July/August 2019 Vol 64 No 4

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Sustainability is an issue that is not going away. Ports need to adapt to a low-carbon and low-pollution world, and many are already doing it

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#### COMMENT

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# Building on success

Changes are afoot for the World Ports Conference



Susumu Naruse Secretary General - The International Association of Ports and Harbors

> ttended by more than 1,000 delegates, speakers, and guests from 60 countries and regions, the IAPH World Ports Conference was held from 6 to 10 May in Guangzhou, China, under the theme 'Collaborate Now, Create Future'. It was a very successful conference, with one of the largest audiences in IAPH history. Among a number of eminent speakers, IMO Secretary-General Kitack Lim delivered a video message to the audience in which he commended IAPH's commitment to working with IMO member states in achieving the UN Sustainable Development Goals on resilient infrastructure, trade facilitation, and climate action.

As a result of the IAPH's Annual General Meeting, the group's new board was also officially installed for 2019-21. IAPH President Santiago Garcia-Milà entered his third term of office, supported by vice-presidents Hadiza Bala Usman (Africa), Robin Silvester (North America), Guimara Tuñón Guerra (Central and South America), Masaharu Shinohara (Asia, South/West, East and Middle

### **•** The IMF has again cut its estimate of global GDP growth

East), Subramaniam Karuppiah (Southeast Asia and Oceania), and Jens Meier (Europe).

This was the last IAPH conference solely organised by the host port and its affiliates. When IAPH members meet at the 2020 Conference in Antwerp next March, it will be organised by IHS Markit, the longstanding publisher of P&H, with

sponsorship from the host port. The IAPH board changed the system to ease the huge burden on the host port in terms of public relations, finance, and management. I would like to urge member ports to consider hosting the World Ports Conference in 2021, since the venue has not yet been decided.

Following this IAPH conference, PIANC, the World Association for Waterborne Transport Infrastructure, met in Kobe, Japan, for its annual general assembly, held 3-7 June. Vice-president Masaharu Shinohara represented IAPH in this event, delivering a keynote lecture entitled 'Efficient and Sustainable Port Development and Operations utilising ICT and Disruptive Technologies' at the Technical Seminar that was held in conjunction with the assembly.

Meanwhile, the global economy is not in great shape, mainly because of trade tensions between the US and China. The IMF has again cut its estimate of global GDP growth. We need to carefully watch the final consequences of the trade war and its effects. PH

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### Port **updates**

#### VIRGINIA EXPANSION

The Virginia Port Authority (VPA) has awarded contracts worth USD385,000 to Accomack and Northampton Counties to conduct pre-dredge surveys at Federal Channel and Kings Creek, respectively. VPA granted Northampton County USD197,000 for Kings Creek, a stretch of state waterway, while USD188,000 was granted to Accomack County for another section of state waterway near Federal Channel. The funds will cover the surveying and permitting of the areas. The work is expected to be completed before mid-2020 when a second round of grants will be allocated that will allow the dredging of Quinby and King's Creek to begin, with completion scheduled for July 2021.



#### **RUSSIAN FEE**

Cargo owners and carriers moving goods through Russian ports are bracing for a new governmentimposed fee that will hike container shipping costs between 2–4%. The Russian government said the new fee is designed to raise RUB6-8 billion (USD100–150 million) annually for port infrastructure funding. An implementation date for the fee has not been disclosed, but it will go into effect before the end of this year. The exact fee that will be charged at each Russian port has yet to be formally set by the Russian Federal Anti-Monopoly Service.



Larger vessels may make automation necessary, some operators believe

## Vancouver, Prince Rupert may consider automation

With terminals operating at 80–90% of capacity, and a tentative waterfront contract awaiting ratification later this month, terminal operators in Vancouver and Prince Rupert must consider whether to automate or semi-automate operations to accommodate growing container volumes.

International Longshore and Warehouse Union (ILWU) Canada made an agreement on a framework for addressing automation, a requirement for the contract that has been under negotiation with the British Columbia Maritime Employers Association (BCMEA) since February 2018. On 30 May, ILWU Canada and BCMEA ended a brief employer lockout and announced a tentative contract that must now be ratified by the both organisations.

