

# Fishing Technology Digest

A Newsletter on Fishing Technology, Gear and Methods, Vessels and Equipment



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Responsible Fisheries and Aquaculture.....	2,3	INFOFISH, based in Malaysia, and set up with the assistance of FAO, provides Advisory Services related to Fishing Technology for the Asia-Pacific. It strives to facilitate dissemination of information on fishing technology and equipment for the industry besides research and training. It also promotes links among research institutions, administration and industry. Since 1992, INFOFISH, issued a quarterly newsletter collating global fisheries news and advancements related to fishing technology and sustainable fish harvesting.
Fishing Technologies.....	4	Information on various aspects of industry also appears in <i>INFOFISH International</i> . A supplementary section on 'Industry Notes' provides information on the latest developments in the global fisheries scene. New equipments and innovations are also featured. Comments and contributions are welcome, as per requests and recommendations for inclusion in the mailing list.
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Dear Readers,

Welcome to the Fishing Technology Digest Issue No. 120. A new year signals new opportunities and commitments for fisheries and aquaculture industry. Hence, we have adjusted the FTD contents a bit and included "The Ocean Decade" section to advocate, and engage communities through promotion; and to address the Call for Ocean Decade Actions (2021-2030) program initiated by IOC/UNESCO. Don't forget to provide your feedbacks and suggestions through [info@infofish.org](mailto:info@infofish.org) for further improvements.

Kind regards,  
Editor, The Fishing Technology Digest



## New milestone in battle against IUU fishing

Global action to fight illegal, unreported and unregulated (IUU) fishing has intensified, according to the Food and Agriculture organization nothing that 100 states have now signed to an international agreement battling the scourge. The Agreement on Port State Measures (PSMA) is the first internationally binding instrument specifically designed to prevent, deter, and eliminate IUU fishing by denying port access to foreign vessels that engage in or support such practices. “Rising consumer demand and transforming agrifood systems in fisheries and aquaculture have driven global fish production to its highest levels and there is broad recognition of the need to step up the fight against IUU fishing” said FAO Director-General. IUU fishing undermines national, regional, and global efforts to achieve sustainable fisheries and its elimination is key to succeeding in reaching the UN’s Sustainable Development Goals (SDGs). However, with Angola, Eritrea, Morocco, and Nigeria being the latest countries to back the agreement, 60 per cent of port States globally are now committed to the agreement to combat IUU fishing.

“It is encouraging to see more States support the PSMA in support of the Sustainable Development Goals”, said the top FAO official. Director of FAO’s Fisheries and Aquaculture Division, upheld that “we have a responsibility to manage and use all aquatic resources sustainably”. He maintained the need to work together to step up port controls and an adequate information exchange through implementing the PSMA. “This will contribute to transforming aquatic food systems and maximize their role as drivers of employment, economic growth, social development and environmental sustainability.” FAO recently launched the PSMA Global Information Exchange System (GIES), which collects and shares official compliance-related information with a focus on port inspection results, actions taken and port entry or denials. Along with the FAO Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels, the platform supports PSMA nations, and complementary instruments aim to combat IUU fishing

**Source:** <https://news.un.org/en/story/2022/11/1130257>, 7 November 2022.

## Rabobank: “What to expect in the aquaculture industry in 2023”

According to Rabobank’s latest aquaculture report, “What to Expect in the Aquaculture Industry in 2023”, 2023 will be a record year for shrimp production, while for salmon, it will normalise. The report forecasts global shrimp production could reach 6 million tonnes in 2023. Ecuadorian shrimp production is set to grow between 18% and 30% in 2023 while Asia’s production will rebound in 2023 to above 4 million tonnes. For Atlantic salmon production, in 2023 to 2024 there will be a “normalisation of growth” in production as Norway and Chile use regulatory controls to moderate supply growth. The predicted global salmon production will

increase by an estimated 4% in both 2023 and 2024, nearing 3 million tonnes in 2023 and then surpassing that total in 2024. Meanwhile, Rabobank’s report found diverging trends are evident for tilapia and pangasius production. A year-on-year increase in tilapia production of 4.3% in 2022 and 4.8% in 2023 in Latin America, reaching 6.8 million tonnes of volume by the end of the year is anticipated. While global pangasius supply has “stumbled” due to a slowdown in production from top producer Vietnam in recent years. The analysis found while market prices were the key concern for fish farmers in 2021, the volatility seen in markets for feed ingredients has become the top concern for aquaculture business operators coming into 2023.

