NIMA
Pursuing Sustainable Maritime Development

MARITIME WATCH

DECEMBER 2022

PAKISTAN'S PREMIER MONTHLY MARITIME NEWS DIGEST

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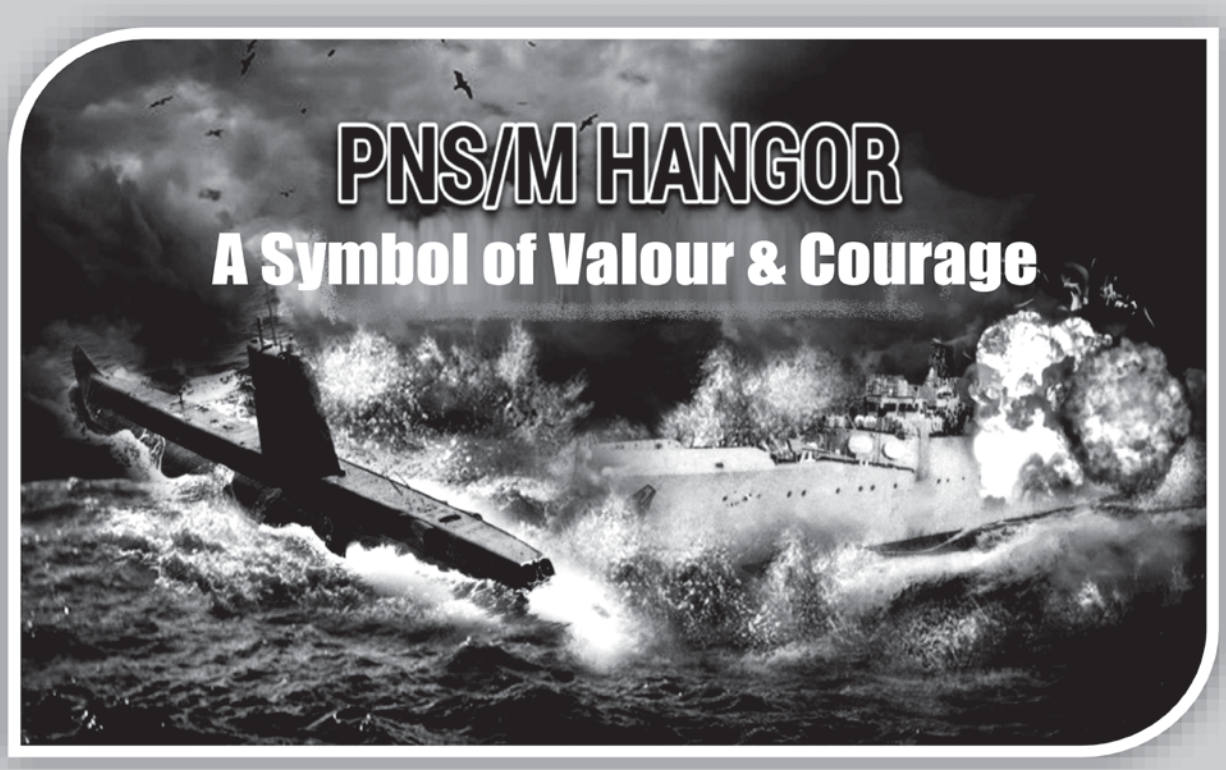


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MINISTRY OF DEFENCE PRODUCTION
GOVERNMENT OF PAKISTAN

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Pakistan's Premier English Language Monthly Maritime News Digest.
Published by National Institute of Maritime Affairs (NIMA) Karachi.

Editorial Board

ABOUT US

NIMA is working as a national think tank acting as a repository of maritime information with major focus on; applied research for comprehensive solutions to Pakistan's maritime issues, taking maritime education initiatives, conserving the history and culture, advocating best maritime practices, raising awareness & capacity building, and publishing research of highest international standards.

MISSION

National Institute of Maritime Affairs (NIMA) is functioning under Bahria University as National Think Tank on Maritime affairs as national body, based at Islamabad. National Centre for Maritime Policy Research (NCMPR) Karachi which was established in 2007 under the direction of Government of Pakistan has been placed as a constituent unit of NIMA. The establishment of NIMA was conceived in order to meet the objectives of National Maritime Policy.

WORK

The significance of maritime domain is the economic development of the country and the potential of our maritime sector are not well understood in Pakistan. NIMA engages eminent and reowned researchers to extract concrete policy recommendations. It endeavors continously to create awareness through seminars, conferences, workshops, writing research papers and other maritime related activities challanges of 21st century for Pakistan.

Disclaimer

NIMA maintains every effort towards accuracy of facts and figures. The Publisher is not liable for any errors or omissions. Relevant references/Sources have been mentioned.

Editorial

It has now been widely realized that human health and well-being, including sustainable and equitable economic development, depend on the health and safety of the world's oceans. The ocean provides food and supports the livelihoods of over 3 billion people around the world. It is the primary and major driver of Earth's ecosystem and hence the main source in the fight against climate change challenge. Emerging services, including renewable energy, marine genetic resources, or deep-sea minerals, have the potential to generate significant benefits, but they also raise questions about risks to fragile ecosystems and equitable access to the benefits generated by the ocean. From an economic point of view, the ocean is of monumental importance as it related economy provides employments to millions of people around the world. The economic output of the ocean has been assessed to touch US$3 trillion by 2030.

Traditionally perceived as invincible, the ocean is under severe threat. Multiple impacts, from land-based and sea-based activities, mostly human generated adversely impact ocean health and biodiversity. De-oxygenation and harmful algal blooms are generating significant risks for human health and economies.

The corals, which are important drivers of biodiversity and provide coastal protection and livelihoods, are shrinking very fast. There is a dire need to assess ocean resources. Efforts in this regard are being generated by many countries. Our ocean is also not properly mapped with regards to its resources both on the ocean surface, underwater, or on the ocean floor. Ocean sciences and related research diagnose problem areas and look for appropriate solutions, relevant to sustainable development. Pakistan needs big time efforts for promoting ocean sciences that will empower and engage stakeholders across multidisciplinary subjects and sectors.

The Ocean Decade (2021-2030) is being observed under the auspices of UN aimed at facilitating maritime nations regarding the delivery of qualitative and quantitative ocean knowledge to inform solutions that will contribute to the 2030 Agenda for Sustainable Development. Pakistan's future is also closely linked with the ocean economy and resources. We, therefore, need to prepare a comprehensive developmental roadmap to set and achieve targets regarding the preservation of the environment, ocean biodiversity, and sustainable exploitation of ocean resources. To this end, we need to proactively engage with UN agencies and try to tap substantial funds which the UN and various international agencies have assigned for the purpose. This will also help us to embark upon knowledge and technologies most essential for the sustainable blue economy. In the future stricter demands and requirements will be increasingly attached to maritime industries, hence we also need to keep pace with science and technology essential for conforming to the requirements of various sectors of the maritime industry, e.g. shipping, fisheries, shipbuilding, shipbreaking, ports and harbours, maritime trade, etc. We may miss the opportunity if we further delay on this homework and planning.

Cdre (R) Ali Abbas
Chief Editor

Role of Media and Academia Needed to Tackle Maritime Blindness

November 15, There is a dire need to tackle maritime blindness in the country by creating awareness among the masses, and contemporary media is pivotal in doing so, said the Guest of Honour Vice Admiral (Retd) Abdul Aleem HI (M) while addressing the webinar titled Raising Maritime Awareness and Launch of Economic Affairs Magazine (Special Edition), organized by National Institute of Maritime Affairs. He emphasized the various stakeholders to not forsake the sector as the maritime geopolitical and strategic position of Pakistan, along with the country's dependence on its maritime trade and resources is critical.Director NIMA Islamabad, Cdre (Retd) Bilal Abdul Nasir SI (M) apprised the audience about the organization's contributions to raising maritime awareness as a premier maritime think tank of Pakistan.

The Keynote speaker Prof. Dr. Azhar Ahmed underlined the potential of traditional and contemporary social media in promoting maritime awareness. He commended the initiative of the Economic Affairs magazine in collaborating with NIMA to highlight pertinent issues such as greener shipping and celebrating World Maritime Day by dedicating a special issue on the subject.

Ambassador Mrs. Naghmana Hashmi referred to sea blindness and lack of focus on maritime issues among the public as 'central cataract'. The need for roadshows for awareness, maritime entrepreneurship, and the role of media was reiterated. She called for increased awareness throughout the nation about pertinent topics such as the IOR and CPEC, in liaison with other seafaring nations.Mr. Adnan Samdani, General Manager, FOTCO apprised about the efforts to make their terminal greener and safer for operations while conserving the associated marine ecosystems i.e., mangroves. He emphasized the country's vast dependence on imported petroleum and called for the need to provide terminal operators with essential technology and resources to transform their facilities that are in compliance with greener technology and a larger vision of the UN Decade of Ocean Science for Sustainable Development.Mr. Ismail Mahmud, Chief Executive Officer, Engro Vopak & Elengy Terminals Ltd. delved into the necessity of modernizing the current practices and tools with digitalization and automation by presenting their facility as a model for efficient, sustainable, and economically viable maritime trade.Dr. Muhammad Shahbaz, Correspondent for Economic Affairs magazine reaffirmed the importance of the maritime sector and its significance for Pakistan. He congratulated NIMA and the Economic Affairs magazine for the intellectual collaboration to spread awareness on maritime issues and challenges faced by the country.

Government and Stakeholders Joint Efforts Essential for the Potential Fishing Sector and Economic Prosperity

November 21, Fisheries sector of Pakistan has lot of potential, however it can be developed with the active support of all stakeholders including Federal and Provincial Government. This was stated by Mr. Tameezuddin Khero, Secretary Livestock and Fisheries, Sindh speaking as the Chief Guest during webinar organized by National Institute of Maritime Affairs (NIMA) in connection of World Fisheries Day 22. The theme of the webinar was "Protecting Marine Fisheries Resources of Pakistan – Way Forward towards Sustainable Fisheries". He emphasized that there is a need to empower the provincial fisheries domain as per 18th Amendment. He also suggested that all stakeholders including sea food processing industry, fisherman, harbour authorities, and government regulators have to align their efforts and work together to improve the situation.
Vice Admiral (Retd) Ahmed Saeed HI (M), Director General National Institute of Maritime Affairs (NIMA) in his opening remarks welcomed the Chief Guest, speakers and the participant and highlighted NIMA's efforts towards development of country's maritime sector. He said, there is a need to transform fisheries sector for the economic development of the country. Earlier as a moderator of the webinar, Director NIMA Karachi Cdre (Retd) Ali Abbas SI (M), highlighted that World Fisheries Day is celebrated every year to emphasis the importance of healthy ocean, stocks assessment and ensuring workable practices for sustainable fisheries and also to show solidarity to all fishing community and the concerned stakeholders.

On the occasion, the keynote speaker Engineer Faisal Iftikhar, CEO Deep Blue Seafoods underlined the challenges faced by the fisheries sector. Mentioning about the stock assessment report, he said that almost 80% of the fish stock has been depleted. However, he proposed to promote aqua culture practices as an alternative for fisherman community to reduce the pressure in fish stock.Mr. M. Moazzam Khan, Technical Advisor WWF, Pakistan, mentioned the depletion of various species of fish and shellfish. He highlighted the significance and need for protecting marine fisheries resources to promote sustainable fishing practices. He recommended that the reduction in post-harvest losses will ensure additional raw material as well as fetching better prices.
The webinar also featured two renowned Iranian fisheries experts, Dr. Farhad Kaymaram and Dr.
Tooraj Valinasaab, who presented their papers and shared intellectual insights. They highlighted the issue of Illegal, Unregulated and Unreported (IUU) fishing practices as the main cause of depleting the fish stock resources especially Yellowfin Tuna and recommended to all the stakeholders to work together ensuring compliance for conservation and management measures for sustainable fish stock. Dr. Valinassab also stressed upon need for Pakistan, Iran, Oman and other regional countries to work together.
In concluding remarks, the Chief Guest appreciated the efforts of NIMA for organizing the webinar on such important topic and provided a platform to deliberate on issues and challenges related to Fisheries. The event was attended by Government Officials, Marine Scientists, Consultants, Representative of Fishermen from Sindh and Balochistan and other core stakeholders of Fisheries Sector.

