



Pursuing Sustainable Maritime Development

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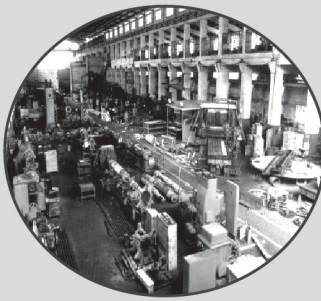
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ABOUT US

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

To function as a premier maritime think tank of Pakistan in policy research, maintaining repository of authentic data through research / analysis aimed at providing comprehensive solutions to relevant customers / stakeholders, while promoting Pakistan's Maritime Interests.

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 renowned researchers to extract concrete policy recommendations. It endeavors continuously to create awareness through seminars, conferences, workshops, writing research papers and other maritime related activities challenges of 21st century for Pakistan.

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One of important things we do in NIMA is to keep an eye on the ocean and maritime related legislations and protocols being formulated, signed or implemented. Recently an agreement on a new oceans treaty to protect marine biodiversity on the high seas, has been signed on 4 March 2023.

This new treaty is going to be legally binding international instrument on the conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction (BBNJ) was agreed on 4 March, after the fifth round of treaty negotiations at the UN which were also participated by the IMO, UN Division for Ocean Affairs and the Law of the Sea (DOALOS); the International Seabed Authority (ISA) and other specialized agencies like The Food and Agriculture Organization (FAO), Intergovernmental Oceanographic Commission (IOC) and the International Labour Organization (ILO). According to the UN, this landmark achievement is aimed at reinforcing efforts to protect biodiversity in line with the aims of the 2030 Agenda for Sustainable Development. The BBNJ treaty will inter alia address following:

- The conservation and sustainable use of marine BBNJ;
- Marine genetic resources, including questions on benefit-sharing (MGR);
- Area Based Management Tools (ABMT), including marine protected areas;
- Environmental impact assessments (EIA); and
- Capacity-building and the transfer of marine technology (CB&TMT).

New treaties and protocol, in the international scene, on restricting industries to limit carbon emissions and other toxic materials are on the rise. One of the important aspects of such treaties is to develop globally binding regulations to ensure sustainable use of the oceans by the shipping industry. These ships which carry vital global trade across the world's oceans are subject to strict environmental, safety and security rules, which apply throughout their voyage.

In this regard, IMO has also enforces various regulations and measures for the conservation of marine biological diversity in areas beyond national jurisdiction, including the International Convention for the Prevention of Pollution by ships (MARPOL) and the International Ballast Water Management Convention regulating the dumping of wastes at sea – which was also discussed and analysed in one of the previous Editorials of Maritime Watch (May 2022).

The protective measures required to be adhered by the ships include rules on operational discharges as well as areas to be avoided and other ship routing systems, including those aimed at keeping shipping away from whales' breeding grounds. IMO has also issued guidance on protecting marine life from underwater ship noise. The United Nations Convention on the Law of the Sea (UNCLOS) already spells out a comprehensive regime of law and order in the world's oceans and seas establishing rules governing all uses of the oceans and their resources. It also provides the framework for further development of specific areas of the law of the sea. UN in 2015 (UNGA resolution 69/292) also decided to develop an international legally binding instrument under UNCLOS on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction.

All these information and discussion highlight the importance of sustainable use of ocean and its resources. Accordingly all practices, economic and industrial activities have to be in conformance with relevant rules, treaties and obligations. Countries around the world are carefully analysing the requirements with respect to the actions required to adhere to such obligations and the necessary planning to meet the future targets and goals especially as per UN SDGs. Pakistan being an important maritime nations and a member IMO should also needs to be in the fore regarding such planning and devising suitable strategies and measure to fulfil



international obligations on preservation of ocean biodiversity, environmental protection and sustainable blue economy. We at NIMA have been consistently stressing upon the need to chalk out a comprehensive roadmap with tangible steps and measures to achieve goals of the ocean decade so as to keep Pakistan abreast with the world community. Most developing countries have already taken a big leap in this regard and are beneficiaries of numerous international fundings available on these aspects.

*Cdre (Retd) Ali Abbas
Chief Editor*

Cover Story

The United Nations started celebrating Earth Day on April 22nd of each year, starting in 1970. The day was established to raise awareness about environmental issues and to promote conservation efforts around the world. Islam forbids unethical and excessive exploitation of the environment, even during times of battles and wars. Prophet Muhammad s.a.w. also emphasised the need to safeguard the environment and nature. The Prophet s.a.w. prohibited any unnecessary cutting of trees and plantations during battles. The theme for Earth Day 2023 is 'Invest in Our Planet'. This year's theme highlights that there are many ways in which we can invest in our planet to create a more sustainable future for ourselves and future generations. From renewable energy and biodiversity conservation to sustainable agriculture and green infrastructure, there are many ways in which we can invest in our planet to protect it for ourselves and future generations. It is up to all of us to take action and make a positive impact on the environment. By working together, we can create a more sustainable and resilient world for ourselves and all living beings on this planet.



A Conversation with **Dr. Christian Bueger**

Professor of International Relations
University of Copenhagen

By Irum

National Institute of Maritime Affairs organized a three-day 10th International Maritime Conference (IMC-23), on the theme of 'Embracing Blue Economy - Challenges and Opportunities for Developing Countries' by National Institute of Maritime Affairs (NIMA) as a segment of the Pakistan International Maritime Expo & Conference 2023 (PIMEC-23) from 10-12 February 2023 at Expo Centre, Karachi. Dr. Christian Bueger who is Professor of International Relations in the Department of Politics and International Relations, Cardiff University and obtained his PhD in Political and Social Sciences from the European University Institute, Florence, Italy, exchanged his thoughts on the blue paradigms that support ocean governance in the sub-session of 1st day of the conference titled 'Ocean Governance and Development of Blue Economy - Challenges and Opportunities'. On the sidelines of the conference, an interview was conducted to further elaborate his views. The same is being presented.



Questions asked by NIMA researchers:
How do you see Pakistan's role in IOR in general and WIOR in particular?

I have already advocated that Pakistan's maritime interests are more aligned with countries of Western Indian Ocean. I believe Pakistan is a major player in WIOR, hence, Pakistan must endeavor to increase its relations with WIOR countries. In that case, NIMA, a premier maritime think tank of Pakistan can take a lead and become part of all like-minded think tanks who are working in the areas of Western Indian Ocean (WIO), with focus on Geo-Strategy and maritime affairs.



I have already advocated that Pakistan's maritime interests are more aligned with countries of Western Indian Ocean. I believe Pakistan is a major player in WIOR, hence, Pakistan must endeavor to increase its relations with WIOR countries. In that case, NIMA, a premier maritime think tank of Pakistan can take a lead and become part of all like-minded think tanks who are working in the areas of Western Indian Ocean (WIO), with focus on Geo-Strategy and maritime affairs.

What are the blue economy challenges in Western Indian Ocean (WIO) in your view?

The Western Indian Ocean (WIO) region faces various challenges in the blue economy sector, includes fishing, piracy, smuggling of drugs, narcotics and illegal immigration / trafficking of Arms and people and marine pollution.

When I say fishing it includes Illegal, unreported, and unregulated fishing activities pose a significant challenge to the sustainable management of fisheries in the WIO region. This practice leads to overfishing, depletion of fish stocks, and loss of revenue for the countries involved. The WIO region is a hub for human trafficking, with a high number of cases reported in the maritime sector. Trafficking of men, women, and children for forced labor, sexual exploitation, and other forms of exploitation is a significant challenge to the region's blue economy.

WIO in recent past experienced piracy with global implications affecting maritime transport, trade, and investment in the region. This led to increased costs for shipping companies, as well as negative impacts on tourism and other economic activities.

This area is also facing challenges of smuggling of drugs, arms, and other illegal commodities through the maritime routes. This practice leads to increased crime rates, insecurity, and loss of revenue for the countries involved.

WIOR is bordered by developing countries, thus pollution control is not being given much attention. Marine pollution caused by oil spills, plastic waste, and other forms of pollution is a significant challenge to the WIO region's blue economy. This practice leads to negative impacts on marine ecosystems, fisheries, tourism, and other economic activities.

As you know, our planet is facing critical challenges of climate change. The WIO region is highly vulnerable to the impacts of climate change, including sea-level rise, ocean acidification, and changes in ocean currents. These impacts pose significant challenges to the sustainable management of the region's blue economy.

How can NIMA collaborate with international think tanks and universities?



NIMA can enhance its influence at international level by establishing partnerships with international maritime think tanks and universities by signing Memorandums of Understanding (MOUs) or formal agreements. These agreements can outline the terms of collaboration, such as joint research projects, exchange programs, and capacity building.

NIMA can also participate in international conferences and workshops organized by think tanks and universities. This will provide an opportunity for NIMA to network with experts in the field, exchange knowledge in the field of maritime and identify potential areas of collaboration.

NIMA can also collaborate with international think tanks and universities on joint research projects in the maritime field. This will allow NIMA to leverage the expertise of international partners, access new data sources, and publish research outputs that have global impact. Collaboration with international think tanks and universities can help NIMA to expand its research capacity, improve the quality of its research outputs, and build networks with experts in the field.

NIMA can also establish exchange programs with international think tanks and universities. This will provide an opportunity for NIMA staff to participate in training programs, attend workshops, and gain exposure to international best practices.

Any institutions that you think NIMA should team up with?

NIMA should work with international institutions like Institute of Diplomacy in Madagascar and Curtin University Mauritius etc. This interaction can provide numerous benefits to NIMA to help and raise awareness of NIMA's activities and services among new audiences, access to new resources, diversification of perspectives: Working with international institutions can expose NIMA to diverse perspectives and approaches, which can be valuable in addressing complex challenges and partnering with reputable international institutions can enhance NIMA's credibility.

What should be the areas to focus on as for NIMA in light of your experience?

Yes, NIMA can certainly work on identifying the areas where the interaction with small and island states of the Indian Ocean can be enhanced. This could involve conducting research and analysis to better understand the needs, interests, and challenges of these states, as well as identifying potential opportunities for collaboration and engagement. Some specific areas where NIMA could focus on enhancing interaction with small and island states of the Indian Ocean include Maritime security, Environmental protection and trade and economic cooperation etc. By identifying areas where the interaction with small and island states of the Indian Ocean can be enhanced, NIMA can help to build stronger relationships with these states, promote regional stability and prosperity, and advance its mission of supporting maritime security and safety.

How can we make NIMA more prominent?

NIMA can host working group sessions and participate in global & regional discussions in promoting research & dialogue related to maritime issues. Participation in such discussions can help the NIMA develop and share ideas, develop network with other experts & organizations, and contribute to the development of policies & practices related to maritime activities.

How can NIMA promote regional / international research and collaboration to manage on transboundary maritime issues such as IUU fishing, pollution, human trafficking, counter piracy and smuggling etc.?



Partnering with think tanks and conducting frequent seminars, webinars, and roundtable discussions can be an effective way for NIMA to raise awareness and develop effective strategies for addressing the blue economy and security challenges in the NAS and WIO region like illegal fishing, human trafficking, counter piracy, smuggling etc.

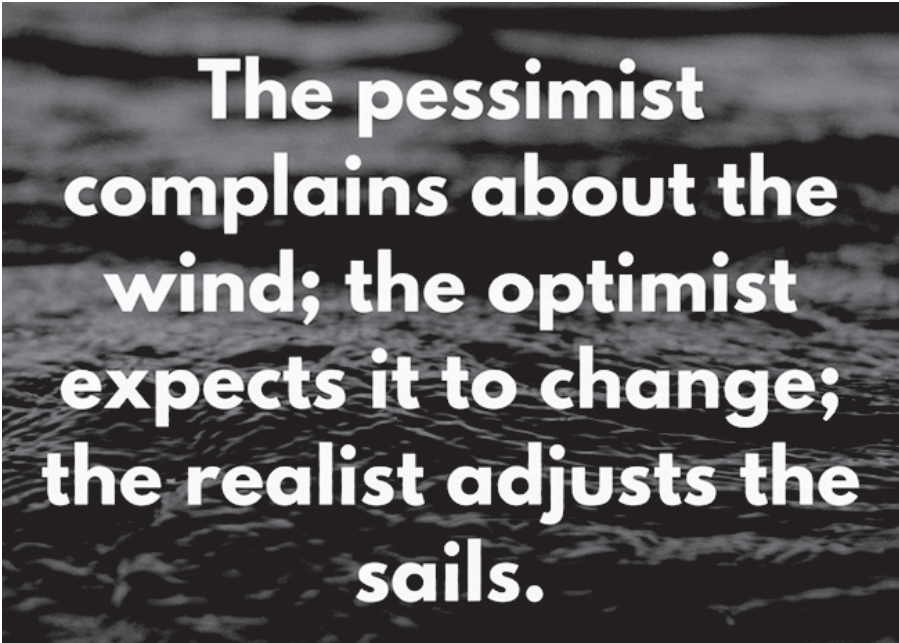
How was your experience at the IMC? And would you like to participate in the upcoming IMC's?

I am grateful to NIMA for hosting me during IMC-23. IMC is an important event in the maritime sector at a global level. The quality of papers read during the conference was excellent. This conference has also provided opportunity to me to understand the problems being faced by Pakistan's maritime sector. Furthermore, I also had the opportunity to meet maritime professionals and had very fruitful discussions. I believe I am now much wiser on many subjects of my interest. I will surely participate in any future activities planned by NIMA.

I also desired to launch my upcoming book titled "Understanding Maritime Security Issues" on the next International Maritime Symposium to be held at Islamabad in 2024 because it can give book a lot of exposure to an engaged audience interested in maritime security issue.

I suggest signing a MoU with the University of Copenhagen for future collaboration. It can provide you with a range of benefits like access to expertise, increase visibility, collaborative opportunities, Funding resources and help NIMA to achieve its goals in the field of maritime security.

At the end, DG NIMA thanked Dr. Christian Bueger for giving exclusive time to NIMA team and further requested him to forward a concept note of his proposals/ideas about the consortium of western Indian Ocean think tanks to NIMA for consideration and possible future collaborations. Dr. Christian Bueger thanked NIMA for inviting him and holding a very productive International Maritime Conference IMC-23. Professor also showed keenness to have a greater interaction with DG NIMA to develop Western Indian Ocean Setup.



**The pessimist
complains about the
wind; the optimist
expects it to change;
the realist adjusts the
sails.**



NIMA Delegation Headed Lasbela University of Agriculture, Water & Marine Sciences to attend the 4th Convocation Ceremony



March 2, A delegation from The National Institute of Maritime Affairs (NIMA) visited Lasbela University (LUAWMS) and attended the fourth convocation ceremony on March 02, 2023. The delegation comprised Dr. Asif Inam, Principle Maritime Sciences, Bahria University, Cdr. Muhammad Akhtar Deputy Director, NIMA headed by Cdre (Retd) Ali Abbas SI (M), Director NIMA Karachi. The delegation was received and warmly welcomed by Dr. Dost Muhammad Baloch, Vice Chancellor of Lasbela University.

