japan's vast debt could never be repaid at higher rates. The market may continue to behave noisily due to the uncertainties surrounding the world economy and, of course, all of the interventions coming out of the Bank of Japan. Manufacturing and Job Data are better than expected, traders will try to observe market sentiment after the US Fed Interest Rate hike. It would be interesting to watch US employment data as it impacts inflation and drives US Fed behavior.

The USDJPY started the month at 144.748 and the daily chart showed an upward trend during the first three weeks and then lowered a bit. Again, the eyes will be on surpassing the psychological 150 level as it already surpassed once during October. The greenback may start rallying again after the rate hike, if the pair corrects further it could touch the bottom at the 50-day Moving Average of 144.518. The support level will be 145.108 followed by the next support level of 140.35 in case of major recovery. The MACD line was moving



## FOCUS AREA



down below the signal line, which may create a new divergence. MACD line may move further towards the baseline which shows the meek sentiment. The pair ended the month at 148.742 showing price behavior

is slightly downward extended. The Relative Strength Index has just turned in a downward direction below its 14-day RSI's simple moving average also indicating less aggressive sentiment.



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# Marine landing report October 2022

Dr. Afsal V.V. & Dr. Joice V. Thomas  
MPEDA-NETFISH

**N**ETFISH is engaged in collection of real-time data on fish landing and boat arrival on a daily basis from around 100 fishing harbours/landing centres across the country to support traceability and catch certification scheme of MPEDA. The information on fishing vessels arriving at the harbour/landing centre and the species-wise quantity landed by these vessels, are recorded and fed into the MPEDA website on a day to day basis by the Harbour Data Collectors, thus maintaining a database on marine landings. This report presents the species-wise, harbour-wise and state-wise trends in marine landings during October 2022, based on the data obtained from the selected landing sites.

## I.Observations on fish catch landings

In October, the landing of sea-caught materials was recorded from 93 selected landing sites along the 9 coastal states of India and the total catch was to the tune of 1, 09,366.03 tons. About 63 % of the total catch was comprised of Pelagic finfish resources. The share of Demersal finfishes to total catch was 22 % whereas the share of Crustaceans and Molluscs were 6 % and 9 % respectively (Fig.1).

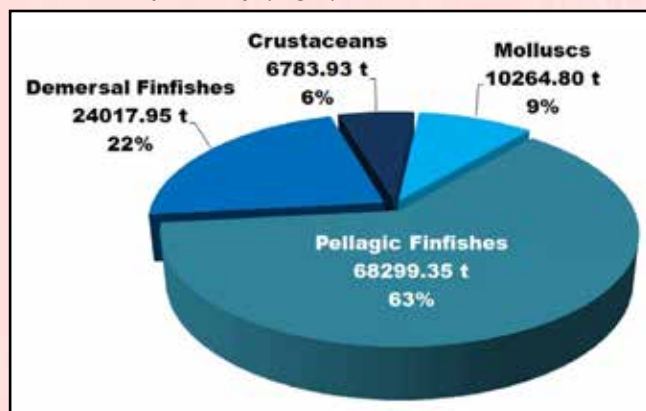


Fig. 1: Catch composition of marine landings recorded in October 2022

Landing of about 250 species of marine finfishes and shellfishes were reported during the month, wherein, the major five contributors were *Rastrelliger kanagurta*, *Lepturacanthus savala*, *Sardinella longiceps*, *Decapterus russelli* and *Sepia pharaonis*.

Table 1: Major fish species landed during October 2022

Sl. No:	Common name	Scientific name	Qty. in tons
1	Indian mackerel	<i>Rastrelliger kanagurta</i>	25,895.10
2	Ribbon fish	<i>Lepturacanthus savala</i>	11,301.14
3	Indian oil sardine	<i>Sardinella longiceps</i>	7,793.59
4	Indian scad	<i>Decapterus russelli</i>	3,533.28
5	Pharaoh cuttlefish	<i>Sepia pharaonis</i>	3,149.32

Considering the group-wise landing, Mackerels, Ribbon fishes, Sardines, Scads and Tunas were observed as the major items recorded during the month. These five fishery items have together formed 55 % of the total catch (Fig 2).

## FOCUS AREA

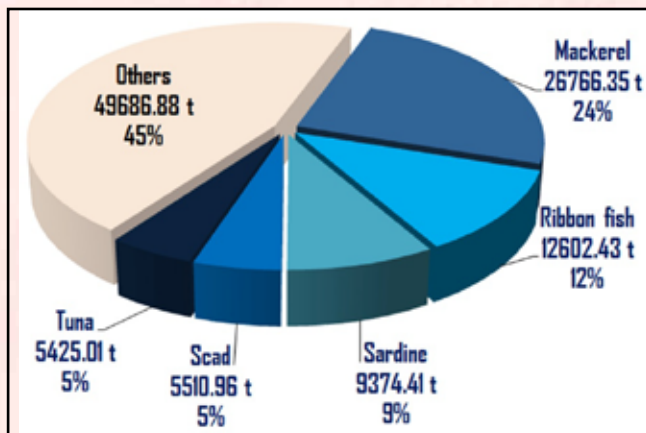


Fig. 2: Major fishery items landed during October 2022

Among Pelagic finfishes, the Mackerels and Ribbon fishes were the highest contributors whereas, among Demersal finfishes the Croakers and Groupers were the most landed items. More than 61 % of the Crustacean catch was comprised of different species of Coastal shrimps, of which the *Karikkadi* shrimp was the dominant species with a total landing of 1,660.32 tons. Among the Molluscan resources, Cuttlefish and Squid were the major items landed.

**State-wise landings:** Karnataka had recorded the highest landing during the month and it was followed by Gujarat and Kerala (Fig. 3). More than 85 % of the landing was observed to be reported from the West coast states.

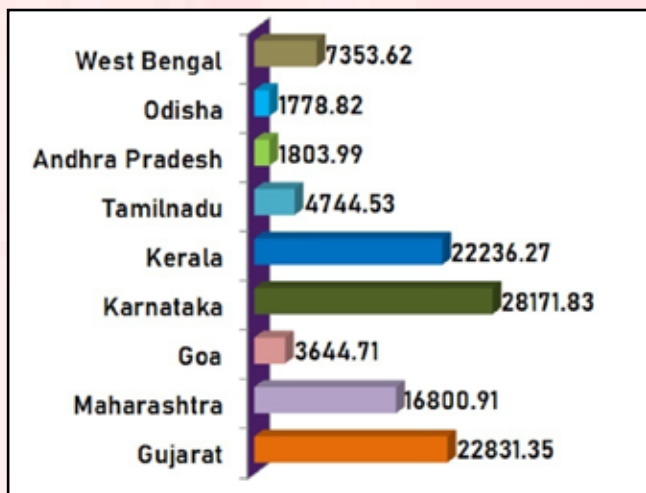


Fig. 3: State-wise fish landings (in tons) during October 2022

**Harbour-wise landings:** Malpe and Mangalore harbours in Karnataka had recorded the maximum fish landings, which was to the tune of 10620.02 tons and 7,760.56 tons respectively. Veraval in Gujarat and New Ferry Wharf in Maharashtra also recorded more than 5000 tons of catch.

## II.Observations on boat arrivals

Fishing vessel arrivals recorded from 93 fish landing sites during October 2022 totalled to 39,005 nos. From the state-wise figure (Fig. 4) it can be observed that the highest number of boat arrivals had occurred in Kerala and then in Gujarat.

Mangrol (1,903 nos.) and Veraval (1,843nos.) harbours in Gujarat had topped the list in terms of highest number of boat arrivals. Porbandar & Vanakbara harbours also had registered more than 1,400 boat arrivals during the month.