ILWU Canada and BCMEA will not release the terms of the contract until it is ratified, but Maksim Mihic, general manager at DP World Canada, told the JOC Canada Trade Conference in Toronto in June that the contract is a "balanced agreement" that he believes both parties will support.

Based on the pattern of previous contracts, the union normally votes first to ratify the agreement, and then the employers follow. The previous contract was an eight-year agreement, but the duration of the tentative deal has not been made public.

The subject of container terminal automation is probably the most contentious issue facing waterfront employers in North America. ILWU Canada, the ILWU on the US West Coast, and the International Longshoremen's Association on the East and Gulf coasts have used various forums this past year to campaign against the spread of automation. There are two fully automated terminals in Los Angeles-Long Beach and three semi-automated terminals on the East Coast, one in New York-New Jersey, and two in Virginia. Even in fully automated port facilities, however, the term automated does not mean 'unmanned' such as in the use of ship-to-shore (STS) cranes. Automated STS cranes are still controlled by a human being, but by using a computer terminal in a remote setting rather than manually operating the controls from the cockpit. Longshore labour is also generally less opposed to this type of automation because it preserves the jobs of STS crane operators.

A marine engineer who designs container terminals told said that there is a general awareness among ports and terminal operators globally that today's large vessels and the container exchanges they handle call for the densification of operations on limited terminal footprints. Therefore, when looking ahead to terminals that will come online in the mid- to late 2020s. Vancouver and Prince Rupert are like their counterparts in the US, Europe, and Asia in considering which options would make sense for their operations. Mihic said DP World terminals at the British Columbia ports are operating at 80-90% utilisation. Cliff Stewart, vice-president of infrastructure at Vancouver, told JOC.com, part of IHS Markit, that its terminals are mostly operating at 85% utilisation. In the terminal industry, the benchmark is that congestion increases and service deteriorates at utilisation levels above 80%.

Longshore unions, however, view automation as a development that can potentially reduce jobs by 40–70%, so their first response to any suggestion of automation is invariably "no". However, automation also creates new jobs that involve computer programming and technology. While philosophically opposing automation, the unions still want to ensure that if it occurs at a particular terminal, the jobs that are created fall under their jurisdiction and that union members will be trained to handle the new work.

Vancouver and Prince Rupert, similar to US west coast ports and New York-New Jersev, are landlord ports. All decisions to automate are made by individual terminal operators, usually in co-operation with the longshore locals in order to achieve a peaceful transition. Terminal operators base their decisions on the cost of implementing automation, the need to densify operations based on projected cargo growth, inherent benefits, such as improved truck turnaround times and the reduction in harmful diesel emissions that come from electrified cargo-handling equipment.

# Cleveland plans for more cruise ship passengers

The port of Cleveland will spend USD600,000 this year to create a permanent US Customs and Border Protection (CBP) facility to allow for increasing numbers of passengers and cruise ships calling. The plan is to convert the nearby existing Seamen's Service building into a facility for CBP, enabling cruise passengers to be processed more quickly and efficiently.

This follows the federal government's request for the port to provide a more permanent solution for a customs office, as previously they were operating from tents along the dock. The new facility will have airconditioning, heat, and toilets installed.

The majority of cruise ships docking in Cleveland arrive from Canadian waters, mostly from the Niagara Falls region, so passengers passing though US waters need to go through customs before being allowed to visit the city.

Cleveland Port is expecting an estimated 7,500 passengers to visit from May through October this year, a significant increase from the 1,500 passengers in the same time period for 2017. Currently, cruise ships dock in an industrial area near docking cargo ships, but there are talks that – as part of the port development plan – a new dock will be constructed on the lakefront land, near the Cleveland Browns stadium.

Construction on the site may commence this year, hinted Dick Pace, CEO of Cumberland Development who developed part of North Coast Harbor, Cleveland.

The planned renovations to the new customs facility are still awaiting approval from the federal government. However, Jade Davis, vice-president of external affairs for the port strongly suggested the renovations would be complete by September or October 2020.

### Stackable container system

Global port operator DP World, together with engineering specialist SMS Group, have launched a joint venture to change the way containers are handled and stored in ports.

The high bay storage system (HBS), known as BOXBAY, is a fully automated patented design and rack structure system that allows for containers to be stored up to 11 stories high. Each container will be placed in an individual rack allowing for direct access by stacker cranes. Handling speed will be increased, along with greater energy efficiency as well as safety, while operating costs and container reshuffling time will be reduced. A pilot project is scheduled to be carried out in Jebel Ali Terminal 4, with a workable product expected to be ready in time for the Dubai Expo 2020.