**Source:** INFOFISH Trade News, Issue No. 1/2023.

## The European Parliament adopts new rules on tuna fishing in the Indian Ocean

The Members of European Parliament (MEPs) approved all the conservation and management measures of the Indian Ocean Tuna Commission existing since 2008 to transpose in to community legislation. The European Parliament (EP) specified in a statement that the European Commission (EC) has requested the power to adopt delegated acts to guarantee the transposition of the technical rules. The text adopted in the EP refers to measures such as a ban on fishing near data buoys, data collection and reporting obligations on billfish and blue sharks and measures to protect certain species, such as

sharks, rays and turtles. The Parliament recalled that the European Union (EU) has been part of the Indian Ocean Tuna Commission since 1995 and that the Community fleet is among the three that fish the most in that area, mainly tropical tuna species. According to 2020 statistics, the EU-27 fleet caught 217 000 tonnes of fish in the western part of the Indian Ocean, which is the main fishing ground for tuna in the EU. Spain accumulated 69% of those catches, while France concentrated 28% and Italy, 2%. Portugal caught 1%. The catches consisted mainly of skipjack, yellowfin and bigeye tuna. After approval in Parliament, the Member States must formally approve the text, which will enter into force twenty days after its publication in the official gazette of the European Union. "International

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agreements should be transposed as faithfully as possible, in order to establish equal conditions for all operators. If the EU imposes stricter measures for its local fleet, the latter loses competitiveness

against foreign operators", declared by Gabriel Mato the rapporteur of the text.

**Source:** <https://www.bairdmaritime.com/>, 10 October 2022.

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### **Fisheries agreement between the EU and Madagascar**

The European Union (EU) and Madagascar have agreed on the text of a new sustainable fisheries partnership agreement. This restores the partnership between the EU and Madagascar that had been interrupted in 2018, and the European Commission states that this resumption of relations on fisheries will contribute to good fisheries governance. The agreement will allow 65 tuna fishing vessels from EU Member States to access Madagascar's waters over a period of four years. In exchange, the EU will provide Madagascar with US\$ 763 000 per year, based on a reference of catches of 14 000 tonnes of

tuna and earmark US\$ 1.2 million for sectoral support, to accompany the sustainable development of the fisheries sector and the blue economy in Madagascar. The new protocol also envisages a new contribution for the protection of ecosystems (funded by fishing vessels owners) and new provisions to encourage co-operation with Madagascar in the context of the Indian Ocean Tuna Commission (IOTC). Sustainable fisheries partnership agreements (SFPA) with non-EU countries are negotiated and concluded by the Commission on behalf of the EU. These enable EU vessels to fish for surplus stocks in the exclusive economic zone (EEZ) of third countries, while also focusing on resource conservation and environmental sustainability.

**Source:** FiskerForum, 10 November 2022.

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### **New Zealand's first seaweed planting in Coromandel waters 'historic moment' for aquaculture**



The country's first planting of hatchery grown seaweed in the Coromandel waters could be the beginning of a new sector for the aquaculture industry. Over the last year, marine ecologists have been growing *Ecklonia radiata* (Spiny or Leather Kelp) collected from the wild, in a hatchery in Tauranga, as part of EnviroStrat's US\$ 3.25 million regenerative ocean farming pilot. Around 220 metres of the tiny native seedlings have been planted in waters off the Coromandel coastline in the Hauraki Gulf, with more to be planted in the coming months. Sustainable Seas National Science Challenge estimated the global seaweed sector to be worth nearly US\$ 13.33 billion. Seaweed production has tripled over the last two decades and now makes up a third of all aquatic

farming. By creating an economically viable seed-to-harvest model for seaweed farming, Bradley said, New Zealand has the ability to produce "high end seaweed products" on a large scale for the international stage. The three-year pilot project is led by natural resource sector project developer EnviroStrat, in collaboration with Ngāti Pūkenga, Ngāi Tai ki Tāmaki, seaweed product developer Premium Seas, the Universities of Waikato and Auckland and seaweed processor AgriSea.