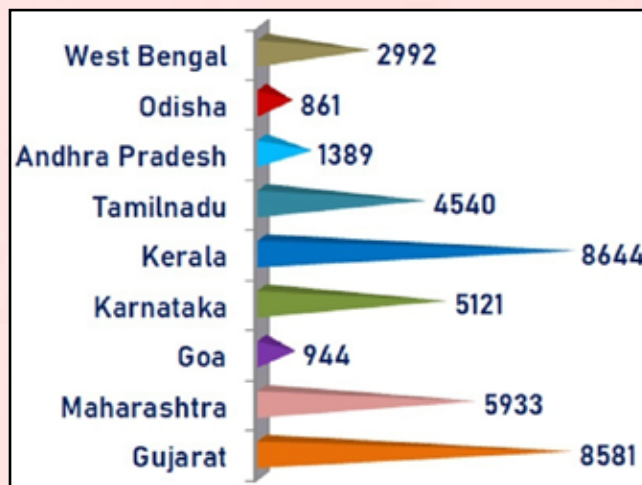


Fig.4: State - wise Boat Arrivals (nos.) during October 2022

**Summary:** A total of 1,09,366.03 tons of marine landings and 39,005 nos. of boat arrivals were reported during October 2022 from 93 major fishing harbour/landing centres in India. The total catch from the selected harbours continued to show an increasing trend since July 2022. In October, there was an increase by more than 14,000 tons in catch landings and by about 1,000 numbers in boat arrivals compared to the figures of September 2022.

The Pelagic finfish resources continued as the major contributor to the total catch and the Indian Mackerel (*Rastrelliger kanagurta*) remained in the first position as the most landed species of the month. Karnataka attained the first place among the states in terms of total catch landed whereas Kerala registered the highest number of boat arrivals.

Among the various landing sites, the Malpe harbour in Karnataka was in the first position in terms of total catch landed whereas the Mangrol harbour in Gujarat attained the first position in terms of highest number of boat arrivals.







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# FDA announces the final rule for Food Traceability and list of foods on the FTL



On November 15<sup>th</sup>, the U.S. Food and Drug Administration (FDA) issued a final rule on food traceability designed to facilitate faster identification and rapid removal of potentially contaminated food from the market, resulting in fewer foodborne illnesses and/or deaths. Foods subject to the final rule requirements appear on the Food Traceability List (FTL). The FTL includes fresh cut fruits and vegetables, shell eggs, and nut butters, as well as certain fresh fruits, fresh vegetables, ready-to-eat deli salads, cheeses, and seafood products.

Persons who manufacture, process, pack, or hold foods on the FTL must maintain records including Key Data

Elements (KDEs) related to Critical Tracking Events (CTEs) in the supply chain for the food. Covered entities – including farms, manufacturers, distributors, retail food establishments, and restaurants – will be required to provide this traceability information to the FDA within 24 hours of an official request, or within some reasonable time to which the FDA agrees.

The FDA final rule on Requirements for Additional Traceability Records for Certain Foods (Food Traceability Final Rule) establishes traceability recordkeeping requirements, beyond those in existing regulations, for persons who manufacture, process, pack, or hold foods included on the Food Traceability List



## MAIN STORY

(FTL). The final rule is a key component of FDA's New Era of Smarter Food Safety Blueprint and implements Section 204(d) of the FDA Food Safety Modernization Act (FSMA). The new requirements identified in the final rule will allow for faster identification and rapid removal of potentially contaminated food from the market, resulting in fewer foodborne illnesses and/or deaths.

At the core of this rule is a requirement that persons subject to the rule who manufacture, process, pack, or hold foods on the FTL, maintain records containing **Key Data Elements (KDEs)** associated with specific **Critical Tracking Events (CTEs)**; and provide information to the FDA within 24 hours or within some reasonable time to which the FDA has agreed.

The final rule aligns with current industry best practices and covers domestic, as well as foreign firms producing food for U.S. consumption, along the entire food supply chain in the farm-to-table continuum.

Foods subject to the final rule requirements appear on the Food Traceability List (FTL). To determine which foods should be included on the FTL, the FDA developed a risk-ranking model for food tracing based on the factors that Congress identified in Section 204 of the FDA Food Safety Modernization Act (FSMA).

These foods include fresh leafy greens, melons, peppers, sprouts, herbs, tomatoes, cucumbers, and tropical tree fruits, as well as shell eggs, nut butters, fresh-cut fruits and vegetables, ready-to-eat deli salads, cheeses (other than hard cheese), finfish and crustaceans.

The FDA released a proposed rule in 2020 and held a public comment period where comments were received from food producers and other stakeholders through early 2021.

In response, the agency has made several changes to the final rule so that it better aligns with current industry approaches to food traceability and harmonizes points in the supply chain where records must be maintained.

Key features of the final rule include:

- **Critical Tracking Events:** at specific points in the supply chain – such as harvesting, cooling, initial packing, receiving, transforming, and shipping FTL foods – records containing Key Data Elements are required.
- **Traceability Plan:** information essential to help regulators understand an entity's traceability program. These include a description of the procedures used to maintain required records, descriptions of procedures used to identify foods on the FTL, descriptions of how traceability lot codes are assigned, a point of contact for questions regarding the traceability plan and a farm map for those that grow or raise a food on the FTL.
- **Additional Requirements:** maintenance of records as original paper or electronic records, or true copies; providing requested records to the FDA within 24 hours of a request (or within a reasonable time to which the FDA has agreed); and providing records in an electronic sortable spreadsheet when necessary to assist the FDA during an outbreak, recall or other threat to public health.

Foodborne illness affects millions of Americans each year. Today's action progresses the agency's commitment to better protect the public by ensuring a safe and wholesome food supply. Enhanced recordkeeping requirements for FTL foods will allow for faster identification and rapid removal of potentially contaminated food from the market, ultimately resulting in fewer foodborne illnesses and deaths.

### Compliance Date

Because the Food Traceability Final Rule requires entities to share information with other entities in their supply chain, the most effective and efficient way to implement the rule is to have all persons subject to the requirements come into compliance by the same date. The compliance date for all persons subject to the recordkeeping requirements is Tuesday, January 20, 2026.

[www.fda.gov](http://www.fda.gov)



# Software for modern seafood business.

## CRUXZEN's "Unify" - The seafood software

*Manoj Bhatu Patil, Founder, Director, Cruxzen Technologies Pvt. Ltd.,  
Pune, Maharashtra, India. Email: manoj.patil@cruxzen.tech*

**S**eafood processors and exporters face a unique set of challenges on top of the already existing pressure to produce quality products and provide impeccable service to customers. Of those challenges, raw material cost and sales reduction are leading pain points, as both can be costly from a financial and reputational perspective.

As a seafood export business grows it becomes more complex, the systems that once served it may not be up to standard. Pen and paper methods and small-scale accounting software may be more of a liability than a reliable approach. Plus, with consumers demanding to know more about where their food is coming from, traceability, transparency, and real-time data are critical.

These days there is a real need for technology to help seafood processing plants run smoother and smarter. Understanding when and why a company should invest in a software system designed with efficiency, accountability, easy to use and built for seafood processing at the forefront, is necessary for growth.



*Cruxzen approach for seafood software*

Software developers need a proactive approach to understand seafood business, ownership to deliver and be agile ready to alter software solutions to understand business first.

In this article, we are discussing the role a seafood software plays in a seafood processor's daily operations and what to look for when adopting one or upgrading a current system.