More than five hundred students received their degrees in the well-organized and colorful ceremony. The Lasbela University of Agriculture, Water & Marine Sciences (LUAWMS) was established in 2005 and progressed tremendously by providing quality education to students of Balochistan, particularly of the Makran belt. During informal discussions, Director NIMA Karachi briefed about the upcoming activities planned by NIMA and invite Lasbela University for joint collaboration. The Vice-Chancellor appreciated the NIMA’s contribution to Pakistan’s maritime affairs especially the recent flagship event, International Maritime Conference (IMC-23) held as a segment of the Pakistan International Maritime Expo & Conference (PIMEC). He also offered the services of LUAWMS in achieving NIMA’s objectives for the betterment of the maritime sector. Both institutions showed their keen interest in having joint research work.

Certificates Distribution Ceremony of the IMC-23 Volunteers



March 3, The National Institute of Maritime Affairs (NIMA) organized a three-day International Maritime Conference (IMC-23) as a segment of the Pakistan International Maritime Expo & Conference 2023 (PIMEC-23) and was the 10th in the series. The conference was held from 10-12 February 2023 at Expo Centre, Karachi. The theme selected for this year’s conference was ‘Embracing Blue Economy-Challenges and Opportunities for Developing Countries.’



For this grand event NIMA, mobilized 50 students from different universities to work as a volunteer during (IMC-23). To recognize their efforts and contributions during the conference, NIMA hosted a certificate distribution ceremony for the volunteers and Master of Ceremony (MoCs) which was held on 03rd March 2023. The ceremony was organized to appreciate the efforts of students who worked in the conference with full dedication and undertook respective tasks with complete ownership.

Director NIMA-K, Cdre (Retd) Ali Abbas SI(M), acknowledged the efforts of volunteers for making the event a success. Noticing the hard work which the students put into their work, Director Karachi welcomed the volunteers to remain on board for future flagship events of NIMA and also offered to engage them in NIMA's research projects that can also be beneficial for the learning purpose and capacity building of students. Cdr. Muhammad Akhtar, Deputy Director NIMA also praised them for their dedication during the Conference with great diligence and responsibility.

The occasion was also attended by Senior Researchers, Research Assistants, the Media Coordinator, and all staff members of NIMA to wish the students the best of luck with their future goals.

The 6th Advisory Board of NIMA held in Islamabad



March 15, A meeting of the 6th Advisory Board of the National Institute of Maritime Affairs (NIMA) was held at NIMA Head Office, Islamabad. Admiral Asif Sandila NI(M), former Chief of the Naval Staff, Chairman BoA chaired the meeting while the Board members and special invitees / maritime experts were in attendance, in person and online.

V/Adm (Retd) Ahmed Saeed HI (M), DG NIMA welcomed the participants and presented a look at the major events held since the last BoA meeting. Cdre (Retd) Bilal Abdul Nasir SI (M), Director NIMA presented the progress on the minutes of the 4th BoA meeting and sought the input of the house. Moreover, a snapshot of major research activities and future undertakings was also provided.

Board members and participants gave pertinent input on the various agenda items. Detailed discussions on the fishing sector of Pakistan, ports and harbors, shipping, ship recycling industry, maritime tourism, climate change, maritime pollution, biodiversity, and sustainable use of ocean resources were also held.

In his closing remarks, Admiral Sandila appreciated the valuable inputs and suggestions provided by the eminent participants. He applauded the efforts of the NIMA team on the progress made by the institution in promoting the maritime affairs of Pakistan.



French Delegation Visited NIMA Head Office



March 17, A four-member French delegation led by Col Philippe Deponcelle, visited NIMA Head Office Islamabad on 17 March 2023. The delegation comprised Col Nicolas Dean of COSA, DA France in Islamabad, Col Jérôme Mancel (incoming DA France) and Mr. Guillaume Gandelin, desk officer French MoD. The delegation called on Vice Admiral (Retd) Ahmed Saeed HI (M) DG NIMA in his office. Issues of bilateral cooperation between NIMA, the French embassy, and French think tanks came under discussion. During their visit, Cdre (Retd) Bilal Abdul Nasir SI (M), Director NIMA (I) gave a detailed presentation on NIMA’s structure and working. French delegation inquired about issues of US-Indo Pacific strategy, CEPC, maritime education and training, as well as the role of JMICC. In the end, souvenirs were exchanged.

UN RESOLUTION BILLED AS A TURNING POINT IN CLIMATE JUSTICE

A resolution adopted at the United Nations General Assembly in New York is being hailed as a victory for climate justice. The resolution means that the UN General Assembly will seek the opinion of the International Court of Justice (ICJ) on countries’ obligations to address climate change.

The resolution was spearheaded by the Pacific nation of Vanuatu, a country bearing the brunt of the climate crisis. Co-sponsored by more than 130 countries, the resolution states that the UN General Assembly will also seek the ICJ’s opinion on the legal consequences for states that, “by their acts and omissions”, damage the climate in such a way that it affects others, particularly small island nations who are among the most vulnerable to the effects of climate change.

“This is not a silver bullet, but it can make an important contribution to climate change, climate action, including by catalyzing much higher ambition under the Paris Agreement,” said the Prime Minister of Vanuatu, Alatoi Ishmael Kalsakau.

Established in 1945, the ICJ is the highest UN judicial body and was set up to deal with disputes between nation states.





Omani Royal Navy Chief Visits Pak Naval Headquarters



March 2, Commander of Royal Navy of Oman Rear Admiral Saif Bin Nasser Bin Mohsin Al Rahbi Called-on Chief of the Naval Staff Admiral Muhammad Amjad Khan Niazi at Naval Headquarters, Islamabad.

Upon arrival at Naval Headquarters, Commander of Royal Navy of Oman was received by Naval Chief. During the meeting matters of mutual interest, regional security situation and scope of military cooperation including defence, training and security between the two countries were discussed. The Naval Chief highlighted Pakistan Navy initiatives for ensuring maritime security and peace in the region through Regional Maritime Security Patrols. Naval Chief thanked the dignitary on Oman Navy participation in recently held Ex AMAN-23 at Karachi. The visiting dignitary lauded Pakistan Navy's efforts and commitments in support of collaborative maritime security in the region.

It is expected that the recent visit of Commander of Royal Navy of Oman will further enhance bilateral collaboration between the two countries in general and navies in particular.

Chief of the Naval Staff Chaired 49th BOG Meeting at Bahria University Islamabad

March 3, Chief of the Naval Staff Admiral Muhammad Amjad Khan Niazi NI(M) S.Bt, in his capacity as Pro-Chancellor/ Chairman BoG, chaired the 49 th Board of Governors (BoG) Meeting at Bahria University Head Office Islamabad. The session of BOG commenced with a detailed briefing to the Board on various activities undertaken at the University which included development and diversification in academic disciplines, infrastructure and new initiatives in academic and non-academic domains. He was further briefed about the austerity



measures being executed by Bahria University in the current situation of inflation and crisis. Chief of the Naval Staff appreciated the dedicated and extensive efforts of Bahria University in not only imparting quality education to the students but also contributing towards their character and personality building through adopting modern teaching pedagogies. Furthermore, he urged that special focus should be given in developing skills like critical thinking, solution-oriented approach, research & development, problem-solving and professional grooming among the students.

Chief of the Naval Staff lauded Bahria University's endeavor in Pakistan International Maritime Expo and Conference (PIMEC)-2023 held at Karachi wherein the inceptive showcasing of Pakistan Maritime Science and Technology Park (PMSTP) was also undertaken. He also congratulated Bahria University on winning the prize in PIMEC2023. The BoG meeting was attended by board members including Rector BU Vice Admiral (R) Asif Khaliq HI (M), senior Naval/ Civil officers and relevant top management of Bahria University.

Ministry Asked to Develop Capacity for Dredging of Ports

March 6, A government official said that the directives were issued by the Minister for Planning and Development Ahsan Iqbal at a recent meeting of the Central Development Working Party (CDWP) while clearing the maintenance dredging of Gwadar port. It took place after more than eight years and that too on the intervention of the Chinese government. It took months for completion of the bidding process and involved cost overruns. While the CDWP approved the maintenance dredging of navigational channel of Gwadar Port with an escalated cost of Rs4.7bn — a drastic increase from Rs1bn estimated in June last year — to avoid any accident to cargo ships or



imposition of penalties from Chinese port operators for business loss, it also directed that a feasibility study be presented within two months for “creating indigenous capability to undertake maintenance dredging requirements of ports and fishing harbours” on an annual basis. It was reported that maximum siltation occurred in monsoon period that starts in May-June and lasts till September and the project was originally taken in hand without proper survey when the Chinese side raised serious objections. The meeting noted the dredging cost of Karachi port and Port Qasim was roughly Rs 1,500 per cubic metre and the cost of other regional ports ranged between \$10 and \$12 per cubic metre. In the case of Gwadar, the contractor had to transport dredging barges from Karachi and staff had to be accommodated in Gwadar’s remote area. Even then ‘the unit cost was equivalent to \$10 per cubic metre’. The navigation channel at Gwadar was last cleared in 2014-15, but had since developed sedimentation of clay, sand, mud and gravelly coarse sand at most places. This had caused diversion of bigger ships as the port could handle around 30,000 dead weight tonnage (DWT) ships rather than the designed capacity of allowing 50,000 DWT. Official sources said the key factor behind the cost escalation was that the Gwadar Port Authority (GPA) and the maritime affairs ministry had developed the dredging project in June last year at a cost of Rs1bn on guesstimates in emergency circumstances when a couple of 50,000DWT cargoes had to be diverted due to navigational challenges. However, the costs had to be increased on the basis of proper study conducted by Pakistan Navy, followed by competitive bidding. The project is now already under implementation. The project approved by the government envisaged maintenance dredging of a 4.7-kilometre-long navigational channel, basin and berthing area of Gwadar port. Its internal navigational channel and turning basin design depth is 13.8 metres for safe navigation of deep draft vessels and the berthing area and outer channel are dredged up to 14.5 metres to permit safe berthing and sufficient clearance from bottom in low tides. The channel is designed for navigation of 50,000DWT ships the year round. Under the fundamental law of the International Maritime Organisation, it is mandatory to keep safe navigation of vessels in ports. The Gwadar Port Authority is required to accomplish its international contractual obligation under clauses of the concession agreement signed with China’s Over-

seas Ports Holding Company to keep the channel safe, prevent claims and loss in Gwadar port business and to meet the requirements of international shipping market which demands safety of navigation and safe port operations. The maintenance dredging had already been delayed for a few years. It “could have serious repercussions in terms of penalties and damages” that might have been imposed on GPA by the Chinese concession holder due to loss in business or grounding of ships. **(Credits: Dawn)**

Maritime Investment Pivotal for Economic Revival of Country



March 9, Maritime investment is pivotal for economic revival of the country, said Rear Admiral Mirza Foad Amin Baig (HI), Director General, Pakistan Maritime Security Agency (PMSA) in a seminar held at International Islamic University (IIU) on the topic of “Pakistan Maritime Security Agency’s role in security and economy of Pakistan”. The activity was jointly organized by the Iqbal International Institute for Research and Dialogue (IRD), Department of Politics and IR and PMSA at the Faisal Masjid Campus of the university on Wednesday that was attended by a hundred of students of the social sciences faculty.

Speaking on the occasion, DG PMSA said that Pakistan Navy has the best tactics and war strategies with an approach to deal with the enemy with iron hands. He also highlighted the importance of the role and activity of Pakistan Navy in the region by informing about the details such as international collaborations, exercise and a large security patrol. He also informed about the importance of the potential of trade and resources Pakistan has in maritime. He opined that Maritime is a treasure that requires due utilization saying that it can play a major role in a country’s economic stability.



Talking about the advancements in the Pakistan Navy, he said the last decade witnessed phenomenal advancement in the Pakistan Navy in terms of resources and arsenal such as induction of new ships, offshore patrol vessels, surface fleet, aircrafts and UAVs. He added that soon the Pakistan Navy will have AIP engine equipped submarines to surprise the enemy. Rear Admiral Mirza Foad Amin Baig also spoke on the contribution and importance of Pakistan Navy in success and security of CPEC telling that soon Gawadar will have a naval base for its protection.

Biofloc Technique be Introduced to Boost Fish Production



March 13, Pakistan can meet nutritional needs of a rapidly growing population by promoting production of non-conventional seafood varieties like shrimp and lobsters through modern fishing techniques.

Director General of the Fisheries Department of Punjab Dr Sikandar Hayat said it is one of the best aquaculture techniques, which doesn't entail exploitation of land and water resources. "This system is devised to enhance water quality by eliminating waste from water through the natural biological process. The 'floc' is the combination of bacteria, nutrients, protozoa and multiple other microbes. In BFT, excessive feed and released fish excreta both are turned into microbial feed. Probiotics induce immunity in fish against pathogens. BFT is considered the most cost-effective and sustainable as it helps avoid excessive feed and regular water changes by maintaining its quality," he explained.

Sikandar Hayat further said the fisheries department was promoting the BFT as a productive fish farming practice that could be started at any place (it can also be established on the house rooftop). "The department is also providing small fish ponds to farmers, besides developing

a fish hatchery. Ponds can be made of rubber, cement, or any leak-proof material," he said, adding that free or subsidised seeds would also be provided to farmers. He said the department introduced hatcheries as per 4-5 BFTs in the first phase of the scheme. He added that farmers only needed to prepare the ponds of at least a 20-foot radius, in which about 1,000 fish can be accommodated. The fisheries department's director general said a proper small-scale BFT business could be started with an investment of about Rs700,000 to Rs800,000. Discussing with WealthPK the prospects of fisheries development, the fisheries department's director Iftikhar Ahmad Chaudhary said seafood is the most nutritious aspect of the food chain. "The Punjab fisheries department is taking every step possible to develop a regular farming practice. "BFT is one of the most recommended techniques to manage the aquaculture. It is also helpful to provide fresh seafood to households. So, we can say that it is the most economic technique to fulfill both commercial and domestic needs." He said modifying eating habits to make seafood as part of the regular menu was necessary to promote the seafood industry. "As a first step, increased domestic production and consumption are vital to promoting the fishing culture in Pakistan. BFT is a good technique to improve fish production. It will help improve per capita fish consumption and benefit fish farmers economically. With the improvement of local market consumption, obviously, farmers will keenly learn to add value, better market and even export the produce. It is a natural market factor that increased production attracts investors and develops the value chain." (Credits: The Nation)

Experts Highlight Need for Improved Linkages between Academia and Coastal Communities

March 21, WWF-Pakistan, in partnership with Engro Foundation, hosted a seminar to highlight the need for greater collaboration between research organizations and academia. The seminar enabled participants to understand the importance of the socio-economic uplifting of the fishermen communities that reside along the coastal areas of Pakistan.