**Source:** <https://www.stuff.co.nz/waikato-times/news/300709332/>, 16 October 2022.

**New Research Project to improve the welfare of farmed fish**

The University of Stirling has been awarded US\$ 850 200 from open philanthropy to improve the welfare of farmed fishes in Thailand and Vietnam, with the aim of enhancing the quality of fish for human consumption. Professor Dave Little, Deputy Head of the Institute of Aquaculture at the University of Stirling, is one of the researchers leading the project said that : “Across Asia there are serious welfare issues that affect millions of aquatic animals and there is an urgent need to drive change. In addition, there is very little awareness about the importance of improving the situation. “This significant research funding will help tackle these issues and we hope it will vastly improve aquatic animal welfare, result in fewer losses,

produce a higher standard of meat, and boost the economy.” The research will support transformational change in the welfare of farmed fish across the continent. Interventions will have the potential to avoid unnecessary harm and pain to the fish, help farmers improve efficiency and business resilience, support a sustainable environment, contribute to a healthier general population, and combat poverty and hunger. The project will last two years and is also being led by Professor Jimmy Turnbull, Strategic Lead on Animal Welfare; Dr Amaya Albalat, Senior Lecturer in Welfare and Behaviour; and Dr Sonia Rey Planellas, Lecturer in Welfare and Behaviour.

**Source:** <https://www.susaquastirling.net/blog/new-welfare-project>, 27 November 2022.

**Europe’s first floating wind platform launched in Spain**



The coast of Gran Canaria will witness the development of a first and innovative prototype that will merge the production of wind energy and the mariculture on a floating platform. AquaWind, cofounded by the European Executive Agency for Climate, Infrastructure and the Environment (CINEA) and European Maritime, Fisheries and Aquaculture Fund

(EMFAF), whose official launching took place during October 2022 in the Canary Islands Ocean Platform (PLOCAN). “It is the first floating wind platform, built and installed in Spain, which has two wind turbines and has reached this level of technological development in the world. In addition, it will be a pioneering prototype in developing real tests of the viability of marine fish production in a combined system”, said by head of R&D projects at the Canarian Agency for Research, Innovation and the Information Society (ACIISI) and project coordinator. One of the main innovations of AQUAWIND will be to be able to evaluate in a real environment the combination of the production and use of renewable energy in the mariculture facility, which also includes two species of fish of enormous aquacultural interest such as sea bream, as a model species and a new species for the diversification of marine aquaculture such as the Amberjack or yellowtail that is characterized by its high value and culinary interest, particularly in Japanese cuisine.

**Source:** <https://www.seafood.media/>, 17 October 2022.

**FilleXia**

**Transforming Tilapia Processing and Delivering at an affordable product**



Technical specifications		
Throughput	Capacity	40 fish/min
Fish Size	Weight (Whole fish)	500g - 1400g
Product conditions	Temperature (Min°C - Max°C)	5°C to +25°C
Infeed of fish	Number of operators	1 or 2 according to customer needs
Electricity		3x380-415V AC+PE 50-60Hz
Weight		Approx .1750 kg
Water consumption		15 liters/minute
Power consumption		3,6 kW
Dimensions	Length x Width x Height	4220 x 1250 x 2455 mm

**How it works:**

Operators feed the fish into the machine, and the feeding belts convey it to the cutting section, where the band knives automatically adjust to the size and shape of the fish. The circular blades cut as close to the fish's backbone as possible, achieving a clean cut with maximized yield. The fillets are delivered to an outfeed conveyor or trimming line for further handling, while the backbone/center bone is released to a trolley or conveyor belt below.