### Seafood software

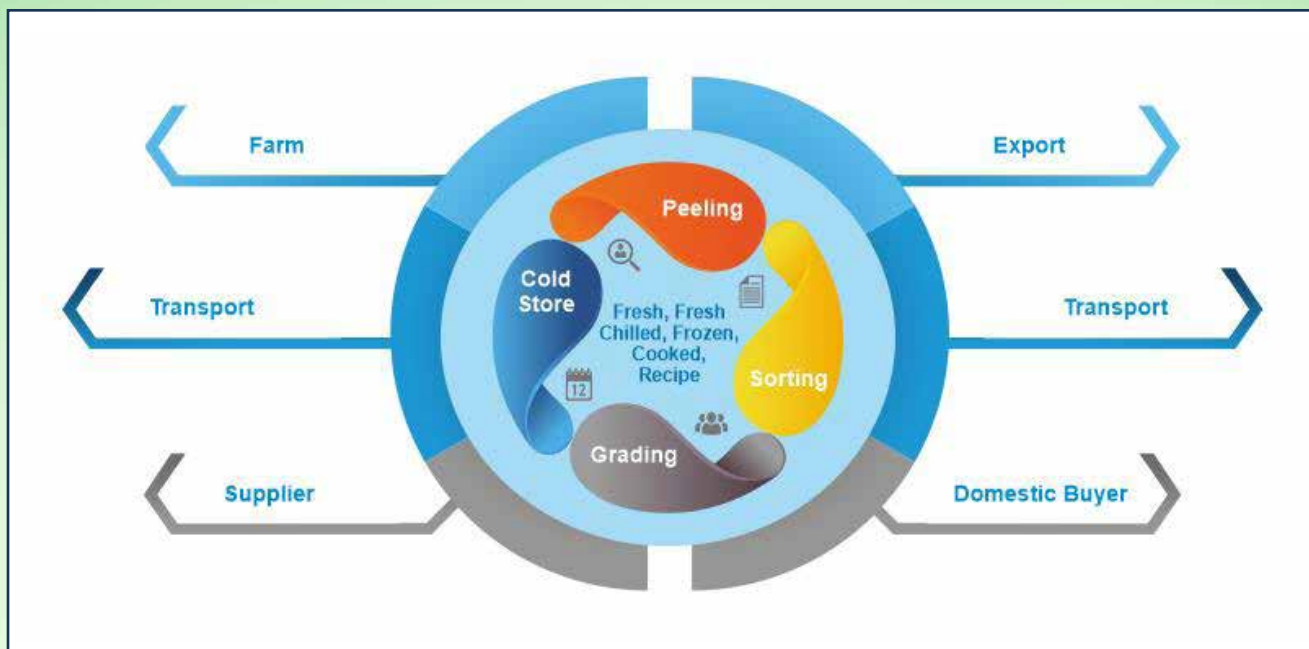
Software system is a management tool that uses a system of integrated departments to optimize business operations. The Software helps management to plan, monitor and control business operations.

However, not all software systems fit every type of manufacturer. A seafood software is designed to streamline processes unique to seafood processors and bridge gaps in areas that traditional methods cannot.

Cruxzen Technologies have pioneer custom fit seafood software which works for Indian seafood businesses. As the industry continues to grow, large mid-size and small seafood exporters that once relied on spreadsheets and paper solutions are finding they need something more integrated and automated to help minimize the risk of human error.

Seafood exporters have responsibilities unique to perishable products, like order fulfilment, control over production process, workability, and production yield, most importantly to know the raw material processed and packed is really profitable. Also, seafood exporter companies must adhere to labelling and packaging requirements, manage export documentations, timely responding to the export requirements, and compliance procedures.





*Cruzen's Unify, the complete seafood software.*

That is a lot of juggling, and traditional methods aren't able to keep up with the demand and growth. Software designed for those purposes helps companies stay organized and competitive. Cruzen's Unify, the complete solution for seafood exporters, has made its way while working with seafood processors making sure the industry gets benefit of usable, reliable and economical software solutions.

### **Key benefits of seafood software.**

There are various reasons why companies choose to implement software, the most valuable of which include improving business performance, reinforcing company growth, and reducing working capital. Regardless of the reason behind a company's decision, one thing is certain: the companies that implement software are seeing major success.

Summit Marine Exports Pvt Ltd is a seafood exporter from Bhimavaram, Andhra Pradesh, India. Before implementing Unify, Summit was using various independent platforms to run their business, which resulted in data integration issues, forecasting problems, and friction between and processes.

Now they are majorly exporting value-added IQF products than before, thanks to the insights gained on their business operations, production, and stock

inventory processes with the Unify the seafood software.

Let's take a closer look at some of the significant benefits of integrating a seafood software system.

### **Reduce costs**

Major cost for seafood export business is a raw material cost, processors spend significant time analysing workability, supplier negotiations and rates adjustment. Definitely good quality material gives higher workability, there are no standard formats or direction. Each processor in India has their own inbuilt solutions. Unify seafood software has generalized the format with customized calculations as per each processor.

Identifying expenses at each resource level is another effort by the Unify team to operationalize resource level costing while calculating profit. Because companies are able to access a holistic view of workability with seafood software, they can quickly identify where cost and waste can be reduced. This advantage can set seafood exporters apart from their competition.

### **Optimize company operations**

With seafood software, not only are seafood companies able to cut down on costs, but they can find other ways

## ADVERTORIAL

to improve company efficiency as a whole. One click report of complete batch whereabouts (Process flow report) in Unify software is one of the simplest ways to optimize plant operations while controlling yields, pickups and of course process variations.

As a company grows, the processors required to keep things running tend to become more complicated. Unify software ensures that all processes are running as they should be, also it helps to identify issues before they occur or spin out of control.

### Increase flexibility

Seafood specific software would need less or no training to users as all functions built for Indian seafood exporters. The Unify implementation team claims that any seafood exporters can start using software with full operational efficiency within a week max. There are many processors that have started using it without training too. Unify is built for seafood so it's flexible for any business needs, expert business analysis team from Cruzen make it simple and usable to all locations, all sizes of seafood export businesses.

The versatility of the Unify system means seafood companies can use a specialized software that works best for their individual needs, products, and goals. As a business grows, using a system that can scale and evolve with a company is ideal.



*Cold Store Management. Know your stock location*

Below are benefits Unify brings for seafood companies to grow, optimize, and manage business better.

- ✓ Gain the ability to streamline processes across enterprises to maximize profit and minimize cost.
- ✓ No capital investment. (Cloud-based software as a service, SaaS).
- ✓ Have perfect control over the quality of raw material and finished goods.
- ✓ Accurate data— with yield, quality, and cost— obtained per batch.
- ✓ Access data from anywhere to control business.
- ✓ User friendly and product safety with secure production data.
- ✓ Manage staff productivity and inventory.
- ✓ Stock information available on finger tips



*Export Management. Make your data actionable*

Systems, whether for the first time or upgrading an existing one, may seem intimidating or daunting, but the benefits far outweigh any short-term concerns.

Cruzen's Unify, a unique seafood software

Operations of Indian seafood processing have unique flavours as per type of raw material, plant location and management objectives, so it needs a unique software solution to address all aspects of business.

Let's take a look at some of the critical indicators of a best-in-class seafood software system.





### End-to-end management

Managing the complex implementation of a software for a seafood company has never been easy. There are enormous challenges right from resistance to change to management willingness to change. Seafood companies need a team like Cruxzen who are thorough with seafood understanding and willing to change to address business situations. Here is the feedback from our customer regarding our team.

“Cruxzen team delivered what we are looking for. We have organized cold store pallets, which help us to locate stock. Cruxzen Unify's solution reduces our day to day operation workload and expenses by 40 %.” – Blue-Fin Frozen Food Pvt. Ltd. Taloja, Panvel, Maharashtra, India.