The seminar titled 'Improving Linkages between Academia/Research Organizations and Coastal Communities' was attended by scientists from the Centre of Excellence in Marine Biology and Institute of Marine Sciences, University of Karachi; Faculty of Marine Sciences, Lasbela University of Agriculture, Water and



Marine Sciences, Jinnah University for Women and Small and Medium Enterprises Authority. Speaking on the occasion, Ghazi Salahuddin, Director (Sindh and Balochistan) WWF-Pakistan, welcomed participants and highlighted WWF-Pakistan's role as a research-based conservation organization that continues to work closely with the academia and research organizations and seeks to benefit from their findings in the implementation of various initiatives. Altaf Sheikh, Senior Manager WWF-Pakistan, outlined various activities being undertaken by WWF-Pakistan in partnership with Engro Foundation for improving the living conditions of the coastal communities. Muhammad Moazzam Khan, Technical Advisor, WWF-Pakistan while stressing the need for research on the challenges faced by the fishermen communities, pointed out various initiatives that have been implemented for the improvement of the said sector based on research conducted by scientists and academicians in Pakistan. A total of 12 scientific papers were presented by the participants.

Pakistan Needs to Improve Hygienic Controls in Fishing Value Chain



March 23, Pakistan needs to improve hygienic controls in

the fishing value chain, which will help increase export value, said an expert. Fishing in Pakistan contributes only 0.4% to the gross domestic product (GDP), but it still plays a crucial role in developing the economy by providing employment opportunities to a significant number of people. As the sector directly employs 390,000 people, and when secondary jobs such as processing, transporting, and retailing are considered, the number rises to between 900,000 and 1,800,000 jobs in total. It is a profitable profession and a promising means to earn precious foreign exchange for the country. Currently, the fish and seafood exports of Pakistan are far below its real potential. According to statistics released by the Pakistan Bureau of Statistics (PBS), Pakistan's seafood exports from July-January 2022-23 were around \$261.645 million. However, the sector has the potential to contribute up to \$2-2.5 billion to the GDP if it has a proper deep-sea fishing policy. According to Aimen Zulfiqar, an associate research fellow at the Sustainable Development Policy Institute (SDPI), Pakistan's fishery sector is being degraded by overfishing, pollution and environmental hazards. She said Pakistan needs to rebuild its fishing industry and introduce new techniques. She said fish processing in Pakistan is outdated and under-capitalised, which contributes to the relatively low-value addition of the sector. As a highly perishable commodity, fish often needs rapid processing. Fresh items, with a 53% share of global output, are the most valued for direct human consumption, followed by frozen fish (26%), canned fish (11%), and cured fish (10%). Processing at various intensities results in different value multipliers, which has significant implications for the potential growth in fishing export "Fish are delicate protein items and putrefy very quickly if not iced or frozen as soon as possible," she said. Aimen said although the volume of seafood exports is rising, we are still unable to progress according to our true potential due to a variety of issues, such as inadequate processing facilities and low-quality controls. According to Worldwide Fund for Nature (WWF), approximately 90% of the fish consumed in Pakistan is decayed, and unsafe for human intake. Fish should be kept between 0 and 5 degrees Celsius to protect them from rotting. Pakistan exports about 10% of its fish production, while the remaining is degraded as most boats lack the facility of appropriate deep freezers and other resources to store the fish. Aimen said fish exported from Pakistan typically



sells for \$2.3/kg in the international market. “Compared to our neighbouring countries, the average price is around \$7/kg in the region. The fishing sector can be improved by providing education to fishermen related to modern technologies,” she emphasised.

The researcher said a plan has been launched by Karachi Fish Harbour Authority (KFHA) and Fishermen Cooperative Society (FCS) to maintain seafood hygienic conditions on boats and in fish processing plants. It has been implemented, and maintenance takes place three times a day at Karachi fish harbour (at its markets, jetties and export zone area). But Pakistan’s fishing business still needs modern techniques and advancement to boost exports. **(Credits: The Nation)**

Planning Minister Ahsan Iqbal Chaired a CPEC Progress Review Meeting



March 24, The Planning Minister Ahsan Iqbal chaired a CPEC progress review meeting and discussed progress on Special Economic Zones, ML-1, KCR and various new development initiatives to be discussed in upcoming JWG. Chief Economist Dr. Nadeem Javaid, Advisor Maritime Affairs Jawad Akhtar and senior officers of CPEC Authority were present. During the meeting, the Planning Minister emphasized the importance of enhancing Pakistan's export sector and directed to follow up on the PM's proposal to China to attach its professionals to help develop Pakistan's export sector during his visit to China.

The Planning Minister further stated that the top priority of the Government's 5Es agenda is to enhance exports, and Pakistan can benefit from China's expertise in this regard. The updated status of Special Economic Zones

(SEZs) was also discussed wherein the Minister instructed to make SEZs a medium to enhance exports. He said SEZs can foster collaboration and innovation, which can lead to the development of new products and services that are better suited to the demands of international markets. The meeting also discussed proposals for upcoming Joint Working Group (JWG), including the Advanced Metering Infrastructure (AMI) Solar Projects and Identification study of pumped storage hydropower projects. The Planning Minister instructed the officials to review all matrices and present progress updates. In addition, the Planning Minister discussed the ML-1 and KCR projects. "We are committed to the development of CPEC and ensuring its successful implementation," said the Planning Minister. "We are taking all necessary steps to address pressing issues and enhance exports, and we are grateful to China for its continued support in this regard." The meeting concluded with a strong emphasis on the need for close collaboration between Pakistan and China to ensure the successful implementation of CPEC and to achieve the common goal of regional prosperity.

Chinese Charge D' Affairs Ms. Pang Chunxue Called on the Minister for Planning, Development & Special Initiatives Ahsan Iqbal



March 24, Her Excellency Pang Chunxue, the Charge d'affaires of the Chinese Embassy in Pakistan, met with Honorable Planning Minister Ahsan Iqbal to discuss the ongoing and future cooperation between China and Pakistan. During the meeting, the two sides discussed several areas of focus related to bilateral cooperation and agreed to work closely to further strengthen the strategic partnership between the two nations.

The Planning Minister noted that 2023 marks the completion of a decade of Chinese cooperation with Pakistan in



CPEC projects, highlighting the importance of the project for Pakistan's economic development and expressed gratitude for China's continued support.

Khunjerab Pass Reopens for Pak-China Trade



April 3, The Khunjerab Pass, a major trade route between Pakistan and China, was opened after a closure of almost three years in the wake of Covid-19 pandemic. The pass that connects Gilgit-Baltistan with China's Xinjiang Uyghur autonomous region was closed in the year 2020 after spread of Covid-19 outbreak. According to official sources, the Chinese authorities have shared a letter with Pakistani officials regarding the reopening of the pass for the trade. The port authorities on the Chinese side of Khunjerab Pass have been instructed to take all necessary measures regarding Covid-19 before the start of the arrival of goods from Pakistan.

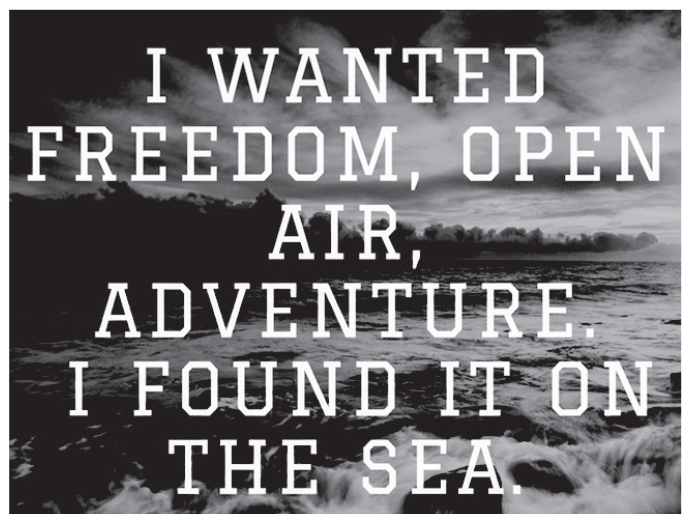
Similarly, Pakistani border authorities have also been instructed to take all measures regarding Covid-19, ensuring the containment of the disease. It may be mentioned that as result of cold weather and lack of oxygen in the high altitude, Khunjerab Pass generally opens from April 1 to November 30 every year, and remains closed from December 1 to March 31 of the following year.

But to ensure the smooth customs clearance of Pakistan's urgently needed and other supplies, the port was temporarily opened twice early this year. Though with difficulties including extremely cold weather, heavy snow and lack of oxygen, the local customs have worked around the clock to ensure the transportation of cargo. This year, the last temporary opening was last for 12 days between January 30 and February 10 while the first port opening was between January 19 and 20 this year. The two temporary openings facilitated 128 cross-border personnel visits,

328 transportation vehicles' passes, and more than 6,000 tons of goods exported, as per foreign affairs office of Kashgar prefecture.

Expected ships in Port Qasim

ETA by AIS	Type	Vessel
Apr 28, 09:00	Container Ship	NAVIOS DOMINO
May 1, 03:30	Chemical/Oil Products Tanker	ASIA LIBERTY
May 2, 23:00	Chemical/Oil Products Tanker	DOLPHIN 02
May 4, 22:00	Tug	M.T-GHARO





Falling Panama Canal Traffic Threatens Local Economy, Execs Warn.



March 9, The amount of cargo passing through the Panama Canal is expected to shrink this fiscal year, the canal's top authority said on Wednesday, with experts warning lower volumes could hurt Panama's economy. Canal Administrator Ricaurte Vasquez said the institution forecasts just 500 million tonnes of goods passing through the 50-mile (80-km) trans-oceanic waterway in the 2023 fiscal year, some 10.3 million less than the previous forecast.

Nicolas Vukelja, former president of Panama's maritime chamber, told Reuters the cargo will decrease around 4% compared to the entity's best years, which is "worrying" for the canal's income.

"This is going to affect the economy of our country," Edgar Urrutia, president of the Logistics Business Council, told Reuters, adding the canal's additions to government coffers will decrease. **(Credits: Reuters)**

Russia Finds Plenty of Tonnage for Crude and Refined Product Exports



March 13, Russia appears to be having little difficulty finding the tonnage it needs to support its petroleum

exports, despite restrictive Western sanctions and price limits. In both crude and clean tanker segments, Russian energy exporters are loading and shipping as much as ever.

According to tanker shipbroker Gibson, Russia has been "relatively successful" in finding vessels to carry its refined products after the EU import ban in February. Thanks in part to "notable changes in ownership of the product tanker fleet" - for example, the shifting of Sovcomflot's foreign-flag fleet to a Dubai-based holding company - over 120 MRs and handysize tankers have been involved in Russian refined product exports since the ban took effect, along with at least 21 LR2s, according to Gibson.

Thanks to the willingness of these shipowners, with some help from a limited number of Western shipping service providers, Russia exported more clean products in February than its average volume last year, before the ban. Gibson is aware of more clean tankers heading for Russian load ports in the coming week.

Russian crude oil exports are about as voluminous as ever, thanks to booming sales to China and India. China is able to import some Russian crude oil by cross-border pipeline, but a large share comes by sea, including shipments from the Russian Pacific oil terminal at Kozmino. India is absorbing a massive share of the oil that Russia used to sell into the EU market - to the tune of some two million barrels per day, according to Kpler.

"In a sense, it's not much of a change, because it's only a reshuffling of what was flowing where initially. Europe was buying this. Now India is buying this," Kpler analyst Viktor Katona told Insider.

About half of the flow is carried aboard tankers tied either to Russia or to the "dark fleet" of gray-market tonnage. The growth of the lucrative "dark" segment has reached the point that fully one fifth of the world's 900 VLCCs are officially "up to no good," according TankerTrackers.com, a leading authority in the art of uncloaking tanker movements. Based on AIS tracking, satellite imaging and on-the-ground photography, the consultancy has identified 174 VLCCs that are engaged in carrying Russian, Venezuelan or Iranian oil in spite of U.S. and EU sanctions measures.

For the other half of Russia's export volume, sanctions-compliant Western tonnage provides much of the rest of the needed capacity. This is allowable under EU



rules, so long as the oil is priced under \$60 per barrel - but determining the extent of compliance or non-compliance is challenging, since the price cap has no reporting requirements. A recent study led by researchers at Columbia University called for audits to determine whether Western insurers, shipowners, brokers and others are sticking with the rules, especially as market data indicates that the G7 price cap is routinely exceeded. **(Credits: The Maritime Executive)**

Seven Companies Plan to Build New Sinopec-Backed Hambantota Refinery



March 31, Chinese energy company Sinopec, who also runs bunkering operations at the port, said it would support the refinery's construction, according to Ship & Bunker.

The seven companies who have submitted Expressions of Interest (EOI) are Grant & Shearer Ltd. of Nigeria, Sinopec of China, Petrichor Capital Sbn. Bhd. of Malaysia, Vitol Group of Singapore, Matin Tejarat Co. of Iran, Harree Management Services (Pvt.) Ltd. with Marka Invest of Sri Lanka and the UAE, Deniyaya Engineering Sales and Service Syndicate of Sri Lanka.

Sri Lankan Minister of Energy, Kanchana Wijesekera, has said a technical evaluation committee & other procurement committees will now evaluate the proposals.

The addition of a refinery at Hambantota would likely help lower the port's bunker prices. **(Credits: Port News)**

Ports of Indiana Seeking New Operator of International Agricultural Shipping Terminal.

April 3, Ports of Indiana has issued a request for qualifications (RFQ) to identify potential operators of the international agricultural shipping terminal at Ports of Indiana–Burns Harbor, located at the south end of Lake Michigan, close to Chicago.



The 7m-bushel terminal has transload capabilities for ocean ships, lake vessels, river barges, unit trains and trucks. This is the first time in 44 years that the terminal is available for a new operator.

The facility has been operated by Cargill since 1979, but the company announced it is changing its business model in the region and will relinquish the facility to the port as of June 1. Ports of Indiana will assume possession of the facility and is looking for a long-term partner to help grow shipments at the port.

The terminal can handle ocean vessels transiting the Great Lakes, 1,000-foot lake vessels, year-round barge traffic via the inland river system and unit trains from nearly all Class I railroads. The grain elevator terminal includes 7.2m bushels of storage facilities and high-speed loading capacities that can load 90,000 bushels per hour into an ocean vessel and unload 30,000 bushels per hour from a unit train.

Since the terminal began operations in 1979, it has exported more than 500m bushels of corn and soybeans to world markets.

The RFQ seeks qualifications from companies interested in operating the terminal. Responses are due April 21. Ports of Indiana will issue a formal request for proposals in May to all pre-qualified companies. “We have received multiple inquiries from companies interested in expanding the facility,” said Ryan McCoy, port director for Ports of Indiana–Burns Harbor, in a statement. “This is a unique deep-water terminal with tremendous capabilities for shipping grain, DDGs and many bulk cargoes to and from ocean vessels at the heartland of America. It’s not every day that this type of facility becomes available.”

The Burns Harbor port is home to more than 30 companies and handles approximately 3m tons of cargo a year. A planned \$32m expansion includes construction of two rail yards, new bulk and general cargo terminals, a bulk warehouse, and a truck marshalling yard. **(Credits: Splash247)**



CMA CGM Launch Fastest Direct Bangladesh-Middle East Shipping Service



March 13, The CMA CGM Group, a global player in sea, land and air logistics solutions, has announced the launch of the new Bangladesh India Gulf Express (BIGEX) service.