**For more information please contact:**

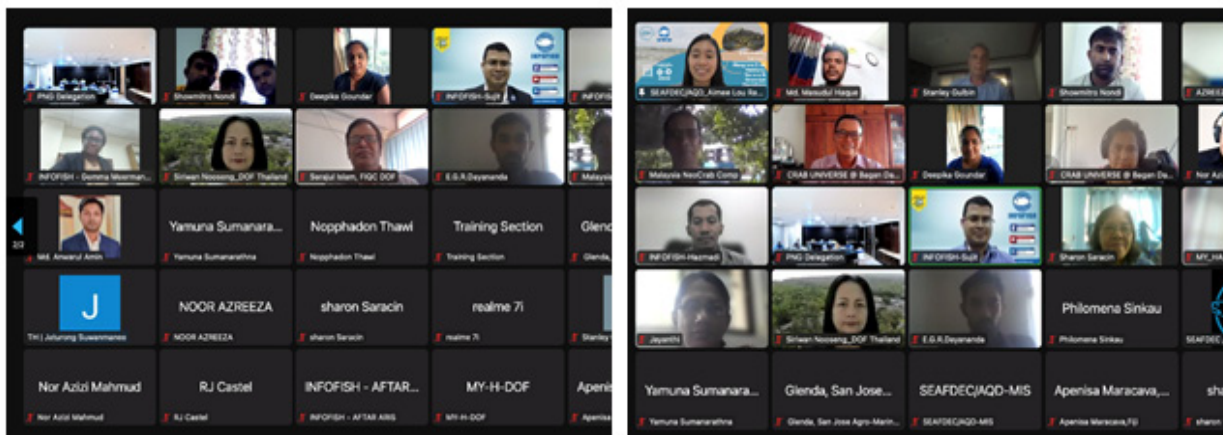
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**INFOFISH Virtual Training on Mangrove Crab Hatchery, Nursery and Grow-out operations**

Two days training entitled Mangrove Crab Hatchery, Nursery and Grow-out Operations held virtually during 14-18 November 2022, 0930 – 1700 Hours Malaysia Time in collaboration with SEAFDEC, the Philippines. There were more than 43 participants from eight member countries including Bangladesh, Fiji, Italy, Malaysia, Papua New Guinea, Philippines, Sri Lanka and Thailand. Among others, the training covered almost all the key technical issues faced by them during mangrove crab hatchery, nursery and grow-out operations e.g., site selection to species selection, larval rearing to farm management, live feed production to disease management and marketing of crabs through 11 technical presentations and 15 video tutorials. INFOFISH expects that upon accomplishment of

this training, the trainees will be able to handle the technical issues arises during the mangrove crab hatchery and farming operations. They will be able to choose the appropriate farming method, suitable sites and species. INFOFISH is keen to see the training lessons have been transferred successfully among the extension officers, hatchery operators and farmers among the member countries. It will enable them to add value to their 'small-scale fishery industry. The organisation is looking forward to inaugurate more training programs in future, perhaps in- person, for better hands-on experience and understand the extension method 'seeing is believing'.



*Photo: Screenshots of the virtual participants*

**COP15 catalyses new commitments for ocean biodiversity**

COP15 marked a turning point for commitments on ocean biodiversity in December 2022. Chaired by China and hosted by Canada in Montreal, the 15th Conference of Parties of the Convention on Biological Diversity (CBD COP15) saw nearly 200 countries agree to protect 30% of lands, oceans, coastal areas and inland waters by 2030, as part of the new and historic Kunming-Montreal Global Biodiversity Framework (GBF). This '30 x 30 pledge' is one of the Framework's four agreed Goals and 23 Targets to achieve by 2030. In order to raise

the profile of marine and coastal biodiversity issues during COP 15, the Intergovernmental Oceanographic Commission of UNESCO (IOC/UNESCO), in its role as coordinator of the United Nations Decade of Ocean Science for Sustainable Development (Ocean Decade), held COP15's flagship half-day ocean event: 'An Ocean of Life' on 16 December 2022, bringing together key voices in a high-level dialogue on the science and policy solutions required to halt ocean biodiversity loss. The event highlighted the importance of protecting and

sustainably managing marine and coastal biodiversity to achieve a future more sustainable world. It also explored the role of the Ocean Decade to generate the science and knowledge that is the basis for action to address the marine biodiversity crisis. The event launched a new policy brief, Ocean science for biodiversity conservation and sustainable use demonstrating how the Ocean Decade supports the Convention on Biological Diversity and the GBF. This includes the role of ocean observations via the Global

Ocean Observing System (GOOS) and its partners, such as the Ocean Biodiversity Information System (OBIS) and the Marine Biodiversity Observation Network (MBON), as a foundation for biodiversity protection and sustainable use, and the ways in which new technologies such as eDNA can ensure that all countries can generate the knowledge needed to protect their marine and coastal resources.