Rear Admiral Raja Rab Nawaz Assumed Command as Commander Coast

November 10, Rear Admiral Raja Rab Nawaz assumed command as Commander Coast (COMCOAST) during Change of Command ceremony held at Karachi. Rear Admiral Javaid Iqbal handed over command to the newly appointed Commander Coast. Upon assumption of Command, Rear Admiral Raja Rab Nawaz is now Commander of all Coastal units of Pakistan Navy. Rear Admiral Raja Rab Nawaz got commission in Operations Branch of Pakistan Navy in 1991. The Admiral has an illustrious career with vast experience of various Command and Staff appointments. His major Command & Staff appointments include Commanding Officer PNS ZULFIQUAR, Fleet Operations Officer to Commander Pakistan Fleet at Karachi, Director Operational Research, Director Naval Operational Plans, Assistant Chief of Naval Staff (Plans), and Chief Staff Officer to Commander Pakistan Fleet, Deputy Chief of Naval Staff (Welfare & Housing) and Commander West. Rear Admiral Raja Rab Nawaz has also served as Defence & Naval Advisor of Pakistan in United Kingdom. Previously, he was serving as Flag Offcer Sea Training (FOST) at Karachi. The Flag Officer is a graduate of Pakistan Navy War College Lahore and National Defence University, Islamabad. He is also a holder of Master's degree in Security Studies from United States. The Admiral is also a recipient of Hilal-e-lmtiaz (Military). During Change of Command ceremony, the Admiral was presented Guard of Honour and introduced to the Commandants/ Commanding Officers of units under Command. The ceremony was attended by Pakistan Navy officers, CPOs/ Sailors and Navy Civilians.

PMSA Seizes Narcotics, Arrests Smugglers

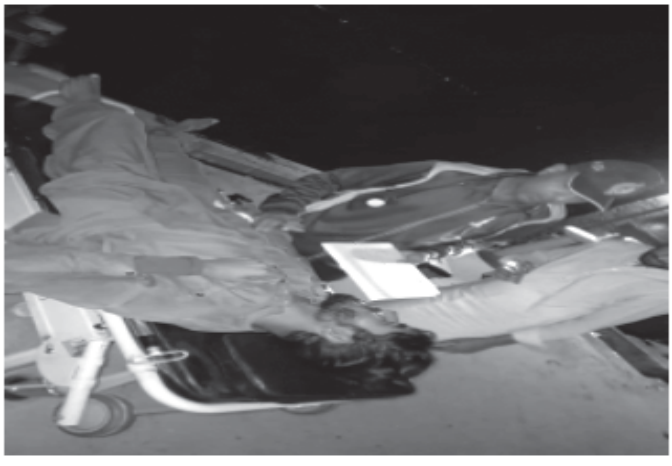
November 14, In a Joint Counter Narco Operation by PMSA & Pakistan Customs, the smuggling of a huge quantity of narcotics was averted during the operation, five smugglers and approximately 420kgs of ice crystal were apprehended from the North Arabian Sea. The value of narcotics in the International market is estimated to be Rs.4.9 Billon (PKR).

WWF-Pakistan Puts Forth the Pakistan Climate Crises Charter at COP27

November 15, WWF-Pakistan's Director General, Hammad Naqi Khan, reiterated the need for the adoption of the Pakistan Climate Crises Charter at a media briefing focusing on loss and damage and lessons from Pakistan during the 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 27), held in Sharm El-Sheikh, Egypt. Addressing the media, Khan presented the Pakistan Climate Crises Charter that was drafted in the wake of the 2022 floods in Pakistan. The Charter has been developed in consultation with government and non-government stakeholders including the Ministry of Climate Change, the Ministry of Planning, Development and Special Initiatives, NDRMF,

IUCN Pakistan, Population Council, ZiZAK Pvt Ltd, SDPI, PET, Pakistan Academy of Sciences, Hissar Foundation, IWMI, Global Water Partnership, and Pakistan Council for Research in Water Resources.

Pakistan Maritime Security Agency (PMSA) Rescues Six Indian Fishermen at Sea

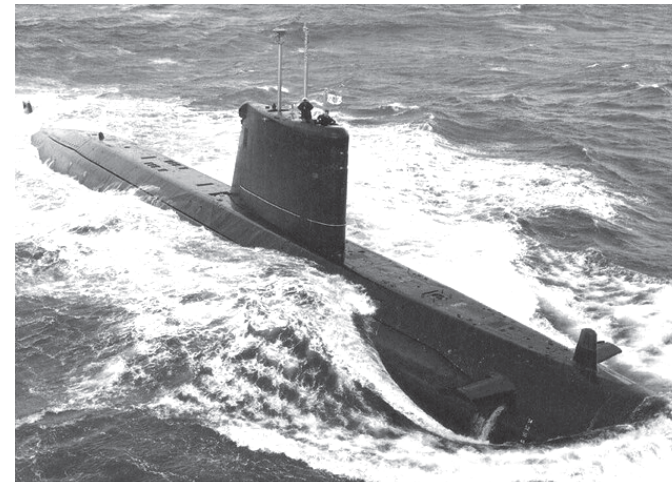


November 15, the Maritime Rescue Coordination Centre (MRCC) Gawadar Pakistan at PMSA, on 15 Nov 22 at 5 PM, received a distress call for the medical evacuation of a severely ill fisherman from the sea.PMSA fast response boat was immediately tasked to conduct medical evacuation from a fishing boat (Safina e Janzib) from the open sea south of Gunz/ pishukan, Balochistan. The boat reached the site and provided first aid. Later on, at 9 PM the unconscious fisherman was shifted to Indus Hospital Gwadar for further medical examination and treatment through a PMSA ambulance.

28 Turkish Companies Participate in Karachi Defense Expo

November 16, Some 28 leading defense manufacturers from Türkiye are showcasing their military hardware at a defense fair that began in Karachi on Tuesday.Over 500 international defense manufacturers and over 260 delegates from 64 countries are taking part in the four-day defense exhibition, a leading defense expo in South Asia.The biennial event billed as "IDEAS 2022," is taking place after a gap of four years as the 2020 fair could not take place due to the coronavirus pandemic.Apart from Türkiye, defense manufacturers from China, the US, the UK, European Union, the Middle East, Central Asia, and Africa are showcasing their products at the 11th edition of the fair, according to Maj. Gen. Mohammad Arif Malik, the head of the defense exports promotion authority.Together with China, Türkiye has the largest representation in the fair with top Turkish defense companies, including the state-run STM and ASFAT, showcasing their products ranging from military hardware to modern drones to tactical mini-UAV systems and cyber security solutions.The STM-Savunma Teknolojileri Mühendislik ve Ticaret A.S. has naval platforms and tactical mini-UAV systems for the exhibition, according to Özgür Güleryüz, the company's general manager.The company, which is already involved in modernising Pakistan Navy's warfare fleet, including submarines, also offers critical solutions in various segments, including naval platforms, tactical mini-UAV systems, and cyber security.The STM will also be displaying its "innovative and modern" defense technologies at the exhibition.

Country to be Self-Sufficient in Making Submarines Soon: KS&EW Official



November 17, Pakistan is going to be self-sufficient in submarine production in the coming years. At the Karachi Shipyard's stall during the International Defense Exhibi-

tion and Symposium (IDEAS) 2022 at the Expo Centre, Karachi, Commodore Muhammad Jahanzeb Ahsan, General Manager, Design and Shipbuilding, Karachi Shipyard and Engineering Works Limited (KS&EW), said that his organisation has an agreement to provide eight Hangor class submarines to the Pakistan Navy (PN).For this purpose, the KS&EW is currently manufacturing four such submarines in China under the technology transfer agreement while the other four will be built in Pakistan, he said and hoped that the country would get self-sufficiency in submarine production after the completion of the project.Moreover, Commodore Muhammad Jahanzeb Ahsan said that the PN Milgem class corvette warship was also being manufactured in collaboration with Turkey to counter air, surface, and submarines operations more effectively besides enhancing the capability of surveillance and intelligence gathering operations day & night of Pakistan Navy.Karachi Shipyard has achieved self-sufficiency in many projects and will cross many important milestones in coming years, especially after the completion of technology transfer agreements, he said and added that the KS&EW had also started working on the prototype of Jinnah class frigate, which will also be equipped with surveillance, intelligence, and other modern facilities in addition to the surface, undersea and air attack and rescue.As like the Karachi Shipyard stall, the first indigenous Anti-Ship Cruise Missile 'Harbah-NG' has also become the centre of attention of foreign delegates. (Credits:Business Recorder)

Pakistani Fishermen Hit Jackpot after Rare Find at Karachi Coast

November 21, Luck smiles on fishermen in the country's port city Karachi, who caught giant croaker fish, which is highly valuable for their air bladders.Reports in local media said the fisherman hit the jackpot after netting croaker fish or Arabian Sea meager fish (Argyrosomus Henii), locally known as Kir Sowa, worth millions of rupees near the Ibrahim Haidari area.The rare find was then auctioned for a huge amount, however, the exact amount was never revealed, per reports.Last year, the bid for the croaker went up to Rs8.6 million and fish of around 48kg was sold for nearly Rs7 million. The croaker fish comes near the coast only during the current season for breeding.

Experts believe that these fishes are valuable because of their meat and nutritional value while the worth of a croaker is due to its air bladder in which it floats due to filling up of air.The bladder of these aquatic animals is used in medicine and it is in high demand due to its usage in surgical procedures.

PMSA Organized Maritime Law Enforcement Workshop

November 24, Pakistan Maritime Security Agency has conducted first ever Maritime Law Enforcement Workshop, held at Avari Tower Karachi on 24 November 2022 Theme of workshop is "Bridging the Gap-Fostering Law Enforcement Agency and Civil Society Collaboration to improve Law Enforcement at SeaThe Chief Guest for the session-I was Vice Admiral Ovais Ahmed Bilgrami HI(M) Commander Pakistan Fleet and for session-ll Mr. Syed Faisal Ali Subzwari Federal Minister for Maritime Affairs.Both the dignitaries interacted with participants and appreciated their efforts. They also praised PMSA in conducting such an important workshop. Highly professional academia and representatives from civil society participated in seminar.

Prime Minister Shehbaz Sharif and Turkey President Erdogan Jointly Inaugurate New Warship for Pakistani Navy

November 26, Pakistan Prime Minister Shehbaz Sharif and Turkish President Recep Tayyip Erdogan have jointly inaugurated a corvette warship built by Turkey for the

Pakistani Navy under a strategic cooperation project. Prime minister along with a delegation of ministers and officials is on a two-day visit to Turkey at the invitation of the Turkish President, during the inauguration on Friday said that the launch of PNS Khyber represents the deepening of defense cooperation between the two nations. “It was high time that Pakistan and Turkey transform their ties into a strategic partnership as the world was envious of the relationship between two brotherly countries,” Sharif said during the inauguration of PNS Khyber at the Istanbul shipyard. He said that the launch of the ship manifested the deep bilateral engagement between the two countries in defence cooperation.PNS Khyber is the third of the four corvette ships that have been built by Turkey for the Pakistani Navy under a cooperation project. Under the project, Turkey was tasked to build four corvette warships for the Pakistan Navy– two in Istanbul and two in Karachi.