The service will debut as the first and fastest direct service that connects Bangladesh to Jebel Ali and Abu Dhabi in the Gulf, as well as Nhava Sheva and Mundra in India.

BIGEX will commence sailing from the port of Chittagong on 5th April. Three 1,700-TEU vessels deployed on the service will ply between the westbound rotation of Chittagong - Colombo - Mangalore - Nhava Sheva - Mundra; and the eastbound leg to Jebel Ali - Khalifa Port. Transforming Bangladesh's sea lane to the Middle East and India West Coast

The introduction of BIGEX charts the Bangladesh-India-Sri Lanka-Gulf corridor, transforming Bangladesh's sea lane to the Gulf and India West Coast. Characterised by fast transit times, exports from Chittagong will reach Jebel Ali and Abu Dhabi in just 14 and 15 days respectively.

A more efficient and greener alternative to trucking, BIGEX will get Bangladesh shipments to Nhava Sheva and Mundra in 8 and 10 days respectively.

Diversifying Bangladesh's transshipment connectivity
BIGEX is also set to diversify Chittagong's connectivity to transshipment hubs beyond the key Asian ports to the Gulf and India West Coast ports. This expands the routes to markets and further reduces transit time, such as that for US-bound Bangladesh cargoes that will be relayed via Colombo.

Xavier Eiglier, Senior Vice President CMA CGM Middle

East Gulf, Indian-Sub-Continent, Indian Ocean Islands, and Southern & East Africa, said: "Historically, sea trade between the Indian subcontinent and Gulf countries has been instrumental in the development of what would later become one of the world's most dynamic regions.

"The recently signed India-UAE Comprehensive Economic Partnership Agreement (CEPA) and ongoing free trade pact discussions between India and the GCC will strengthen economic ties between these regions.

"With the launch of the BIGEX service, the CMA CGM Group supports its customers to seize promising two-way trade market opportunities." **(Credits: Transport & Logistics)**

Saudi Ports Record 7.76 per cent Container Volume Rise in February



March 13, The Saudi Ports Authority (MAWANI) has announced a 7.76 per cent rise in container traffic at its trade hubs during February 2023, handling 622,837 TEU compared to 577,993 TEU in the previous year.

Monthly recorded container data reveals a 12.75 per cent increase in exported containers from 172,208 TEU in February 2022 to 194,157 TEU this year.

Imported containers saw a yearly increase of 5.95 per cent to 193,937 TEU this year from 183,051 TEU in 2022.

Transshipments grew at a yearly pace of 5.39 per cent from recording 222,734 TEU in 2022 to 234,743 TEU this year.

Cargo volumes dropped 3.13 per cent to 23,089,455 tonnes from 23,835,826 tonnes in 2022.

February saw as many as 883 vessels berth across Saudi ports, which represents a 4.87 per cent uptick from 842 vessels during the same period last year. **(Credits: Port Technology)**



Number of Scrubber-Equipped Vessels to Grow Despite Drop in Fittings Last Year



March 15, Despite a significant drop in the number of installations, the share of scrubber-fitted vessels is expected to increase in the coming years.

BIMCO reported 399 onboard installations last year, a 24% decrease year on year, with scrubbers now installed on 13% of bulkers, tankers, and containerships. This percentage is set to rise, as 17% of ships currently on the yard's books are expected to have scrubbers installed.

Installing scrubbers allows shipowners to comply with current regulations while benefiting from the price differential between high sulphur fuel oil and very low sulphur fuel oil (VLSFO). But BIMCO's chief shipping analyst, Niels Rasmussen, noted that the price premium for VLSFO has turned out to be less than initially estimated.

"The lower-than-expected VLSFO premium has likely discouraged owners from installing scrubbers, particularly on smaller ships with lower bunker consumption and lower savings as a result," Rasmussen said.

Since January 2020, the premium for VLSFO has averaged \$149 per tonne, being as low as \$50 per tonne for an extended period during 2020 and as high as \$400 per tonne last June and July. "The higher the VLSFO premium, the more attractive the investment in a scrubber is because the payback period is shorter," Rasmussen said.

In the long term, however, Rasmussen estimated the use of scrubbers to cut sulphur emissions may reduce "as decarbonisation efforts will increase the use of alternative fuels that are sulphur compliant". **(Credits: Splash247)**

Jeddah Islamic Port Boosts Decarbonization Drive

March 30, The Saudi Ports Authority (Mawani) has announced cutbacks in crane activity and truck

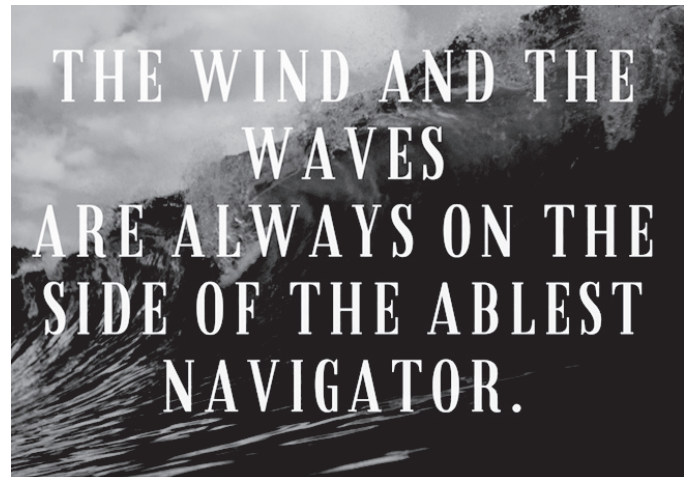
turnaround times at Jeddah Islamic Port in line with its annual target of lowering carbon footprint at the Kingdom's busiest port by 1,046 tons in 2023.

Complementing the goals of the National Transport and Logistics Strategy (NTLS), the Jeddah port's decarbonization efforts form part of Mawani's Green Ports initiative that seeks to slash energy consumption by 15% through equipment electrification and diesel phaseout across the Kingdom's trade hubs.

Through a 33% decrease in average yard crane moves for every imported container that requires manual inspection as well as a 17% reduction in truck turnaround times, the port further solidifies its standing as a cost-competitive and operationally-efficient logistics destination at the crossroads of East-West trade.

The national maritime regulator's environmental strategies are inspired by the Saudi Green Initiative, a national climate action plan that aims to unite the Kingdom's push towards ecological protection, energy transition, and emissions reductions through a joint collaborative approach between the public and private sectors.

The Red Sea based hub had recently bagged the Port of The Year award at the Green Shipping Summit 2023 that was held in Rotterdam, The Netherlands for its successful track record in harnessing innovative and sustainable technologies and solutions for a greener tomorrow. **(Credits: MENAFN)**





NYK Certifies Ship-Recycling Facility in Bangladesh for Meeting Environmental, Safety, and Human Rights Standards



March 13, NYK has certified PHP Ship Recycling Facility in Bangladesh for meeting NYK’s standards for ship-recycling measures pertaining to the environment, safety, occupational health, and respect for human rights. PHP Ship Recycling Facility, which is a ship-recycling facility operated by PHP Ship Breaking and Recycling Industries Ltd., has become the first yard in Bangladesh to be certified by NYK. In early March, an NYK Group vessel entered PHP Ship Recycling Facility to be dismantled.

Ships contain a large amount of high-quality iron, and appropriate disposal of valuable recyclable resources is important for the realization of a circular economy. Additionally, the minimization of environmental pollution and industrial accidents when ships are dismantled has been an issue receiving attention.

The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, or simply the Hong Kong Convention, was adopted by the International Maritime Organization (IMO) in 2009. Classification societies, such as Japan’s ClassNK, act as substitute authorities of ships’ flag states by issuing statements of compliance to yards that meet the standards determined in the convention.

The NYK Group sends supervisors to yards that have been certified by classification societies to confirm that the yards also meet NYK’s stricter standards. NYK conducts ship recycling at these certified yards, which currently total 30 in India, three in China, and one in Turkey. During the vessel dismantling at PHP Ship Recycling Facility, a supervisor sent from our group’s ship-management company monitors the process.

NYK was the first Japanese shipping company to participate in the Ship Recycling Transparency Initiative (SRTI), an information-disclosure platform concerning the ship recycling process. NYK also became the first Japanese company to become a signatory of the UN Global Compact Sustainable Ocean Principles. In the future, the NYK Group will deepen dialogues with stakeholders through participation in initiatives concerning the environment, safety, and human rights. The NYK Group will also promote ship recycling at yards that meet the standards of the Hong Kong Convention and NYK and aim to realize a sustainable society and environment. **(Credits: Marine Insight)**

Shell Funds Offshore Wind Research at Former Avondale Shipyard Site



March 13, Louisiana-based company Gulf Wind Technology has secured funding from Shell to set up a wind power research and training facility at the former Avondale Shipyard site, a storied location which is ready for redevelopment.

With \$10 million in backing from Shell, Gulf Wind plans to hire 30 people and found a new hub for offshore wind R&D in the region.

Gulf Wind has experience in improving the economic performance of operational wind farms and conducting research on rotor technology, primarily for onshore applications. It is headquartered at Avondale, with 30,000 square feet of workspace and access to 1.5 million additional square feet for fabrication. The new R&D program will be an expansion of its activities.

The company says that an investment in R&D for designing custom rotors - its primary area off experience - will be useful when it comes to adapting offshore turbines to the unique conditions in the Gulf.

“Wind resources in the Gulf region are more variable than



what you find on the east coast where most of U.S. offshore wind development activity is currently happening,” said James Martin, GWT's CEO. “Seasonal hurricane conditions and moderate average wind speeds create a situation that requires a novel approach to the application of technology and the framework in which it is both developed and demonstrated. The Shell Gulf Wind Technology Accelerator program has been specifically created to address and fulfill this need.”

The first demonstrator turbine at the site is expected to be ready as early as next year. In addition to its R&D work, the program will also house an offshore wind workforce education and training initiative.

To get the project built in Avondale, the state of Louisiana offered Gulf Wind Technology a workforce development incentive package, including a \$375,000 award to support site infrastructure improvements. The company is also expected to participate in two state tax exemption programs. **(Credits: The Maritime Executive)**

Guidelines Seek to Cut Lithium-Ion Battery Carriage Risks



March 29, The Cargo Incident Notification System (CINS) and insurers have published guidance on safely carrying lithium-ion batteries in containers. The first in a series of documents on safely carrying lithium-ion batteries covers how the batteries operate, their regulatory classification as cargo, the risk of and causes of thermal runaway which can lead to fires, and the toxicity hazards associated with the battery chemistry.

The document goes on to give an overview of factors involved in choosing a container for lithium-ion batteries, the effect of a battery's charge state on packing considerations, stowage on container ships, detecting and dealing with lithium-ion fires on container ships, and loss mitigation measures.

The guidelines were Developed by CINS, an initiative launched by container lines in 2011 to reduce cargo incidents, alongside the International Group of P&I Clubs, the TT Club and the International Cargo Handling Coordination Association (ICHCA).

“We strongly urge all stakeholders in the production, supply, transport, handling and sale of lithium-ion batteries whether as individual components or integrated into an electronic device, vehicle or other product to recognise their responsibilities in maximising safety when in transit,” said Dirk Van de Velde, Deputy Chair of CINS and board member of ICHCA.

“Our Guidelines will create greater awareness of the possibilities of the damaging and life-threatening incidents, which have already occurred, and instil more urgent motivation to act before more catastrophic disasters result.”

The initial publication will be followed by three further documents – regulatory compliance checklists, risk assessment and emergency response, and training and educational awareness.

“As our experience of transporting lithium-ion batteries widens and the technology surrounding their chemical composition, production and application rapidly evolves, risk controls and loss prevention measures need to keep pace. The work encapsulated in these Guidelines will, of necessity, continue and be undertaken in collaboration with all relevant stakeholders to increase our knowledge and understanding of the risks posed by carriage of lithium – ion batteries in containers by sea. **(Credits: Seatrade Maritime News)**

Savannah set to be Test bed for Green Ammonia Bunkering.



March 31, American Bureau of Shipping, A.P. Moller – Maersk, Fleet Management, Georgia Ports Authority,



Maersk Mc-Kinney Moller Centre for Zero Carbon Shipping, Savage Services, Sumitomo Corporation and TOTE Services have announced the execution of a Memorandum of Understanding (MOU) to jointly conduct a feasibility study with the aim to be one of the pioneers in establishing a comprehensive and competitive supply chain for the provision of green ammonia ship-to-ship bunkering on the US east coast. This study will be conducted at the Port of Savannah, the third busiest gateway for containerised trade in America.

The study aims to cover the entire end-to-end supply chain of ammonia bunkering, which includes the development of a cost-effective green ammonia supply chain, the design of an ammonia bunkering articulated tug-barge, as well as related supply chain infrastructure. Relevant government agencies and experts in the US will be engaged in working towards the standardisation of safe operations and regulations.

Morten Bo Christiansen, head of energy transition at A.P. Moller-Maersk, said “At Maersk, we are committed to net zero by 2040. To achieve this we need huge amounts of green fuel for our ships. For now, green methanol is the only pathway that is certain to have material impact in this decade, and we are happy to see the momentum that is building in the shipping industry on this pathway. However, given the enormity of the challenge ahead of us, we must keep exploring additional new fuel pathways. We see green ammonia as a fuel with potential in the long term for commercial shipping.”

Koji Endo, general manager of Sumitomo’s energy division, said “We embark on our ambition to build the first Ship-to-Ship ammonia bunkering base in the US in addition to Singapore and Oman. (Credits: Splash247)

World’s First Hydrogen Dual Fuel Straddle Carrier Rolls out in Antwerp



March 31, The Port of Antwerp-Bruges, one of Europe’s

largest ports, now features what is said to be the world’s first hydrogen dual-fuel straddle carrier.

Launched by Antwerp Terminal Services (ATS), a joint venture between MSC PSA Europe Terminal (MPET) and PSA Antwerp, the machine uses the engine developed by Compagnie Maritime Belge (CMB)’s clean technology division CMB.TECH.

Following a two-year design and development phase, the straddle carrier running on a mix of hydrogen and diesel fuel will be tested in live operations at PSAA’s Noordzee Terminal. The dual-fuel technology will replace 70% of diesel consumption with hydrogen, with the eventual goal of 100% hydrogen injection.

“Ports have already been identified as hotspots for hydrogen technology. Because of the heavy use of straddle carriers, dual fuel technology can offer the right balance between lowering emissions and retaining operational performance, robustness and cost-effectiveness,” said Roy Campe, chief technology officer at CMB.TECH.

The tests are part of the MPET & PSAA “Green Straddle Carrier Program”, in which the terminal operators are evaluating four major technological pathways to reduce these vehicles’ carbon emissions in their actual working environments, including hydrogen, biofuel, hybrid battery/diesel and full electrification.