Unify covers all functions of seafood with commitment of no cost customization for your specific needs. This way, you can ensure superior data integrity, production management, quality control, forecasting, and more.

The right seafood software allows users to see all operations at a glance, as well as easily pull reports, locate lot numbers to identify potential issues.

### Real-time reporting capabilities and a centralized database

Competing in today's modern seafood export business means having access to accurate data whenever it's needed. Cloud-based software systems, like Cruxzen's Unify, allow users to automatically run reports, keep numbers updated, and access data anytime and anywhere with a fully-integrated software solution.

That is what our Kolkata , West Bengal, India customer

says, “Focused approach, good knowledge of our sector production cycle and complexity make their software like plug and play model.” – MEGAA MODA Pvt Ltd.

### Team

Cruxzen dedication towards the seafood business makes the team mature to understand seafood exporters needs with much specification. Why not? Learning from expert valued customers.

### Intuitive user experience

Implementing a new system can be an intimidating process not just for executives but for floor workers as well. If the system is intuitive to learn and use, it's more likely that employees will stick to the protocol as outlined in the system instead of opting for shortcuts or falling back on outdated processes.

If the software is easy to use, it's more likely to be used correctly. Here is feedback from Summit Marine Exports Pvt Ltd , Bhimavaram , Andhra Pradesh, India. “ Cruxzen Unify is very user friendly software for seafood business, it is intuitive and very flexible for customization. The team at Cruxzen is open, honest and timely in response to our needs.”

### Invest in software that works for your company

If you currently use any software and haven't updated it in a while, it may be time to audit your system and see if there is any room for improvement. And if you don't have an ERP system yet, now is the perfect time to explore your options.

Cruxzen Technologies Pvt Ltd. ( [www.cruxzen.tech](http://www.cruxzen.tech))



The background of the entire page is a photograph of two Archerfish (Toxotes jaculator) swimming in an aquarium. The fish are silver with prominent dark vertical stripes. One fish is in the upper left, facing right, and the other is in the lower right, facing left. The background is a soft-focus green, suggesting aquatic plants.

# Archers of the water world





### V. K. Dey

V. K. Dey has over three decades of experience in diverse sectors of seafood industry in Asia-Pacific region. He was the Deputy Director of MPEDA and then associated with INFOFISH, Malaysia. As part of INFOFISH, he was involved in several studies related to seafood industry in the Asia-Pacific region and beyond, including setting up of Aqua-technology Park for ornamental fish. MPEDA has published *Living Jewels*, a collection of his articles on ornamental fish.

**A**rcherfish, originating from the Indo-Malay Archipelago and belonging to the family *Toxotidae*, is known for its ability to shoot down insects with a jet of water. In the wild, the fish preys on insects by squirting a jet of water at them over hanging plants. It is an easy going and fascinating fish. Although a brackish water fish, it can easily adapt to fresh or marine water. In captivity, they live best in water with a little sea salt. Young archerfish should be kept in brackish water and the salt reduced as they grow.

The archer fish has a deep and compressed body. The dorsal fin is set far back and its profile forms a straight line from dorsal fin to mouth. Aquariums with plants generally growing above the water level are ideal for this fish. They will feel more comfortable with floating plants. They are carnivorous, insectivorous fish which feed from the surface. They accept floating aquarium foods; however they take some time to adapt to such feeds.

There are all together six species known today, *Toxotes blythii*, *T. chatareus*, *T. jaculatrix*, *T. lorentze*, *T. microlepis* and *T. oligolepis*. All inhabit fresh and brackish coastal waters. *Toxotes blythii* is of fresh water origin. It is distributed in Myanmar and is known for its high fecundity. It is harmless unlike other archerfishes and is not commonly found in the pet trade.

*Toxotes chatareus*, a native of Sri Lanka and India, is better known as the large-scale archerfish or seven-spotted archer fish. It occurs mainly in brackish water mangrove estuaries, but also in rivers and small streams. It is commonly found in shaded areas with overhanging vegetation.

*Toxotes jaculatrix*, commonly known as banded archer fish, is a popular fish in the aquarium trade. Widely distributed in brackish water estuaries and mangrove swamps in India, Myanmar, Thailand, Malaysia,

the Philippines, Australia and Solomon Islands, it is occasionally found in fresh water also. The body is moderately elongated and laterally compressed with a pointed head. The eyes are large and set fairly far forward, the dorsal and anal fins are situated far back on the body. The body is silver to white and marked with 4 - 6 black bands that run vertically from the top of the back to the middle of body. The first band runs through the eye while the last runs across the caudal peduncle. The caudal fin is silver to yellow in colour while the anal fin is black. It is a peaceful fish if kept in large numbers. The maximum attainable size is 25 cm but it is usually smaller. It goes easily with a small group of similar sized fishes in the aquarium. They may be skittish when kept with larger fish. They prefer larger aquariums, with plants that grow above the water surface that can tolerate brackish water. Water conditions should be fairly hard; neutral to alkaline with pH ranging from 7-8, and temperature from 25.5 - 26.5°C. They are not known to have bred in captivity.

*Toxotes lorentzi*, commonly known as primitive archerfish, is found in south central New Guinea, Australia and Indonesia. It commonly occurs in swamps and heavily vegetated stream margins. It is darker coloured with barely visible barring. It is a rare fish and its maximum attainable length is 15 cm. The ideal water temperature is 24 - 32°C.

*Toxotes microlepis*, better known as small-scale archerfish, is a native of Asia, particularly in the Mekong and Chao Phraya basins, peninsular Malaysia, Sumatra and Borneo. It has a deep body, a flat back and a deeply curved belly with large eyes and pointed snout. It has dark bars or blotches on a yellow to silvery background. It feeds on terrestrial insects, zooplankton, small crustaceans and aquatic insect larvae.

*Toxotes oligolepis*, known as Western archerfish, is found only in Australia. It has distinctive outlined scales. The maximum size is 15 cm.



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# Poor Alkalinity – A hidden threat in aquaculture

Dr. Pradeep, B. and Dr. P. Ratha Krishnan

ICAR- Krishi Vigyan Kendra, ICAR - Indian Institute of Spices Research, Peruvannamuzhi (P), Kozhikode 673 528, Kerala, India

Few of us, especially ornamental fish farmers would have noticed healthy guppies suddenly shrinking their fins and dying in tanks even with good filtration and aeration. In some fishes we can notice white slimy coating on fish resembling bacterial infection and in few fishes their eyes pop out or become cloudy. We suspect this to be fish disease and start using various medicines. The actual reason for this may be due to sudden drop in water pH. The variation in water pH can even be noticed among tanks with same source water and having similar filtration, aeration systems. This variation in water pH and its drastic reduction is due to poor alkalinity of water.

It is a known fact that the ideal pH for good growth and health of most fishes is around neutral pH 7. The tolerance limit of fishes to pH varies between species. Most fishes show distress at acidic pH 4.5-6.5 and above alkaline pH of 9 effecting their growth and reproduction. The symptoms associated with acidic water on fish are increase in mucus on gills, popping of eyes, fraying of fins, gasping for breath and surfacing. Poor plankton production in open water is also due to low pH. When pH falls still below or increase beyond the lethal limit (4.5 - 9) they even die. Hence it is very important to maintain the pH of water near optimum. Even diurnal variation in pH can be observed in outdoor ponds with green water or with submerged plants. During early morning hours pH and dissolved oxygen (DO) will be low as all plants and animals respire at night using DO and release carbon dioxide, which lowers pH. On the other hand during day time in the presence of sunlight plants use carbon dioxide for photosynthesis and release Oxygen. Hence during dusk pH and DO will increase and at dawn it will be low. This diurnal variation of pH if it's more than 6.5 to 8 it can be stressful to fish. All these fluctuations are influenced by the total alkalinity of water.