WWF-Pakistan Introduces Digital Tools for Fisheries Data Collection

November 29, Data collection through modern digital technology is key to managing and conserving fisheries resources in Pakistan. Standard data about fish stocks, their abundance, and diversity would help in informed decision-making and implementation of the fisheries policies in the Arabian Sea. This was stated by the speakers during the training workshop titled ‘Using Fisheries Data Collection Mobile Application’, where they stressed on the collection of fisheries data using latest digital tools to develop evidence-based fisheries policies, plans, and strategies. The workshop was attended by 25 government officials from the Sindh Marine and Coastal Fisheries Development Department and Marine Fisheries Department (MFD) at a local hotel. Speaking on the occasion, Dr. Ali Muhammad Mastoi, Director General Sindh Marine and Coastal Fisheries Development Department, said Pakistan is endowed with rich marine biodiversity. The data about fisheries resources is essential for the formulation of plans and strategies for the conservation and management of the fisheries. He said involving fisheries staff and fisher communities in the data collection would contribute towards bridging the knowledge gaps and help improve our understanding of fisheries abundance in Pakistani waters. He lauded the efforts to integrate digital tools in data collection, emphasizing that this initiative's replication in the coastal areas of Pakistan, particularly Karachi, Thatta and Badin districts, would render better results.

Karachi Fishermen Catch Humungous Indo-Pacific Sailfish

November 30, Fishermen from the port city's Ibrahim Hyderi area Wednesday caught a rare, humungous Indo-Pacific sailfish, also referred to as "ghora fish" by locals.The fish was stuck in the fishermen's net while they were out in the sea looking for a fresh catch.According to Ibrahim Hyderi's Coastal Media Centre, the fish was approximately 10 feet long and it was the first time that the fishermen captured such a massive species of sailfish.The media centre added that the fishermen released the fish back into the sea.The World Wildlife Fund's (WWF) Technical Advisor Muazzam Khan said that the Indo-Pacific sailfish is not endangered and is abundantly found across Pakistani waters.He added that around 2,200 tonnes of the Indo-Pacific sailfish were caught last year; however, its meat is not enthusiastically eaten in Pakistan. (Credits:Geo news)

DP World to Develop Shanghai Free Trade Zone in China Expansion

November 2, Global ports operator DP World has agreed to develop logistics and trade at the Lin-Gang Special Area, a free trade zone in south-east Shanghai, as it expands its operations in China. The Dubai-based company will work with the Shanghai Lin-Gang Economic Development Group and use the World Logistics Passport (WLP) program, a private sector-led initiative aiming to boost the flow of global trade, DP World said in a statement on Wednesday. The WLP will provide Chinese businesses with faster and cheaper access to markets in Asia, Latin America, the Middle East, and Africa, the ports operator said.

"Efficient supply chains make products and services more competitive and selling to more markets increases economic resilience. The WLP helps deliver this, whilst also strengthening bilateral relations between the People's Republic of China and the United Arab Emirates," said Sultan Ahmed bin Sulayem, Group Chairman, and Chief Executive of DP World. He is also the chairman of Dubai Ports, Customs, and Freezone Corporation, which owns and runs the WLP.

There are more than 40,000 companies registered in Lin-Gang, including Tesla, China International Maritime Containers, China State Shipbuilding Corporation, Caterpillar, and Commercial Aircraft Corporation of China.

"Our partnership with DP World could help Lin-Gang to build an open special zone, and accelerate the establishment of a new development platform to create a channel and gate for Chinese enterprises to develop business in [the] Middle East, Indian subcontinent, and Red Sea region, Lin-Gang's party secretary Jinshan Chen said.

Under the agreement with DP World, Lin-gang will call on major enterprises in the Yangtze River Delta to jointly promote the WLP to benefit the program, DP World said. Chinese traders and freight forwarders who become WLP members will have access to benefits offered by WLP partners, who include DP World, Thai Airways, and Emirates SkyCargo. These benefits include fast-tracking cargo, reducing customs clearance, and removing administrative costs.

DP World reported a 2.1 percent increase in gross container volumes during the third quarter of 2022 as global trade flows remain resilient but warned the near-term outlook remains uncertain. The Dubai-based ports operator handled 20.1 million 20ft-equivalent units across its global portfolio of terminals in the three-month period to the end of September. The growth was mainly driven by Asia Pacific, the Middle East and Africa, the Americas, and Australia. (Credits: Maritime Gateway)

AD Ports Group Acquires 80% Stake in Global Feeder Shipping, Creating World's Largest Independent Feeder Carrier

November 3, Abu Dhabi, UAE – 3 November 2022: AD Ports Group today announced that it has signed an agreement to acquire an 80% equity stake in Dubai-based Global Feeder Shipping (GFS), a global container shipping company.

The total purchase consideration for the 80% stake amounts to AED 2.9 billion (US$ 800 million), implying a 100% Enterprise Value of AED 3.7 billion (US$ 1.0 billion), with the acquisition being fully funded through a new acquisition loan. This earnings and value-accretive strategic investment significantly broadens AD Ports Group's global feeder shipping footprint and contributes to its long-term strategy to become one of the world's premier short-sea and feeder shipping players.

GFS' LTM financial performance was strong with revenue of US$ 1,085 million, EBITDA of US$ 521 million (EBITDA Margin of 48%), and net profit of US$ 481

million. The company has built one of the largest fleets of container ships globally, featuring 26 owned and operated vessels with a total capacity of 72,500 TEUs, covering the Middle East, Indian Subcontinent, and Southeast Asia with services connecting the UAE to India, Pakistan, Sri Lanka, Egypt, Sudan, Djibouti, Yemen, Kingdom of Saudi Arabia, Bahrain, China, South Korea, and Vietnam, among others.

AD Ports Group will look to integrate GFS into its Maritime Cluster, which already offers a comprehensive portfolio of shipping, offshore and subsea services. Aligning GFS services with AD Ports Group companies SAFEEN Feeders and Transmar will make AD Ports Group the world's largest independent feeder company by vessels owned, with an owned fleet of 35 vessels, and the third largest globally by volumes carried with a total container capacity of 100,000 TEUs. The acquisition will boost AD Ports Group's trade activities and connectivity to core markets, as well as enhance its feeding business, providing significant economies of scale through an expanded route network and fleet. In addition, the acquisition will further strengthen the company's hub and spoke model by linking core markets in the Gulf, Indian Subcontinent, Red Sea, and Turkey to its key port assets including Khalifa Port.

GFS' integration with SAFEEN Feeders' services has the potential to generate significant operational synergies. Subject to regulatory approvals, the transaction is expected to close in Q1 2023. GFS's existing management will remain in place with the founders retaining a 20% stake in the company. GFS has built one of the largest fleets of container ships globally, featuring 26 owned and operated vessels with a total capacity of 72,500 TEUs, covering the Middle East, Indian Subcontinent, and Southeast Asia with services connecting the UAE to India, Pakistan, Sri Lanka, Egypt, Sudan, Djibouti, Yemen, Kingdom of Saudi Arabia, Bahrain, China, South Korea, and Vietnam, among others. H.E. Falah Mohammed Al Ahbabi, Chairman of AD Ports Group, said: "At the direction of our nation's wise leadership, AD Ports Group has been on a journey of development throughout 2022, driven by both organic growth and prudent investments. Our acquisition of a majority stake in GFS, which is the largest external investment in our company's history, will deliver a step-change in the range of services we can offer and significantly enhance our global connectivity. Our ambition is to become one of the world's leading shipping companies, offering the most comprehensive range of maritime services, and this investment moves us significantly closer to achieving that goal." Citi acted as the financial advisor and A&O as the legal advisor while Roland Berger completed the commercial due diligence and KPMG the financial and tax due diligence for AD Ports Group in this transaction. (Credits: AD Ports Group)

Qatar Awards MISC and Partners Five More LNG Newbuilds

November 8, MISC Berhad, through its subsidiaries Portovenere and Lerici, and with consortium partners, Nippon Yusen Kabushiki Kaisha, Kawasaki Kisen Kaisha, and China LNG Shipping (Holdings) Ltd, has been awarded long-term time charter contracts by QatarEnergy for five additional newbuild LNG carriers. All five LNG carriers will be built by the Chinese yard Hudong-Zhonghua Shipbuilding Group. In August, the consortium clinched seven long-term time-charter contracts from QatarEnergy, a beneficiary of Qatar's massive LNG newbuilding spree as the Gulf nation looks to scale LNG production. Together with the new order, that brings the total number of new building LNG carriers awarded to 12.

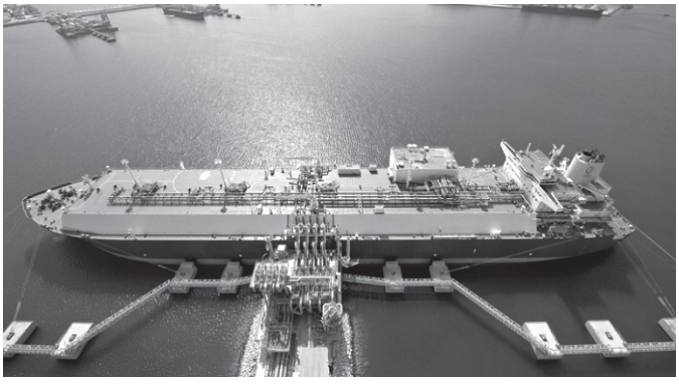
These 174,000-m3 LNG carriers will be equipped with the latest technologies, including WinGD's X-DF 2.1 engines with intelligent control by exhaust recycling systems. Delivery is expected in 2025 and the LNG carriers will serve the needs of QatarEnergy in transporting LNG to various countries around the world.

MISC Berhad president and group chief executive Captain Rajalingam Subramaniam said, "We would like to thank QatarEnergy for their continuing trust and confi-

dence in our joint capabilities and expertise in delivering safe, efficient and reliable LNG shipping solutions." "We would also like to thank our consortium partners for the support and collaboration in making this award possible. We look forward to adding value to the partnership as we continue to play a progressive role in the global LNG shipping industry."

The Malaysian shipping line is one of the world's largest single owner-operators of LNG tankers, with a fleet currently comprising 30 LNG carriers, six very large ethane carriers, and two LNG floating storage units with a combined tonnage of some 2M dwt. (Credits: Rivieramm)

Sinopec and Qatarenergy Ink 27-Year LNG Agreement



November 23, China Petroleum & Chemical Corporation (Sinopec) and QatarEnergy have entered into a long-term liquefied natural gas (LNG) purchase and sales agreement for supplying four million tons of LNG to the Chinese company annually. The 27-year long-term LNG purchase and sale agreement is an important part of the integrated cooperation between the two parties, which will work together on Qatar's North Field Expansion Project.

"The signing of this agreement aligns with Sinopec's adherence to green, low-carbon, safe, and sustainable development," Sinopec Chairman Ma Yongsheng said, "The LNG supply will help meet the demand for natural gas in the Chinese market, but also further optimize China's energy mix while enhancing the security, stability, and reliability of energy supply."

"We are delighted to have reached this agreement, which will further strengthen the excellent bilateral relationship between China and Qatar," said H.E. Mr. Al-Kaabi, CEO of QatarEnergy, "The agreement will help to meet China's growing demand for clean energy. This cooperation, which spans different fields and will last for 27 years, marks an extraordinary and exciting new chapter of cooperation between the two sides."