Read more: <https://oceandecade.org/news/>, 6 January 2023.

### **Bangladesh: Small-scale fishers contribute about 90% of marine capture**

The small-scale or artisanal fishers contribute nearly 87 percent of all marine capture in Bangladesh, according to the United Nation's Food and Agriculture Organisation (FAO). On top of that, more than one million people in the country depends on small-scale fisheries and aquaculture for their livelihoods. The FAO revealed the information at a dialogue marking the International Year of Artisanal Fisheries and Aquaculture 2022 (IYAFA 2022) held at Dhaka recently. The speakers of the dialogue acknowledged the contribution of the small-scale fisheries and aquaculture in Bangladesh and highlighted the importance of women and the impact of climate change in the sector. Small-scale fishers in Bangladesh make an invaluable contribution to the country's food and nutrition security as well as the rural economy,

said Robert D Simpson, FAO representative in Bangladesh. Climate change is leaving adverse impact on fishery and aquaculture-reliant communities and the ecosystems they depend on, especially in tropical regions, said Mushabe Norman, FAO's senior technical adviser for fisheries and climate change. In the world, around 492 million people depend at least partially on small-scale fisheries for their livelihoods, FAO said in a press release." In Bangladesh, artisanal fisheries contribute an estimated 87 percent of the total marine capture. The produce provides protein and essential micronutrients such as omega-3 fatty acids, calcium, selenium and zinc," it said. Nahid Rashid, fisheries and livestock secretary, attended the event chaired by Kh Mahbubul Haque, director-general of the Department of Fisheries.

**Source:** <https://www.thedailystar.net/business/news/small-fishers-contribute-90-marine-capture-bangladesh-fao-3193331>, 11 December 2022.

### **Fiji: Aquaculture takes a hit**

A number of aquaculture projects and programs in Fiji took a major hit because of the COVID-19 downturn, says Pacific Community (SPC) principal aquaculture adviser Timothy Pickering. Programs, such as the oyster and pearl farming project, were impacted because of declining sales of products. "Round pearls are luxury items and people are not in the mood to be thinking about luxury during COVID-19 and sales really plummeted," he said. "In fact, what's been the feature of some of our aquaculture industries is what we are doing what is called a COVID-19 pivot, it is to actually pivot away from the traditional market. "Tourists stopped arriving. Those markets just vanished overnight so they had to pivot away from those markets and try to find new markets. So with the pearls and oysters, we had one such idea where

instead of growing a pearl for big size to actually grow the pearl to a smaller size, about the size of a scallop. "This takes about one and a half or two years. Then, sell this as a food item, very attractive on the plate." Mr Pickering said entrepreneurs could also build on domestic markets to start with. He said products could also be exported overseas. "We have to go through various marketing and food safety steps before that will be a reality. It's still a work in progress." He said the aquaculture was resilient and cited an example of tilapia farmers in Suva, who during the lockdown, had fully complied with COVID-19 mandated protocols to move produce across checkpoints in clean and sanitised vehicles.

**Source:** <https://www.fjitimes.com/aquaculture-takes-a-hit/>, 7 Nov 2022.

### **India: ICAR-CIFT developed two technologies to help sustainable fishing**

Indian Council of Agricultural Research-The Central Institute of Fisheries Technology (ICAR-CIFT), a pioneer research and development institute in India, developed a double V-groove otter boards (Photo 1) and a line of technology and machinery for developing food from fish waste (Photo 2). Experimental trawling

with double V-groove trawl boards has shown that for a typical single day trawler operating s even to eight hours per day, fuel savings can be between 17.5 and 24 liters. In the long term, this technology can help reduce the burden of ever-rising fuel prices. The hydrodynamic drag created by otter boards is a major contributing factor to high fuel consumption in trawling. The most commonly used otter boards in Indian waters are rectangular and V-shaped. Modifications such as