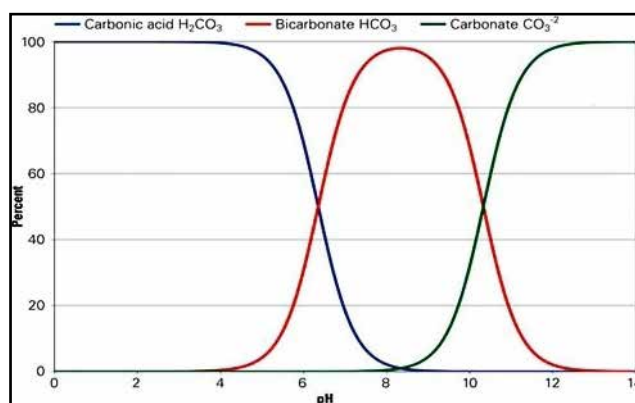


Fig. 1: Graph showing water alkalinity and pH relationship  
Source: <https://limestone.com.vn/alkalinity-of-water>

Total Alkalinity of water refers to the buffering capacity of water, ie. capacity to buffer water against sudden change in pH by absorbing hydrogen ion when water is acidic and realizing them when water becomes basic. Alkalinity is the total amount of bases in water principally bicarbonates ( $\text{HCO}_3^-$ ) ions and carbonate ions ( $\text{CO}_3^{2-}$ ), expressed in mg/l or ppm of calcium carbonate. Water with low alkalinity (< 20ppm) have poor buffering capacity and is vulnerable to fluctuations in pH. This is experienced in outdoor ponds with phytoplankton bloom, during rain falls and in tanks with biofilters. In aquaria, operation of simple sponge filters will result in a sudden drop in pH if alkalinity is low. This is due to the fact that nitrifying bacteria associated with biofilters remove bicarbonates in water leading to lowering of alkalinity and subsequent sudden drop in pH. Alkalinity is mostly as bicarbonates ( $\text{HCO}_3^-$ ) at pH below 8.3 and when its 0, pH falls to 4 which is lethal for most fishes (Fig. 1).

The ideal alkalinity of water for freshwater aquaculture should be between is 75-300 ppm of  $\text{CaCO}_3$ . Above and below this level can be stressful to fish. Hence



## AQUACULTURE SCENE

it's better to test alkalinity of source water and do corrective measures before stocking of fish or else pH of water may fluctuate during culture.

Dealkalizers with ion exchange resins are used to reduce alkalinity. To increase it, we can add substances with carbonates ( $\text{CO}_3$ )<sup>2-</sup> like calcium carbonate ( $\text{CaCO}_3$ ), dolomite  $\text{CaMg}(\text{CO}_3)_2$  or sodium bicarbonate  $\text{NaHCO}_3$  commonly known as baking soda. Among this Sodium bicarbonate is considered to be the best as it dissolves quickly and is very efficient in increasing alkalinity.

An increase in alkalinity by 10 ppt can be achieved by adding 18g of Sodium bicarbonate for 1000 L of water ( $1\text{m}^3$ ). Dolomite can be used initially in low alkaline water at  $100\text{g}/\text{m}^3$  to improve alkalinity. Care should be taken while using alum in low alkaline water as it further reduces alkalinity leading to reduction in pH. Hence it's advised to use hydrated lime at least half the dose of alum while using it during aquaculture.

Most inland fresh water bodies especially with red soil have low pH and alkalinity. Hence it's advised to

correct these parameters before starting aquaculture. Proper monitoring of pH is essential, especially in recirculatory aquaculture systems (RAS) with biofilters. Here the pH of water may reduce with reduction in alkalinity. On noticing stressed fish due to drop in pH first correction of pH should be done with lime followed by correction of alkalinity. In some systems like biofloc, it won't be always economical to maintain alkalinity at its optimum level with frequent application of baking soda.

In such cases dry clam, oyster or mussel shells can be suspended in net bags at different locations. They being source of calcium carbonate improve alkalinity of water. Even in biofilter they can be added to prevent sudden fluctuation in pH. Periodic bottom water exchange of 20 % at weekly interval in tanks with biofilters will help to improve alkalinity as biofilters would have removed alkalinity of water and the addition of new water will improve it. In case of noticing mortality of fish in tanks as a rule of thumb it is advisable to check water quality parameters like pH, DO, total ammonia nitrogen (TAN) and nitrite before starting medication.



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## Details of the SPF L. vannamei brooders imported & quarantined at AQF during October 2022

Sl. No	Name of the stakeholders	State	Country of origin/ supplier	Date of receipt of the lot at AQF arrival	Broodstock imported (nos)		
					Male	Female	Total
1	Sai Bhargavi Hatcheries Pvt. Ltd	Andhra Pradesh	Kona Bay; Hawaii	03.10.22	336	336	672
2	Ravi Hatcheries	Andhra Pradesh	Kona Bay; Hawaii	03.10.22	336	336	672
3	Maruthi Aqua Technologies Pvt. Ltd	Andhra Pradesh	Kona Bay; Hawaii	03.10.22	560	560	1120
4	Venkata Sai Hatcheries	Andhra Pradesh	Kona Bay; Hawaii	07.10.22	660	660	1320
5	Sapthagiti Hatcherires	Andhra Pradesh	Kona Bay; Hawaii	07.10.22	660	660	1320
6	TMR Bio Marine	Andhra Pradesh	SIS; Florida	09.10.22	600	600	1200
7	Seven Staar Hatchery	Tamil Nadu	SIS; Florida	15.10.22	200	200	400
8	Varun Hatcheries	Andhra Pradesh	SIS; Florida	16.10.22	250	250	500
9	Vaisakhi Bio Marine Pvt.Ltd	Tamil Nadu	Kona Bay; Hawaii	17.10.22	660	660	1320
10	Vaisakhi Bio Marine Pvt. Ltd - Unit IV	Tamil Nadu	Kona Bay; Hawaii	17.10.22	330	330	660
11	Bindu Hatcheries	Andhra Pradesh	Kona Bay; Hawaii	17.10.22	330	330	660
12	Bay Fry Pvt. Ltd	Andhra Pradesh	SIS; Florida	20.10.22	300	316	616
13	Sri Venkateswara Shrimp Hatcheries Pvt. Ltd	Andhra Pradesh	SIS; Florida	20.10.22	300	300	600
14	Sandhya Aqua Exports	Andhra Pradesh	SIS; Florida	21.10.22	300	300	600
15	Coastal Aqua Pvt. Ltd	Andhra Pradesh	SIS; Florida	23.10.22	600	600	1200
16	Sapthagiri Hatcheries - Unit II	Andhra Pradesh	Kona Bay; Hawaii	24.10.22	660	660	1320
17	Srinivasa Aqua Hatcheries	Andhra Pradesh	Kona Bay; Hawaii	24.10.22	660	660	1320
18	Rajkamal Shrimp Hatchery Pvt. Ltd	Andhra Pradesh	SIS; Florida	26.10.22	400	400	800
19	Raj Hatcheries (Bengal) Pvt. Ltd	West Bengal	Kona Bay; Hawaii	28.10.22	330	330	660
20	NSR Aqua Farms Pvt. Ltd	Andhra Pradesh	Kona Bay; Hawaii	28.10.22	660	660	1320
21	Sri Manjunadha Hatcheries - Phase II	Andhra Pradesh	Kona Bay; Hawaii	28.10.22	330	330	660
22	CP Aquaculture (India) Pvt. Ltd - Gudur	Andhra Pradesh	American Penaeid; Florida	28.10.22	300	300	600
23	Apex Frozen Foods Ltd	Andhra Pradesh	SIS; Florida	28.10.22	450	450	900
24	Avanti Feeds - Unit I	Andhra Pradesh	SIS; Florida	30.10.22	600	600	1200
25	Sri Shirdi Sai Hatchery	Andhra Pradesh	Sea Products; Texas	30.10.22	300	300	600
26	Golden Marine Harvest - Unit IV	Tamil Nadu	Kona Bay; Hawaii	31.10.22	660	660	1320
27	SB Marines	Andhra Pradesh	Kona Bay; Hawaii	31.10.22	440	440	880
28	Royal Hatcheries	Tamil Nadu	Kona Bay; Hawaii	31.10.22	330	330	660
29	Rama Shrimp Hatchery	Andhra Pradesh	Syaqua Americas inc; Florida	31.10.22	600	600	1200
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# Training programmes by MPEDA