Northern Gas Field Expansion Project is expected to start the supply of LNG to Sinopec's LNG receiving stations in 2026. (Credits: Seatrade Maritime)

Bahri in Shipping and Logistics Cooperation with Luberef

November 23, Two Bahri shipping units signed MoUs with Saudi Aramco Base Oil Company (Luberef) to establish and enhance cooperation.

Bahri Chemicals and Luberef are to create a shipping framework agreement for domestic and international consignments. "Bahri Logistics will provide solutions and services to Luberef, by providing details of available shipments that align with vessel dates at load ports," Bahri said.

Expected ships in Port Qasim

ETA by AIS	*Type*	*Vessel*
Dec 22, 00:00	**Container Ship**	**CMA CGM BUTTERFLY**
Dec 22, 01:01	**LNG Tanker**	**MILAHA RAS LAFFAN**
Dec 22, 18:20	**Chemical/Oil Products Tanker**	**RIGEL**
Dec 22, 19:00	**Bulk Carrier**	**BRAVE COMMANDER**
Dec 23, 04:00	**Container Ship**	**BEA SCHULTE**

Sealead Launches IDEA Service Connecting India and UAE to East Africa

November 9, SeaLead announced the launch of a new service connecting India and the United Arab Emirates to East Africa. The India-Dubai-East-Africa (IDEA) service will commence on 22nd November as a weekly service with four ships, of which SeaLead will provide two and OOCL and TS Lines one each. The rotation for the new service will be as follows:

Nhava Sheva (JNPT), Mundra (ADANI), Jebel Ali (DPW), Khalifa (CSP), Mombasa (Kilindini), Dar Es Salam (HIT), Nhava Sheva (JNPT).

Commenting on the new service, Henry Schmidl, SeaLead Managing Director, noted "We are delighted to be launching this new service in conjunction with our partners. Trade between India, the UAE, and East Africa has been growing strongly and our new service will add further options for our customers. Providing this fast and direct service will shorten transit times and allow for faster connections." The new service will provide solutions for both large and small customers that are looking to tap into this lucrative and fast-growing trade lane. With both Kenya and Tanzania estimated to grow at a rate of 8% annually, the East Africa region is becoming of prime interest for companies looking to expand their business. The growth is very well promoted and driven by the efforts of the EAC (East African Community) – an intergovernmental organization formed in 2000, that focuses strongly on infrastructure development, necessary to facilitate trade in Africa. India and the UAE are also benefiting from robust domestic economies, while India is one of the largest trade partners with East Africa (and Africa as a whole) having signed Trade Treaties with multiple African nations.

Relatively new to the global shipping line sector, Sea Lead has grown rapidly in recent years and is currently ranked number 22 by industry expert Alphaliner. The company will continue to expand and develop new services to support its fast-growing customer base and satisfy the worldwide demand for cargo capacity. (Credits: Sea-Lead)

Keppel O&M Charters Jack-Up Pair to ADES for $112m

November 11, ADES is chartering two KFELS B class design jack-up rigs from Keppel O&M for five years starting the first half 2023. The Singapore yard group expects SGD155m ($112m) in revenues including modification work to prepare for deployment. The rigs are currently in Mexico and will be transported to Mexico for modification works and renamed ADM685 and ADM686. It will bring to four the number of jack-up rigs ADES has on charter from Keppel O&M. The rigs form part of a fleet of offshore assets owned by Keppel O&M after clients defaulted on or canceled orders following the collapse of the oil price in the second half of 2014 which led to a prolonged downturn in the offshore marine market. The Singapore yard group has been seeking to either sell or chartered distressed assets. The Cantarell III and Cantarell IV jack-up rigs in the latest charter to ADES were under bareboat subsidiaries of Grupo R which were later terminated due to default on the charters.

"All of our KFELS B Class legacy jack-up rigs have secured bareboat charters or are on contract, which reflects the value our rigs bring to rig operators and increases their marketability for sale to potential buyers and investors," Tan Leong Peng, Managing Director (New Builds) of Keppel O&M. Keppel O&M is set to be acquired by Sembcorp Marine and under the merger agreement the rigs will be transferred to a separate Asset Co, which will be majority owned by external investors. (Credits: Seatrade Maritime)

AD Ports Group Acquires Spain's Noatum Logistics In Dh2.5b Global Push

November 18, Dubai: The AD Ports Group has bought US-based logistics platform Noatum for a total purchase consideration of Dh2.5 billion. The transaction is likely to close first half 2023. As part of the transaction, Noatum's management is locked in for a period of three years to 'ensure smooth integration. "AD Ports Group continues to extend our global footprint through value-adding acquisitions and partnerships with market leaders," said Falah Mohammed Al Ahbabi, Chairman. "This acquisition makes AD Ports Group one of the most significant global players in the finished vehicle logistics, which we intend to expand in our home and core markets." The majority – 75% of Noatum's revenues are euro- and dollar-denominated. With a presence in 26 countries, its LTM (Last 12 months) revenue and EBITDA were 1.80 billion euros and 145 million euros, respectively. This is AD Ports Group's third major international acquisition during the year, following a 70% stake buy in Transmar and TCI in September, and in November taking an 80% stake in Dubai-based Global Feeder Shipping (GFS).

Noatum has extensive capacities in heavy lift logistics, which AD Ports Group now aims to bring to the Middle East. The terminals' operations include 15 Ro-Ro, dry bulk, general cargo, and container terminals in Spain, while its maritime division provides shipping agency services, including outsourcing and ancillary services, and cargo services, such as liquid bulk, breakbulk cargo, reefer, and dry cargo. "Bringing Noatum into our integrated network of businesses will add scale and new layers of expertise," said Capt. Mohamed Juma Al Shamisi, Managing Director and Group CEO, AD Ports Group. "Noatum operates an asset-light model with a high cash conversion rate and will make an immediate contribution to our financials, at the same time as positioning us for international expansion. "We will leverage the acquisition of Noatum to build a strong international logistics brand with deep roots in this region." (Credits: Gulf News)

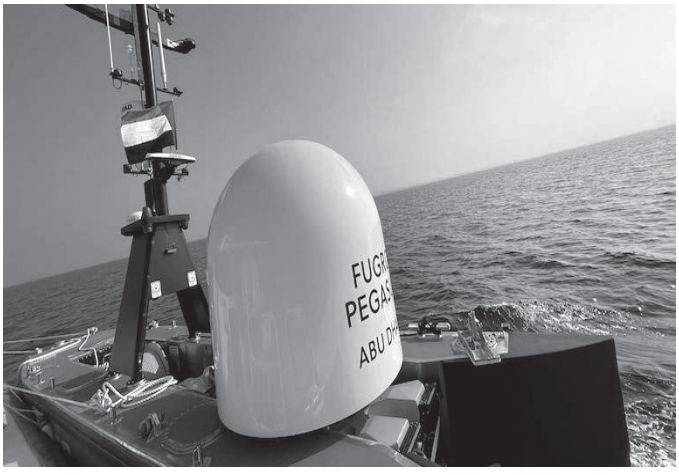
Handysize Bulkers Join Tomini Fleet

November 19, Dubai-based Tomini Shipping has announced the acquisition of two handy size bulk carriers. Now named the Tomini Sirocco and Tomini Pampero the 38,600 dwt pair were originally built in 2016 by Taizhou Kouan Shipbuilding. This wraps up Tomini's handy size acquisition campaign with a total of 13 of this type of vessel purchased during 2022. The current Tomini Shipping fleet now consists of 26 vessels, including three Kamsarmax, ten Ultramax, and 13 Handy-size ships. "We see a very positive supply side picture for our Handies, with relatively few newbuilds on order, and an aging profile of the existing fleet. This leads to greater recycling numbers due to incoming environmental regulations, meaning the fundamentals are very much in favor of a positive handy size segment," commented Numair Shaikh, CEO of the Tomini Group. (Credits: Maritime Standard)

Cover Story

The picture on the title page is the dwarf gourami fish found in the waters of South Asian countries, such as Pakistan, India, and Bangladesh. These fish enjoy water that moves slowly, such as slow rivers and streams, and are usually found near vegetation. Some of these fishes can be seen in different colors, which are achieved as a result of selective breeding for commercial purposes. It has high demand in the international market due to its brilliant and beautiful color. These fish are often found to live for as long as three to four years and live peaceful and docile lives.

Fugro and AD Ports Group Formalize Autonomous



November 2, The companies have been working together since March this year, and have now signed an agreement to use remote and autonomous technologies in the Middle East region. The partnership will develop guidelines to make the UAE ready to receive USVs, as well as create a platform to implement remote and autonomous technology.

Fugro and AD Ports Group have laid out their joint priorities under the agreement, aiming to jointly establish a remote and autonomous testing area for USVs in the UAE, along with an industry-compliant training programme for Emiratis and international mariners to learn about USV and Marine Autonomous Surface Ship (MASS) operation. The companies will also look to create guidelines to align USV operations with UAE regulations. The partners have been working together since March to prepare for the arrival of the Middle East's first USV Fugro Pegasus, which recently made its way to Al Mirfa, Abu Dhabi, where it will be based. Captain Mohamed Al Yahyaei, Chief Harbour Master, AD Ports Group said: "AD Ports Group is committed to innovating and improving its services, deploying advanced technologies and automation across our operations to drive improvements and greater efficiency. By signing this new agreement with Fugro, we are expanding the range of remote and autonomous technologies available for the maritime sector, as we strive to build a safer, more sustainable and more impactful future." David Washbrook, Director, Marine Asset Integrity Middle East and India, Fugro said: "The introduction of our USV technology marks an exciting moment for the maritime industry in the region. The support we have received from AD Ports Group has played a large role in making this a reality and we are proud to call Al Mirfa Port the new home of Fugro Pegasus." (Credits: Seatrade Maritime

Prysmian Firms up $62.5m UAE Cable Laying Deal

November 16, Italian cabling firm Prysmian has wo €60m ($62.5m) contract for laying submarine cables as part of the strategic HVDC transmission system for the Abu Dhabi National Oil Company (ADNOC) and Abu Dhabi National Energy Company PJSC (TAQA) Lightning Project in the UAE. Prysmian secured a deal for the supply of power cables worth around €220m in January. The contract was awarded under a limited notice to proceed by Samsung C&T as part of its EPC consortium with Jan De Nul, with an option open for an installation agreement. ADNOC and TAQA announced the successful financial closure of their $3.8bn project to power and significantly decarbonise ADNOC's offshore production operations in September. The main purpose of the new HVDC link is to replace ADNOC's current offshore power with a renewable onshore power source, reducing its environmental impact and CO2 emissions. Under the ADNOC Lightning Project, Prysmian will design, supply, assemble and test a symmetrical monopole system consisting of four HVDC 320 kV single-core cables with XLPE insulation, along with fiber optic cable systems, that will connect the Al Mirfa onshore converter station to Al Ghallan, an artificial offshore island in the Arabian Gulf, located off the Abu Dhabi coast.