installing grooves in the otter boards greatly reduce the resistance that the otter boards give to dragging in the water. Through a series of tests, ICAR-CIFT has optimized the double V-groove otter boards for use in Indian small-scale trawl fisheries. Fish processing generates almost 60% of the waste material and the disposal of this enormous biomass is a major concern in fish markets. Fish markets and outlets generate a considerable number of discards rich in high-quality protein, fat, minerals and other vital micronutrients. Converting fish discards into aquaculture and poultry feed is a necessary option to use unsorted waste from

fish markets. To address the issues of handling discards of fish cuts comprising head, bones, skins and visceral mass, ICAR-CIFT has standardized a simplified process for the direct conversion of fish market discards into high-quality floating/sinking feed, quality of fish for the pilot production, ICAR-CIFT, Kochi designed a customized machinery line consisting of crusher, pulverizer, blender, extruder and dryer. The technology is already popularized by the Kerala government in the wholesale market.

**Source:** <https://newsmeter.in/>, 19 December 2022.

### Malaysia: Fishermen advised to register with associations recognized by LKIM

Fishermen in the country are advised to register with the associations that are recognised by the Malaysian Fisheries Development Board (LKIM) to facilitate the process of channeling assistance to them in the event of a disaster. LKIM director-general Yusoff Othman said LKIM can only help fishermen who are members of such associations and there are many benefits they could enjoy by becoming members. "Fishermen must be registered with the fishermen's association because we want to get data so that we can ensure they are protected. Based on our data, there are 20 000 to 30 000 fishermen who are still not registered (with fishermen's association) in the country. "It is a huge loss if they do not register because of the many benefits that the government distributes, such as subsistence allowance, diesel subsidies, interest-free loans and many more including assistance in the event

of a disaster such as a flood," he told reporters after handing-over donations to fishermen in the Tumpat district who were affected by the flood. Meanwhile, Yusoff said that although there were 1 250 fishermen who were affected by the floods in Pahang, Terengganu and Kelantan, it did not affect the supply of fish stocks in the three states. "There is a slight reduction in (fish) landings in the three states but not significant. If there is a significant reduction, LKIM will release fresh frozen fish stock (QFish) to stabilise the supply," he said. A total of 36 fishing households in the Tumpat district who were affected by the recent floods received aid of US\$ 11.70 (RM500) in cash and food kits each. To fishermen whose boats and fishing equipment were damaged during the floods, Yusoff advised also them to make a police report to facilitate the process of applying for assistance.

**Source:** <https://www.bernama.com/en/news.php?id=2151216>, 26 December 2022.

### Maldives: Fish exports declined in November



The Maldives' fish exports declined in November compared to the same period of 2021. According to

the Maldives Customs Service and the central bank, Maldives Monetary Authority (MMA), Maldives exported 65 392.5 tonnes of fish from January to November 2022 whereas it was 69 113.9 tonnes in 2021. Among fresh and frozen fish, skipjack tuna accounted for the highest percentage of exports. In 2022, 46 812 tonnes of skipjack tuna have been exported so far in 2022. A further 7 869 tonnes of fish were exported in canned and pouched form. The international market price of skipjack tuna was US\$ 1.59 (MVR 24.4) per kg in November 2022 and it was US\$ 1.61 (MVR 24.7) per kg in November 2021.

**Source:** <https://avas.mv/en/126583>, 31 December 2022.

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### **Pakistan: Hybrid Fishery-Solar concept an ideal energy solution for the country**

The country is blessed with plenty of natural resources and sometimes called the land of streams and rivers which can be used for clean and green energy by adopting the Chinese Fishery-Solar Hybrid model, said in a report published by the Gwadar Pro recently. The fifth China International Import Expo (CIIE) in Shanghai started an online exploration of Shanghai which helped foreigners and Chinese sightsee different innovations in diverse fields. Keeping this in view Fishery-Solar Hybrid Project in Chongming District is an ideal model for low-carbon and sustainable development. Experts believe solar energy is the most

attractive alternative energy solution for the general public in Pakistan, and people have started to install solar panels on the roofs of their houses, stores, and industrial units, which has a very broad application prospect. They added that the Fishery-Solar Hybrid concept is an ideal energy solution for Pakistan. Zhu Zhenhua, leader of the "Baodao Village" Aquafarm-PV Power Generation Hybrid Project told the audience that this is a very unique concept, and the entire aquafarm plus PV power generation hybrid project will serve multiple purposes that include education, tourism, ecological farming, and aquafarming.