### A. West Bengal

MPEDA Regional Division, Kolkata organized a three-days training programme on “Soft shell mud crab farming” at Henry Island Fisheries Project, under the State Fisheries Development Corporation Ltd (SFDC), Frasergunge, Namkhana block, South -24 Paragana district from 11<sup>th</sup> to 13<sup>th</sup> October 2022. The objective was to provide the technical knowledge on soft shell mud crab farming for promotion of the diversified aquaculture species. The training programme was attended by 23 progressive farmers of Sundarban area.



*Inaugural function of the training programme*



*Mr. Archiman Lahiri, Deputy Director, MPEDA RD, Kolkata addressing to the trainees*



*Field visit to MPEDA's Soft Shell Crab culture demonstration pond at Charbidya, South -24 Paragana district*



*Mr. Rakesh Sengupta, Project Assistant, BENFISH, Government of West Bengal distributes the certificate to a trainee*

### B. Kerala

#### i Idukki

MPEDA Regional Division, Kochi organized 5 - days training programme for SC beneficiaries on “Eco-friendly and sustainable aquaculture through species diversification” at Mariyapuram Grama Panchayath Samskarika Nilayam in Idukki, Idukki district from 26<sup>th</sup> – 30<sup>th</sup> September 2022. The training was mainly oriented for a sustainable and diversified aquaculture production through adoption of Better Management Practices (BMPs).



## AQUACULTURE SCENE



*Mrs. Jincy Joy, President, Mariyapuram Grama Panchayath inaugurating the training programme.*



*Mr. Geo Christi Eapen, JTO handling technical session*



*Mr. Geo Christi Eapen, JTO handling technical session*



*Mr. Joice Abraham, AD distributing certificates to the trainees*

### ii Kottayam, Kerala

MPEDA Regional Division Kochi organized three days general training programme on “Eco-friendly and Sustainable Aquaculture through Species Diversification” at Manathoor, Kandanadu village in Kottayam district during the period from 26<sup>th</sup> October 2022 to 28<sup>th</sup> October 2022. The venue of the programme was at St. Marys Parish Hall, Manathoor. The training

programme was mainly aimed to benefit new farmers to promote sustainable and diversified aquaculture production by adopting BMPs.



*Inaugural session*



*Technical sessions*

### C.Andhra Pradesh

Andhra Pradesh stands number one position in production of shrimp in the country by producing 7,82,646 metric tons in 2021-22 covering an area of 75, 649. Ha (WSA). Shrimp aqua farmers face various problems in their pursuit to make shrimp aquaculture viable.

In order to educate the farming community on various aspects of Better Management Practices, MPEDA Regional Division, Vijayawada did a series of training programmes for the benefit of SC/ST and general aqua farmers across Andhra Pradesh on 5<sup>th</sup>, 6<sup>th</sup>, 19<sup>th</sup> and 14<sup>th</sup> September 2022. The places covered were Devarampadu and Koppolu villages of Prakasam district, Ramudupalem village, Nellore district, Sarada Nagar, Venkataraghavapuram and Pedagonnuru villages of Krishna district.

### Topics covered during training program as follows

- Biology of cultivable species and different stages of larval growth in hatchery seed production
- Role of Department of Fisheries for Aquaculture Development in Andhra Pradesh



# AQUACULTURE SCENE



*Mr. P. Brahmeswara Rao, Technical Expert, MPEDA Call Centre explained farm operation during field visit in connection with training program at Venkataraghapuram village, Krishna district*

- Introduction to shrimp farming and different types of shrimp farming
- Pond preparation, soil & water quality management in aquaculture farms
- Seed selection, Feed and feed management in shrimp farming
- Disease management in shrimp farming
- Bio-security measures, reservoirs and Effluent Treatment Systems in aquaculture farms
- Various components of an aquaculture farm, their uses and different farm machinery & devices used for aquaculture
- Better Management Practices
- Importance of record keeping and aquaculture farm enrolment
- Various Financial Assistance Schemes for aquaculture farms and hatcheries, guidelines and the services of MPEDA
- Harvest, Post harvest handling & marketing of shrimp and comparison of economics in *P.monodon*, *L.vannamei* shrimp
- Formation of aquaculture societies, introduction of Aqua One Labs & E-Santa Platform.
- Diversification of species and technology in aquaculture
- Scientific farming of sea bass, scampi, mudcrab and GIFT
- Enrolment of aquaculture farms and shrimp hatcheries & pre-harvest test of cultured shrimp
- Procedure for availing CAA license & renewal of licenses
- Challenges in export promotion of cultured shrimp from India



*Mr. G. Ramar, Asst. Director giving inaugural address at Ramudupalem village, Nellore district*



*Valedictory function of training programme at Ramudupalem village, Nellore district*



*Mr. P. Srinivas Rao , RGCA giving a lecture in the training program at Koppulu village , Praksam district*



## AQUACULTURE SCENE

MPEDA, SRD Vizag initiated to conduct a 5-days' training programme on "Better Management Practices and diversification in aquaculture" for SC/ST beneficiaries.

The training programme was conducted from 27<sup>th</sup> September to 1<sup>st</sup> October 2022 in Srikurmam village, Gara Mandal, Srikakulam district, Andhra Pradesh for 20 beneficiaries / farmers.



*Inauguration of the training programme by Mr. R. Prasad Naik, Assistant Director, MPEDA SRD, Vizag and Dr. Ch. Balakrishna, KVK Fisheries Scientist, Amadalavalasa*



*Providing certificates to the trainees*



*Distributing the certificates & stipend to the trainees by Mr. R. Prasad Naik, Assistant Director, MPEDA, Vizag*

### D. Mangalore

i. A three day training programme on 'Better Management Practices for Sustainable Aquaculture' was organized by Regional Division, Mangalore at Baad, village in Kumta taluk, Uttar Kannada district from 11<sup>th</sup> to 13<sup>th</sup> October 2022.

During the three day programme, various topics related to diversification in aquaculture were pond preparation, selection of species, water quality management, feed management, disease management and harvesting.



*Mr. Vishnu N. Patgar, a progressive farmer of Kumta taluk under Uttar Kannada district inaugurates the training programme*



## AQUACULTURE SCENE



*Trainees of the programme*



*Mr. Premdev K.V., Deputy Director, MPEDA, RD Mangalore is distributing the certificates*

ii. MPEDA, RD, Mangalore organized a 3-days' training programme on 'Better Management Practices for Sustainable Aquaculture' at Emminganur village in Bellary district from 18<sup>th</sup> to 20<sup>th</sup> October 2022 for the benefit of local Aqua farmers as well as new entrepreneurs in the area. A total of 24 participants attended the programme.

The technical session was handled by Mr. Shivanna, Assistant Director, Department of Fisheries, Bellary, Dr. Ganesh K., Assistant Director and Mr. S Arulraj, JTO, MPEDA.