The project comprises both a subsea route of approximately 134 km of submarine HVDC cables, and onshore routes located at Al Mirfa and Al Ghallan Island, totalling approximately 3.5 km of HVDC land cable route. Offshore installation operations will be performed by Prysmian's cable-laying vessel Leonardo da Vinci, with the shallow water activi-

ties being performed by cable-laying barge Ulisse. The commissioning of the project is scheduled for 2025. (Credits: Splash247)

Drone Attack on VLCC Taking on Oil In Yemen

November 22, A near miss for a VLCC from another drone strike at a terminal in Yemen yesterday has ship operators worried about passing certain hot spot areas in the Middle East. The Hong Kong-owned, Panama-flagged Pratika VLCC was attacked by Houthis while taking on a cargo of oil at the al-Dhabba oil terminal in Hadhramaut province. The drone strike missed and the ship then left the site and is now heading west to the Red Sea with no reports of any damage to the ship, recently bought by Hong Kong's Gigantic Ozone Energy. Britain's maritime agency said another drone circled a ship in the Gulf of Oman on Friday, three days after an Iranian-made drone attacked an Eastern Pacific tanker in the region. (Credits: Splash247)

UAE Set Sights on 50mln Containers by 2032

November 28, The UAE will continue to promote its shipping sector as it recognising the critical role of the maritime sector in keeping trade flowing, its top official says. Hessa Al Malek, advisor to the Minister for Maritime Transport Affairs, UAE Ministry of Energy and Infrastructure, emphasised that seafarers are undoubtedly the backbone of the maritime and shipping sector. "We aim to increase the volume of containers handled by the nation to 50 million by 2032, with a growth rate of about 150 per cent. This is in addition to our ambition of increasing the number of ships and tankers carrying the UAE flag to 2,000 ships," Al Malek said while addressing the 4th annual 'Safety at Sea' conference in Dubai.

The conference was held under the patronage of the UAE Ministry of Energy and Infrastructure and Tristar Group's Maritime Logistics division and participated by industry stakeholders, experts, and executives in the maritime and shipping sector.

The event highlighted issues related to the physical and mental well-being of seafarers as well as discussed pressing issues such as decarbonisation, energy efficiency, digitalization, and the role of AI in driving the progress of the sector. Al Malek said the UAE has led the way in taking action and launching ground-breaking initiatives.

Boasting a coastline of more than 1,650km, the UAE's strategic location at the crossroads of global shipping routes makes the country a key trade and logistics hub. This is testified by the fact that the nation's ports receive over 21,000 ships annually, and its ports handle more than 17 million containers each year. The International Maritime Organisation (IMO), which also participated in the event, expressed its confidence that the continuing initiative of Tristar will contribute greatly to safety at sea. It commended the efforts of the UAE, which was one of the first countries to classify seafarers as 'priority workers' and facilitated the safe exchange of more than 240,000 seafarers, who were assisted to return to their home countries safely, as well as provided with medical treatment and Covid-19 vaccines. In his opening remarks, IMO secretary-general Kitack Lim said the IMO will continue to work tirelessly to deal with challenges related to maritime safety by means of a multi-pronged approach, including policy development, direct interventions by our Seafarer Crisis Action Team (SCAT), and interagency and industry partnerships. "We will continue to work with governments, industry stakeholders, and other international organisations to enhance maritime safety and security," Lim said. Eugene Mayne, founder, and CEO of Tristar Group, addresses the conference and seafarers and said the last three years have changed things around. Shipping today transports more than 80% of global trade, providing a reliable low-cost means of transporting goods globally, facilitating trade, and helping prosperity among nations and people. According to the IMO, the Covid-19 pandemic and other difficulties facing the global shipping industry have brought tremendous hardships for seafarers. "Now is a great time for a reset at sea, with the cooperation and participation of states, shipowners, governments, and authorities. Today is the time we look beyond borders and boundaries, and our competitors, as we work towards achieving a greater common good for all our seafarers," Mayne said. (Credits: Hellenic Shipping News)

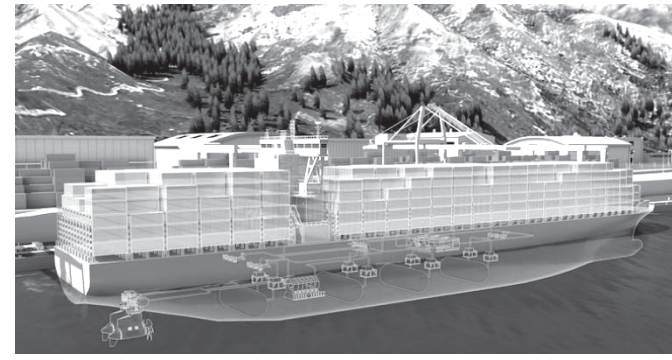
Amendments to Liberian Maritime Law

November 9, New amendments to the Liberian maritime law will further streamline the mortgage recordation process, make the process user-friendly while reducing costs and maintaining the full integrity of the process. "These amendments have long been asked for by the shipping community and sets Liberia even further ahead of other flag States that maintain their bureaucratic and archaic procedures and services," said Alfonso Castillero, CEO of the Liberian International Ship & Corporate Registry (LISCR).

The amendments provide that Liberia now accepts the electronic filing of mortgage instruments. In addition, the amendments clarify that mortgage debt documents, such as a loan agreement or a hedge agreement, do not need to be provided or recorded together with the mortgage instrument. These amendments also make it clear that various modifications to the underlying debt, such as a change in the interest rate or payment terms do not require the filing of a mortgage amendment.

LISCR has long led the way with technological advancements, going back to Liberia being the first ship Registry to allow electronic certificates aboard its vessels and to implement remote ship closings. The acceptance of the electronic filing of mortgages is the next step in the continuous enhancement of all services offered by Liberia. "These enhancements are exactly what the shipowners and operators, as well as banks and lenders, have been asking for. Liberia has listened to them and acted," Castillero said. "Liberia continues to focus on the needs of its fleet, from the registration and mortgage process to vessel operations and safety. This type of initiative is why LISCR is on track to be the largest ship registry in the world, while still maintaining the highest quality standards," he added. These changes can be found in RLM-107, Sections 100, 100A, and 105(1). (Credits: Seatrade Maritime)

Maritime Giants Sign COP27 Hydrogen Commitment



November 14, Signatories to the joint statement committed to the end goal of providing green hydrogen and hydrogen-derived fuels at scale for the maritime industry, in line with their target to fully decarbonise the industry by 2050 at the latest.

Supporting the shipping industry's ambition, the Getting to Zero Coalition recognised the role of hydrogen and hydrogen-derived fuels in its pursuit of zero emissions deep-sea vessels from 2030, and green hydrogen developers and producers pledge to work towards generating the 5.5m-tonnes of green hydrogen needed for the shipping industry by 2030.

The commitment was signed by Maersk, Green Hydrogen Catapult, Getting to Zero Coalition, Intercontinental Energy, Acwa Power, Fortescue Future Industries, CWP Global, MAN Energy Solutions, Green Hydrogen Organization, and Aspen Shipping Decarbonization Initiative facilitator of Cargo Owners for Zero Emission Vessels (coZEV)

The signatories called for action from peers in their sectors, including commitments from shipowners to invest in zero-emissions ships and technologies, and commitments from ports to invest in infrastructure for bunkering zero-emissions fuels and to participate in green shipping corridors.

On the regulatory front, the partners called for the IMO to set a 2050 goal for 100% decarbonization of the shipping industry, with robust targets in 2030 and 2040. "Our path ahead is clear: shipping must transition away from fossil fuels and toward scalable zero-emissions fuels. Members of the Getting to Zero Coalition and other signatories to this joint statement stand firmly behind this goal and have already taken crucial first steps to make this happen. Commitments today show that there will be a sufficient supply of

green fuels and demand for zero-emissions shipping," said Johannah Christensen, CEO of the Global Maritime Forum, founding partner of the Getting to Zero Coalition. "We are living in a climate emergency, and we need to rapidly accelerate the global availability of green fuels," said Henriette H. Thygesen, CEO of Fleet and Strategic Brands at A.P. Moller – Maersk. "Access to green hydrogen is an important pathway to secure this important scale-up for the shipping industry as a whole and for us at A.P. Moller – Maersk to reach our 2040 net-zero target. Operating a large fleet of container vessels, we have made the choice to take an active part in shaping the solutions for the future together with partners. No one can do it alone." (Credits: Seatrade Maritime)

Maersk Lines up Latest Green Methanol Fuel Supply Partnership

November 16, Danish shipping giant Maersk has announced its latest partnership as it works to secure its green methanol fuel supply needed to power its future fleet of nineteen methanol-powered containerships.

The latest partnership was signed with U.S- based project developer Carbon Sink LLC covering the development by Carbon Sink's of green methanol production facilities in the United States. Carbon Sink is currently developing its first facility co-located at the Red River Energy bio-ethanol plant in Rosholt, South Dakota.

The facility will have a production capacity of approximately 100,000 tonnes per year and is anticipated to begin commercial operations in 2027. Maersk has signed a letter of intent to purchase the full volume of fuel produced at the plant, with options for the output of subsequent Carbon Sink facilities at other locations.

"Securing green fuels at scale in this decade is critical in our fleet decarbonization efforts," says Berit Hinnemann, Head of Green Fuels Sourcing at A.P. Moller – Maersk. "We have set a 2040 net zero target for our entire business – but important to stay in line with the Paris Agreement, we have also set 2030 targets to ensure meaningful progress in this decade. Partnerships are essential on this journey – and I am very pleased to welcome Carbon Sink on board."

The strategic partnership is now the eighth Maersk has entered into in its search to secure green methanol fuel supplies for 19 containerships it currently has on the order that will be powered by the carbon-free alternative fuel. Back in March, Maersk announced partnerships with six energy companies to jump-start green methanol production with the intent of sourcing at least 730,000 metrics per year of the fuel by end of 2025. That amount would be enough to power approximately 12 ships. The seventh partnership with Chinese bioenergy enterprise Debo was announced in August covering an additional 200,000 tonnes per year of green bio-methanol starting in fall 2024.

According to Maersk, a Carbon Sink uses commercially available technology to produce green methanol by combining green hydrogen from the electrolysis of water using additional renewable electricity and biogenic CO2. The CO2 for the first project will be recycled CO2 waste captured from the Red River Energy bio-ethanol plant.

"We are very pleased to be working with Maersk in support of their mission to decarbonise the shipping sector," says Steve Meyer, CEO of Carbon Sink. "Carbon Sink brings a vast wealth of knowledge, experience, and partnerships to help them achieve their ambitious corporate goals. Our multi-project development strategy creates a pathway for the supply of significant volumes of green methanol to help meet the demand of Maersk's growing dual-fuel ship fleet."

Maersk placed its first order for eight 16,000 TEU methanol-powered ships with South Korea's Hyundai Heavy Industries in August 2021, and earlier this year exercised options for four additional sister ships. Last month, Maersk announced another order for six 17,000 TEU methanol-powered ships. All eighteen newbuilds will be delivered in 2024 and 2025. Maersk also has a single 2,100 TEU methanol-powered dual fuel feeder ship on order at Hyundai Mipo Dockyards with delivery planned by 2023. Maersk says that by using green methanol fuel, the 19 ships will save around 2.3 million tonnes of CO2 per year compared to conventionally-fueled ships. (Credits: G Captain)

THE INFORMATION AGE IS STARTING TO TRANSFORM FISHING WORLDWIDE

By Nicholas P. Sullivan

People in the world's developed nations live in a post-industrial era, working mainly in service or knowledge industries. Manufacturers increasingly rely on sensors, robots, artificial intelligence and machine learning to replace human labor or make it more efficient. Farmers can monitor crop health via satellite and apply pesticides and fertilizers with drones.Commercial fishing, one of the oldest industries in the world, is a stark exception. Industrial fishing, with factory ships and deep-sea trawlers that land thousands of tons of fish at a time, are still the dominant hunting mode in much of the world.This approach has led to overfishing, stock depletions, habitat destruction, the senseless killing of unwanted by-catch and wastage of as much as 30% to 40% of landed fish. Industrial fishing has devastated artisanal pre-industrial fleets in Asia, Africa and the the Pacific.The end product is largely a commodity that travels around the world like a manufactured part or digital currency, rather than fresh domestic produce from the sea. An average fish travels 5,000 miles before reaching a plate, according to sustainable-fishing advocates. Some is frozen, shipped to Asia for processing, then refrozen and returned to the U.S.But these patterns are starting to change. In my new book, "The Blue Revolution: Hunting, Harvesting, and Farming Seafood in the Information Age," I describe how commercial fishing has begun an encouraging shift toward a less destructive, more transparent post-industrial era. This is true in the U.S., Scandinavia, most of the European Union, Iceland, New Zealand, Australia, South Korea, the Philippines and much of South America.