**Source:** <https://dailytimes.com.pk/1026044/>, 12 November 2022.

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### **FIA-PNG: To represent Pacific islands in NZ-funded project on fishing labor standards**

The Fishing Industry Association (FIA) of Papua New Guinea (PNG) has been invited by the International Labor Organisation (ILO) to sit on its activity governance group as an advisor representing the fishery employers in the Pacific Islands under a New Zealand government-funded project called "Labor standards on fishing vessels". The project aims to support Pacific Island nations in addressing the issue of poor working conditions, labor rights violations and human trafficking on fishing vessels in the Pacific, and

aims to help make employment on fishing vessels in the region safe. More specifically, it aims to promote and maintain safe, decent and worthwhile working conditions on fishing vessels, including on foreign-flagged vessels operating in the region. It also aims to develop clear regional labor standards, drawing on international rules, and organize effective local and international coordination to protect the rights of fishermen. Clare Tutuana who works as head of corporate social responsibility and Marine Stewardship Council officer for the PNG FIA, will participate in the project.

**Source:** <https://www.undercurrentnews.com/2022/12/15/>, 15 December 2022.

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### **The Philippines: Fishery output up 0.4% in Q3**

The country's fishery production in the third quarter (Q3) of 2022 inched up by 0.4 percent to 1.003 million tonnes from the 998 930 tonnes logged in the same period of 2021, according to the Philippine Statistics Authority (PSA). "Minimal increases in production during the quarter were traced from aquaculture, commercial and marine municipal fisheries, while inland municipal fisheries reported a drop in production," the PSA said in its Fisheries Situation Report July to September 2022. The PSA said that the volume of production from commercial fisheries posted a slight increase of 0.3 percent during the quarter at 232 800 tonnes compared with the previous year's same quarter output of 232 130 tonnes. The commercial fisheries subsector's output comprised 23.2 percent of the total fisheries production. Marine municipal fisheries volume of production was recorded at 225 220 tonnes during the third quarter, or 0.7 percent higher compared to the 223 600 tonnes in the same period of 2021. The subsector constituted

22.5 percent of the total fisheries output. The PSA further said that the volume of fish production from inland municipal fisheries was recorded at 51 620 tonnes during the third quarter of 2022, which was 20.3 percent lower than the 64 780 tonnes of the same quarter a year ago. "Among the subsectors, inland municipal fisheries had the least share of 5.1 percent to the total fisheries production," it added. Moreover, aquaculture production was registered at 493 460 tonnes during the third quarter. This is higher by 3.1 percent compared with the previous year's 478 420 tonnes. Of the 20 major species, production increments were mainly attributed to seaweed, 10.8 %; yellowfin tuna (tambakol/bariles), 27.6 %; squid (pusit), 43.3 %; and skipjack (gulyasan), 6.4 %. On the other hand, marine species that largely contributed to the decline in local fisheries production were bali sardinella (tamban), -17.2 %; milkfish (bangus), -11.3%; and tilapia, -9.5 %.

**Source:** <https://www.manilatimes.net/2022/12/06/business/top-business/ph-fishery-output-up-04-in-q3/1869123>, 6 December 2022.



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## Vietnam: High stakes at Pacific Tuna Commission meeting

The future of the world's largest tuna fishery is being decided in Vietnam. All 26 member countries and participating territories of the Western and Central Pacific Fisheries Commission (WCPFC) are custodians of the multi-billion-dollar Pacific tuna fishery. It is also known as the Pacific Tuna Commission, the body primarily brings together the Island countries, owners of the tuna resources and the distant water fishing nations whose fleets fish in the region. Once a year the Commission meets to negotiate the terms and conditions of accessing and operating in the fishery and to decide on what conservation measures will be adopted. The meeting was also participated by the representatives from the fishing industry and regional scientific bodies and conservation organisations and is being held in Da Nang. While welcoming the hundreds of delegates the director general of Vietnam fisheries, Tran Dinh Luan, reiterated their aspiration of becoming a full member of WCPFC in future and expressed his hope that Vietnam will actively participate and contribute more effectively in the regional fisheries management of WCPFC," Tran Dinh Luan said. There were over 600 delegates participated the meeting since 2019 with a hybrid mode where one third of the participants joined virtually. In his opening remarks, the executive director of the commission, Feleti Teo, commended member countries for their

