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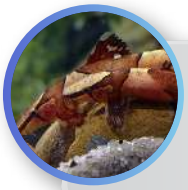

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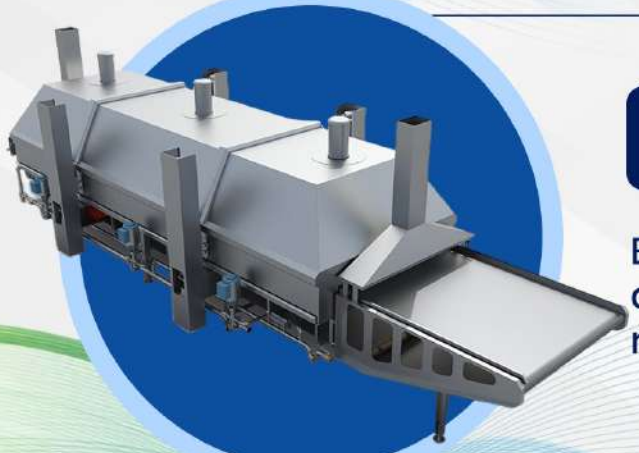

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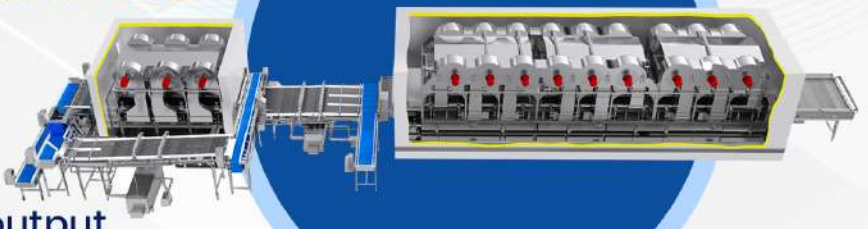

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On the Platter

D.V. Swamy IAS
Chairman

Dear friends,

Happy Independence Day !!!

Indian seafood exports mainly rely on aquaculture raw materials. The estimated annual production from the marine fishing sector in 2023 was 3.53 million MT, of which around one-third is utilised for export processing. Time and again, conservation groups raise alarm bells about the sustainability of the resources as the country's seafood demand rises with growing domestic consumption.

India is a signatory in three Regional Fisheries Management Organisations (RFMOs), such as the Indian Ocean Tuna Commission (IOTC), the South Indian Ocean Fisheries Agreement (SIOFA) and the Convention for Conservation of Antarctic Marine Living Resources (CCAMLR). Despite this, our fishing efforts are mostly limited to the EEZ region on a small scale. While the developed nations and certain other East Asian and Southeast Asian nations have invested in factory vessels to exploit the resources in high seas and RFMOs, India is yet to venture into this arena.

CCAMLR is a RFMO established in 1982 to oversee the sustainable management of fisheries in Antarctic waters. The Centre for Marine Living Resources and Ecology (CMLRE), Kochi, under the Ministry of Earth Sciences, Government of India represents India in the CCAMLR since 1985. The Antarctic waters are potential fishing grounds for Antarctic Krill and Tooth Fish, with estimated resources of 379 million tons and 68,790 tons respectively, exploited mainly by China, Norway, Chile, Spain, Australia, New Zealand and South Korea. Indian Antarctic Act 2022 provides India's regulatory framework for commercial fishing in the CCAMLR region. India's permitted annual catch quota is 6.2 lakh tons of Antarctic Krill and 15,000 tons of Toothfish, with the major fishing season lasting 3 months from December to February every year. Krill and Tooth Fish are in high demand in international markets. While Krill is mainly used for bait, and manufacturing krill meal, meat and oil extraction, toothfish is consumed in various product forms.

India's venture into high sea and RFMO fishing could open up new opportunities for investment in the sector, increase the availability of raw materials for exports, and diversify export products in markets. However, to fully realize these opportunities, a policy amendment is required to consider the resources harvested by Indian fishers in RFMOs as of Indian origin and waive import duty. MPEDA has already raised this issue at a higher level, and once it is resolved, investors can progress forward and harness the resources in RFMOs.

MPEDA has organised a stakeholders consultative meeting with the Seafood Exporters Association of India at Chennai, where trade issues, especially the progress of the Regulatory Partnership Agreement with USFDA, were briefed to the exporters. This agreement, once finalised, has the potential to boost Indian seafood exports to USA significantly. MPEDA was also represented in the India-Qatar Joint Working Group held at Doha on 10th July 2024 and arranged a Buyer Seller Meet with the help of the Embassy of India, Doha, where 20 importers interacted with Indian seafood exporters.

MPEDA's 2nd HACCP training programme of the year, held at Veraval from 23-26 July 2024, was a success. Before the programme, HACCP team members conducted a verification audit of one processing unit and guided them in enhancing HACCP implementation and food safety. The Joint Director (QC) of MPEDA also convened a meeting with the Seafood Exporters Association of India, Gujarat region, to understand the trade issues the region's exporters face. All these initiatives underscore the industry's commitment to maintaining high food safety and quality standards, which is crucial for the continued success of Indian seafood exports.

Thank you.

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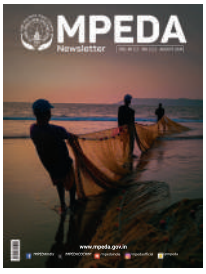

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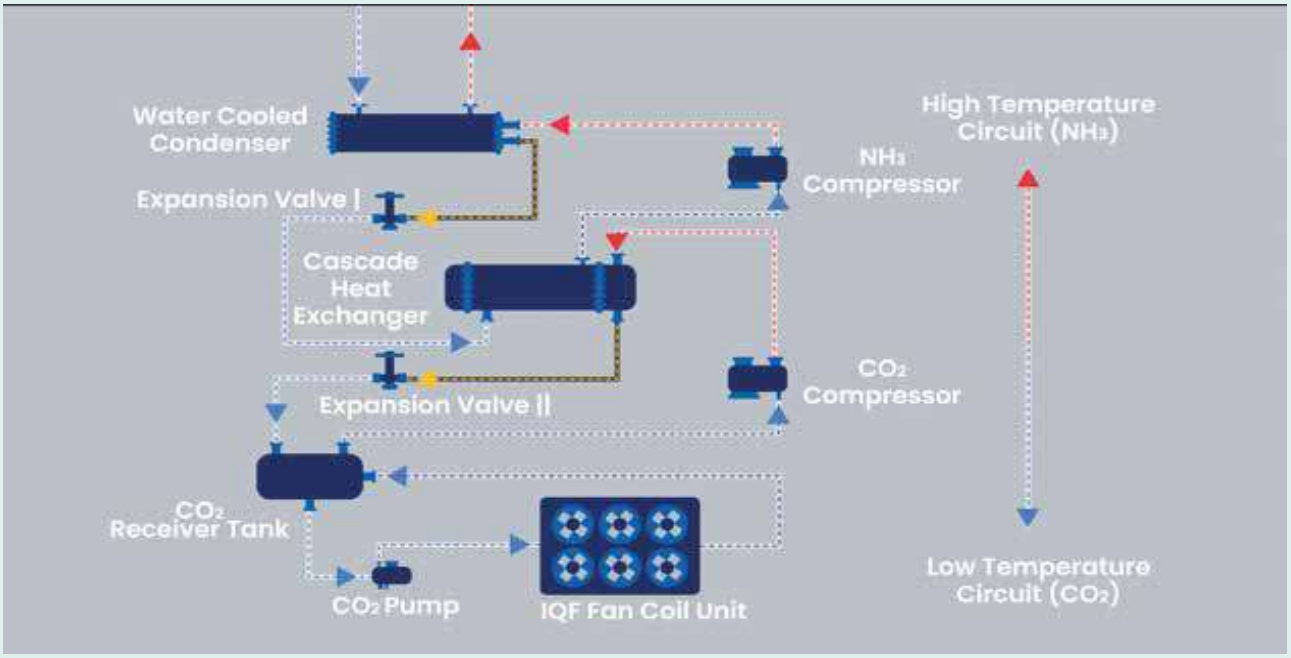
KELTON REFRIGERATION | CO_2 Subcritical Cascade Refrigeration System



Running a factory processing frozen food, dairy, beverages, pharma or operating a cold chain for the above industries is no easy task. You want your refrigeration plant to perform safely at maximum efficiency, without worrying about energy costs and environmental impact. It can be quite a headache dealing with fluctuating temperatures, rising energy expenses, and other operating issues with traditional refrigerants like Freon and Ammonia.

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Implemented in developed markets a few decades back, it is now available in India through Kelton Refrigeration. As part of the INDEE+ initiative by NTNU, Norway and few reputed technical institutes in India, CFTech successfully integrated CO_2 refrigeration projects in seafood processing factories in Kerala. With successful installations at NAS Fisheries, Kochi Kerala and Bell Foods, Kochi Kerala they're proving it every day.