Fishing with data

Changes in behavior, technology and policy are occurring throughout the fishing industry. Here are some examples:Global Fishing Watch, an international nonprofit, monitors and creates open-access visualizations of global fishing activity on the internet with a 72-hour delay. This transparency breakthrough has led to the arrest and conviction of owners and captains of boats fishing illegally.The Global Dialogue on Seafood Traceability, an international business-to-business initiative, creates voluntary industry standards for seafood traceability. These standards are designed to help harmonize various systems that track seafood through the supply chain, so they all collect the same key information and rely on the same data sources. This information lets buyers know where their seafood comes from and whether it was produced sustainably.Fishing boats in New Bedford, Massachusetts – the top U.S. fishing port, based on total catch value – are rigged with sensors to develop a Marine Data Bank that will give fishermen data on ocean temperature, salinity and oxygen levels. Linking this data to actual stock behavior and catch levels is expected to help fishermen target certain species and avoid unintentional bycatch.

Growing fish on land

Aquacultur ve is the fastest-growing form of food production in the world, led by China. The U.S., which has exclusive jurisdiction over 3.4 million square miles of ocean, has a mere one percent share of the global market.But aquaculture, mostly shellfish and kelp, is the third-largest fisheries sector in the Greater Atlantic region, after lobsters and scallops. Entrepreneurs are also raising finfish – including salmon, branzino, barramundi, steelhead, eels and kingfish – mostly in large, land-based recirculating systems that reuse 95 percent or more of their water.Industrial-scale ocean salmon farming in Norway in the 1990s was largely responsible for the perception that farmed fish were bad for wild fish and ocean habitats. In some cases, water from the fish tanks circulates through greenhouses to grow vegetables or hemp, a system called aquaponics.There is heated debate over proposals to open U.S. federal waters, between 3 and 200 miles

offshore, for ocean aquaculture. Whatever the outcome, it's clear that without a growing mariculture industry, the U.S. won't be able to reduce and may even widen its $17 billion seafood trade deficit.

A voracious China

Aquaculture is the fastest-growing form of food production in the world, led by China. The U.S., which has exclusive jurisdiction over 3.4 million square miles of ocean, has a mere 1% share of the global market.But aquaculture, mostly shellfish and kelp, is the third-largest fisheries sector in the Greater Atlantic region, after lobsters and scallops. Entrepreneurs are also raising finfish—including salmon, branzino, barramundi, steelhead, eels, and kingfish—mostly in large, land-based recirculating systems that reuse 95% or more of their water.Industrial-scale ocean salmon farming in Norway in the 1990s was largely responsible for the perception that farmed fish were bad for wild fish and ocean habitats. Today this industry has moved to less dense deep-water offshore pens or land-based recirculating systems.Virtually all new salmon farms in the U.S.—in Florida, Wisconsin, Indiana, and several planned for Maine and California—are land-based. In some cases, water from the fish tanks circulates through greenhouses to grow vegetables or hemp, a system called aquaponics.

The ocean's restorative power

There is no shortage of gloomy information about how overfishing, along with other stresses like climate change, is affecting the world's oceans. Nonetheless, I believe it bears emphasizing that over 78 percent of current marine fish landings come from biologically sustainable stocks, according to the United Nations. And overharvested fisheries often can rebound with smart management.For example, the U.S. east coast scallop fishery, which was essentially defunct in the mid-1990s, is now a sustainable $570 million a year industry.Another success story is Cabo Pulmo, a five-mile stretch of coast at the southeast end of Mexico's Baja Peninsula. Once a vital fishing ground, Cabo Pulmo was barren in the early 1990s after intense overfishing. Then local communities persuaded the Mexican government to turn the area into a marine park where fishing was barred. Fishing outside of the refuge has also rebounded, showing that conservation and fishing are not incompatible. In my view, that's a good benchmark for a post-industrial ocean future.

***About the Author**: : Nicholas P. Sullivan is a Senior Research Fellow in the Fletcher Maritime Studies Program and Senior Fellow at the Council on Emerging Market Enterprises, Tufts University.*

(Source:The Maritime Executive***)***

THREATS TO THE MARINE ENVIRONMENT

By Jahangir Anwer

The systematic study of marine biodiversity plays the loop of variation that may increase species diversity in levels, and the marine ecosystem effects concerning environmental impact and change. In order, tropical ecosystems have a greater level of diversity as compared to ecosystems inside cold water. In tropical ecosystems, the coral reef ecosystems are extremely diverse, yet! There is a lot of variation found in the diversity of coral reefs.

Fishing is done by a human in oceans for thousands of years, but the scale and impact of marine fisheries have greatly increased over the past 100 years or maybe above, as we have efficient confidence in technology we are improved our skills of fishing catching and processing fish and other marine organisms so as its result the catch of marine organisms may steadily be increased before or till reaching the 20th century.

Overfishing may result in obviously negative consequences for the population, and several examples recorded. The most famous example is that of the North Atlantic cod in Newfoundland, which fished so heavily for decades so as the result the stock collapsed there, and it took 2 more decades to recover. Nevertheless, some marine scientists and fishery experts estimated a timeline, that continuously fishing at current rates, all fish stocks will have collapsed by 2048. While this estimate has been debated on several scientific platforms and they all end with a result that the current heavy fishing practice rate is going to unstable marine stock. In many areas not all but a few species are harvested, in other words, fishing may concentrate on a few species.

As climate change is duly faced, oceans are becoming very warmer day by day, this has been recorded in several species of fish, and dispersal and range shift may be more limited in some sessile species. Additionally, some organisms may be limited in range shifts due to their tolerance. In past, more than 300 million years, the pH of an ocean has been slightly remaining basic and rather stable. In present days, several increases in the amount of CO2, so there is a greater amount of CO2 in the oceans. In oceans carbon dioxide reacts with water to form carbonic acids, this is leading to a decrease in pH around 8.1 which represents a 25% increase in acidity. Marine organisms are the biggest source of pharmaceutical compounds. In new research, it was mentioned that the debilitating venom is produced by cone snails and could be used as a pain reliever.

Marine ecosystems provide us with many services. For example. Mangroves and coral reefs mostly reduce wave energy and this may result in us as the protection of coastlines.

Terminals and loading pipes at harbors can leak oils, it can also leak from the platforms where drilling is done, and also from the oil tankers' wrecks. These may lead to acute oil pollution, but on the other hand, many authorities may work on actions that may we limit these inputs of oil to the environment.

The international maritime organization has established several regulations aimed at reducing the likelihood of hull breaches in oil tankers (Through grounding) to reduce oil leaks.

Rehabilitation of the marine environment only be possible if we aim to improve mangroves and trees and corals into marine, not a more difficult act to perform but following restoration, processes can help.

a. There should be a ban on destructive fishing methods.
b. There must be a controlled coastal environment built.
c. Sustainable economic activities, alternative to destructive fishing: sustainable coral aquaculture for the aquarium industry, development of micro-farms / fisheries, eco-tourism (snorkeling, diving, etc.)
d. Participative/collaborative approach: local communities are at the core of the conservation project (villagers, fishermen, national park, associations, and the general public)

Empowerment of communities on the knowledge and sustainable management of their natural resources

***About the Author**: The writer is a Ph.D. scholar at Sindh Madressatul Islam University Karachi and working on the research area of Marine Pollution Control*

The opinions expressed herein are the author's and not necessarily those of the Maritime Watch.

OBITUARY

Former Pakistan Navy chief Admiral Saeed Mohammad Khan passed away in Islamabad on Sunday night. Admiral Saeed Muhammad Khan served the nation as the Chief of the Pakistan Navy from 1991 to 1994.He played a key role in the construction and development of the Pakistan Navy and the defense of the country.

ASSOCIATION BETWEEN THE INFLATION & SHIPPING FREIGHT RATE IN WORLDWIDE

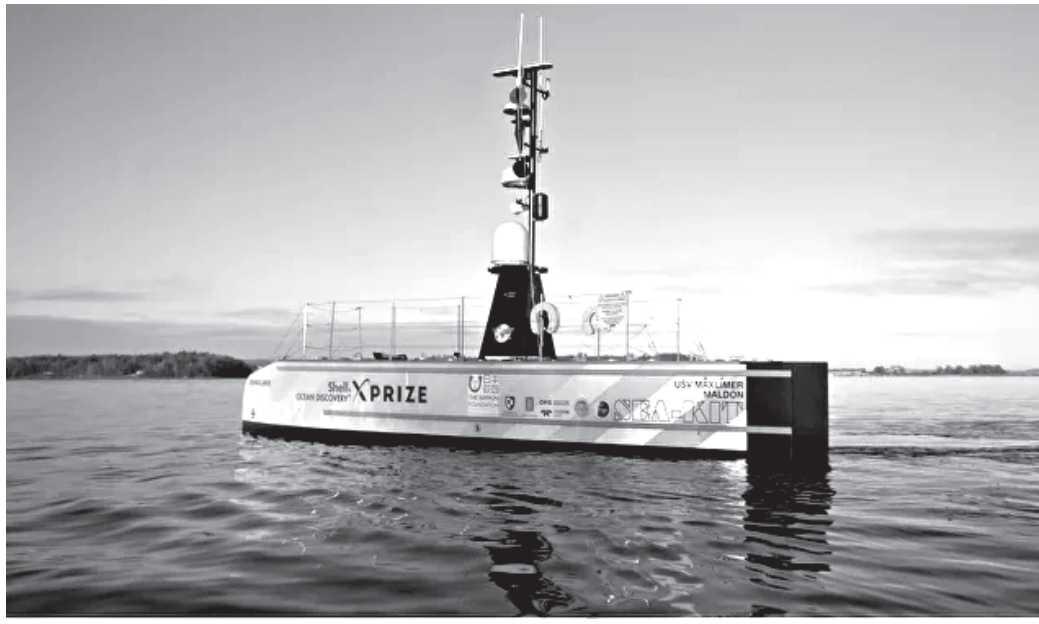
In the maritime sector shipping costs are an important driver of inflation around the world: when freight rates double, inflation picks up by about 0.7 percentage points. Most importantly, the effects are quite persistent, peaking after a year and lasting up to 18 months. Logistics executives predict that rates set in most annual contracts will more than double from before supply-chain-related squeezed capacity. Contract prices are expected to rise due to these costs by double digits in 2022, according to several trucking businesses. After the world went into global lockdown in response to COVID-19, China reopened its economy faster than the US and Europe. We can see the same thing in the freight forwarder business. When a global pandemic occurs the top logistics companies have increased by 20% of their operating cost.

Freight rates are determined by several factors: freight density, storage, classification, mode of transportation, distance, points of pickup and delivery, fluctuating fuel costs, truck capacity, and any extra charges for special cargo. Fuel Costs: That's why the rising and fluctuating price of fuel is probably the number one factor affecting freight rates. Once fuel prices fall, airplanes, container ships, and trucks become cheaper to operate. Tight container capacity and port congestion also mean that longer-term rates set in contracts between carriers and shippers are running at an estimated 200 percent higher than a year ago, signaling elevated prices for the foreseeable future. Five factors affecting transportation cost and pricing: Rate leverage, Lower pick-up, and drop-off costs, higher carrier revenue, and Volume commitments/guarantees.

This is the time that the concerned authorities should take initiatives for the betterment of trade and control inflation by improving storage facilities, classification, and modes of transportation.