*Inaugural session*



*View of trainees*



*Mr. Shivanna, Assistant Director, Bellary district during the technical session*



*Distribution of certificates to the trainees*





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# MPEDA organizes HACCP Training programme at Nellore



*Inauguration of the programme by Dr. D. Ravindrakumar Reddy, Dean, College of Fishery Science, Andhra Pradesh Fisheries University, Muthukur, SPSR Nellore in the presence of Mr. Jayapalan G., Deputy Director, EIA Chennai, Mr. K. Nithish Chandra, Executive of M/s.Sai Marine Exports and Mr. Vaniya Kishore Kumar, Assistant Director, MPEDA, Porbandar*

**M**PEDA has organized a 4-day training programme on Seafood HACCP for the QC Technologists working in seafood processing & pre-processing units at Nellore from 18<sup>th</sup> to 21<sup>st</sup> October 2022.

The basic aim of the programme was to train candidates on HACCP principles and seafood safety management, which will help the processors to develop and implement HACCP plans to ensure safety of seafood products exported by them. There were 27 participants in the training.



*Participants interacting with trainers*



## QUALITY FRONT



*Group discussion by work group*



*Group photo of participants & trainers of HACCP training programme*



*Dr. K. Pau Biak Lun handles a session*

The technical sessions were handled by Mr. Vaniya Kishore Kumar, Mr. Subray Pawar, Assistant Directors and Dr. K. Pau Biak Lun, Deputy Director, MPEDA.

Feedback on 4 days training session were collected from the participated trainees and submitted to faculties. The 4 day training was concluded with valedictory function, which was presided over by Mr. A. Jeyabal, Joint Director, MPEDA , Vijayawada.





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# Promoting secondary fish processing: challenges, avenues and a way forward

Elavarasan, K<sup>\*1</sup>, C.N. Ravishankar<sup>2</sup> and Karthikeyan, M<sup>3</sup>.

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Director, ICAR-Central Institute of Fisheries Education, Versova, Mumbai 400 061

Director, Marine Products Export Development Authority, Kochi-682036

## Introduction

Fish and shellfishes are consumed worldwide and have been recognised as one of the nature's super food owing to the factors like nutritional supremacy and abundance of health benefiting biomolecules and metabolites. Globally 88% of fish produced through culture and capture practices consumed by human and remaining 12% is diverted for non-food uses (FAO, 2020). Fish and fishery products are traded across the continents in different processed form. Processing and preservation is an inevitable aspect due to high perishability nature of aquatic foods which naturally leads to the loss of raw material in the form of discards to the extent of 45-75% of raw material weight (Arvanitoyannis and Tserkezou, 2014).

Fish and shellfish processing discards contain biological macromolecules like protein, lipids, complex carbohydrates (chitin) and micronutrients like minerals and vitamins (Elavarasan, 2018). Derivatives from afore mentioned molecules are of much significance in developing high value compounds with application potential pharmaceutical, nutraceutical and food industries. In such a situation in order to minimize the loss of national economy and natural resources, secondary processing that is processing of waste/discards into valuable products should be boosted (Yan and Chen, 2015). This approach needs policy level interventions in countries like India. This article elaborates the challenges in promoting secondary fish processing, opportunities and avenues, and the road map for further development.

## Challenges in promoting Secondary fish processing (SFP)

The Indian fish processing industries are primarily producing fish and shellfish products. They are often eviscerated and exported in the frozen form. The by-

products generated during processing are processed into meal, which is utilized as protein ingredient for the production of animal and poultry feed, or converted into manure for agriculture application and more often thrown away as discards.

The industries producing high value products from fish processing waste by-products, such as pure proteins (Collagen, gelatin, collagen peptide, protein isolate, hydrolysate), carbohydrate (chitin and chitosan derivatives), PUFA rich oil, enzymes, bio-chemicals, nano-materials, health promoting compounds, active pharmaceutical ingredients etc. are in the infant stage, and these products are possessing domestic consumption as well as export potential. Appropriate indigenous technologies for producing aforementioned value added products are either available or under development. The major constraints restricting the growth of secondary fish processing industry in India are

- Lack of baseline data on availability and quality of secondary raw materials from fish processing activities
- Lack of awareness on possible utilization of aquatic food processing waste
- Highly scattered nature of domestic market fish waste
- Non-availability of prime quality raw material
- Availability of seafood processing industries only in coastal regions
- Huge transportation cost for collection and handling of fish by-products due to multiple points of resources.
- Need for cold chain facilities due to highly perishable nature of raw materials



## QUALITY FRONT

- Lack of cold chain hubs which supports the logistics
- Lack of quality indigenous plants and machineries.
- Requirement of high initial investment and operational cost to establish new processing plants.
- Less demand in domestic market.
- Dependency on developed countries for marketing the product
- Lack of industries-research institutions participations in research and technology development on secondary fish processing industry.
- Lack of private-public participations in promoting secondary fish processing industry.
- Trade policies and barriers
- Absence of focused policies to promote secondary fish processing and their export.
- Absence of focused policies to promote domestic marketing of products developed from secondary fish processing.

### Opportunities to promote secondary fish processing

Unlike primary seafood processing, the secondary processing activities are entirely different. This is mainly because the outputs of the secondary fish processing may not directly be used for human consumption and animal feed.

The products obtained are mainly used by specialized industries, such as pharmaceuticals, nutraceuticals, nutritional supplements, functional and formulated food and feed industries (including aquaculture), cosmetics, packaging material industries, agro-biochemicals (for agriculture uses), etc.

Therefore, the secondary fish processing industry needs holistic approach since beginning and the activities should be initiated in value-chain mode coupled with complete backward and forward linkages.

The avenues of Secondary Fish Processing can be categorized into three types:

#### 1. Secondary aquatic raw material processing units in seafood processing areas/retails markets (Feeder

**units):** Establishing processing units for segregation, processing and preservation of by-products for making it available in the usable / processable forms has the huge economical potential. The unit operations include sorting, washing, pretreatment, chilling/freezing/drying, packaging and storage. These units can be established in small capacities, designed for handling multiple by-products (Scale, skin, viscera, bones, belly flaps, fins, shell waste etc.) to ensure round the year availability of secondary raw material for high value products processing industries. Such units should be established nearby seafood processing industrial areas and major fish markets. Establishing centralization models for collection, transportation of raw materials from major fish sellers/fish cutters/online fish traders to processing centres is of prime importance.

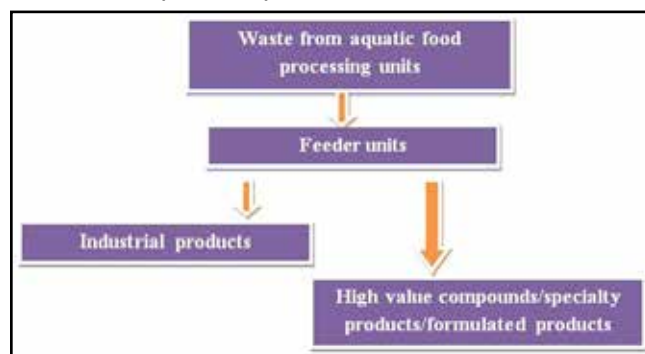


Fig. 1: Avenues of secondary fish processing

#### 2. Secondary fish processing units for industrial products:

The possible industrial products which can be produced from bulk quantity of secondary aquatic raw materials include fish meal, fish silage, hydrolyzed fish protein, bone meal, crustacean meal, whole fish oil, fish feed etc. For producing such products the raw material need not be sorted out into various parts/categories. The unit operations include grinding, proteolysis (autolysis/exogenous enzymes assisted proteolysis), cooking, oil separation, evaporation, drying (steam drying, spray drying etc), packing and storage.