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Mr. Hashmin K A,
Director, NAS Fisheries

Customer Testimonial:

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Mr. Viju Puthusseril,
CEO, Bell Foods Group

If you are in the process of setting up a new refrigeration plant or expanding capacity for the existing plant, contact us for a free consultation wherein a detailed technical review and project evaluation process will be done by our CO_2 refrigeration experts with global expertise and exposure.

With decades of experience and innovation, Cochin Food Tech Pvt Ltd with its industrial refrigeration brand KELTON Refrigeration, has taken the lead to drive the Indian food processing and cold chain industries forward. Natural refrigerants such as CO_2 are not just the future; they are already shaping the present reality. It's time to make the switch.

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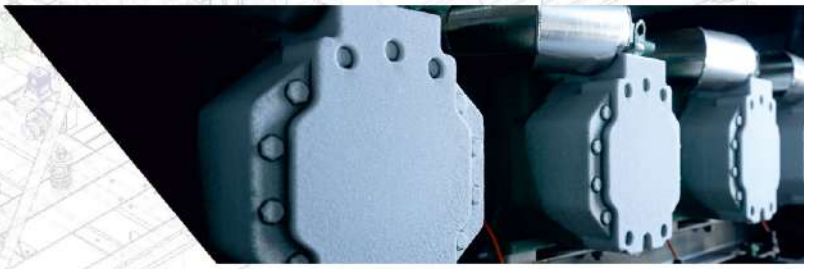

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Stakeholders' workshop on implementation of TED in trawl gears of Kerala

Export of wild caught shrimp from India to the USA is suspended since 2019, due to the non-adherence to U. S. Public Law 101-162 (Section 609) mandating the use of Turtle Excluder Devices (TEDs) in trawl gear. To address this issue, the Marine Products Export Development Authority (MPEDA), in collaboration with the Indian Council of Agricultural Research - Central Institute of Fisheries Technology (ICAR-CIFT), State fisheries departments, and fishery stakeholders, has been working diligently. MPEDA and ICAR-CIFT jointly engaged with the U.S. National Oceanic and Atmospheric Administration (NOAA) to modify the CIFT-developed TED to meet NOAA's standards. Having secured NOAA's approval for these modified TED models, their implementation across all coastal states of India is now imperative. As a step towards this goal, MPEDA Regional Division, Kochi and MPEDA-NETFISH in partnership with the Kerala State Fisheries Department, and ICAR-CIFT, convened a "Stakeholders' workshop on implementation of Turtle Excluder Device (TED) in Trawl Gears in Kerala" at the CIFT Conference Hall in Kochi, from 10 am to 3 pm on 18th July 2024.

The workshop aimed to sensitize the fishery stakeholders in Kerala on the importance of adopting TEDs in trawl gear, both at the state and national levels, to lift the U.S. trade ban on Indian wild-caught shrimp. Successful TED implementation across India would not only restore access to the lucrative U.S. market but also empower fishers by commanding higher prices for their catch at fishing harbors and landing centers. This, in turn, would significantly enhance the livelihoods and incomes of the fishing community.

A total of 150 participants, including represen tatives from Trawl Boat Owners' Associations across Kerala, and officials from the Kerala Fisheries Department, CIFT,MPEDA, NETFISH, CIFNET, FSI, NIFPHATT, EIA, KUFOS, CUSAT, MATSYAFED, and M/s. Tufropes Nets Pvt. Ltd., attended the workshop. The event commenced with a welcome address by Mrs. Preetha Pradeep, Technical Officer, MPEDA RD, Kochi. Dr. George Ninan, Director, ICAR-CIFT did the honour of lighting the lamp and delivered the inaugural speech. He emphasized the Indian fisheries sector's need to adapt to evolving global market demands and challenges. Mr. Johnson D'Cruz, Deputy Director, MPEDA, Kochi, presided over the event and highlighted MPEDA's persistent efforts to address the U.S. export ban caused by the absence of TEDs in Indian trawl gear. Mrs. Smitha R. Nair, Additional Director, Fisheries Department, Kerala, graced the occasion as the Guest of Honor, assuring full departmental support to resolve the TED issue, which has adversely impacted fishers' livelihoods. Dr. Joice V. Thomas, Chief Executive Officer, MPEDA-NETFISH, provided a comprehensive overview of TEDs Mr. Alex K. Ninan, National President, SEAI and Vice- Chairman, MPEDA and Mr. Ahmed Azhar, Vice-President, SEAI, Kerala offered their felicitations.

Mr. Santhosh N.K., State Coordinator, MPEDA-NETFISH, presented a detailed PowerPoint presentation on the CIFT MPEDA TED construction, field trials, and implementation in India. Demonstration of a TED model and video presentation of TED usage enhanced the understanding of the stakeholder. A subsequent Q&A session fostered lively participation, with queries from boat owners and fisher association representatives addressed by Dr. M.P. Rameshan, Senior Scientist, CIFT and Dr. Madhu, Scientist CIFT, Dr. Joice V. Thomas, CE, MPEDA-NETFISH, Mrs. Smitha R. Nair, Addl. Director, Fisheries Dept., Mr. Thajuddeen, Joint Director, Fisheries Dept. and Mr. Johnson D' Cruz, Deputy Director, MPEDA Regional Division, Kochi. Mrs. Sangeetha N.R., State Coordinator, MPEDA-NETFISH, delivered a vote of thanks, concluding the workshop. The workshop has helped the stakeholders to understand TED in detail and the need to implement it in trawl gears of the country to comply with US Public Law 101-162 (Section 609) in order to restart the export of wild caught shrimps to the US market.

Workshop by DPIIT on World Bank Group's Project “B-Ready”

MPEDA Regional Division, Mumbai attended the workshop organized by the Department for Promotion of Industry and Internal Trade (DPIIT) on 16th July 2024. The venue of the event was Maitri Conference Hall at Fort, Mumbai. The workshop was chaired by Ms. Jivisha Joshi Gangopadhyay, IRTS, Deputy Secretary of DPIIT and Mr. Saurabh, Section officer, EoDB, DPIIT was also present. Mr. Bhushan Patil, Assistant Director and Mr. Mangesh Gawde, Field Supervisor from MPEDA Regional Division, Mumbaiattended the workshop.

MPEDA officials Mr. Bhushan Patil, Assistant Director and Mr. Mangesh Gawde, Field Supervisor attending the workshop

BUSINESS READY

Business Ready (B-READY) is the World Bank’s new flagship report benchmarking the business environment and investment climate in most economies worldwide. The report assesses the regulatory framework and public services directed at firms, and the efficiency with which regulatory framework and public services are combined in practice. With data that are comparable across economies and over time, B-READY provides actionable evidence to promote reforms for a stronger private sector. The first B-READY report will be launched on 25th September 2024. The report focuses on 10 subjects related to the stages of a company, such as starting a business, utility services, labour, dispute resolution, market competition, taxation, and insolvency. It also considers the opinions of various market stakeholders. All topics are consistently structured under three pillars, (1) regulatory framework pillar (2) public services pillar and (3) efficiency pillar.

Workshop was on ‘International Trade and Financial Services' to sensitize the stakeholders regarding World Bank Group's project 'Business Workshop was on ‘International Trade and Financial Services' to sensitize the stakeholders regarding World Bank Group's project 'Business Ready' (B-READY). B-READY is a new yearly report introduced by the World Bank to replace the 'Doing Business' rankings. It aims to assist countries in attracting investment and increasing employment and productivity to expedite development. The 'Business Ready' report has a more balanced and transparent approach. It considers workers' rights as defined by the International Labor Organization and recognizes that rules can sometimes be helpful. It also ensures data transparency and integrity. B-Ready aims to provide a quantitative assessment of the business environment of an economy for private sector development. B- Ready aims to produce a global report based on granular data collected which would be published annually covering most economies worldwide. India’s report will be released in April 2026 and the firm survey begins in October 2024. DPIIT requested stakeholders to share suggestions or feedback to email id:- be1-dipp@gov.in.

Marine landing report - May 2024

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

Data on fishing vessel arrivals and species-wise approximate catch landed by these vessels are recorded on a real-time basis by MPEDA-NETFISH from nearly 100 major fishing harbours and landing centres in India, to facilitate the Catch Certification Program of MPEDA. The data is obtained through the Harbour Data Collectors stationed at the selected landing sites. This report presents the highlights of the trends in marine landings observed during May 2024.

1. Observations on catch landings

In the month of May 2024, data on marine catch landings was obtained from 64 fish landing sites and the total quantity landed was 35,776.30 tons. The major contributor to the total catch was the pelagic finfish resources with a significant share of 61%, weighing 21,863.72 tons. Demersal finfish resources followed with a share of 19% (6,975.23 tons). Crustaceans with 3,882.85 tons (11%) and molluscs with 3,054.51 tons (9%) made up the remaining catch (Fig. 1).

The month's landing comprised of 185 species of marine finfishes and shellfishes. Among these, the five dominant species of the month were *Sardinella longiceps, Lepturacanthus savala, Rastrelliger kanagurta, Uroteuthis duvaucelii and Nemipterus japonicus* (Table 1).