Your's sincerely
Rabia Arshad
BS (MBM) Student,
Bahria University Karachi Campus

ROBOTICS IN THE MARITIME INDUSTRY



Globally inclusive innovative technologies have been utilized in the field of the maritime sector and the digital innovation modern era has started. With a large number of services, devices, and software, robots have become the driver of economical and social development in the maritime industry. If we talk about modern robotics extends across almost all sectors and it also includes the maritime industry. If we review which type of robotics work in the maritime industry we see the main use cases and trends of robotics in shipping.

We are all aware of the use of robots in every sector same as robots are used for many purposes in the maritime industry. Robots mainly use for cleaning and maintenance to work as fully autonomous vessels with no pilot any captain and no crew on the vessel. for example, we have the SEA-KIT maximizer which is the best example of a fully robotic ship. In aspect of Pakistan's marine industry normally people do not prefer to send their cargo or use ships without a captain and crew. But we have a living example of SEA-KIT we have to at least try robotic shipping for efferent shipping.

I request through your reputable magazine to the concerned authorities should take steps and also start projects related to the smart use of robotic shipping.

Masooma Iftikhar
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Bahria University Karachi Campus

Axis Container
Port Qasim Bin Qasim Town,
Karachi,
Mobile: +92 321 9355576

UMA Container Depot
Atlas honda street, Mehdi Hassan Rd, Mauripur,
Karachi,
Contact: +92 21 3259 5201

Bay West Off-Dock Container Terminal
32 Industrial Area, Adjacent Fishery Yard
West Wharf, Karachi 74400
Contact: +92 21 3233 0030

ICS Port Qasim Terminal
Qasim Port Road, Port Bin Qasim,
Karachi, Sindh
Contact: +92 21 3474 0969

Qasim Freight Station
H- 1 North Western Industrial Zone Port Qasim, Bin Qasim Town,
Karachi, Sindh 75600
Contact: +92 21 3472 0166

Inter Ocean Container Services
CP-1/28 A&B, South Western Industrial Zone, Port Qasim Authority,
Karachi, Sindh
Contact: +92 21 3474 0969

Paklink Shipping Services
Suit No. 803, 8th Floor, Business Plaza, Mumtaz Hassan Road,
Karachi, 74000 - Pakistan.
Contact: +92 21 3244 1333-6

Modern Container Terminal
Suite # 703, 7th Floor, Business Plaza, Mumtaz Hassan Road, Off. I.I. Chundrigar Road, Karachi – Paksitan.
Contact: +92 21 111 672 000

Pak Shaheen Container Services Jungle Shah Empty Park
East Wharf, Keamari.
Karachi
Mobile: +92 21 3285 1800

Pak Shaheen Container Service Yard PQA
B-1 North West Industrial Zone Port Muhammed Bin Qasim.
Karachi- Pakistan
Contact: +92 21 3472 0220

BOML Container Freight Station
V.M. Plaza, 13 Dockyard Road, West Wharf, Karachi, Sindh 74000
Contact: +92 21 1111 11175

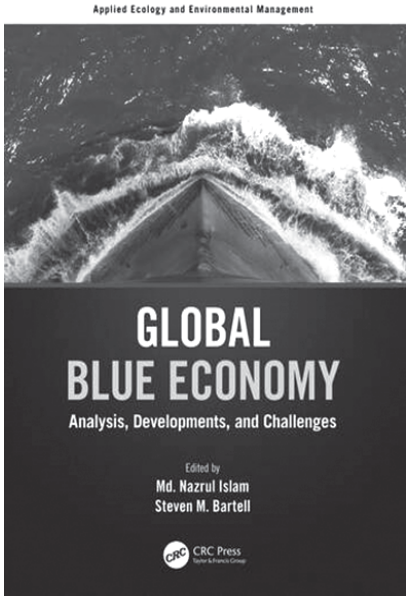
Universal Yard
Mauripur Rd, Keamari,
Karachi, Sindh
Contact: +92 345 8287 717

Falcon Freight System B Yard
SP-16/6, SWIZ, PQA, Port Qasim Bin Qasim Town, Karachi, Sindh
Mobile: +92 300 2608 222

BOML Temperature Controlled Warehouse-1
Plot 1 & 2 Boat Building Yard Road,
West Wharf Karachi,
Sindh 74000
Contact: +92 21 3233 1004

Supreme Off Dock Custom Bond Warehouse
BBA/SP, 03, Port Qasim Authority,
Karachi, Sindh
Mobile: +92 300 8254 580

Speedy Track Container Terminal
Plot # Sp-06, Port Operation Area ,
Port Qasim Authority, Karachi Sindh
Contact: +92 21 3539 3915

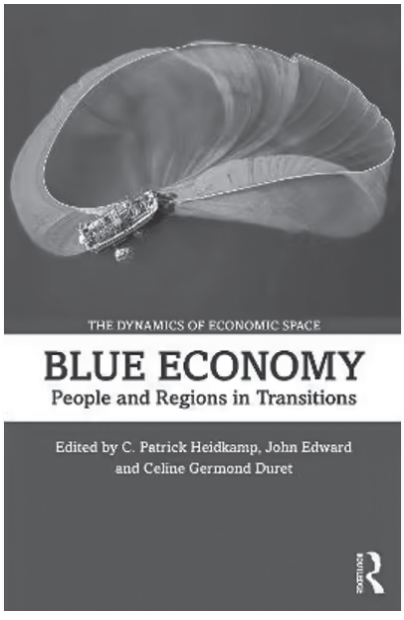


GLOBAL BLUE ECONOMY ANALYSIS, DEVELOPMENTS, AND CHALLENGES

ISBN-10: 9781032012728
ISBN-13: 9781003184287

Book Description

A global blue economy is an economic arena that depends on the benefits and values realized from the coastal and marine environments. This book explains the "sustainable blue economy" as a marine-based economy that provides social and economic benefits for current and future generations. It restores, protects, and maintains the diversity, productivity, and resilience of marine ecosystems, and is based on clean technologies, renewable energy, and circular material flows.



BLUE ECONOMY PEOPLE AND REGIONS IN TRANSITIONS

ISBN-10: 9781032248158
ISBN-13: 9781003280248

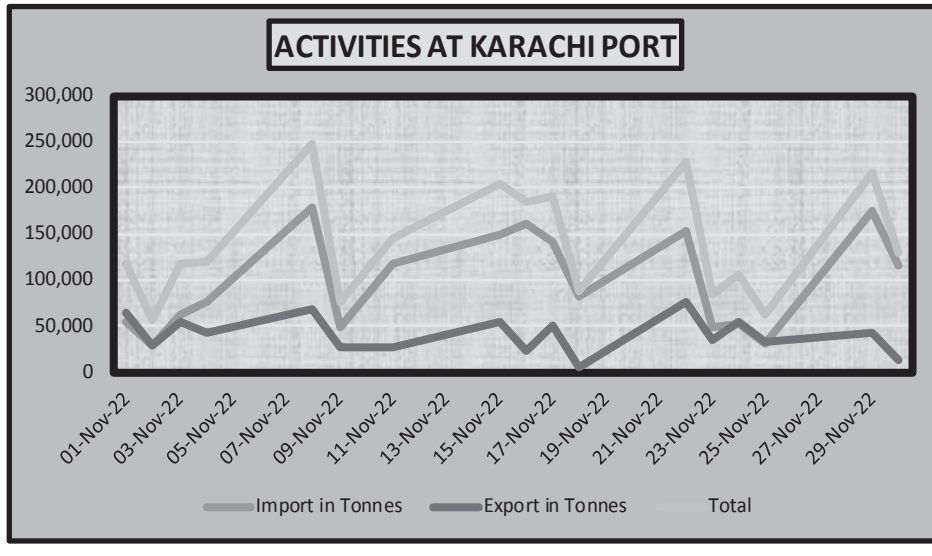
Book Description

This book presents state-of-the-art perspectives on the Blue Economy. It applies important geographical and sustainability transitions perspectives and underscores how Blue Economy dynamics are situated in regional contexts and shaped by the people who live there.

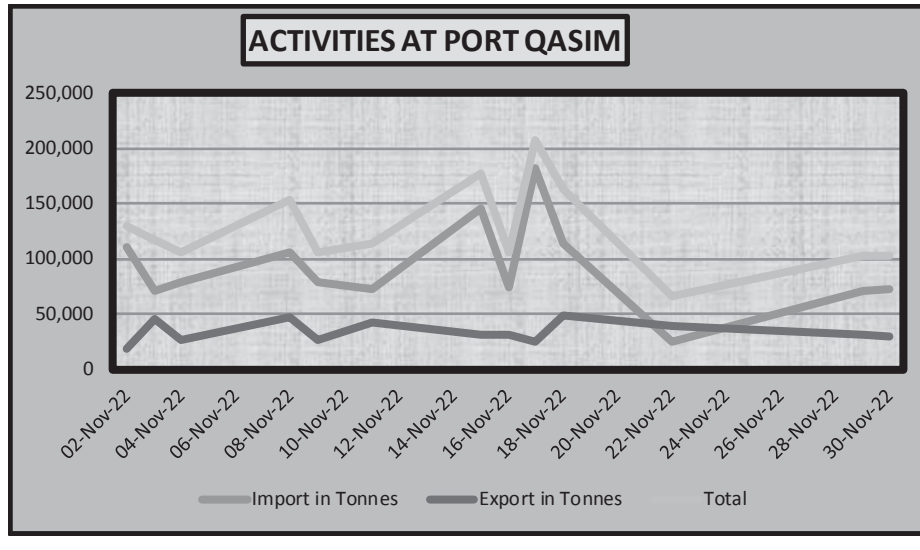
The book highlights the Blue Economy concept as a potential driver of regionally sensitive, ecologically embedded, and community-focused sustainability. The scope for Blue Economy to form a core "cog" in our low-carbon future is obvious, from the potential for renewable energy production and coastal resilience building to possibilities for sustainable food production and the delivery of economic opportunities for peripheral communities. However, fundamental questions remain on how to meaningfully deliver these promises, such as how to avoid embedding a model of damaging extractivism, as per the terrestrial economy, and how to deliver on the key social sustainability principles of human well-being, equity, and justice when planning and developing blue economies. As the UN Decade of Ocean Science for Sustainable Development opens, this book provides a timely reminder of the richness, diversity, and potential of coastal and marine spaces. It advances geographical and trans disciplinary understandings of the Blue Economy and sets a baseline for continued scholarly engagement with the Blue Economy from a variety of perspectives.

This timely contribution will be of interest to policy makers, academics, industry leaders, decision makers, and stakeholders working in or connected to the Blue Economy Sphere and working in the fields of Economic Geography, Regional Development, Public Policy and Planning, Environmental Studies, and Coastal Zone Management.