Francis De Ruytter, head of sustainability for PSA Europe, Mediterranean and the Americas, said: “Straddle carriers are crucial in maintaining highly productive operations at our terminals, but at the same time they are responsible for approximately 90% of our direct emissions in Belgium. While at Europa Terminal, we are gradually moving towards automated stacking cranes in the yard, we realise that straddle carriers will remain a key element in our equipment fleet for years to come. That is why we are now investing in a program that examines various technological options and partners to make these vehicles more sustainable.”(Credits: Port Technology International)



IMO Revises Unified Interpretations to the BWM Convention and the BWMS Code

March 1, The International Maritime Organization has revised the Unified interpretations to the BWM Convention and the BWMS Code. The Marine Environment Protection Committee, at its seventy-ninth session (12 to 16 December 2022), approved a revised unified interpretation to regulation E-1.1.5 of the BWM Convention and the Form of the International Ballast Water Management Certificate, concerning commissioning testing of a ballast water management system which has undergone a major modification or an upgrade on board an existing ship in order to improve the performance of the BWMS and ensure compliance with the D-2 standard **(Credits:Marine Regulations News)**

International Maritime Organization Implements Future Fuels and Technology Project

March 14, On March 3, 2023, the International Maritime Organization (IMO), a specialized agency of the United Nations that regulates international shipping, announced its research project into the availability of low and zero-carbon marine fuels and technology. The Future Fuels and Technology for Low and Zero-Carbon Shipping Project (FFT Project) is one of several initial steps that the IMO will take to accomplish its priority goal of eliminating or reducing carbon emissions from international shipping. Ultimately, the FFT Project will support the IMO Strategy on Reduction of Greenhouse Gas Emissions from Ships (IMO GHG Strategy).

In June 2022 at its 78th Session, the IMO Marine Environment Protection Committee (MEPC) recognized the challenges to reducing shipping carbon emissions and announced a series of guidelines for interim measures to reduce greenhouse gases. These guidelines, which entered into force on November 1, 2022, introduced the Energy Efficiency Existing Ship Index (EEXI), the annual operation carbon intensity indicator ratings (CII), and a Ship Energy Efficiency Management Plan (SEEMP) for international shipping. In addition, MEPC approved draft amendments to Appendix IV of The International Convention for the Prevention of Pollution from Ships (MARPOL).

The IMO Marine Environment Division is spearheading the FFT Project to explore the possible avenues to reduce greenhouse gas emissions. For example, the FFT Project will focus on alternative sources of low carbon and zero

carbon shipping fuels and technology to eliminate greenhouse gas emissions in international shipping. The FTP Project will focus on safety, pricing, the feasibility of infrastructure requirements, supply chain issues, and obstacles to implementing the IMO GHG Strategy.

The FFT Project is a public-private partnership between the IMO, a United Nations agency, and the Republic of Korea, who will provide funding for the FFT Project. The FFT Project will have a duration of three years through 2025. The three phases of the FFT Project include an analysis of the following: (i) potential training and safety issues; (ii) the current and projected dissemination of low and zero-carbon marine technology and fuels; and (iii) the development of potential pilot projects. Finally the FFT Project will include a comprehensive website for the use of IMO Member States. **(Credits: Lexology)**

New Bill in Washington takes Aim at China’s Influence in Ocean Shipping



*March 30,*Two of the main backers of last year’s Ocean Shipping Reform Act (OSRA) in the US have come up with an updated piece of legislation which takes aim at China’s influence in the ocean shipping space.

US representatives Dusty Johnson and John Garamendi introduced the bipartisan Ocean Shipping Reform Implementation Act this week in a bid, the pair said, to crack down on the Chinese Communist Party’s attempts to influence America’s supply chain.

The bill would prohibit US ports from using China’s National Transportation Logistics Public Information Platform (LOGINK), allows the Federal Maritime Commission (FMC) to investigate foreign shipping exchanges like the Shanghai Shipping Exchange to preempt improper business practices, and authorises the FMC to streamline data standards for maritime freight logistics.



“We’ve seen the positive results of the Ocean Shipping Reform Act, but there is more to be done to stay tough on China,” said Johnson. “The Ocean Shipping Reform Implementation Act gives the FMC the authority to protect US ports, shippers, and manufacturers from the CCP’s influence. Fair trade practices benefit all parts of the supply chain from producer to manufacturer, shipper to consumer.”

The bill would also authorise the FMC to streamline data standards for maritime freight logistics and use existing data standards or industry best practices, including contracting an expert third party to develop the new federal data standard if needed. It would also authorise the Bureau of Transportation Statistics to collect more information on port operations, such as the total of incoming and outgoing containers and yard capacity. **(Credits: Splash247)**

Singapore and Norway Sign Maritime Decarbonisation Deal with IMO



March 21, The Maritime and Port Authority of Singapore (MPA) and the Norwegian Ministry of Climate and Environment have signed an agreement with the International Maritime Organization (IMO) to assist developing countries in their efforts to reduce emissions from ships and in ports.

Under a memorandum of understanding (MoU) inked in London this week, the parties will exchange experience, knowledge and best practice, and undertake joint resource mobilisation with a view to collaborate on actions to reduce greenhouse gas emissions from ships and the activities of ships in ports, within the frameworks of the NextGEN Connect initiative and the GreenVoyage2050 Project.

“This MoU is an important partnership that brings together our projects with the mutual goal to test solutions along shipping routes. This will help reduce greenhouse gas emissions from shipping in an inclusive manner and with the support of like-minded States, aggregate demand along the supply chain,” said Teo Eng Dih, chief executive of the MPA.

The NextGEN Connect initiative was established between the IMO and the MPA in April 2022 with the aim to bring industry, academia and global research centres together, to offer inclusive solutions for maritime decarbonisation. The IMO-Norway GreenVoyage2050 Project was established in May 2019 by the IMO, backed by the Norwegian government funding to support developing countries in their efforts to implement the “Initial IMO Strategy on the Reduction of GHG Emissions from Ships”. **(Credits: Splash247)**

Expected ships in Karachi Port

<i>ETA by AIS</i>	<i>Type</i>	<i>Vessel</i>
Apr 25, 07:00	Oil Products Tanker	BLUE SKY I
Apr 25, 09:30	Container Ship	YM EXPRESS
Apr 26, 08:00	Container Ship	SZCZECIN TRADER
May 5, 19:00	Bulk Carrier	M CONFIDANTE
May 8, 17:00	Bulk Carrier	BRILLIANCE



WHAT SHOULD YOU LOOK FOR WHEN CONSIDERING MARITIME CLEAN TECH?

By David Connolly

The International Maritime Organization (IMO) recently pledged to respond to industry concerns over the criteria and implementation of its Carbon Intensity Indicator (CII) rating system after the review process is completed this year. With this in mind, maritime executives should expect CII to become even more influential as enforcement mechanisms and unintended consequences are addressed.

One such unintended consequence of the regulation that is already becoming apparent is the industry's focus on slow steaming to improve CII ratings. Relying solely on slow steaming, and taking a static view on CII regulations more broadly, is a significant risk. While it's true that slow steaming can improve CII ratings, it is by no means a silver bullet and it certainly has flaws. Vessels will slow down, meaning that the global fleet will need to expand to transport the same volume of goods. Ultimately, this will increase the global fleet's lifecycle emissions – so slow steaming is counterintuitive to the environmental aims of CII. Once widely recognized, this makes it likely that the IMO will incentivize other solutions for attaining A and B ratings, which will themselves grow in importance as a mark of pedigree between different shipowners.

While the regulatory penalty for CII non-compliance is currently minimal, the commercial impact may yet be substantial. For example, if freight rates are high, a competitive advantage is held by those who can move fast while maintaining a favorable CII rating. Additionally, as more customers press for carbon-neutral shipping of goods, a superior CII rating may become a license to operate for reputable cargo owners. Ultimately, vessel efficiency and charter rates, emissions and profits, are only set to become more intertwined. For those who recognize this clear direction of travel, and appreciate the need to look beyond slow steaming for true solutions, clean technology is an obvious place to start the search.

Retrofit-ready technology

Clean technologies, such as air lubrication systems, offer a logical opportunity to improve vessel efficiency, thereby reducing fuel use, and in turn reducing OPEX and emissions. Plus, saving fuel becomes even more important as more expensive, less energy-dense alternative fuels are introduced to the mix.

If the shipping industry is to complete its decarbonization puzzle, improving the efficiency of the massive existing fleet must not be overlooked. While newbuilds do remain a key piece of that puzzle, it is simply too emission-intensive to build all of the new ships required. Bearing that in mind, most, if not all shipowners will seek to retrofit some of their existing vessels to improve efficiency.

Having said that, it may be challenging to determine which clean technology or technologies will lead to genuine, proven efficiency improvements on existing vessels. So, what should shipowners look for in a clean technology? The first step is to check whether, from a technical perspective, it is feasible to retrofit a specific clean technology to a specific vessel – making sure to properly understand the payback equation given the remaining lifecycle of the vessel.

The next step is to check that a solution can be installed efficiently. A lot of clean technologies can be installed during a ship's scheduled drydocking period, maximizing trading time. Looking at the full lifecycle of, and total cost of ownership for, a technology is also key. Systems with minimal impact on the vessel's equipment footprint and that are easy-to-use and maintain should be prized.

Efficient installation depends upon resilient supply chains. For example, at Silverstream Technologies, we



focus on supply chain resilience, which requires a diversity of suppliers as well as strong relationships with OEMs and local entities. This enables us to deliver systems within six months, on time and within budget. Verified emissions data

As is the case with most strategic decisions in the modern shipping industry, clean technology choices should be underpinned by data. A proven track record of emissions reduction claims and case studies spanning each specific vessel type are vital. At Silverstream, for example, looking at the hydrodynamics, we know that our technology works well for almost all vessels that have a large, flat bottom such as LNGCs, cruise ships and VLCCs.

In general, shipowners should be skeptical of clean technology providers that lack transparency and don't openly publish performance data for their technology. Shipowners and operators can also help move the data conversation forward by bringing strong operational data and a clear understanding of their ship's operational profile to the table.

Shipowners and operators should also look for emissions savings that have been independently verified. This is often achieved when a technology goes through systematic testing phases in collaboration with class societies. Technologies that can be switched on and off can also offer a simple way to accurately measure real-life operational performance.

It is also important to consider the emissions reduction data across the entire operational range of the vessel, not only a single point of optimization, as well as whether that voyage was typical of how the ship is usually operated. Exploring how the new technology will interact with other equipment and clean technology onboard the vessel, and supporting this with data and simulations where possible, is also valuable. While some clean technologies complement each other well and lead to greater efficiency gains, others can actually hinder one another. Factoring all of these data points into the set will make the insights more realistic and accurate. Shipowners large and small, from all over the world, can leverage the opportunities to gain competitive advantage presented by the industry's decarbonization transition. If they have done their due diligence, and they have considered the key factors outlined above, it's a case of being decisive, taking the decarbonization bull by the horns, and installing the right clean technology to make an impact today.

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(Source: The Maritime Executive)



THE UN DECADE OF OCEAN SCIENCE FOR SUSTAINABLE DEVELOPMENT

By Vladimir Ryabinin, et al.

Our civilization needs a clean, resilient, productive, safe, well-observed, documented and predicted ocean. “The ocean we need for the future we want” was the motto of the Intergovernmental Oceanographic Commission proposal to the United Nations to consider the merit of an Ocean Science Decade. By proclaiming the Decade, the UN General Assembly offered the oceanographic community a unique, once in a life-time, opportunity to change the way we do things, make oceanography fit for purpose of effectively supporting sustainable development, and energize the ocean sciences for future generations. The Decade is the chance to put in place a more complete and sustainable observing system and feed the resulting data into a science-based informed decision-making system allowing increased reliance of our civilization on the ocean, its ecosystem services and, at the same time, preserving ocean health. Strong and proactive engagement of the oceanographic community in the design of the Decade and its observing component and subsequent energetic implementation of the ideas are sought. Participants in OceanObs’19 are invited to consider the additional possibilities and requirements associated with the Decade in their contributions to and brainstorming at the Conference. It is essential to use collective wisdom of OceanObs’19 to help developing an ambitious and also realistic implementation plan for the Decade, with a strong observational component.

Introduction

The Intergovernmental Oceanographic Commission (IOC) of UNESCO, a specialized organization of the United Nations system for ocean observations, data, services and related capacity development, proposed to the United Nations to proclaim in 2021–2030 an international Decade of Ocean Science for Sustainable Development. The idea of an ocean decade was directly linked to the 2030 Agenda adopted by the United Nations in 2015. The Decade can mobilize the ocean community behind the ideas of sustainable development and serve to focus the research and technological development in oceanography on existentially important issues of protection and sustainable use of the ocean. This will be a decisive contribution by the ocean community to the implementation of the Sustainable Development Goals (SDGs) – not only the 14th (“Ocean”) SDG, but many others as well. Ocean observations are at the heart of this initiative.

The IOC proposal to the United Nations was successful and the UN Decade of Ocean Science for Sustainable Development was proclaimed by the United Nations General Assembly to start on 1 January, 2021. This decision potentially opens a new era in oceanography, implying a major change in the way the ocean community works and how it is organized and supported, and how it can contribute to the future of our civilization.

Motivations for the UN Decade of Ocean Science for Sustainable Development

The ocean, the largest ecosystem on our planet, provides our civilization with a range of existentially important services (Stocker, 2015; Visbeck, 2018). To continue benefitting from them, a globally shared information and knowledge system is needed that would inform, on one side, actions for the restoration and maintenance of the ocean’s health (Duarte et al., 2018), and on the other side, use of the ocean space and resources to achieve global sustainable development. At present, such a consolidated system is not in place. However, many elements that could be connected in a more synergistic way to build such a system either exist, are being designed, or being worked on. These seeds of growth reside in the ocean observing systems, research and development activities, advances in the domains of technology and oceanographic information services, scientific assessments, national and international legislation and policies, best practices, standards, capacities, and resources—including human and economic resources available to industries,—and the private sector.

There are numerous international agreements aimed at preserving the ocean, either in the form of treaties or frameworks, which have various degrees of being legally binding. The 2030 Agenda with its 17 Sustainable Development Goals (SDGs), including the SDG 14 on the Ocean and its 10 targets, was unanimously endorsed



in 2015 by the UN General Assembly. The Paris Agreement of 2015 under the UN Framework Convention on Climate Change refers to “the importance of ensuring the integrity of all ecosystems, including the oceans.” The Sendai Framework for Disaster Risk Reduction of 2015 intends to address, inter alia, the risks to countries’ coastlines. The UN Convention on Biological Diversity of 1992, with its Protocols and Implementation Plan components –such as Aichi Targets–refers to the need to manage marine and other aquatic ecosystems scientifically. The 1995 Code of Conduct for Responsible Fisheries and the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing of 2009 are key global instruments under the UN Food and Agricultural Organization to make fisheries sustainable. The Regional Seas Conventions of the UN Environment Programme and regional fisheries management organizations provide regional framework for conserving the ocean health and its living marine resources. The International Maritime Organization monitors the implementation the UN Convention for Safety of Life at Sea (SOLAS Convention of 1974) and a series of international conventions against marine pollution.