Among the various groups of marine fishery resources, the Oil sardine, Ribbton fish, Coastal

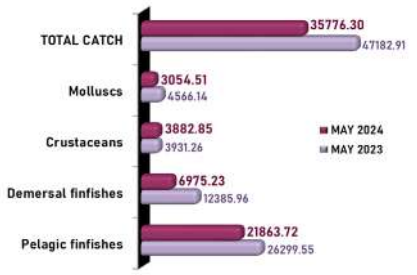

Fig.1: Catch composition of marine landings (in tons) in May

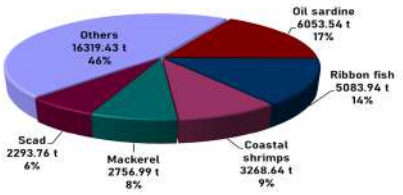

Fig. 2: Major five fishery items landed in May 2024

shrimps, Mackerel and Scads have dominated the landing during the month (Fig. 2). These top five fishery items collectively accounted for over half (54%) of the total catch. Other notable items landed were Tunas and Squids.

The pelagic finfish landings was dominated by Oil sardine and Ribbon fishes, while the major demersal varieties landed during the month were Threadfin breams and Croakers. Coastal shrimps constituted over 84% of the total crustacean landing, with Jawala shrimp being the dominant species. The major mollusc varieties landed during the month were Squids and Cuttlefishes.

Sl. No.	Common name	Scientific name	Quantity (tons)
1	Indian oil sardine	*Sardinella longiceps*	6,053.54
2	Ribbon fish	*Lepturacanthus savala*	3,587.01
3	Indian mackerel	*Rastrelliger kanagurta*	2,756.99
4	Indian squid	*Uroteuthis duvaucelii*	2,058.58
5	Japanese thread fin bream	*Nemipterus japonicus*	1,624.13

Table 1: Top five species landed during May 2024

State-wise landings: The north-western states of Gujarat and Maharashtra recorded the highest marine fish landings in May 2024 (Fig. 3). Gujarat topped the list with 10,534.55 tons, accounting for 29% of the total catch, closely followed by Maharashtra with 10,193.88 tons (28%). Kerala stood at the third position with a contribution of 7,261.31 tons (20%) to the total catch. Together, the western coastal states accounted for 95% of the total marine fish landings for the month.

Fig. 3: State-wise marine landings (in tons) in May

Harbour-wise landings: Among the 64 selected fish landing sites, Ratnagiri-Mirkarwada harbour in Maharashtra recorded the highest landings in May 2024. Table 2 lists the top ten harbours in terms of total catch quantity landed.

Sl. No.	Harbour	Quantity (tons)
1	Ratnagiri	3,750.60
2	Veraval	3,750.60
3	Porbandar	2,444.99
4	Porbandar	2,388.63
5	Thoppumpady	1,802.84
6	Mangalore	1,779.55
7	Munambam	1,749.05
8	Mangrol	1,693.18
9	New Ferry harf	1,496.89
10	Beypore	1,453.99

Table 2: Top ten harbours based on catch landings

2. Observations about boat arrivals

In May 2024, the number of fishing vessel arrivals recorded from the 64 designated fish landing sites totalled to 21,523. Kerala and Gujarat have topped the list with 5,395 & 5,101 number of boat arrivals respectively (Fig. 4). Considering the harbour-wise boat arrivals, the Veraval and Porbandar harbours in Gujarat were in the top, with 1,698 and 1,262 boat arrivals, respectively.

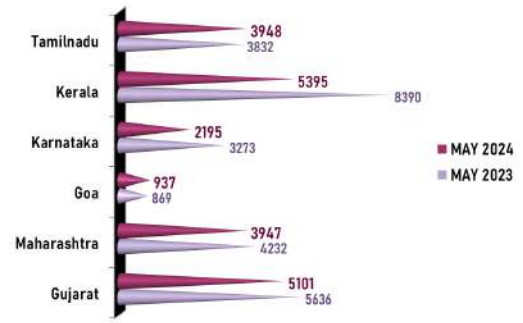

Fig. 4: State-wise boat arrivals (nos.) in May

Summary

During May 2024, marine landings and boat arrivals from the 64 major fish landing sites in India totalled 35,776.30 tons and 21,523 vessels, respectively. A decrease of about 11,000 tons in catch landings and more than 4,000 vessels in boat arrivals was noted, when compared to that of April 2024, which may be attributed to the fishing ban in force along the East coast during the period.

Pelagic finfish resources continued to be the major contributor to marine landings in May 2024 as well. The Indian oil sardine *(Sardinella longiceps)* evolved as the most landed species of the month, leaving the Indian mackerel at the third position. Gujarat attained the top position in terms of catch landing whereas Kerala was escalated to the top place in terms of the number of boat arrivals.

Among the various landing sites, Mirkarwada harbor continued in the top position in terms of catch landings, while Veraval harbor attained the first place in terms of number of boat arrivals.

Monthly outlook forecast report

Mr. Ritiesh Victor – Co-founder & Country Head – Myforexeye Fintech Pvt. Ltd.
Email-id: sales@myforexeye.com

USD INR

The USD INR pair exhibited significant volatility ahead of the June 4 Lok Sabha election results. It began the month higher at 83.41, toward the later part of the month it dipped to a 2.5-month low of 83.03, but ultimately ended the month stronger at 83.4625. The rupee started the week at 83.085but steadily declined to close at 83.4625, indicating near term bearishness ahead of the election results.

The USD INR pair shows upside potential as it remains above the 100-day EMA (blue line). On the daily chart, a descending trend channel has re-emerged since mid-April (parallel yellow lines), characterized by lower highs and lower lows. Two key support levels align with the 100 and 200-day EMAs at 83.21 and 83.00, respectively. Although the first support was breached in the recent drop, the 83.00 support level held firm. The key pair has risen to 83.46, presenting an opportunity for exporters to hedge, while importers had limited time to hedge their exposures Importers can consider restarting their hedging strategies near the initial support range of 83.20-83.25.

EUR USD

The EUR-USD pair started the month on a bearish note, opening near to its monthly low of 1.0649 levels. With the dollar weakening, the pair found some support but continued to face pressure due to rising German unemployment and signs of cooling inflation in the Eurozone. During the second week, the pair fluctuated within a narrow range, slightly above 1.0700, between 1.0740 and 1.0780, lacking significant support from limited data releases. Surprisingly, the euro remained resilient against rate cut speculations, staging a rebound as a June rate move became increasingly priced in by the markets, likely supported by the improving economic picture

across the Eurozone. The pair was not able to maintain its gains, the EUR-USD fell from its monthly high of 1.0894 as May's inflation rate increased to 2.6% from 2.4%, with core inflation rising to 2.9%, slightly above forecasts. With the ECB widely expected to cut its three main lending rates by 25 basis points, taking the deposit rate to 3.75%, the widening differential with the Fed funds rate range of 5.25%-5.50% weighed on the pair.

The EUR-USD pair showed a robust upward trend throughout the month, peaking at 1.0894. It began near the key support level of 1.0650, with the euro recovering losses due to improved Eurozone conditions and a weaker US dollar after Powell signaled no future rate hikes. The pair stayed above 1.0750 and, aided by lower-than- expected US Core PCE numbers, rallied towards 1.0850. The next target is 1.0900, a significant level, with potential resistance at 1.1000 if it closes above 1.0900 next week. Despite expectations of an ECB rate cut in June, the EUR/USD found support from strong Eurozone fundamentals. A drop below the 50-week EMA could lead to a decline towards 1.0750, while breaking 1.0850 might drive the pair towards 1.0900 and possibly 1.1000.

GBP USD

It was a blockbuster month for sterling as the pair gained after declining for four consecutive months in a row. The pair initially benefited from the lower release of the US NFP that strengthened the case of a Fed rate-cut in September. But after 2 members out of total 9 members opted to cut the interest rates at the MPC meeting and 7 opted for keeping the rates unchanged. BoE governor, Mr. Andrew Bailey, suggested that inflation will likely decline in upcoming months and come closer to their 2% target. After the dovish comments the pair fell to a monthly 1.2445. But the pair gained towards the end of the month as the UK CPI came higher at 2.3%, than the expectation of 2.1%. Plus, the dollar index also fell, after the risk sentiment in the market improved and traders booked the profits on USD short positions. The bearish US GDP and steady PCE data led to further declines in the dollar index, which supported the pair, as

it ended the week higher at 1.2739 levels. The chances of more upside in the pair remains limited as markets expect a probable rate-cut by BoE in August, while the chances of Fed rate-cut in September month stays at 53%.

Sterling gained in the month of May, after declining for four consecutive months. The pair gained almost by 2% this month and touched a 2-month of 1.2800 levels, but then quickly fell after facing a resistance. The pair ended the week slightly above the previous week's close, which is a slightly positive signal. The MACD Indicator shows a bullish cross-over, predicting an upward trend in the near future. But the cross-over is above the significant 0 level, which is weak bullish signal. On the weekly chart frame of the pair the near- term resistance can be seen at 1.2765 levels (yellow line), preventing the upside. While a short-term support can be seen at the significant 1.2 705 level, preventing the downside, in case the pair retraces its path.