resilience and determination through the pandemic. He urged members to bring that same energy to the work that needs to be done now to help countries recovering from COVID-19."Key issues of harvest strategy development and implementation including a Management Procedure for skipjack, ongoing reforms to improve the efficiency and efficacy of the compliance and monitoring scheme, preparations for negotiations of a new or revised tropical tuna measure in 2023," said Feleti Teo. He said the commission would also be looking to progress the important work of the various intercessional working groups. "On issues like electronic reporting and monitoring, crew labour standards, and transshipment review to name a few. "Recent research by the FISH Safety Foundation found that the number of people killed working in the global fishing industry is well in excess of 100,000 per year considerably higher than any previous estimates. Several bilateral, multi-lateral and inter-agency meetings were also took place in Da Nang in parallel to the main business of the commission. Although thousands of miles from the tuna rich waters of the Pacific the commitments and deals being brokered in this coastal Vietnamese city and former French colonial port will all have a huge bearing on the future of the fishery and by extension of the peoples of the Pacific.

**Source:** <https://www.rnz.co.nz/international/pacific-news/479740/>, 1 December 2022.



## Hatchery-based seed production of the Japanese scallop, *Mizuhopecten yessoensis*

This guide is intended as a standalone practical manual for the culture of the Japanese or Yesso scallop, *Mizuhopecten yessoensis*. It is written for hatchery staff as a reference for daily operating procedures and for developing a site-specific and resource-specific seed production strategy. The manual starts with a brief overview of the anatomy and morphology of the

scallop and describes the main organs of the adult specimen and the stages of its life cycle; the anticipated development time between each stage throughout its culture is added for the aquaculturist's benefit. This is followed by a chapter on the culture of live microalgae for food; different approaches to culturing large-scale microalgae are given, including traditional batch culture to the more recent newly designed photobioreactors. Protocols are given from stock to intermediate microalgal cultures for the inoculation of large-scale vessels. The need for biosecurity in a full cycle hatchery operation is emphasized and conceptually illustrated. The culture protocols for scallops start with the holding and conditioning of broodstock; assessments of the gametogenic stage, the manipulation of holding temperature to maintain and/or enhance gametogenesis and food requirements are all discussed to ensure the supply of broodstock for spawning when needed. Larval culture is one of the longest chapters of this manual and describes rearing in both static and flow-through systems with the expected growth and survival rate for the Japanese scallop. Post-larval culture in the nursery chapter is divided into early post-set up to Day-14,

rearing of 1 mm spat and raising seed up to 5 mm or more in a land-based environment. The final chapter discusses different strategies affecting the time and size at which seed are transferred out of the nursery

facility to either intermediate outdoor nurseries or to the farm sites.

This technical manual can be downloaded here: <https://doi.org/10.4060/cc0535en>

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15-17, 23rd India International Seafood Show, Kolkata, India.  
<https://www.indianseafoodexpo.com/>

20-24, SEAFEX Middle East, Dubai, UAE.  
<https://register.seafexme.com/moreinfo/>

23 – 26, AQUACULTURE AMERICA, New Orleans, Louisiana, USA.  
<https://was.org/meeting/code/AA2023>

### **MARCH**

12-14, Seafood Expo North America (SENA), Boston, USA  
<https://www.seafoodexpo.com/north-america/>

### **APRIL**

18-21, LATIN AMERICA & CARIBBEAN AQUACULTURE – LACQUA23  
Panama City, Panama  
<https://was.org/meeting/code/LacQua23>

25-27, Seafood Expo Global (SEG) Barcelona, Spain  
<https://www.seafoodexpo.com/global/>

### **MAY**

11-14, International Indonesia Seafood & Meat Expo (IISM) Jakarta, Indonesia  
<https://iism-expo.com//>

29 – June 1, WORLD AQUACULTURE 2023 Darwin, Australia  
<https://was.org/meeting/code/WA2023>

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