#### 3. Secondary fish processing units for the production of high value compounds and specialty products/formulated products:

Relatively large capacity extraction units are required to separate high value components from the biomass/by-products. The raw material for these enterprises can be obtained from Secondary aquatic raw material processing units

## QUALITY FRONT

(Feeder units) and have facility for processing different biomass such as fish scale, fish skin, fish bone, fish head, shrimp shell, etc.

The unit operations may include pre-treatments (with acid/alkali/enzymes/any other chemicals), extraction (enzyme/thermal/ultrasound/high pressure/microwave/pulsed electric field/combination), concentration, drying, formulation, packing and storage. These units aim to produce products like chitin, chitosan, chito-oligomers, nanochitin/nanochitosan, collagen

peptide, bioactive fish muscle peptides (with specific claims), fish bone calcium, PUFA rich fish oil, shrimp oil, pigments, gelatin, fish visceral enzymes, functional feed ingredients, functional agro-ingredients etc. Some of the possible and valuable products are depicted in Figure 2 and Table 1.

In addition to the list of products mentioned, there many number of molecules, metabolites and derivatives originated from aquatic food processing waste is under research for pharmaceutical and nutraceutical applications.



Fig. 2: Image of some of the possible and valuable products from secondary raw material from fish processing industry



## QUALITY FRONT

Table 1. List of possible products from aquatic food processing waste

Sl. No.	Raw material	Name of the product
1.	Fish head	Fish head stock
2.	Fish eye	Omega-3 fatty acid
3.	Mixed fish waste	Protein hydrolysates
4.	Mixed fish waste	Meal and oil
5.	Fish scale	Dried scale as a raw material for collagen industry, Collagen, Gelatin, Collagen peptide, Hydroxyapatite, Fish scale mineral, Di-calcium Phosphate
6.	Fish skin	Collagen, Gelatin, Collagen peptide, Fish skin extracellular matrix, fish glue
7.	Fish swim bladder	Fish maw, Collagen, Gelatin, Collagen peptide
8.	Fish fins	Ingredients for soup, Collagen, Gelatin, Collagen peptide, Di-calcium Phosphate
9.	Fish Viscera	Enzymes, Protein hydrolysates
10.	Fish bone	Fish calcium, Bone-meal, Collagen, Gelatin and collagen peptide, Bone oil
11.	Shrimp head waste/Shrimp shell waste	Chitin. Chitosan, Glucosamine hydrochloride, chitosan salts, water soluble chitosan, chitooligomers, shrimp meal, shrimp oil, carotenoproteins, Astaxanthine, Pigments, Other chitin and chitosan based derivatives
12.	Mixed squid waste	Protein paste, protein hydrolysates, feed attractant
13.	Mixed cuttlefish waste	Protein paste, protein hydrolysates, feed attractant
14.	Cuttlefish bone and squid pen	Bone powder, dried cuttle bone, squid pen powder, chitin and chitosan,

15.	Ink sac from cephalopods	Melanin, antioxidant peptides, Soup ingredient, flavourings
16.	Shuck water	Protein concentrate, natural peptides, flavourings
17.	Shells from Oyster, clam, mussels	Calcium, Chitin, fillers for packaging materials, fillers in concrete and road making
18.	Skin from cuttle-fish and squid	Collagen, gelatin, collagen peptide, gelatin hydrolysates, skin protein hydrolysates, extracellular matrix
19.	Fish frame waste	Protein isolate, protein hydrolysates, Protein concentrate
20.	Fish belly flaps	Fish oil
21.	Shark bone	Cartilage powder, chondroitin sulphate
22.	Shark liver	Liver oil, Squaline
23.	Fish skin	Fish skin leather and products
24.	Shark fin	Shark fin rays
25.	Tail of skates and rays	Dried sticks for pets
26.	Whole waste from small fishes	Fish and poultry feed
27.	Mixed fish waste	Fish silage, fish ensilage, fish amino acid, fish hydrolysates (liquid and powder)
28.	Meat recovered from fish waste	Edible products, coated products, Fish flour, Surimi
29.	Fish scale	Pearl essence
30.	Mixed fish waste	Fish fertilizer, fish manure, fish compost

## QUALITY FRONT

The important element of success of SFP is flow of raw materials from seafood processing units/retails markets to the SFP units for making use of wastes of various fish and shellfish. For example: Fish scale in the retail markets are collected, washed in water or mild alkali, dried, packed and stored by local individuals.

This dried scale is directly supplied to the collagen peptide processors (located within the country and outside the country) through agents, used for extraction of collagen peptide in SFP units, and supplied to specialty products processing SFP.

Fish scale collagen peptide has applications as nutraceuticals, functional food ingredient, cosmetic ingredient, and pharmaceutical ingredient.

### Way forward

Followings are some immediate suggestions for promoting Secondary Fish Processing:

1. Conducting awareness campaigns on fish waste utilization
2. Building a database on availability of secondary raw material and quality at various hot spots (Processing industries/local markets). Identification of potential technologies on fish waste utilization available with ICAR institutes like CIFT for establishing technology demonstration centers at various location
3. Establishing the technology demonstration units (pilot scale) for handling of secondary raw aquatic material and processing into high value products
4. Promoting fish waste utilization through separate government supported schemes
5. Certification programme to the primary fish processing units for responsible fish waste utilization and encouraging waste utilization by providing incentives
6. Promoting small scale enterprises in fish waste utilization
7. Customization of technologies available for high value product production from secondary aquatic raw material
8. Development of linkages between research organization and nutraceuticals/pharmaceutical industries in consortia mode.

9. Attracting MSMEs and industry for manufacturing high value products at designated sites.

10. Encouraging process innovation and product innovation through providing financial support to target oriented focused group projects

11. Establishment of SFP involving SHG (men/women)/ fisheries societies to own and operate specific industrial products of high values in collaboration with research organizations and private companies having technical support.

12. Providing Government support and assistance for setting up of secondary fish processing units.

13. Formation of dedicated networks and teams of scientists in ICAR research institutes and researchers from state fisheries universities and colleges in a multidisciplinary framework for research in the field of Secondary Fish Processing of unexplored primary fish processing industries' by products.

### Conclusion

India is one of the major fish exporting countries of the world. Thus, the processing industries in the country is relatively an organized sector which will ease the collection of raw material (fish discards) for valorisation. In this article we have proposed a generalized system to collect and utilize the fish processing discards for the production of high value products. Approaching the problem in fish waste utilization strategically would benefit the development by proper utilization of available resources and growth of national economy.

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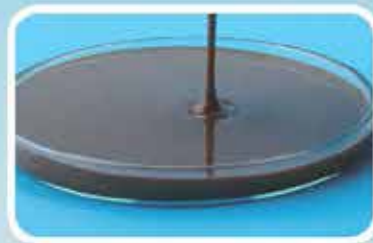
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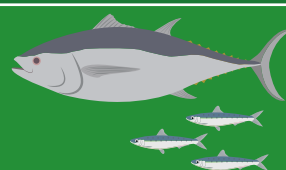
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13	<p>Long Beach Restaurant 60 Paya Lebar Road #06-29, Paya Lebar Square Singapore 409051 Ph.: +65 63389398 Email: Angelina@longbeachseafood.com.sg one@longbeachseafood.com.sg Website: www.longbeachseafood.com.sg <i>Vannamei 16/20, Prawn PTO</i></p>	14	<p>Jollibee Foods Cooperation 8/F Jollibee Plaza Building, F. Ortigas Jr. Road, Ortiga Center, Pasig City 1605 Philippines Ph.: +63286887110, +61403722667 Email: jai.rastogi@jws.com.ph <i>Vannamei Shrimp 91/100, PD tail off (Cooked) 100/200</i></p>
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