According to the first Global Ocean Science Report, prepared by the IOC of UNESCO in 2017, the investment into ocean science is less than 4% of the global funding of natural sciences, with very large variations among countries. The current knowledge of the ocean, in terms of its physics and dynamics, might be close to sufficient for alerting the society and governments about many of the existing or emerging threats. However, there is a strong need for more specific knowledge and its systematic delivery and application to enable effective and efficient actions toward sustainability, at the global and regional levels. Mainstreaming oceanography and targeting it and ocean related components of natural and social sciences on practically assisting the sustainable development agenda were the main motivations for the IOC to develop the proposal to the UN to organize a Decade of Ocean Science for Sustainable Development (hereafter – the Decade) in 2021–2030.

Background and Main Goals of the Decade

The proposal of the Decade came from a brainstorming meeting of the IOC Chair, Vice-Chairs and senior secretariat staff held in Gilleleje, Denmark in January 2016. Dr. Gunnar Kullenberg, a former IOC Executive Secretary, made significant contributions resulting in the meeting’s success. During 2016 and first half of 2017, IOC Member States and many other interested parties were consulted on the concept and potential value of a Decade of Ocean Science. A proposal for the Decade was drafted for consideration by IOC Member States (IOC/INF-1341, 2 February, 2017) and a revised version of the proposal (IOC/INF-1341 REV) was presented to the twenty-ninth session of the IOC Assembly and subsequently endorsed through a Resolution (IOC Resolution XXIX-1, IOC-Unesco, 2017). In addition, recognizing the cross-cutting role of ocean science in SDG 14 of the 2030 Agenda, the Decade proposal was registered by the IOC as a voluntary commitment to the first UN Ocean Conference that took place in June of 2017 in New York. In the middle of 2017, the IOC submitted the proposal for consideration of the 72nd Session of the UN General Assembly (UNGA).

It was proposed that the Decade start exactly fifty years after the International Decade of Ocean Exploration (IDOE) that took place in 1971–1980 (Holland and Pugh, 2010). IDOE was coordinated by the IOC and successfully stimulated oceanographic research and exploration, creating additional interest and support to the discipline. The, IDOE was followed by several seminal developments in ocean management and sciences, including the preparation and signature of the UN Convention on the Law of the Sea (1982), the World Ocean Circulation Experiment (1990–2002) and several other major international undertakings in the domain of the ocean.

On 5 December 2017, the UNGA, within Part XI of the Omnibus Resolution for Oceans and the law of the sea (RES 72/73) relating to “Marine science,” decided (United Nations General Assembly, 2017, paragraph 292) to proclaim

the United Nations Decade of Ocean Science for Sustainable Development for the 10-year period beginning on 1 January 2021, within existing structures and available resources.

The UNGA:

called upon the Intergovernmental Oceanographic Commission to prepare an implementation plan for the



Decade in consultation with Member States, specialized agencies, funds, programmes and bodies of the United Nations, as well as other intergovernmental organizations, non-governmental organizations and relevant stakeholders.

The proclamation of the Decade by the UN General Assembly is an acknowledgment by UN Member States and their Governments of the importance, need for and role of ocean science, data and information exchange for sustainable development, and that science can play an important role in helping the ocean support the 2030 Agenda. The Decade requires response and delivery from the IOC and other UN bodies, the scientific community as a whole, working in close contact with governments, industry and business, as well as with the civil society.

The idea of the Decade is to achieve a major change in the knowledge and management of the ocean. It is reflected in the following two over-arching goals that provide the high-level motivation for the Decade:

Goal 1: To generate the scientific knowledge and underpinning infrastructure and partnerships needed for sustainable development of the ocean.

Goal 2: To provide ocean science, data and information to inform policies for a well-functioning ocean in support of all Sustainable Development Goals of the 2030 Agenda.

The design of the Decade should address both deep disciplinary understanding of ocean processes and solution-oriented research to generate the knowledge needed for reducing pressures on the ocean, preserving and restoring ocean ecosystems and safeguarding ocean-related prosperity for future generations.

Societal Outcomes

The Decade will aim to achieve considerable progress in a number of research and technology development areas with a view of generating the following six societal outcomes.

A clean ocean, whereby sources of pollution are identified, quantified and reduced and pollutants removed from the ocean in an efficient manner.

A healthy and resilient ocean, whereby marine ecosystems are mapped and protected, multiple impacts on them, including climate change, are quantified and, where possible, reduced and provision of ocean ecosystem services is maintained.

A predicted ocean, whereby society has the capacity to understand current and predict future ocean conditions and their impact on human well-being and livelihoods. Under the Decade, sustained and systematic ocean observations would be expanded to all ocean basins and depths to document ocean change, initialize coupled models and facilitate improved ocean understanding.

A safe ocean, whereby human communities are much better protected from ocean hazards and where the safety of operations at sea and on the coast is ensured. The Decade will promote research aimed at minimizing impacts of various changes and risk reduction through adaptation and mitigation.

A sustainably harvested and productive ocean, ensuring the provision of food supply and alternative livelihoods. The Decade should create a better understanding of the interactions and interdependencies of the ocean ecosystem and environmental conditions and processes, the use of resources and the economy.

A “transparent and accessible” ocean, whereby all nations, stakeholders and citizens have access to ocean data and information technologies and the capacities to inform their decisions. The enormous need for more ocean information in the scientific, governmental, private and public sectors demands a step change in ocean education at all levels.

The six societal outcomes of the Decade are holistic. In order to be achieved, most of them require actions by the society, governments, or by key stakeholders. However, there is no causal link to achieving them that would be entirely scientific. Nevertheless, progress in several thematic areas of ocean science is either necessary or very useful to achieve them. Scientific papers should not be the sole measure of success of the Decade. Impact to society, appropriately measured against clear objectives, should also be a measure of success. Such initial priority areas of research and technology development (R&D) are outlined below. There is no priority order among them. They are interconnected but allow focused design and planning. Progress in these areas is



necessary to facilitate protection and the sustainable use of the ocean, on global and more localized scale.

R&D Priority Area 1: Comprehensive Map (Georeferenced Digital Atlas) of the Ocean

This R&D Area includes and goes beyond the domain of mapping the ocean bottom topography, and its importance can be illustrated by the deficiency of current global ocean depth maps. Current, largely satellite-based mapping of the global ocean renders a horizontal resolution between 2 and 5 km. At this resolution, many features are not detectable and result in only a coarse understanding of the ocean bottom.

R&D Priority Area 2: A Comprehensive Ocean Observing System

One cannot manage what one cannot measure. Ocean observations are the key to understanding weather, climate and the future state of marine ecosystems and resources. The Global Ocean Observing System (GOOS) domain of competence is physical state variables in the upper 2 km of the water column and at the surface. It is expanding to include additional measurements in the deeper ocean and in the domains of biogeochemistry, biology, and ecosystems. The approach based on Essential Ocean Variables (Lindstrom et al., 2012) is effective and new variables should be taken on board, making the scope of observations capable to help monitoring and management of large marine ecosystems (LMEs) and coastal and offshore areas.

R&D Priority Area 3: A Quantitative Understanding of Ocean Ecosystems and Their Functioning as the Basis for Their Management and Adaptation

The Census of Marine Life produced an inventory of species in the ocean, enhancing the scientific knowledge on what lived, lives, and will live in the ocean. This work is successfully continuing under the IOC Ocean Biogeographic Information System (OBIS). The biological component of GOOS is approaching the pilot phase. Emerging technologies are becoming more mature and available, such as Environmental DNA sampling (eDNA; Ausubel et al., 2019).

R&D Priority Area 4: Data and Information System

The IOC International Ocean Data and Information Exchange Programme (IODE15) focuses on the discovery, exchange of, and access to marine data and information including metadata, products and information. It sets international standards in that domain. The system, composed of an approximately 100 Data Centers and associated data units, is capable of providing for long-term archival, preservation and documentation of marine data and information products, and facilitate related capacity development and the use of best practices.

Under the Decade, the oceanographic information system needs to be significantly expanded, upgraded and truly opened to the whole world to ensure flow of data and products between providers and users at different levels. The core of the future oceanographic data and information system is currently seen as a portal of ocean data that acts as a link between demand and supply and has a capacity to facilitate matching requirements for data and products.

R&D Priority Area 5: Ocean Dimension in an Integrated Multi-Hazard Warning System

Currently, there are a number of unconnected warning systems for ocean-related hazards. Some of them are operational, e.g., for tsunami generated by earthquakes, some are incomplete, e.g., for storm surges, and some emerging, e.g., for harmful algal blooms. Widely recognized and reflected in the Sendai Framework for Disaster Risk Reduction is the need to strengthen and harmonize the warning systems. An effective warning system has to be based on the knowledge of risks and corresponding emergency planning and warnings. The potentially affected communities need to be prepared to act appropriately on a warning. The hazard has to be detected, followed, and/or forecast. The warning then needs to be generated and timely, fully, and correctly transmitted, received, and acted upon.

R&D Priority Area 6: The Ocean in an Earth-System Observation, Research, and Prediction

Ocean science is a part of the Earth system science. GOOS is a contributor to the Global Climate Observing System and, more widely, a part of the planet observing system of systems. To study and predict the future state of the ocean, one needs to incorporate it into various types of Earth system models. Industries, behavioral and societal changes, and economy all need to be eventually included in the observations and predictive modeling scope.



R&D Priority Area 7: Capacity Building and Accelerated Technology Transfer, Training and Education, Ocean Literacy

All above R&D areas will move the cutting-edge of ocean science forward. They will augment the ocean science capacity and make it fit for the purpose of informing and even guiding sustainable development. The enabling elements for the progress are human potential, infrastructure, cooperation, resources and adequate social conditions of successful research and development. The IOC has started and will keep assessing the capacity of ocean science through the Global Ocean Science Report process. At present, the oceanographic capacities are highly uneven in the world, not only in terms of ability to contribute to the research but also in terms of ability to benefit from the scientific knowledge and technology, which is defined as also including ocean data and information.

Strategic Approach of the Decade: Two-Way Interaction Between Research and Practical Applications

It is anticipated that progress in R&D will create new, more beneficial conditions for practical applications of new knowledge and technology. It is essential that ambitions of the private sector, governments and involved managers grow along with the progress in research. For that, active, intensive, and efficient communication of advances on ocean sciences will be a key enabling factor. The seven R&D priority areas listed above (or additional) will trigger accelerated development of the following means of using and protecting the ocean.

Protecting the ocean should employ the ecosystem-based approach, supported by observations and knowledge, with adequate regulation, and efficient and implemented policies including knowledge based establishment of marine protected areas in key locations.

Way Forward, Community and Un Engagement, Resources

The Intergovernmental Oceanographic Commission was mandated by the United Nations General Assembly (UNGA) to lead the preparations of the Decade and develop its Implementation Plan in consultation with Member States, UN partners as well as other relevant stakeholders. The Implementation Plan must be submitted to the UN General Assembly in the second half of 2020. In the first part of 2018, a roadmap (IOC-Unesco, 2018b) was developed as an evolving document to guide the preparatory phase of the Decade by defining preliminary objectives, societal outcomes, governance and engagement processes.

Conclusion: Decade and OceanObs'19 Community

The Decade is a major chance for oceanography to put in place a more complete and sustainable Decade responds well to the main goal of this OceanObs'19, which is to establish the value chain from ocean observations through research to long-term societal benefits and key stakeholders. It is hoped therefore that the OceanObs'19 community will see the Decade as a key opportunity to propose ideas for making ocean observations even more societally relevant and, hence, better observing system and feed the resulting data into a science-based ocean management system satisfying the increasing reliance of our civilization on the ocean, its ecosystem services, and, at the same time, preserving ocean health. The OceanObs conferences are also decadal but periodic events intended to give momentum and direction to developing ocean observing systems. The supported, and will actively participate and strongly contribute to preparatory phase of UN Decade. In summer 2020 IOC will need to submit the Implementation Plan to the 75th UN General Assembly of United Nations. The opportunities to contribute are multiple. The proceedings of OceanObs'19 will be carefully studied in crafting the Plan. Regional and global meetings will be organized to further develop ideas and digest them into the plan. The Decade stakeholder forum is a platform to collect ideas.

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(Source: Frontiers in Marine Science)



PIMEC 2023 - UPLINK BLUE ECONOMY: AN EFFORT FOR BLUE ACCELERATION

By Dr. Sehrish Qayyum

Economic activity in the ocean is expanding rapidly, driven primarily by changes in global demography, economic growth, trade, rising income levels, climate changes, environment index, and technology. Looking to 2030, many ocean-based industries have the potential to outperform the growth of the global economy, both in terms of value-added services, employment, as well as opportunities they offer. These industries include offshore wind, tidal, and wave energy; offshore aquaculture; cruise tourism; maritime surveillance and marine biotechnology. The projections suggest that between 2010 and 2030 on a “business-as-usual” scenario basis, the ocean economy could more than double its contribution to global value-added services and products, reaching over US\$3 trillion by the end of the decade.

Increased pace of marine activities and development is titled as ‘Blue Acceleration’ by marine business experts. Strong growth is expected in marine aquaculture, offshore wind energy, fish processing, shipbuilding, and repair within a decade. Investing in an ocean economy clearly makes economic sense as it will employ approximately 40 million full-time equivalent jobs in a business-as-usual scenario. Even Small Island Developing States (SIDS) through their exclusive economic zones (EEZs) control some 30% of all oceans and seas. For example, Saint Lucia has a marine reserve the size of Germany, while Tuvalu has an EEZ 27,000 times its land mass. The combined EEZs of Mauritius and the Seychelles represent an area bigger than India. The purpose of referring to these facets is to prospect options for economic growth and investment under collaborative joint ventures among littoral and far of states. Joint ventures may serve in climate actions by utilizing vast volatile spaces for business as per targets set in COP26.

Pakistan being the important littoral state of the western Indian ocean is following global trends of blue acceleration. The country is blessed with a 1000 Km long coastline from Sir Creek to Jiwani and EEZ & continental shelf covering an area of 290,000 sq km i.e., larger than the combined area of two provinces i.e., Sindh and Khyber Pakhtunkhwa (KPK). Pakistan’s coastal belt and the extended maritime zone is replete with living and non-living oceanic resources such as hydrocarbons, minerals, renewable energy, and biotechnology options. Pakistan is continuously seeking international collaborations to create the perfect blend of indigenous and foreign technologies to expand and strengthen its activities. For this purpose, the first Pakistan International Maritime Expo & Conference (PIMEC) in February 2023 offers an ideal platform to uplink with major industrial and business sectors for economic transformation.

PIMEC 2023 is the premier maritime exhibition in the Asian subcontinent focusing on the maritime sector and industry. It assures sustainable growth and prosperity as the platform aims to gather stakeholders from diverse maritime industries for hydrocarbon extraction, coastal development, shipping and port infrastructure, fisheries, marine tourism, offshore renewable energy, aquaculture, seabed mining, marine biotechnology, etc. This exhibition will showcase Pakistan’s complete maritime potential with the aim to focus on human well-being, social equity, and economic growth.

With run-away climate change and a global economy still reeling from the impacts of the COVID-19 pandemic, the investments by littoral nations in their ocean economies also strengthen their resilience to external shocks. But with limited resources, they cannot do it alone. The business community, both local and international are critical partners. National economic growth is intimately tied to the success of ocean economy strategies by governments. Reformed maritime business strategies will impact related business sectors such as tourism, airlines, fisheries, and shipping and emerging sectors such as biotechnology and ocean energy.