JPY USD

Despite a drop in Treasury yields, the JPY-USD continues to rise. The Bank of Japan's ultra-dovish stance is the primary negative catalyst for the JPY-USD. Interestingly, JPY-USD bulls aren't concerned about prospective BoJ interventions, if JPY-USD manages to settle above 157.00. However, Japanese officials spent 9.79 trillion yen ($ 62.23 billion) interfering in the foreign exchange market to support the yen over the last month, preventing the currency from falling to new lows but unlikely to reverse longer-term

losses. Despite the billions of dollars in foreign reserves spent, the effect has not been sustained, and market attention has shifted to whether and how soon Japan will enter the market again as the yen hovers near the 160 threshold, widely regarded as the authorities' line in the sand for intervention. The monthly data set released on Friday only indicates the overall amount spent by Tokyo on currency intervention during the time. A more specific daily breakdown of intervention will only be available in data for the April-June quarter, which is expected to be disclosed in early August. Although Japan has had minimal success in containing big yen movements, there is a good probability it will act again, even if the currency does not cross its protective levels.

JPY-USD began the month at 157.78, marking its monthly high. Throughout the month, the pair exhibited range-bound behavior between 155 and 157. Market participants have identified 158 as a key intervention level, previously noted when the pair reached its 34- year high last month. The yen strengthened to 151.85 early in the month, driven by the Bank of Japan's intervention. Technically, the low of 151.85 is seen as support, aligning with the 50-Week EMA. Looking ahead, the 50-Week EMA remains a crucial support level. A break below this could push the pair down to 150, a historically strong support level. Short-term pullbacks are expected to attract buyers, particularly around the ¥155 level. Should the price fall below this, the ¥152 level might offer additional support. On the upside, bullish momentum could drive the pair to 158 (R1) and potentially extend to 160 (R2), a significant resistance level.

Capacity building programme for farmers and fishermen

MPEDA Regional Division, Mumbai conducted a capacity building programme on biosecurity measures and personal hygiene for farmers and fishermen on 10th July 2024 at Junnar in Pune District. The programme was organized on the occasion of National Fish Farmer's day and 32 fishermen, fish farmers attended the capacity building programme.

The programme was inaugurated by Mr. Kiran Waghamare, Assistant Fisheries Development Officer (AFDO) Junnar, Pune district in the presence of Mr. Rishikesh Palve Assistant Fisheries Development Officer (AFDO), Maharashtra Fisheries Development Corporation (MFDC) Mr. Kiran Waghmare informed about the importance of fish farmers' day and briefed on the financial assistance schemes of State Fisheries for fishers and farmers. He also explained about the waste management, personal protective equipment and need for regular health checkup for the workers. Mr. Mangesh Gawde, Field Supervisor MPEDA RD, Mumbai explained about biosecurity measures, personal hygiene, MPEDA's role in fisheries development and opportunities in the fisheries sector for livelihood opportunities. Mr. Rishikesh Palve, AFDO, MFDC explained to fishermen about importance of biosecurity in nursery ponds and the importance of stocking advanced fingerlings and yearlings in reservoirs.

After the training programme, water parameter kits, plastic crates and life jackets were distributed to beneficiaries for their safety and recording of parameters to follow Best Management Practices.

Inaugural session

Mr. Kiran Waghamare, AFDO, Junnar addressing participants

View of participants

Mr. Mangesh Gawde handing the session

Distribution of aid materials

Participants with officials

MPEDA organized demonstration of value added seafood products

MPEDA Regional Division, Mumbai in collaboration with the Office of Assistant Commissioner of Fisheries, Bhandara, Department of Fisheries, Government of Maharashtra and College of Fishery Science, Nagpur conducted a "Demonstration of value added products from seafood" at Officer's Club, Bhandara on 26th July 2024.

The programme was conducted with the initiative of Mr. Yogesh Kumbhejkar IAS, the District Collector (DC) of Bhandara. The programme was intended to impart hands on training to the Matsys Sakhis on value added seafood preparations. The DC appreciated the efforts of MPEDA in organizing the programme in Bhandara. He said that value addition in fish will help in increasing the income of fishers.

Mr. Shashikant K. Borkar, District Planning Officer, Mr. Abhishek Namdas, District Disaster Management Officer, Mr. Sunil Jambhule, RDCF, Nagpur, Dr. Pallavi Pakhmode, ACF, Bhandara, Mr. Shailendra Relekar, Assistant Professor and Mr. Sagar Joshi, Assistant Professor from College of Fishery Science, Nagpur were present during the inauguration programme.

Mr. Dhiraj Dhatkar and Mr. Jitendra Kadam, HDC, NETFISH demonstrated the preparations of various value-added products such as fish pickle, fish patis, Shrimp chutney, fish ball and tempura to the participants. Students and participants along with trainers prepared the products.

More than 70 participants attended the program including Matsya Sakhis, fishermen, officials from office of Collector, Bhandara, students from College of Fishery Science, Nagpur and students from Shivaji Science College, Pawani, Bhandara.

Products were tasted and appreciated by dignitaries and participants. Mr. Atul Sathe, Field Supervisor MPEDA RD Mumbai coordinated the programme.

Value added products prepared during the training programme

Mr. Yogesh Kumbhejkar IAS, District Collector, Bhandara with participants

Trainers and participants during preparation of value added products from fish and shrimp

Presentation of value added products such as fish pickle, fish patis, shrimp chutney, fish ball and tempura

RAINBOW IN A BOWL

HOMALOPTERA PARCLITELLA

V.K. Dey

V.K. Dey has over three decades of experience in diverse sectors of the seafood industry in the 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 the 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.

Homaloptera parclitella, belonging to the family *Balitoridae,* is known as *hillstream loaches,* is the most beautiful species in the genus. There are several closely related and similar looking species. It is an extraordinarily beautiful *hillstream* loach from the black water of South-Thailand and Malaysia. They are distributed throughout Peninsular Malaysia where it's been recorded from the Terengganu, Perak, Tahan, Muar, Jelai, Endau, Mersing and Sedili river basins. It also occurs in the Sai Buri, Bang Nara and Kolok river systems, southern Thailand. In German they are often called as "saddle-stain-loaches" while their common English name is "lizard loaches". They are closely related to the Indonesian *H orthogoniata.* The name Homaloptera derives from the Greek homalos meaning flat, level or even and ptera means wing, a reference to the horizontal positioning of the pectoral and ventral fins. And the name parclitella is from the Latin par means two and clitellae means a paddle sack for a donkey, referring to the distinctive two-saddle blotched dorsum pattern.

In aquarium condition they grow up to 8 cm long and as black-water-inhabitants, they require a low-bacterial environment, the water should be enriched absolutely with humic matter from peat, alder cones or leaves, otherwise the animals are very receptive to parasites. In addition, these fish have a high oxygen demand as they are the inhabitants of running water. The ideal water should therefore not be too warm with temperature ranging from 22-25°C with pH 6 to 7.5 and hardness 18 to 179. They prefer live food in the beginning, later the animals also accept frozen and dry food. They are very peaceful, but like to impress each other in harmless ranking fights, which are very interesting to notice. Sexually mature females are usually a little larger and fuller-bodied than males. Presumably a seasonal spawner in nature but nothing has been recorded in aquaria.

An obligate dweller of swiftly-flowing streams and headwaters containing clear, oxygen-saturated water. It often inhabits riffles and runs and is likely to show a preference for shallower zones. Substrates are generally composed of gravel, rocks, boulders or bedrock carpeted with a rich biofilm formed by algae and other microorganisms. Patches of aquatic plants are only occasionally present but riparian vegetation is usually well-developed. The water at the type locality is described as 'clear and fast-flowing over a rocky substratum'. It is observed in shallow water among the rocks and was seen only in the fastest-flowing sections of the stream among growths of *Cryptocoryne affinis*.

Most importantly the water must be clean and well-oxygenated hence suggest using an over-sized filter as a minimum requirement. Turnover should ideally be 10-15 times per hour so additional powerheads, air stones, etc., should be employed as necessary to achieve the desired flow and

oxygenation. Base substrate can either be of gravel, sand or a mixture of both to which should be added a layer of water-worn rocks and pebbles of varying sizes. Driftwood roots and branches are also suitable and although rarely a feature of the natural habitat aquatic plants from adaptable genera such as Microsorum, Crinum and Anubias spp. can also be included. Since it needs stable water conditions and feeds on biofilm this species should never be added to a biologically immature set-up, and a tightly-fitting cover is necessary since it can literally climb glass. While regular partial water changes are essential.