DP World will also be working with SMS Group subsidiary AMOVA to incorporate their high storage handling capabilities for metal products, that weigh up to 50 tonnes each in racks up to 50 m high, into the BOXBAY model.

The HBS is expected to have a space utilisation of 3,000 teu per hectare and up to 75% reduction in space requirements for container yards. With the container storage capability being 11 tiers high, compared to conventional container terminals, it would create an estimated 200% capacity increase.

### Port updates

#### **US PROJECTS**

A new US federal infrastructure funding program has earmarked USD292.7 million for port project development. The US Department of Transportation (DOT) said about twothirds of the funds – USD200 million - will be targeted for the 15 coastal seaports that had the largest volume of laden tonnage in 2016, including Port of Los Angeles, Port of Long Beach, the Northwest Seaport Alliance (the ports of Seattle and Tacoma in Washington), Port of New York and New Jersey, Port of Savannah, Port of Charleston, and Port of Virginia. The DOT is now accepting applications for project grants, part of the Port Infrastructure Development Program. The minimum award size is USD10 million, with a federal cost share not exceeding 80%.

#### LERWICK MARKET

Lerwick Port in Shetland has been granted GBP3 million (USD3.8 million) by the Bank of Scotland towards a GBP7.6 million redevelopment of its fish market. The development will double the port's existing capacity to 1,600 m<sup>2</sup> by 2020. Construction will use sustainable building materials, while features such as LED lighting, modern refrigeration, heating controls, and insulation will cut energy consumption by 50%. "The improved efficiency and increased capacity of the new market completes a phase of developments to create a modern fit-for-purpose hub for the fishing industry at Mair's Quay," said Calum Grains, chief executive of Lerwick Port Authority.



### Port updates

#### PHILIPPINES GATEWAY

Manilla-based International Container Terminal Services (ICTSI) is investing USD166 million into Iloilo port in the Phillipines to turn it into a regional transhipment hub for agricultural goods. The project will play a pivotal role in a regional plan to double rice production. Construction at the port will include dredging to accommodate larger vessels, installation of ship-toshore gantry cranes and increasing yard capability, as well as installing a new cruise ship terminal.

#### ROTTERDAM SOLAR

The port of Rotterdam, along with the Dutch government real estate and water management agencies, have started consultation on a 100 MW floating photovoltaic power (PV) project. The development, named Zon op de Slufter, could be installed on a 250 ha contaminated water basin at the Maasvlakte industrial facility at the port of Rotterdam. The giant solar panel project would float above a dredging spoil storage spot.

#### **SEOUL LNG**

South Korea's Ministry of Economy and Finance has launched a feasibility study into what could be the country's fifth government-run liquefied natural gas (LNG) import terminal. The study will be completed next March, with the construction plan to be drawn up in April 2020. If the project proceeds it would be operated by Korea Gas Corporation, South Korea's main procurer of natural gas imports, and the operator of the other four state-controlled LNG import terminals. Tentatively, the plan is to complete four LNG tanks in 2025, two tanks in 2027, and another two tanks in 2031. The proposal for a new terminal is in line with president Moon Jaein's vision of phasing out nuclear power in favour of natural gas.



Tsing Ma Bridge restrictions are hurting Hong Kong's popularity with liners

# Delay in Hong Kong air draft decision frustrates lines

Container lines are becoming increasingly frustrated by Hong Kong's delay in making a decision over whether to lift air draft restrictions for mega-ships passing under the territory's Tsing Ma Bridge, with the procrastination already costing ship calls.

Services to Europe and the Mediterranean are the most adversely affected because the air draft, set by Hong Kong's Marine Department at 53 m, prohibits vessels larger than about 18,000 teu. These ultra-large box ships are exclusively deployed on trades between Asia and Europe and the Mediterranean.

The bridge, which spans the main sea route linking Hong Kong's container port and terminals in western Shenzhen, is the only road and rail link connecting Hong Kong International Airport with the rest of Hong Kong.