ACTIVITIES AT KARACHI PORT (NOVEMBER 2022)			
Date	**Import in Tonnes**	**Export in Tonnes**	**Total**
01-Nov-22	53,669	63,634	**117,303**
02-Nov-22	28,225	28,970	**57,195**
03-Nov-22	62,697	54,154	**116,851**
04-Nov-22	76,171	43,080	**119,251**
08-Nov-22	178,735	68,598	**247,333**
09-Nov-22	48,513	27,269	**75,782**
11-Nov-22	117,728	26,688	**144,416**
15-Nov-22	149,386	54,936	**204,322**
16-Nov-22	161,405	22,536	**183,941**
17-Nov-22	140,932	49,544	**190,476**
18-Nov-22	82,707	5,685	**88,392**
22-Nov-22	153,064	75,329	**228,393**
23-Nov-22	48,260	35,573	**83,833**
24-Nov-22	52,501	53,527	**106,028**
25-Nov-22	30,377	32,506	**62,883**
29-Nov-22	174,911	42,112	**217,023**
30-Nov-22	116,190	12,313	**128,503**
Total	**1,675,471**	**696,454**	**2,371,925**



ACTIVITIES AT PORT QASIM (NOVEMBER 2022)			
Date	**Import in Tonnes**	**Export in Tonnes**	**Total**
02-Nov-22	110,820	18,383	**129,203**
03-Nov-22	71,112	46,433	**117,545**
04-Nov-22	79,313	26,287	**105,600**
08-Nov-22	106,911	47,346	**154,257**
09-Nov-22	79,313	26,287	**105,600**
11-Nov-22	72,195	42,483	**114,678**
15-Nov-22	145,352	31,688	**177,040**
16-Nov-22	74,486	31,263	**105,749**
17-Nov-22	182,046	25,755	**207,801**
18-Nov-22	113,947	49,181	**163,128**
22-Nov-22	25,986	39,925	**65,911**
29-Nov-22	72,025	31,569	**103,594**
30-Nov-22	72,613	30,314	**102,927**
Total	**1,206,119**	**446,914**	**1,653,033**



Tide Times for Port

Tide Times for Port Muhammad Bin Qasim			
Lat: 24.46° N Long: 67.21° E			
Date	Tides	Time (PKT)	Height (m)
15 December 2022	Low Tide	03:57 AM	3.01m
	High Tide	09:32 AM	1.36m
	Low Tide	14:15 PM	2.32m
	High Tide	21:55 PM	1.08m
16 December 2022	Low Tide	04:37 AM	2.96m
	High Tide	10:24 AM	1.29m
	Low Tide	15:36 PM	2.16m
	High Tide	22:03 PM	1.29m
17 December 2022	Low Tide	05:16 AM	2.93m
	High Tide	11:23 AM	1.13m
	Low Tide	18:09 PM	2.20m
	High Tide	23:21 PM	1.46m
18 December 2022	Low Tide	05:56 AM	2.92m
	High Tide	12:22 AM	0.86m
	Low Tide	19:41 PM	2.44m
19 December 2022	High Tide	00:36 AM	1.55m
	Low Tide	06:36 AM	2.94m
	High Tide	13:15 PM	0.52m
	Low Tide	20:52 PM	2.73m
20 December 2022	High Tide	01:42 AM	1.56m
	Low Tide	07:22 AM	2.97m
	High Tide	14:03 PM	0.16m
	Low Tide	21:58 PM	3.03m
21 December 2022	High Tide	02:42 AM	1.52m
	Low Tide	08:13 AM	3.02m
	High Tide	14:51 PM	-0.14m
	Low Tide	22:58 PM	3.31m
22 December 2022	High Tide	03:39 AM	1.44m
	Low Tide	09:08 AM	3.08m
	High Tide	15:38 PM	-0.37m
	Low Tide	23:52 PM	3.55m
23 December 2022	High Tide	04:34 AM	1.32m
	Low Tide	10:01 AM	3.15m
	High Tide	16:27 PM	-0.50m
24 December 2022	Low Tide	00:42 PM	3.73m
	High Tide	05:27 AM	1.17m
	Low Tide	10:52 AM	3.20m
	High Tide	17:16 PM	-0.52m
25 December 2022	Low Tide	01:30AM	3.85m
	High Tide	06:17 AM	1.02m
	Low Tide	11:40 AM	3.20m
	High Tide	18:06 PM	-0.44m
26 December 2022	Low Tide	02:14 AM	3.88m
	High Tide	07:51 AM	0.89m
	Low Tide	13:20 AM	3.11m
	High Tide	19:45 PM	-0.25m
27 December 2022	Low Tide	02:56 AM	3.84m
	High Tide	07:51 AM	0.81m
	Low Tide	13:20 PM	2.93m
	High Tide	19:45 PM	0.05m
28 December 2022	Low Tide	03:36 AM	3.74m
	High Tide	08:39 AM	0.79m
	Low Tide	14:27 PM	2.70m
	High Tide	20:34 PM	0.42m
29 December 2022	Low Tide	04:16 AM	3.59m
	High Tide	09:30 AM	0.81m
	Low Tide	16:03 PM	2.51m
	High Tide	21:27 PM	0.85m
30 December 2022	Low Tide	04:54 AM	3.42m
	High Tide	10:29 AM	0.83m
	Low Tide	17:39 PM	2.47m
	High Tide	22:29 PM	1.26m
31 December 2022	Low Tide	05:32 AM	3.24m
	High Tide	11:39 AM	0.78m
	Low Tide	19:02 PM	2.57m
	High Tide	23:45 PM	1.57m

Tide Times for Port Gwadar			
Lat: 25.07° N Long: 62.20° E			
Date	**Tides**	**Time (PKT)**	**Height (m)**
15 December 2022	Low Tide	02:24 AM	2.34m
	High Tide	08:35 AM	1.38m
	Low Tide	13:03 PM	1.76m
	High Tide	19:40 PM	0.75m
16 December 2022	Low Tide	03:02 AM	2.32m
	High Tide	09:42 AM	1.27m
	Low Tide	14:21 PM	1.61m
	High Tide	20:24 PM	0.94m
17 December 2022	Low Tide	03:40 PM	2.31m
	High Tide	10:51 AM	1.08m
	Low Tide	16:14 PM	1.56m
	High Tide	21:21 PM	1.15m
18 December 2022	Low Tide	04:21 AM	2.30m
	High Tide	11:50 AM	0.83m
	Low Tide	18:05 PM	1.66m
	High Tide	23:56 PM	1.35m
19 December 2022	Low Tide	05:03 AM	2.30m
	High Tide	12:39 PM	0.56m
	Low Tide	19:27 PM	1.86m
	High Tide	23:56 PM	1.50m
2o December 2022	Low Tide	05:49 AM	2.30m
	High Tide	13:24PM	0.30m
	Low Tide	20:28 PM	2.09m
21 December 2022	High Tide	01:15 AM	1.59m
	Low Tide	06:39 AM	2.32m
	High Tide	14:09 PM	0.05m
	Low Tide	21:19 PM	2.29m
22 December 2022	High Tide	02:24 AM	1.62m
	Low Tide	07:30 AM	2.35m
	High Tide	14:54 PM	-0.14m
	Low Tide	22:07 PM	2.45m
23 December 2022	High Tide	03:25 AM	1.59m
	Low Tide	08:24 AM	2.38m
	High Tide	15:40 PM	-0.26m
	Low Tide	22:52 PM	2.57m
24 December 2022	High Tide	04:21 AM	1.53m
	Low Tide	09:17AM	2.41m
	High Tide	16:27 PM	-0.30m
	Low Tide	23:37 PM	2.64m
25 December 2022	High Tide	05:12 AM	1.45m
	Low Tide	10:10 AM	2.40m
	High Tide	17:15 PM	-0.24m
26 December 2022	Low Tide	00:21 AM	2.66m
	High Tide	06:04 AM	1.35m
	Low Tide	11:04 AM	2.33m
	High Tide	18:02 PM	-0.09m
27 December 2022	Low Tide	01:03 AM	2.66m
	High Tide	06:57 AM	1.24m
	Low Tide	12:00 AM	2.20m
	High Tide	18:48 PM	0.14m
28 December 2022	Low Tide	01:44 AM	2.62m
	High Tide	07:54 AM	1.14m
	Low Tide	13:01 PM	2.02m
	High Tide	19:34 PM	0.44m
29 December 2022	Low Tide	02:24 AM	2.56m
	High Tide	08:55 AM	1.03m
	Low Tide	14:13 PM	1.82m
	High Tide	20:19 PM	0.77m
30 December 2022	Low Tide	03:02 AM	2.48m
	High Tide	10:01 AM	0.92m
	Low Tide	15:44 PM	1.68m
	High Tide	21:06 PM	1.10m
31 December 2022	Low Tide	03:39 AM	2.38m
	High Tide	11:09 AM	0.79m
	Low Tide	17:36 PM	1.66m
	High Tide	21:58 PM	1.39m

Tide Times for Port

Tide Times for Port Karachi			
Lat: 24°48′ N Long: 66°58′ E			
Date	Tide	Time (PKT)	Height (m)
15 December 2022	Low Tide	02:58 AM	2.61m
	High Tide	09:21 AM	1.45m
	Low Tide	14:17 PM	2.02m
	High Tide	20:38 PM	1.06m
16 December 2022	Low Tide	03:37 AM	2.56m
	High Tide	10:27 AM	1.38m
	Low Tide	15:31 PM	1.90m
	High Tide	21:36 PM	1.28m
17 December 2022	Low Tide	04:21 AM	2.53m
	High Tide	11:35 AM	1.21m
	Low Tide	17:49 PM	1.91m
	High Tide	22:58 PM	1.47m
18 December 2022	Low Tide	05:09 AM	2.53m
	High Tide	12:30 AM	0.95m
	Low Tide	19:19 PM	2.11m
19 December 2022	High Tide	00:15 AM	1.58m
	Low Tide	06:01 AM	2.55m
	High Tide	13:16 PM	0.65m
	Low Tide	20:21 PM	2.36m
20 December 2022	High Tide	01:18 AM	1.62m
	Low Tide	06:52 AM	2.59m
	High Tide	14:00 PM	0.34m
	Low Tide	21:11 PM	2.63m
21 December 2022	High Tide	02:18 AM	1.61m
	Low Tide	07:42 AM	2.65m
	High Tide	14:42 PM	0.05m
	Low Tide	21:55 PM	2.87m
22 December 2022	High Tide	03:15 AM	1.56m
	Low Tide	08:35 AM	2.70m
	High Tide	15:26 PM	-0.17m
	Low Tide	22:37 PM	3.06m
23 December 2022	High Tide	04:10 AM	1.47m
	Low Tide	09:29 AM	2.75m
	High Tide	16:12 PM	-0.30m
	Low Tide	23:18 PM	3.19m
24 December 2022	High Tide	05:01 AM	1.38m
	Low Tide	10:23 PM	2.78m
	High Tide	16:59 PM	-0.33m
25 December 2022	Low Tide	00:00 AM	3.26m
	High Tide	05:51 AM	1.28m
	Low Tide	11:15 PM	2.78m
	High Tide	17:46 PM	-0.24m
26 December 2022	Low Tide	00:42 AM	3.27m
	High Tide	06:39 AM	1.19m
	Low Tide	12:08 AM	2.71m
	High Tide	18:34 PM	-0.05m
27 December 2022	Low Tide	01:24 AM	3.23m
	High Tide	06:39 AM	1.19m
	Low Tide	12:08 AM	2.71m
	High Tide	18:34 PM	-0.05m
27 December 2022	Low Tide	01:24 AM	3.23m
	High Tide	07:29 AM	1.11m
	Low Tide	13:00 PM	2.58m
	High Tide	19:24 PM	0.23m
28 December 2022	Low Tide	02:09 AM	3.15m
	High Tide	08:23 AM	1.06m
	Low Tide	13:58 PM	2.40m
	High Tide	20:15 PM	0.57m
29 December 2022	Low Tide	02:54 AM	3.05m
	High Tide	09:24 AM	0.99m
	Low Tide	15:09 PM	2.21m
	High Tide	21:12 PM	0.94m
30 December 2022	Low Tide	03:41 AM	2.92m
	High Tide	10:33 AM	0.91m
	Low Tide	16:44 PM	2.11m
	High Tide	22:19 PM	1.28m
31 December 2022	Low Tide	04:30 AM	2.78m
	High Tide	11:42 AM	0.78m
	Low Tide	18:29 PM	2.16m
	High Tide	23:32 PM	1.54m

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