They are specialized grazers feeding on biofilm, small crustaceans, insect larvae and other invertebrates. In captivity some sinking dried foods may be accepted but regular meals of live or frozen Daphnia, Artemia, bloodworm, etc., are essential for the maintenance of good health, and it's highly preferable if the tank contains rock and other solid surfaces with growths of algae. They are not an aggressive fish although its requirements limit the choice of suitable tankmates. It's found living in aggregations in nature so buy six or more to see it at its best as when kept singly or in smaller groups it tends to be less bold. The interaction between individuals is also interesting to watch and a group will typically arrange themselves close to one another facing directly into the water flow at certain times of day.

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Shrimp farming development constraints in Maharashtra

Dr. T. R. Gibinkumar, Deputy Director, Atul R. Sathe, Field Supervisor and Mangesh M. Gawde, Field Supervisor, MPEDA Regional Division, Mumbai

Introduction

Shrimp aquaculture is a significant industry in India, contributing substantially to the country's economy and export earnings. Shrimp farming is predominantly carried out in the coastal states of Andhra Pradesh, Tamil Nadu, Odisha, West Bengal, Gujarat, Kerala and Maharashtra. Andhra Pradesh is the largest producer of farmed shrimp, contributing more than half of the total production.

Initial works in brackish water aquaculture were commenced by ICAR institutes like CIFRI and CMFRI during the early seventies. Thereafter, commercial shrimp hatcheries were established by the Marine Products Export Development Authority (MPEDA) in the late eighties. Semi-intensive culture technology was also demonstrated on a pilot-scale project by the MPEDA. Brackish water prawn farming started in a big way during 91-94 especially in the coastal districts of Andhra Pradesh and Tamil Nadu. Subsequently due to disease problems, litigation in Supreme Court and other social and environmental problems, the sector suffered a huge setback and most of the corporate farms were closed. However, the small units continued to do farming and adopted extensive prawn farming systems. The shrimp farming has now been regulated with the establishment of the Aquaculture Authority of India as per directions of the Supreme Court for issuing licenses and overall supervision. Since 2010, exotic Pacific white shrimp *(Litopenaeus vannamei)* is the candidate species farmed in the country, which accounts for the 93% of the farmed shrimp production in 2023-24. Indian hatcheries import Specific Pathogen Free (SPF) brood stock mainly from USA, Madagascar, Mexico and Hawaii, after due quarantine clearance by Government of India through the Aquatic Quarantine Facility (MPEDA-RGCA-AQF) located at Chennai.

Shrimp production in India has reached 11.8 lakh MT during 2023-24. Maharashtra is one of the major maritime states, offering vast scope for development of brackishwater shrimp aquaculture. Maharashtra state has about 52,001 ha of potential brackish water area all along its coastline and adjacent creeks. Out of this area, 10,400 ha are reported to be suitable for shrimp farming. The potential area estimate was based on the surveys conducted 30 years before. Subsequently, the Mangrove cell under the Maharashtra Forest Department has done satellite surveys and notified certain farm areas as forest land due to the presence of mangroves. In addition, a total of 65,465 ha of Kharland (Brackish water land) is available in the five coastal districts of Maharashtra. Various committees and agencies have recommended the development of aquaculture in the Kharland.

The area utilized for shrimp culture in Maharashtra during 2019-20 was around 1,328 ha, however, only 905 ha was used for shrimp farming in 2023-24. As a result, the production also declined from 5,625 MT during 2019-20 to 2,036 MT in 2023-24. Out of the potential around 9,495 ha area is left unutilized that include around 423 ha of abandoned farms. Shrimp productivity of Maharashtra is much lower than the national average which is at 2.25 tons/ha/year, whereas, the national average is 6 tons/ha/year. Five coastal districts of Maharashtra viz. Palghar, Thane, Raigad, Ratnagiri and Sindhudurg

Shrimp farm at Kolmandala in Srivardhan, Raigad, Maharashtra

Shrimp farm in Mandangad, Ratnagiri, Maharashtra

contribute significantly to the shrimp production of Maharashtra. Brackish water shrimp farming is one of the important economic activities in Maharashtra. However, shrimp farmers are facing a lot of challenges right from constraints related to infrastructure, production, finance to the lack of adequate knowledge in farming and marketing related information.

Constraints faced by farmers: Various constraints faced by shrimp farmers is summarized in the table below

A. Marketing related	B. Finance related	C. Training related
• Shrimp price fluctuations • Non-availability of market price information • Lack of storage facility at pond site • Less demand in domestic marktet	• Less availability of credit facilities • Non availability of crop insurance tschemes • High interest rate for loan • Lack of financial schemes	• Lack of regular training programmes • Lack of training to technicians • Less extension & technical support • Lack of knowledge • Updation of latest technologies
D. Production related	**E. Infrastructure related**	**F. Other Constraints**
• Frequent Shrimp diseases • High cost of feed • Less availability of quality seed • Poor quality medicines and chemicals • High cost of seed • Lack of feed mills • Low production and productivity • Unskilled and untrained labour • Natural disasters	• Non availability of hatchery facility • Erratic electricity facility • Non availability of cold storage facility • Lack of good roads • Lack of good transportation facility • Low internet connectivity at far sites	• Lack of assistance schemes • Lack of Minimum Support Price • Lack of lease policy • High cost of electricity tariff • Poor cooperation among farmers • Scattered location of aquaculture farms • Abandoned farms • Theft and Poaching • Registration related

Interventions suggested to mitigate the constraints

A. Interventions in marketing

- Market diversification by identifying and targeting new international markets to reduce dependency on a few markets and spread the risk. Promote shrimp consumption domestically through awareness campaigns and marketing initiatives.
- Obtain certifications such as ASC (Aquaculture Stewardship Council), MSC (Marine Stewardship Council), or Global GAP to assure buyers of product quality and sustainability. Promote eco-labeled shrimp to cater to environmentally conscious consumers. Implement stringent quality control measures and standardized practices across the production and supply chain.
- Develop strong brands for shrimp products to differentiate them in the market and build consumer trust.
- Conduct regular market research to understand consumer preferences, market trends, and competitor strategies. Use data analytics to predict market demand, optimize pricing strategies, and manage inventory efficiently.

B. Interventions to reduce financial constraints

- Provide financial incentives, subsidies, and grants to encourage the adoption of sustainable practices and technologies to existing shrimp farmers.
- Provide financial support such as low-interest loans or grants to shrimp farmers both in production & marketing initiatives.
- Develop insurance schemes to protect farmers against losses due to disease outbreaks and natural disasters. Recently Alliance Insurance Brokers, Mumbai tried to issue insurance for the shrimp farmers for 180 days crop from the date of stocking of post larvae. The Department of Fisheries, Government of India and Government of Maharashtra may please think of a subsidy for insurance in Shrimp Farming.

Crab fattening in boxes at Pen, Raigad Maharashtra

Abandoned shrimp farms at Khajani in Roha, Raigad Maharashtra

C. Interventions to improve training

- **Farmer's training programs:** Conduct regular training programs for farmers on best management practices, disease control, and sustainable farming techniques.
- **Extension services:** Strengthen extension services to provide technical support and advice to shrimp farmers.

D. Interventions in production side

- **Regular monitoring and early detection:** Implement regular health checks and water quality monitoring to detect diseases early.
- **Use of biosecurity measures:** Enforce strict biosecurity protocols to prevent the introduction and spread of diseases.
- **Vaccination and probiotics:** Develop and utilize vaccines where possible and incorporate

probiotics into shrimp diets to boost immunity.

- **Genetic improvement:** Breed disease-resistant shrimp varieties through selective breeding programs.
- **Feed management:** Implement efficient feed management practices to reduce wastage and improve feed conversion ratios (FCR). Explore alternative protein sources such as plant-based proteins, insect meals, and single-cell proteins to replace fishmeal. Develop high-quality, nutritionally balanced formulated feeds to reduce dependency on wild fish stocks.
- **Water quality management:** Implement Recirculating Aquaculture Systems (RAS) to maintain optimal water quality and reduce water usage. Use efficient aeration systems to maintain adequate dissolved oxygen levels in shrimp ponds. Conduct regular testing of water parameters such as pH, salinity, temperature, and ammonia levels.
- **Technological integration:** Follow precision aquaculture by utilizing sensors, IoT devices, and automated systems for real-time monitoring and management of shrimp farms. Employ data analytics and machine learning to predict trends and optimize farming practices. Implement block-chain for trace ability and transparency in the supply chain.

E. Interventions in improving infrastructure

- **Innovative research:** Investment in research is the need of the hour in the field of genetics and biotechnology to develop fast growing disease-resistant shrimp breeds as well as sustainable and affordable feed options.
- **Collaboration:** Foster collaboration between research institutions, government agencies, and the private sector to address common challenges.
- Sustainable Farming Practices such as integrated multi-trophic aquaculture (IMTA) and polyculture need to be adopted.
- **Effluent treatment:** ETP shall be made mandatory and strict monitoring of effluent treatment systems to ensure safety before discharge.
- **Mangrove conservation:** Promote the conservation and restoration of mangrove ecosystems which act as natural buffers.
- **Low-Impact feeds:** Use feeds that are sustainably sourced and have minimal environmental impact.
- Use of solar based equipment in farming such as aerators, pumps, auto feeders etc.