Government discussions

surrounding how best to address the air draft issue in Hong Kong with vessel sizes increasing have been ongoing since 2014. Container carriers, represented by the Hong Kong Liner Shipping Association (HKLSA), have made their own proposals to the Hong Kong government to break the impasse. The Hong Kong Container Terminal Operators Association has also voiced concern about the protracted delay.

"The HKLSA is extremely frustrated by the entire exercise," Roberto Giannetta, HKLSA executive director said. "We have put forward numerous suggestions to the government which clearly safeguard the bridge, as well as our expensive vessels, and [give] Hong Kong port the benefit of direct port calls by these larger vessels."

Giannetta noted, for example, that the government has the

ability to allow transits by large vessels on a case-by-case basis. "This discretionary permission is being granted by [the] Marine Department based on tidal conditions," he said. "We have suggested this same discretionary permission can be applied to allow vessels to register in advance.

"Meanwhile, Hong Kong continues to lose volume. As more and more new generation vessels are deployed on major east-west trades, they will continue to skip Hong Kong port calls because of excessive [and] needless limitations and restrictions," Giannetta added.

Marine Department Deputy Director Wong Sai-fat said the government has maintained "an open-minded approach" on allowing larger vessels to pass under the bridge during low tide. Wong said the government is currently engaging third-party advisers to review the matter and offer recommendations.

A delegation of industry stakeholders recently met with Agnes Wong Tin-yu, Hong Kong's new director of marine, to discuss the air draft matter and other pending issues. Giannetta said she told the group that if and when "she is certain that air draft restrictions can be relaxed without impinging safety, [the] Marine Department will put forward its recommendation".

"We have already offered [the] Marine Department ample data showing that the air draft can already, right now, be adjusted without any threat to safety standards," Giannetta said.

A senior executive with a top European logistics company said the air draft restriction for the bridge has affected the decision of carriers to avoid further calls at Hong Kong. He noted this comes as box lines are already reconsidering vessel calls in Hong Kong because of higher costs there compared with volume-hungry ports in southern mainland China.

"The overall market is moving away from Hong Kong due to falling local export/import cargo and higher transhipment costs to cheaper competitors, especially Guangzhou-Nansha, which are closer to the cargo sourcing area and are taking advantage of this situation," the executive said.

Only 3 of the 12 Asia-Europe and Asia-Mediterranean services operated by the Ocean Alliance have called at Hong Kong since April, including one on the backhaul.

By comparison, the alliance, which includes CMA CGM and Cosco Shipping, makes 17 calls on the same services at the southern China terminals of Shekou, Yantian, and Nansha. Hong Kong is too slow to respond to these challenges.

# Dubai-based company to operate Serbian port

P&O Ports, a shipping and ports services provider based in Dubai, had signed a publicprivate partnership (PPP) agreement with the Serbian government to operate the port of Novi Sad in Serbia.

Novi Sad is situated on a 24 ha site on the Danube River, with an estimated throughput of about 1 million tonnes per year. Novi Sad was the last governmentoperated port left in Serbia.

The PPP agreement will grant P&O Ports the exclusive rights to all waterside operations, container handling, project cargo, and fertiliser activities. The development plan will expand the current 500 m-long quay by constructing 189 m of new vertical quay wall, install new handling equipment, refurbish the existing machinery, and install a new terminal operating system.

The existing quay already provides warehouse facilities, storage of bulk cargo, and general cargo connections to the national railway network. P&O Ports will work jointly with the Serbian Ministry of Construction, Transport, and Infrastructure to examine the possibility of constructing container terminals in the port.

The PPP agreement is part of a long-term investment plan to upgrade equipment and services and create an intermodal terminal and logistics centre with rail, road, and inland waterway links to connect Serbia to the rest of Europe.

Under the terms of the deal, P&O Ports will have the right to operate the port for 25 years with an option for renewal on expiry. Novi Sad's port operator rights were agreed after a memorandum of understanding (MOU) was signed last year between Deputy Prime Minister Zorana Mihajlovic and Sultan Ahmed Bin Sulayem, chair of P&O Ports.

Following the signing of the MOU, Bin Sulayem said, "The port of Novi Sad provides connections with DP World Constanta in Romania, with onward handling of bulk cargos in Jebel Ali port in Dubai. It also has capacity to connect with our operations elsewhere adding value to customers and our partners in getting goods to local, regional, and international markets."