Pioneering efforts by Pakistan Navy – PIMEC 2023 will bring together governments and business representatives to seek solutions for current challenges i.e., financing and technology constraints in expanding the ocean economy. Furthermore, the forum will spur a new generation of ocean economy partnerships between the global business community and governments ahead of the fourth United Nations Conference in 2024. PIMEC 2023 is not about business as usual but demonstrates that the significance of ocean resources is not a zero-sum game. Conserving the ocean protects marine life and generates economic growth for maritime states and business communities alike.

An exhibition is a market appeal to expand the existing market with face-to-face interactions and sharing tokens of interest. Focusing on maximum impact by highlighting unique facts of each project, resources, and untapped areas will open the potential door for investment in Pakistan. In terms of PIMEC 2023 outcomes, the development of specialized 'Maritime Business and Technology Zones' (MBTZs) along the coastline will increase employment options, reserving investments, and will materialize the idea of economic uplink with regional and international business sectors. Businessmen attached to marine resources and industry are welcome to make this up to the minute step of the Pakistan Navy successful. They can attract their links and relations from the industry and field to host stalls of their best product i.e., marine gemstones, sea shells, food items, and industrial products along with oil and resource extractors from deep sea areas. It is PN's initiative to win by joining hearts and hands in a conducive environment.

About the Author:

The author is an Assistant Professor at the Maritime Center of Excellence, Pakistan Navy War College, Lahore. She is a member of the International Studies Association (ISA), USA.



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PAKISTAN AND CHANGING POWER DYNAMICS IN THE INDIAN OCEAN

By Ms. Iram Zahid

Prof. Craig Jeffrey Director and CEO of Australia - India Institute, precisely indicated that:

"In terms of global political significance, the Atlantic Ocean can be viewed as the ocean of our grandparents and parents; the Pacific Ocean as the ocean of us and our children; and the Indian Ocean is the ocean of our children and grandchildren".

Indian Ocean Region (IOR) is the third-largest ocean that lies at the crossroads of Africa, Asia, and Australia. It covers approximately 20 % of the total earth & is bounded by 37 states that join and make up 40 % of the total coastlines of the globe. IO remains a pivot, being the busiest international trade route. Around 80 % of the world's oil trade passes through the seven choke points located in IOR. Any disruption of these chokepoints will cripple the economy of the world, especially of China, Japan, India, ASEAN, and South Korea. Since ancient times, the Indian Ocean has been the hub of maritime trade in addition to commercial, and cultural exchanges, unlike the other oceans. IOR is the center of future global politics, as many political pundits say.

The strategic environment in the Indian Ocean is changing fast. In the last few years, we have seen growing strategic rivalry between key states such as China and the US, as they expand their roles in the region. The US has declared India as a net security net provider in IO as per the US Indo-Pacific Studies of 2022 and conducted numerous agreements with India. The US strategy is to bring India to the forefront of IO against China. India has taken the advantage of these agreements by establishing military bases in IO and increasing its influence which is against the policies of China and acquiring western technologies. The other regional players like Saudi Arabia, Israel, UAE, etc. are also competing to build their areas of influence and blocs in the IOR by establishing military bases which are the new beginnings of the IO strategic order in the 21st century. Therefore, IO became a more complex and multipolar region, where several major and middle powers push for influence and position.

The competition among states in the IOR has the following dimensions militarization, economic contests, arms race, and maritime security. An emerging superpower, China, is being viewed strategic competitor as per US National Security Strategy (NSS) 2022. As China imports 10.26 million barrels (90%) of oil per day, which passes through, pass through vulnerable choke points. The first one is the Strait of Hormuz far distance from China and requires Blue Water Navy to safeguard its trade therefore IO is important for China. China also established its first overseas base at Djibouti which sent an alarm signal to the USs as now the Chinese Navy is patrolling and exercising littoral of IO. China is also building naval muscles to follow the old school of thought which advocates the ocean for keeping a strong Navy to protect its trade and legitimate maritime interests. The Indian Ocean remains the primary objective of the Chinese grand strategy. China has also adopted Economic Diplomacy by investing in poor countries' infrastructure and Chinese influence is rising in littoral countries of IO. Apart from building a naval base, China has invested heavily across Africa both on the eastern rim and on the mainland as well. The prime reason for this is to explore new markets, capitalize on human resources and maintain a presence in the region. According to some estimates, China invested about US\$60 billion in Africa. This huge investment would not only benefit the region but also plays a vital role in global prosperity

The new alliances like AUKUS, QUAD, and I2U2 are to contain China in IO. The competition and the political tensions are growing and, if not handled properly, the possibility of a much larger conflict cannot



be ruled out during the first half of the 21st century. India is the largest littoral state of the IOR. Like Pakistan, it also enjoys a geo-strategic position as it has a rim on both the eastern and western sides of the country. India has established 12 major ports and 200 minor ports. India has also initiated a plan called SagarMala to maximize its maritime capability which aims to double the existing number of major ports in the country. Apart from these domestic steps, India is also taking several actions beyond its borders to impose its position in the IOR. One such act is the India-Iran strategic partnership. China has also been busy making inroads in the IOR as it is not only a necessity but also a priority. China has the resources; it also aims to maintain its presence outside the region to ascertain its power.

There has been considerable commentary about China's ambitious BRI of which the China-Pakistan Economic Corridor (CPEC) is one component. The lynchpin to the success of the CPEC is the Gwadar port. When fully operational the deep-sea port will directly connect the Western provinces of China to the IOR by road and rail. This will not only significantly cut down the travel time but also provide access to significant geostrategic locations.

There are some implications for Pakistan that being a key littoral state of the IOR, it is the responsibility of Pakistan to not only safeguard its interest but also remain out of any potential conflicts. This is not easy due to the political power play in the Indian Ocean. The rivalry between China and India in which the latter is being supported by the US has made Pakistan a party to the conflict. Another implication is the Indian efforts to isolate Pakistan on the global front. The Indian government has made strong ties with the Gulf countries like the UAE and Saudi Arabia that have traditionally supported Pakistan in international forums.

Pakistan and China are all-weather strategic cooperative partners. Pakistan must keep balance relations with the US and China and safeguards its own interest. The Indian Ocean is very important due vast reservoir of oil and gas, and the Far East economies are dependent upon it. Due to the strategic location of Pakistan, CPEC/ BRI projects can change the dynamics of this region. The ingress of the Israel Navy through I2U2 must be analyzed by the naval planners. Pakistan may enhance its naval capabilities to ensure good governance at sea, especially in its own AOR.

About the Author:

The author is associated with the National Institute of Maritime Affairs. The views expressed are her own.



DAMAGE TO THE OZONE LAYER AFFECTS THE MARINE ENVIRONMENT



Ozone is a component of the earth's atmosphere and protects life on earth from harmful ultraviolet rays. The marine environment, including ocean water and sea life, reduces the amount of oxygen in the air we breathe. Climate change and air pollution contribute to the destruction of the marine environment. Scientists researched and come across some results, and work to understand these issues so they can come up with solutions to reduce damage to our environment.

The marine environment plays an important role in protecting human life from the effects of ultraviolet radiation. Ozone protects humans and other creatures from excessive sunlight, which causes widespread destruction. It prevents us from destroying the earth's environment by burning fuel and creating pollution. Without the marine environment, mankind would destroy the natural beauty and resources it needs to survive.

Ozone naturally forms above oceans and other bodies of water. Wind moves over the ocean waters and creates natural waves that cause variations in water surface temperature and pressure. This leads to cooler temperatures and greater amounts of oxygen in the water. However, waves churn up ocean water, creating clouds of fine mist that form a protective layer known as the ozone layer. Ocean waves churn up more oxygen in the water than normal, creating a healthy marine environment for mankind.

Marine pollution contributes to global warming, which increases ozone layer damage and threatens our marine environment. Increased carbon dioxide in the air creates a greenhouse effect that leads to increased temperatures, increased air pollution, and increased damage to the ozone layer. Sea life species die due to increased temperatures, leading to more oceanic contamination by land animals, bacteria, and insects. These processes create more harmful substances in the sea that lower oxygen levels in ocean water.

However, we have created enough pollution to hurt our precious ozone layer. We need to take necessary action our act before it's too late.

Yours sincerely
Shehenshah Jahangir Anwer
MS (Environmental science, SMIU)



GHOST NETS ARE A THREAT TO A WIDE RANGE OF MARINE LIFE



I am writing to express my concerns regarding the issue of ghost nets in our oceans. Ghost nets are fishing nets that have been lost or abandoned in the sea, and they continue to trap and kill marine animals long after they have been discarded. This is a serious problem that is contributing to the decline of marine species and damaging our fragile ocean ecosystems.

Ghost nets are a threat to a wide range of marine life, including fish, sea turtles, dolphins, whales, and seabirds. These animals become entangled in the nets and are unable to free themselves, leading to injury, suffocation, and starvation. The nets also cause damage to coral reefs and other important marine habitats, which are essential for the survival of many species.

In addition to their devastating impact on marine life, ghost nets also have economic consequences for fishermen and coastal communities. Lost nets are a waste of valuable fishing resources and can damage fishing gear and boats, leading to financial losses for fishermen. Furthermore, ghost nets can wash up on beaches, creating health and safety hazards for local residents and visitors.

It is crucial that action is taken to address this issue. Governments, fishing industries, and environmental organizations must work together to prevent ghost nets from being lost or abandoned in the first place, and to remove them from the oceans where they are already causing harm. This can include measures such as improved fishing practices, more effective disposal methods for fishing gear, and increased surveillance and enforcement to prevent illegal dumping of nets at sea.

The issue of ghost nets is a serious threat to our oceans and the marine life that depends on them. It is time for us to take action to prevent and remove these deadly fishing nets from our seas. Let us work together to protect our oceans and ensure their long-term health and sustainability.

Yours sincerely
Future Environmentalist



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Fax: 35611081-82
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Email: info@dynamicshipping.com
Website: cssgroup-pk.com

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Eastern Sea Transport (Pvt) Ltd.

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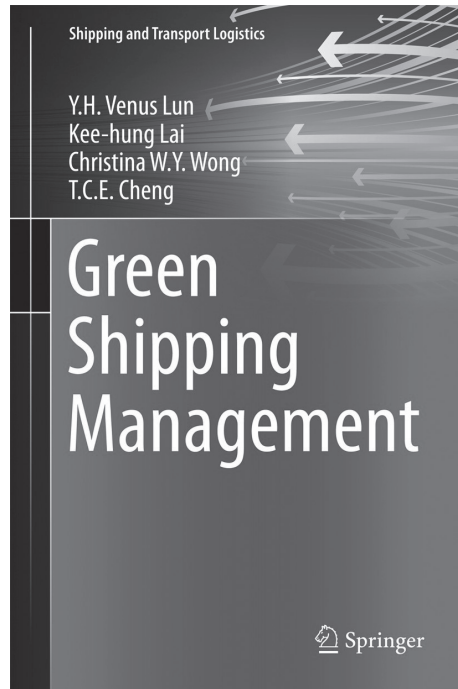
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GREEN SHIPPING MANAGEMENT



ISBN: 978-3-319-26482-0

Book Review: "Green Shipping Management" by Venus Lun, Kee-hung Lai, Christina W.Y. Wong, and T.C.E. Cheng

The shipping industry is one of the oldest and most important industries in the world, providing transportation for goods and materials across oceans and seas. However, this industry has also been a major contributor to environmental pollution and degradation. With the growing concerns over climate change and the need for sustainable development, the shipping industry has to adapt and embrace green practices to reduce its environmental impact. This is where "Green Shipping Management" comes in as a comprehensive guide to green practices in the shipping industry.

The book is co-authored by four experts in the field, Venus Lun, Kee-hung Lai, Christina W.Y. Wong, and T.C.E. Cheng, who bring together their extensive knowledge and experience to provide an in-depth analysis of the green shipping industry. The book is structured into three main parts, each focusing on a specific aspect of green shipping management.

Part One provides an Introduction to Green Shipping Practices, highlighting the key environmental issues facing the shipping industry and the need for sustainable development. It also presents a brief history of the shipping industry and its impact on the environment, as well as the various regulatory frameworks that have been put in place to address this issue.

Throughout this section, the authors emphasize the need for a holistic approach to green shipping practices. They recognize that there is no one-size-fits-all solution to the environmental challenges faced by the shipping industry and that a combination of technical, operational, and regulatory measures will be needed to achieve meaningful progress.

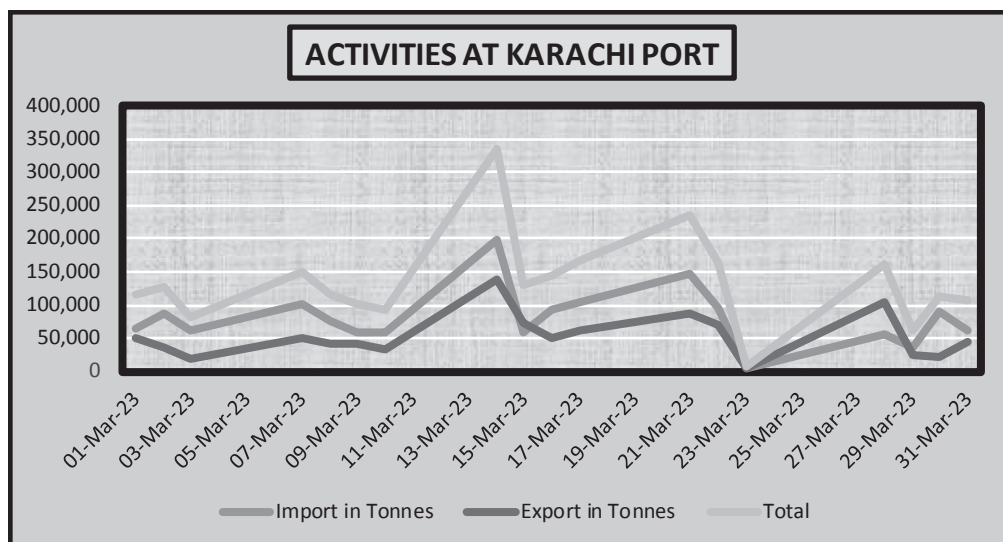
Part Two of the book focuses on Green Shipping Networks and is comprised of three chapters: "Green Management Practices," "Development of a Green Shipping Network," and "Evaluation of Green Shipping Networks." The authors do an excellent job of highlighting the opportunities and challenges associated with the development of sustainable shipping practices and provide valuable insights into the practical aspects of implementing these practices in the shipping industry.

Part Three emphasizes the relationship between green shipping practices and firm performance. This section of the book is particularly relevant for those interested in understanding the economic and business implications of adopting more sustainable practices in the shipping industry.

Overall, "Green Shipping Management" is a highly informative and comprehensive guide to green practices in the shipping industry. The book is well-researched and provides practical guidance for shipping companies, regulators, and other stakeholders on how to implement effective green practices.