F. Interventions for other issues

- **Permission for aquaculture in Kharlands:** Department of Fisheries, Government of Maharashtra refuse to permit fish/shrimp farming besides small brackish water canals citing CRZ rules and CAA Act 2005. Brackish water farming besides such small creeks (2-5 m width) with proper fencing and biosecurity guidelines may be allowed for development of aquaculture.
- Theft and Poaching is very much prevalent in Maharashtra and more attention by local police and local administration in this regard can reduce the issue.
- Supply Chain Optimization by enhancing cold chain infrastructure is essential to ensure freshness from farm to market. Also improving logistics and distribution networks will reduce transit times and costs. Partnering with e-commerce platforms to sell shrimp products directly to consumers will help in reducing intermediaries and increasing margins.
- Form cooperatives or associations to pool resources, share market information, and strengthen bargaining power. Foster partnerships with retailers, wholesalers, and food service companies to secure stable

market channels.

- Coordination between exporters and farmers along with count requirements and basic minimum price guarantee may reduce numbers of abandoned ponds of already less developed shrimp farming areas.
- The major constraint faced by shrimp farmers in complying to CAA Act, 2005 is the requirement to maintain 200 m distance between farm and high tide line. Due to high tidal amplitude, most of land in the coastal Maharashtra is affected and comes under the purview of CRZ act. An amendment in section 13(8) (a) is required specially for Maharashtra coast to reduce the distance to 50 m from creek or natural sources of waters.
- The delay in farm registration is a major constraint raised by farmers. The CAA can address this issue by adopting specific guidelines with a defined time frame.
- The shortage of manpower can be resolved by co-opting additional members from MPEDA, ICAR institutes, or the College of Fisheries to help complete the registration process within the stipulated time frame.
- Farms that have already been constructed near mangrove areas or in CRZ zones may either be regularised based on merit or decommissioned, as appropriate.
- Farmers have also requested a reassessment of certain requirements in the CAA Guidelines, including restrictions on the use of aerators, the application of cow dung, storing shrimp in ice after beheading, the use of organic biodegradable piscicides, and the requirement for ETS, as well as separate inlet and outlet structures for water.

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Better Management Practices in scientific shrimp farming

Dr. T. G. Manoj Kumar, Deputy Director, MPEDA, Bhimavaram
N. Purna Chandrasekhar, Regional Coordinator, MPEDA-NaCSA, Kakinada

In the last issue we discussed the feed manage ment to be followed in shrimp farming. The current issue discusses water quality management in scientific shrimp farming.

In order to reduce the risk of diseases through contamination with the water from outside the farms should follow minimal water exchange. If water quality and the pond bottom are good, shrimps become healthy and grow well and there is no need to exchange water. Adequate plankton bloom is essential for successful shrimp culture.

i. Water management

- Do not exchange or intake water frequently.
- For first 60 days, there should not be any water exchange. Start in the third month, if necessary. But try to minimize it as much as possible.

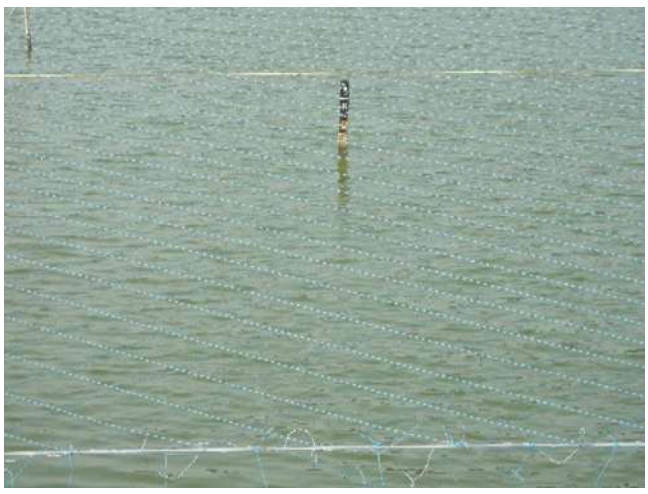

Fig. 1: Pond with depth scale for periodic water exchange

- Under normal circumstances, do not release or pump in more than 10-20 cm (8 to 15%) of water per day (Fig. 1)
- It is recommended to use water from a reservoir for exchange purposes only. Water should be left for at least 7 days in reservoir before pumping to the grow-out ponds.
- Always follow good water screening as mentioned under water screening in the previous issue.
- If the water colour is too dark, do not use any chemicals to kill the algae, instead change 10 cm of top water, preferably during afternoon and fill it back. If water exchange is not possible immediately reduce feeding during this period.
- Water exchange should not produce a significant change in Temperature (> 2°C) or salinity (>2 ppt).

Fig. 2: Farmer take inlet water using 60, 80 meshes for eradicating vectors

- Control water pH within the range of 7.5-8.3, and limit diurnal pH fluctuation to less than 0.5.
- If the pH is lower than 7.5 apply shell lime to increase the pH.
- High pH results from over liming and excess plankton bloom. If the pH is higher than 8.3, apply 50 litres of molasses or fermented juice of rice powder, jaggery and yeast to reduce the pH (Fig. 3).
- After rain and also after every water intake/ exchange, agricultural lime (100 Kg/ha) should be mixed with water and applied throughout the pond. It acts as a buffering agent for water. If there is acid sulphate soil, apply dry quick lime (CaO) along the pond banks periodically. It is preferable to do the liming earlymorning hours.

Fig. 3: Fermented juice to reduce pH

ii. Water quality parameters

For optimum growth of shrimp, maintain water quality parameters in the range as per table 1.

Table 1 : Optimum Water Quality Parameters

Salinity (ppt)	15 - 25 ppt
pH	7.5 - 8.5
Ammonia - N	< 0.01 ppm
Bicarbonates	>70 ppm
Total alkalinity (ppm)	200 ppm
Hardness	2000-6000 ppm
Dissolved oxygen (ppm)	5 – 7 ppm (above 50% air saturation)
Nitrate - N	< 0.03 ppm
Nitrite - N	< 0.01 ppm
Temperature (oC)	28 – 32
Transparency (cm)	
<30 DOC	45 - 60 cm
>30 DOCt	35-45 cm
Ratio of Calcium : Magnesium : Potassium at different salinities	
Salinity	Ca:Mg:K
<10 ppt	1:1:1
10-25 ppt	1:02:01
>25 ppt	1:03:01

Table 2 : Frequency of water quality parameters to be monitored

Parameter	Ideal frequency	Minimum	Special event
Temperature	Daily	Every 2 days	• Change of weather
DO	Daily	Every 2 days	• After partial harvest • Night time
Salinity	Daily	Every 2 days	• After water exchange or water addition
pH	Daily	Every 2 days	
Alkalinityt	Daily at the beginning of cycle until alkalinity reaches optimum target after that once in 2-3 days	Every 2-3 days	• After water exchange or water addition
Ammonia, nitrite, nitrate	Every two days at the beginning of the cycle Daily after DOC 30	Once a day	
Settleable solids	Daily	Every 2-5 days	
Vibrio	Once at the beginning of cycle after water sterilisation and water preparation. After that once a week	Every 3 days	• Disease • Slow growth
Phytoplankton	Daily	Every 5 days to weekly	
Hardness	Once at the beginning of culture after that once in a week	Monthly	• Near moultintg date

iii. Aeration

Use aerators where stocking density exceeds 1,00,000/ha for *L. vannamei* and 60,000/ha for *P. monodon*. The use of aerators in ponds has a strong influence on the maximum yield that can be achieved from the pond (Fig .4).

- If oxygen levels deplete in the pond, shrimp will start swimming near the water surface especially during early morning hours.
- Use one HP aerator for every increase in 300 kg of shrimp biomass in the pond. For biomass less than 2.5MT/ha, aerators are not required.

Fig. 4: Good aeration is key for successful harvest

- Aerator should be positioned correctly and operated efficiently to minimize pond dike erosion and suspension of pond bottom sediments (Fig. 5).
- The position and orientation (clockwise direction) of the aerators should encourage the maximum water flow within the pond which is adequate to concentrate waste in the centre of the pond and also provide a clean feeding area.

Note on the number of aerators.

◊ salinities 30-40ppt - 1 HP aerator for every 250-300kg biomass above 2.5 MT/Ha.

◊ salinities 7-15ppt - 1 HP aerator - for every 350-400kg biomass above 2.5 MT/Ha.

At higher temperatures, the number of aerators needs to be increased.

Table 3 : Suggested operation of aerators in shrimp ponds

Days after stocking	Aeration	Duration
01 to 30	Cloudy days/during rain/ less algal bloom	
30 to 60	During cloudy days/during rain	4 to 6hrs, at night every 2 to 3 days
60 to 90	Daily	Every night for 8hrs.
90 to harvest	Most of the time except feeding hours	

Fig. 5: Positioning of aerators is very important to accumulate sludge at center of the pond

- Aeration can be used while applying lime and fermented juice into the water.
- Stop aeration during feeding and chain dragging.
- If any problem happened to aerators and the DO level goes lessthan 3 ppm, first increase mechanical aeration, and as the last choice perform (bottom) water exchange.

iv. Remove Benthic, filamentous algae and hydrilla

Presence of benthic, filamentous algae and hydrilla results in increased water pH, reduced minerals in water. If not removed, they will decay at the pond bottom and release toxic gases and cause stress to the shrimp.

- Do not use fertilizer in the ponds where benthic, floating algae or hydrilla present. Remove them manually without disturbing whole pond.
- Follow chain dragging during morning and remove benthic algae in the evening when it comes to the corners.
- If the water is transparent carry out chain dragging followed by application of fermented juice of rice powder, jaggery and yeast.
- After completion of the removal of benthic/ filamentous algae apply dolomite to compensate the loss of minerals.

- Maintain water level of 1.2 m throughout the crop period.

v. Mineralization

Pond water contains a lot of major and trace minerals naturally. In general, they will be available in water source and also through various inputs. In shrimp farming especially in *L. vannamei* farming, calcium and magnesium plays major role. Minerals in water can be verified through test kits or at laboratories. In all the farming systems of *L. vannamei,* a Ca:Mg ratio of 1:3 to be maintained. Adequate minerals should be broadcasted on regular basis to maintain optimum water quality parameters (Fig. 6).

Fig. 6: Dispersing minerals in the pond

vi. Pond bottom management practices

Shrimp spend most of their time at the pond bottom. For this reason, the condition of the pond bottom has a major effect on the health of the shrimp. Maintain a healthy pond bottom in all types of culture systems.

- One month after stocking, the pond bottom around the feeding area, centre, corners and outlet gate should be observed weekly.
- Check the bottom soil weekly for the presence of black soil or bad smell. If the soil is black or smells bad, it means pond bottom has deteriorated. If the soil deterioration is severe use sludge pumps to remove the sludge (Fig. 7).

Fig. 7: Farmers using sludge pump to remove sludge

- As an immediate precautions against black soil, avoid feeding in areas where the soil is black, reduce the feeding rate for couple of days and change 5-10 cm of water.
- Do regular chain dragging at feeding areas to get organic matter oxidized.
- Chain dragging can also help to dislodge the benthic algae; but this practice should not be applied to more than 1/4th of the pond bottom in a single day. Remove the benthic algae when it floats to the surface (Fig. 8).

Fig. 8: Chain dragging at feeding areas

- Fermented mixture should be applied immediately after the chain dragging.
- Take out accumulated benthic algae/black soil at the pond comers regularly.
- During routine application of agricultural lime to the pond, spread more lime in areas where the pond bottom is bad.
- A clean feeding area can be maintained with proper positioning of aerators.

Campaign against abuse of antibiotics in aquaculture

MPEDA Regional Division, Mumbai in association with NaCSA conducted two awareness campaigns against the abuse of antibiotics in aquaculture. The first program was held at Borzhe village, Pen Taluk in Raigad District on 9th July 2024, with nine participants, including farmers, supervisors,and farm staff. The second program took place at Vadkun village, Dahanu Taluk in Palghar District on 10th July 2024, and was attended by 15 farmers, supervisors, and farm staff.

Mr. Atul Raosaheb Sathe, Field Supervisor, RD, Mumbai and Mr. Venkata Ramana, Regional Coordinator, NaCSA coordinated the programmes. Participants were briefed about the misuse of antibiotics in aquaculture as well as on the importance of farm enrollment.

The coordinators instructed the participants to take necessary precautions to avoid accidental input of antibiotics in their system by checking the registration of Coastal Aquaculture Authority in the labels of the products. Mr. Venkata Ramana, Regional Coordinator, NaCSA also briefed the participants regarding the benefits of cluster farming and cooperative society for aquaculture shrimp farmers. The programmes concluded with the vote of thanks proposed by Mr. Atul Sathe.

Mr. Atul Sathe, Field Supervisor, MPEDA RD, Mumbai delivering lecture at Borzhe Village on 9th July 2024

Mr. Venkata Ramana, Regional Coordinator, NaCSA delivering lecture at Borzhe Village on 9th July 2024

Mr. Atul Sathe, Field Supervisor , MPEDA RD, Mumbai delivering lecture at Vadkun Village on 10th July 2024

Mr. Venkata Ramana, Regional Coordinator delivering lecture at Vadkun village on 10th July 2024

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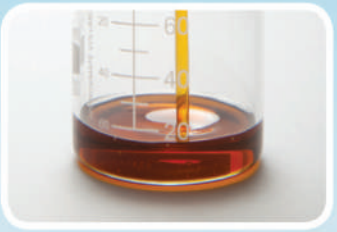
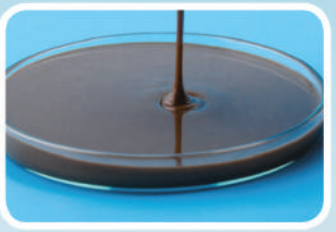

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Training programmes on Better Management Practices and species diversification

MPEDA - NaCSA conducted two 5-day training programmes on Better Management Practices and species diversification in Odisha from 1st to 5th July 2024 in Madhupur village, Puri district and from 9th to 13th July 2024 at Koitha village, Ganjam district. A total of 40 farmers belonging to SC attended the two-training programme. The training aimed to enhance the aquaculture practices of SC farmers and included theoretical knowledge, practical demonstrations with field visit.

The training covered various aspects of aquaculture, including BMP's, biosecurity measures, disease prevention, diversification, feed and water quality management, PMMSY schemes, CAA registration, society formation, export rejection, health management, cooperative society formation, farming diversified species etc.

The training was conducted by Dr. Gopal Anand, Assistant Director, MPEDA Regional Division, Bhubaneswar, Dr. DYS Krishna Murthy, Senior Scientific Officer, MPEDA – RGCA, Dr. DVSN Raju, Senior Scientific Officer, MPEDA – RGCA, Mr. Sakrajit Patasani, Field Manager, NaCSA-MPEDA, Ms. Priyabrata Das, Assistant Fisheries Officer, Department of Fisheries, Mr. Ravi Goda, Regional Coordinator, NaCSA-MPEDA, Mr. Jagannath Behera, JFTA I/C AFO, Dept. of Fisheries, Odisha and Mr. Laxmi Narayan Acharya, Team Lead, ECRICC, Government of Odisha.

Field visit to M/s. Navaah Farms Pvt. Ltd. in Puri district and M/s. Kranti Aqua Pvt. Ltd. in Ganjam district was organized as part of a training program, where infrastructure details, Best Management Practices (BMP), new farming ideas, and innovative technologies were discussed and demonstrated to enhance the participants' knowledge and skills in modern agricultural practices. Certificates were distributed to all the 40 participants during the valedictory functions.

View of training programme in Ganjam district

View of training programme in Puri district

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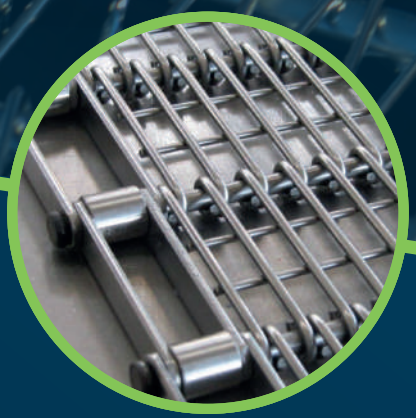

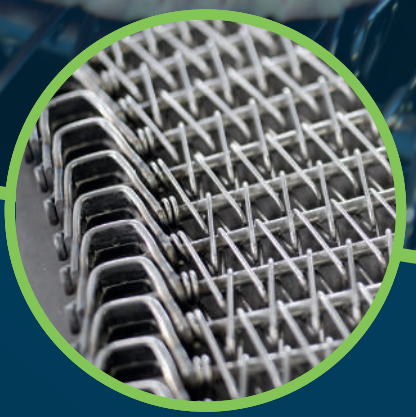

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Details of SPF *P. vannamei* brooders imported & quarantined at AQF during July 2024