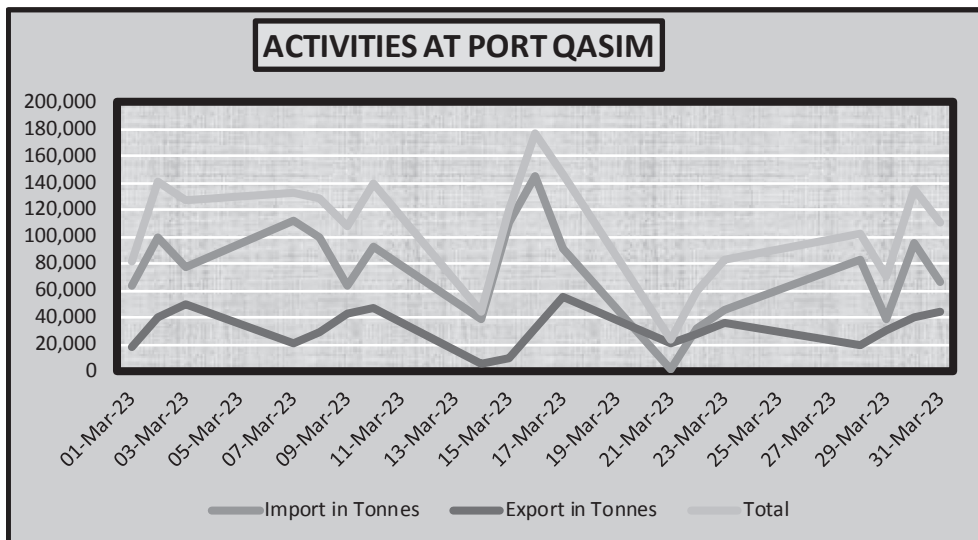


ACTIVITIES AT KARACHI PORT (MARCH 2023)			
Date	Import in Tonnes	Export in Tonnes	Total
01-Mar-23	65,392	49,303	114,695
02-Mar-23	88,434	37,440	125,874
03-Mar-23	62,770	19,734	82,504
07-Mar-23	101,341	49,550	150,891
08-Mar-23	74,832	40,662	115,494
09-Mar-23	58,917	42,692	101,609
10-Mar-23	59,790	32,919	92,709
14-Mar-23	197,114	137,473	334,587
15-Mar-23	58,608	72,329	130,937
16-Mar-23	94,241	51,342	145,583
17-Mar-23	104,951	61,353	166,304
21-Mar-23	147,777	88,677	236,454
22-Mar-23	96,126	69,027	165,153
23-Mar-23	4,045	4,866	8,911
28-Mar-23	55,655	104,866	160,521
29-Mar-23	37,144	23,741	60,885
30-Mar-23	90,120	23,134	113,254
31-Mar-23	61,973	44,562	106,535
Total	1,459,230	953,670	2,412,900





ACTIVITIES AT PORT QASIM (MARCH 2023)			
Date	Import in Tonnes	Export in Tonnes	Total
01-Mar-23	63,242	18,145	81,387
02-Mar-23	99,878	40,780	140,658
03-Mar-23	77,808	49,924	127,732
07-Mar-23	111,463	20,706	132,169
08-Mar-23	99,290	28,622	127,912
09-Mar-23	63,865	43,319	107,184
10-Mar-23	93,211	46,638	139,849
14-Mar-23	38,795	5,933	44,728
15-Mar-23	110,406	10,421	120,827
16-Mar-23	145,029	32,215	177,244
17-Mar-23	90,726	55,148	145,874
21-Mar-23	2,046	21,437	23,483
22-Mar-23	32,222	27,761	59,983
23-Mar-23	46,401	36,176	82,577
28-Mar-23	83,142	18,886	102,028
29-Mar-23	38,814	31,156	69,970
30-Mar-23	95,105	40,295	135,400
31-Mar-23	66,732	43,712	110,444
Total	1,358,175	571,274	1,929,449



Tide Times for Port



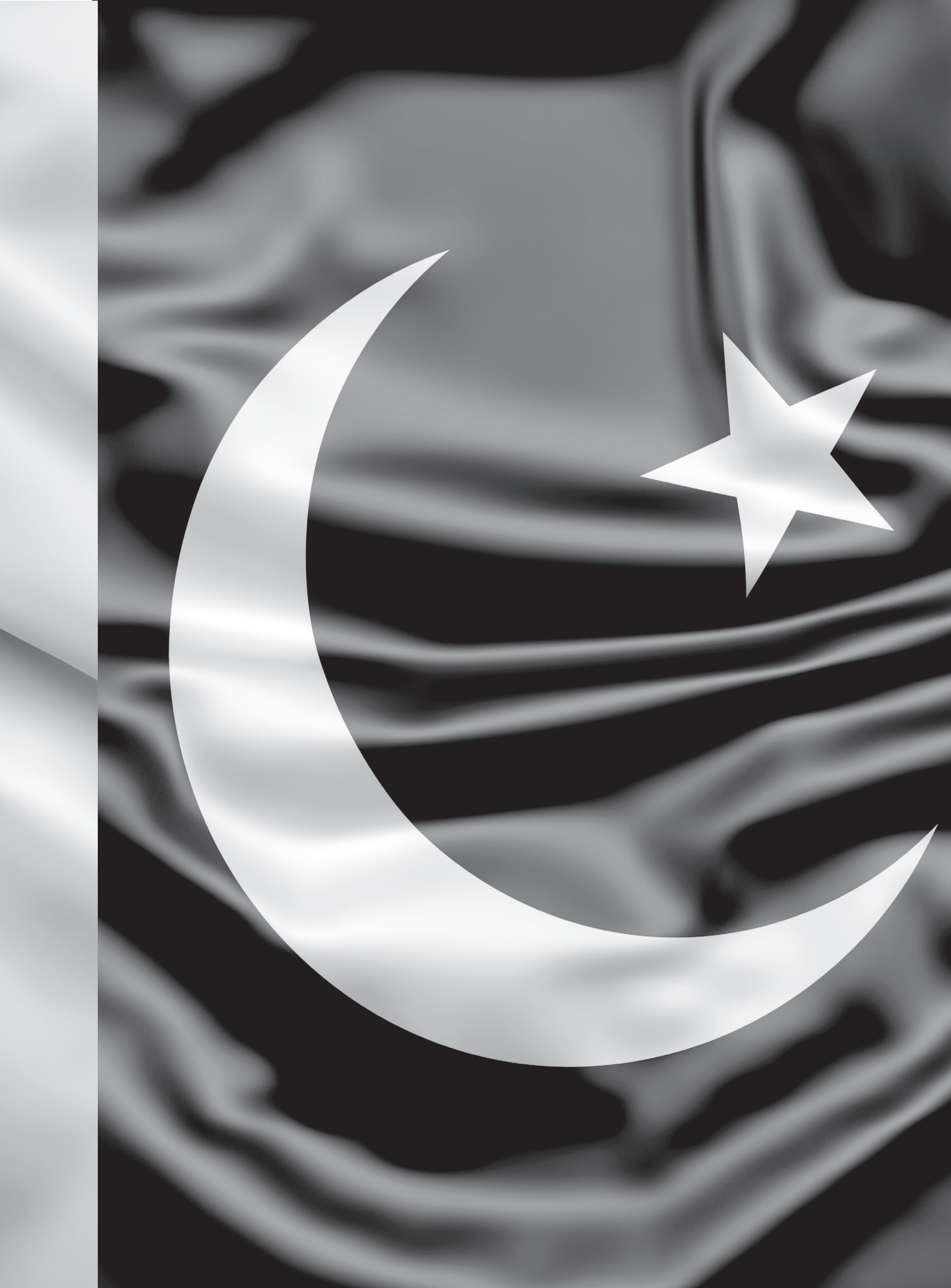
Tide Times for Karachi			
Lat: 24°48' N Long: 66°58' E			
Date	Tide	Time (PKT)	Height (m)
15 April 2023	Low Tide	0033	1.53
	High Tide	0537	2.11
	Low Tide	1217	0.66
	High Tide	1924	2.69
16 April 2023	Low Tide	0139	1.21
	High Tide	0721	2.26
	Low Tide	1323	0.64
	High Tide	2013	2.84
17 April 2023	Low Tide	0230	0.86
	High Tide	0832	2.50
	Low Tide	1419	0.64
	High Tide	2055	2.97
18 April 2023	Low Tide	0315	0.52
	High Tide	0927	2.72
	Low Tide	1510	0.69
	High Tide	2133	3.05
19 April 2023	Low Tide	0355	0.24
	High Tide	1014	2.87
	Low Tide	1557	0.79
	High Tide	2208	3.06
20 April 2023	Low Tide	0433	0.05
	High Tide	1058	2.95
	Low Tide	1642	0.93
	High Tide	2242	3.01
21 April 2023	Low Tide	0509	-0.04
	High Tide	1140	2.96
	Low Tide	1726	1.08
	High Tide	2313	2.91
22 April 2023	Low Tide	0544	-0.02
	High Tide	1221	2.91
	Low Tide	1809	1.23
	High Tide	2344	2.77
23 April 2023	Low Tide	0617	0.08
	High Tide	1303	2.81
	Low Tide	1851	1.36
24 April 2023	High Tide	001	2.61
	Low Tide	0649	0.25
	High Tide	1346	2.69
	Low Tide	1935	1.49
25 April 2023	High Tide	0044	2.45
	Low Tide	023	0.45
	High Tide	1435	2.56
	Low Tide	2024	1.59
26 April 2023	High Tide	0117	2.29
	Low Tide	0801	0.66
	High Tide	1536	2.44
	Low Tide	2133	1.67
27 April 2023	High Tide	0157	2.12
	Low Tide	0854	0.88
	High Tide	1648	2.38
	Low Tide	2302	1.66
28 April 2023	High Tide	0255	1.96
	Low Tide	1020	1.03
	High Tide	1757	2.38
29 April 2023	Low Tide	0019	1.57
	High Tide	0514	1.88
	Low Tide	1142	1.09
	High Tide	1857	2.44
30 April 2023	Low Tide	0122	1.40
	High Tide	0655	1.96
	Low Tide	1244	1.10
	High Tide	1945	2.52

Tide Times for Port Qasim			
Lat: 24°48' N Long: 66°58' E			
Date	Tide	Time (PKT)	Height (m)
15 April 2023	High Tide	0222	2.50
	Low Tide	0956	0.42
	High Tide	1716	2.23
	Low Tide	2221	1.75
16 April 2023	High Tide	0318	2.33
	Low Tide	1127	0.48
	High Tide	1912	2.34
17 April 2023	Low Tide	0045	1.76
	High Tide	0541	2.24
	Low Tide	1254	0.40
	High Tide	2031	2.59
18 April 2023	Low Tide	0210	1.50
	High Tide	0730	2.43
	Low Tide	1405	0.27
	High Tide	2126	2.87
19 April 2023	Low Tide	0907	1.14
	High Tide	0842	2.69
	Low Tide	1503	0.15
	High Tide	2208	3.14
20 April 2023	Low Tide	0353	0.76
	High Tide	0944	2.92
	Low Tide	1554	0.09
	High Tide	2245	3.35
21 April 2023	Low Tide	0433	0.41
	High Tide	1041	3.09
	Low Tide	1639	0.13
	High Tide	2318	3.48
22 April 2023	Low Tide	0512	0.14
	High Tide	1133	3.19
	Low Tide	1721	0.27
	High Tide	2349	3.51
23 April 2023	Low Tide	0548	-0.02
	High Tide	1221	3.20
	Low Tide	1800	0.50
24 April 2023	High Tide	0017	3.44
	Low Tide	0624	-0.05
	High Tide	1305	3.13
	Low Tide	1836	0.78
25 April 2023	High Tide	0042	3.29
	Low Tide	0658	0.03
	High Tide	1348	2.99
	Low Tide	1912	1.09
26 April 2023	High Tide	0105	3.07
	Low Tide	0731	0.21
	High Tide	1430	2.81
	Low Tide	1948	1.39
27 April 2023	High Tide	0127	2.82
	Low Tide	0805	0.45
	High Tide	1519	2.61
	Low Tide	2026	1.66
28 April 2023	High Tide	0151	2.56
	Low Tide	0843	0.70
	High Tide	1624	2.43
	Low Tide	2116	1.88
29 April 2023	High Tide	0222	2.30
	Low Tide	0945	0.94
	High Tide	1800	2.35
30 April 2023	Low Tide	0027	1.94
	High Tide	0314	2.06
	High Tide	1154	1.04
	Low Tide	1927	2.40

Tide Times for Port



Tide Times for Gwadar			
Lat: 24°48' N Long: 66°58' E			
Date	Tide	Time (PKT)	Height (m)
15 April 2023	Low Tide	0033	1.29
	High Tide	0525	1.63
	Low Tide	1217	0.51
	High Tide	1922	2.21
16 April 2023	Low Tide	0142	1.06
	High Tide	0706	1.77
	Low Tide	1325	0.51
	High Tide	2006	2.24
17 April 2023	Low Tide	0230	0.81
	High Tide	0818	1.99
	Low Tide	1421	0.52
	High Tide	2042	2.35
18 April 2023	Low Tide	0312	0.55
	High Tide	0913	2.21
	Low Tide	1509	0.58
	High Tide	2115	2.43
19 April 2023	Low Tide	0352	0.32
	High Tide	1000	2.38
	Low Tide	1554	0.67
	High Tide	2147	2.47
20 April 2023	Low Tide	0430	0.14
	High Tide	1045	2.47
	Low Tide	1638	0.80
	High Tide	2218	2.45
21 April 2023	Low Tide	0508	0.03
	High Tide	1128	2.48
	Low Tide	1719	0.94
	High Tide	2248	2.39
22 April 2023	Low Tide	0544	-0.01
	High Tide	1212	2.42
	Low Tide	1759	1.09
	High Tide	2317	2.29
23 April 2023	Low Tide	0618	0.05
	High Tide	1257	2.30
	Low Tide	1837	1.22
	High Tide	2345	2.17
24 April 2023	Low Tide	0652	0.17
	High Tide	1346	2.16
	Low Tide	1916	1.32
25 April 2023	High Tide	0012	2.03
	Low Tide	0725	0.33
	High Tide	1444	2.03
	Low Tide	1959	1.40
26 April 2023	High Tide	0041	1.89
	Low Tide	0801	0.51
	High Tide	1548	1.94
	Low Tide	2058	1.45
27 April 2023	High Tide	0115	1.74
	Low Tide	0849	0.69
	High Tide	1650	1.91
	Low Tide	2228	1.45
28 April 2023	High Tide	0206	1.59
	Low Tide	1006	0.84
	High Tide	1750	1.93
29 April 2023	Low Tide	0003	1.37
	High Tide	0436	1.49
	Low Tide	1133	0.91
	High Tide	1845	2.00
30 April 2023	Low Tide	0121	1.23
	High Tide	0633	1.53
	Low Tide	1242	0.92
	High Tide	1933	2.07



“
THOUGHT
IS THE WIND,
KNOWLEDGE
THE SAIL, AND
MANKIND
THE VESSEL

August Hare—”