Sl. No.	Name of the importer	State	Country of origin/ supplier	Date of receipt of the lot at AQF	Broodstock imported (nos)		
					Male	Female	Total
1	Avanti Feeds - Unit I	Andhra Pradesh	SyAqua Americas Inc, Florida	01.07.24	200	200	400
2	Vaisakhi Bio-Resopurces Pvt. Ltd	Andhra Pradesh	SyAqua Americas Inc, Florida	01.07.24	500	500	1000
3	Vaisakhi Bio-Marine Pvt. Ltd - Unit III	Andhra Pradesh	SIS, Florida	03.07.24	300	300	600
4	TMR Bio-Marine	Andhra Pradesh	SyAqua Americas Inc, Florida	05.07.24	250	250	500
5	NSR Hatcheries - Prakasam	Andhra Pradesh	SyAqua Americas Inc, Florida	05.07.24	200	200	400
6	Aqua Prime International (India) Ltd	Andhra Pradesh	SyAqua Americas Inc, Florida	05.07.24	300	300	600
7	Sun Glow Marine	Tamil Nadu	SyAqua Americas Inc, Florida	08.07.24	200	200	400
8	Avanti Feeds - Unit I	Andhra Pradesh	SIS, Florida	10.07.24	200	200	400
9	Gayathri Hatcheries	Andhra Pradesh	SIS, Florida	10.07.24	200	200	400
10	Golden Marine Harvest - Unit V	Tamil Nadu	Kona Bay, Hawaii	14.07.24	330	330	660
11	Royal Hatcheries	Tamil Nadu	SyAqua Americas Inc, Florida	14.07.24	250	250	500
12	SVR Hatcheries	Andhra Pradesh	SyAqua Americas Inc, Florida	14.07.24	250	250	500
13	Sapthagiri Hatcheries - Unit II	Andhra Pradesh	SIS, Florida	19.07.24	400	400	800
14	Samudra Hatcheries Pvt. Ltd	Andhra Pradesh	SIS, Florida	21.07.24	126	126	252
15	Sri Mahalakshmi Hatcheries - Nellore	Andhra Pradesh	SyAqua Americas Inc, Florida	24.07.24	300	300	600
16	Jay Jay Aqua Farms	Tamil Nadu	SIS, Florida	26.07.24	200	200	400

17	Varun Shrimp Hatchery Pvt. Ltd	Andhra Pradesh	SyAqua Americas Inc, Florida	26.07.24	200	200	400
18	Vaisakhi Bio-Resources Pvt. Ltd	Andhra Pradesh	SyAqua Americas Inc, Florida	26.07.24	200	200	400
19	Coastal Aqua Pvt. Ltd	Andhra Pradesh	SyAqua Americas Inc, Florida	26.07.24	250	250	500
20	Lotus Sea Farms	Tamil Nadu	SIS, Florida	28.07.24	300	300	600
21	Vaisakhi Bio-Marine Pvt. Ltd - Unit III	Andhra Pradesh	Blue Genetics, Texas	29.07.24	250	250	500
22	Raj Hatcheries Madras Pvt. Ltd	Tamil Nadu	SyAqua Americas Inc, Florida	29.07.24	250	250	500
	TOTAL				**5656**	**5656**	**11312**

Details of SPF *P. monodon* brooders imported & quarantined at AQF during July 2024

Sl. No.	Name of the importer	State	Country of origin/ supplier	Date of receipt of the lot at AQF	Broodstock imported (nos)		
					Male	Female	Total
1	Unibio (India) Hatcheries Pvt. Ltd	Tamil Nadu	Aquaculture De La Mahajambal; Madagascar	25.07.24	88	90	178
	TOTAL				**88**	**90**	**178**

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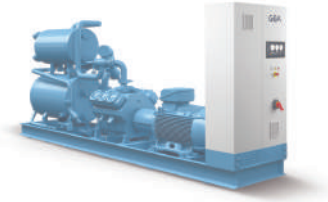

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MPEDA organized seafood HACCP basic training programme

MPEDA has organized a 4-day seafood HACCP basic training programme from 23rd to 26th July 2024 at Hotel Fern Residency, Somnath Bypass, Veraval in Gujarat. This was the 15th training programme organized by MPEDA in Veraval. The training envisages the dissemination of information on the principles of GMPs, SSOPs & HACCP. It also had practical sessions and group activities. 25 participants from different seafood export establishments from Saurashtra region of Gujarat and 2 MPEDA employees participated in the training.

The programme was inaugurated by Mr. Ketanbhai Suyani, Regional President, Seafood Exporters Association of India, Gujarat who briefed about the importance of HACCP in the seafood industry.

The participants and dignitaries were warmly welcomed by Mr. Vaniya Kishorkumar, Assistant Director, MPEDA Regional Division, Veraval. Dr. Ashish Kumar Jha, Scientist in-charge, ICAR-CIFT, Veraval offered felicitation. Stressing the need for food safety, Dr. Ram Mohan M. K., Joint Director (QC), MPEDA urged the participants in his presidential address to implement proper food safety management system in their establishments for production of safe seafood. Mr. V. Vinod, Deputy Director (QC) & Lead Faculty, MPEDA HACCP Cell and Mr. Subray Pavar, Assistant Director, MPEDA RD, Mumbai were present on the occasion. Mr. Sheshendra Shirodkar, Assistant Director, MPEDA RD, Veraval proposed a vote of thanks.

The training sessions started after the inaugural function, and were handled by Dr. Ram Mohan M. K., Mr. V. Vinod, Mr. Subray Pavar, and Mr. Kishorkumar Vaniya. The training programme covered course introduction, current Good Manufacturing Practices, Sanitation Standard Operating Procedures, Principles of HACCP and Development of HACCP Plan Form. Apart from above, the faculty also covered US Seafood regulations & traceability followed by practical sessions by the participants who were divided into 4 groups for preparation of

Dr. Ram Mohan M. K., Joint Director (QC), MPEDA delivers presidential address

Inauguration of the programme

Group photo of the participants and faculty

Mr. Shrimali Vinodkumar, Deputy Director, MPEDA Porbandar distributes digital certificate to a participant

SSOP documents, development of HACCP Plan for various seafood products. The Forms for the assigned products were presented by the representatives of each group and finally an assessment was conducted and on-line certificates were provided to the successful partcipants. Feedback from the participants were taken for further improvement in the training programme.

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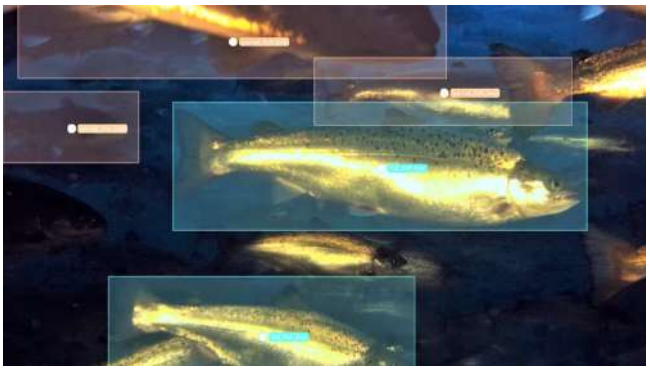
ReelData launches AI aquaculture camera



ReelData has announced the commercial launch of ReelVision, a camera developed for AI applications in aquaculture, such as behavioural analysis, feeding rates and fish health andwelfare

The camera captures high-quality video, which is crucial for the precise AI analysis that follows and, according to the startup, it can be used "with any AI model, in any farming environment, for any type of analysis".

ReelData has been building AI, software and hardware for the aquaculture industry for five years and says that: "ReelVision distinguishes itself from standard industry cameras with its robust design, which ensures zero hardware failures and allows scalability without overwhelming farm infrastructure. The camera can operate efficiently as both an advanced AI camera and a standard IP camera, providing flexibility and cost-effectiveness."

Key features

According to the startup, the main features of the new system include the ability to:

- Handle the harshest underwater environments, as well as the harshest farmers handling equipment.
- Support a high number of cameras per farm without causing any technical bottlenecks on your farm.
- Measure the smallest pellets at the highest accuracies – currently detecting 2mm pellets in smolt facilities.
- Function effectively as either a sophisticated AI camera or a basic IP camera - letting farmers get ready to adopt future AI solutions.t
- Maintain 99 percent server uptime, minimising disruptions and maximising productivity.

"After using ReelVision for over a year now, it has shown a significant improved accuracy in pellet detection. Clients have noted its reliability with fewer operational disruptions and the reduced need for maintenance like rerunning cables or replacing hardware," the company states.

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Plant-based tuna sashimi launched in Japan

A plant-based product which attempts to recreate the physical qualities of tuna sashimi has been launched for use in restaurants in Japan.

Osaka-based food processing company NH Foods has officially launched its plant-based tuna sashimi alternative into the domestic restaurant market. The alt-seafood product aims to mimic the aroma and texture of raw tuna to give consumers an authentic gastronomic experience.

The alt-seafood sector, which creates plant-based alternatives to classic marine foods, is growing, albeit slowly, in light of the uncertain future of some marine resources. Whilst many seafood consumers may not be keen to switch out their salmon for a soy-based replica, alternative seafoods are becoming increasingly popular amongst vegetarians, vegans, and others who don't eat meat. One research firm has estimated that the global market for such products is expected to be worth about $41 billion by 2030.

Seeking to provide a more sustainable alternative to tuna, which is one of the most popular purchases in the Japanese seafood market, NH Foods has spent a year developing its plant-based product from powdered konjac, dietary fibre, and other ingredients.

Currently, the alt-tuna is only available for sale to restaurants in Japan, but NH Foods is keen to expand its availability. The food processing company also aims to introduce a wider variety of seafood alternatives to its product line.

“We would like to consider expanding the variety of products, focusing on seafood that is in high demand due to low catches,” a company official said, according to The Mainichi, a Japanese news platform.

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