### Port updates

**CROATIA CONTAINERS** 

Adriatic Gate Container Terminal (AGCT), the Croatian subsidiary of International Container Terminal Services (ICTSI), has launched an expansion project that could see the port of Rijeka increase its annual capacity to 600,000 teu per year by mid-2020. The scheme would enable the terminal to be dredged to a depth of 16.5 m to accomodate 20.000 teu ships. The project will facilitate the berthing of vessels with a length overall of up to 400 m. The project would make the port of Rijeka the first facility in the northern Adriatic able to berth vessels of up to 20,000 teu.

#### **DP WORLD RUSSIA**

A series of ports that Russia plans to build along its Northern Sea Route (NSR) will be operated by Dubai's DP World, according to an agreement signed in early June. The NSR should enable vessels to reduce journey times between Asia and Europe. DP World, the Russian Direct Investment Fund ROSATOM, and metal producer Norilsk Nickel will jointly implement a project to increase freight traffic through the NSR.



PHILADELPHIA SEIZURE Authorities have seized 15 metric tonnes of cocaine worth more than USD1 billion from a ship at the port of Philadelphia. It is one of the largest drug seizures in US history.

### Uganda project launched

Uganda has begun construction of a tri-modal inland port at Bukasa on the shores of Lake Victoria, which the landlocked country says will become an important nodal point for container shipping in East Africa.

Work for the Bukasa inland port will also see the construction of rail and road infrastructure to create an east African interstate logistics hub. The project will connect Uganda to neighbouring Tanzania's Dar es Salaam port, and reduce the country's reliance on the port of Mombasa.

Upon completion of the first phase of the port, which is located 16 km southeast of the capital Kampala, it will be possible for cargo to be moved from Dar es Salaam port to Uganda by a combination of rail and water, although there have been concerns about the investment case for the project.

The Interim Master Plan for the port, developed by German firm Inros Lackner in partnership with German contractor GAUFF Engineering, was completed in 2017 and initial preparatory works began in early 2018.

# The lonely sailor; how ports can do more for crews

The Mission to Seafarer's Ben Bailey speaks with the IAPH's Patrick Verhoeven about seafarer wellbeing, mental health, and why technology can be a double-edged sword. *Jonathan Robins* reports

t is often said that a happy, healthy workforce is a productive workforce. In an industry like maritime, where seafarers can be alone with their problems for months on end, wellbeing and mental health is particularly important. This is where the UK-based charity Mission to Seafarers (MtS) comes in.

Active in more than 200 ports in 50 countries, MtS visits crews to provide help and support, combat loneliness, and provide advice on various issues ranging from mental and physical health to legal and financial woes.

"Seafarer welfare has always been important to port operators, but it's fair to say it's not always been at the top of their agenda," explains Ben Bailey, MtS director of advocacy and regional engagement. "But now, thanks to legislation like the Maritime Labour Convention, we are seeing more terminal operators being interested in having a port-welfare service provided."

Ports are certainly welcoming the idea that crew wellbeing boosts the safety and efficiency of their facilities. Bailey noted that crews that are struggling with mental health are more likely to have accidents, lose concentration, or work less effectively than they would otherwise.

It is a point echoed by Patrick Verhoeven, IAPH managing director of policy and strategy, who believes that the welfare of seafarers should be as much a priority for port authorities and terminal operators as it is for shipowners and ship operators. "Smooth interaction



and good communication between ship and shore is in the interest of both safety and efficiency and requires people on both sides to be in good physical and mental condition," he explained. "Ports should therefore take the concern of seafarers at heart, in line with their historical vocation of being 'safe havens' to them."

There is evidence that facilities are doing just that. Ports are increasingly enthusiastic about what MtS is doing, and it is not only the mental health aspect that they like. Bailey cited a facility that was concerned about the behaviour of crews who routinely went into the local town to drink heavily and walked back along the quayside at night. "They were terrified that there would be an accident [so they] asked 'Would you be able to provide a transportation service?' We said absolutely we could do that, alongside other programs such as our responsible drinking campaign, so it is a doublebarrelled approach. From a port operators perspective it's a no brainer. When they see the benefits then they make an opportunity for us to go in."

The story highlights how the nature of what seafarers require from MtS has changed. Whereas before their services were often focused around a physical location, that is no longer so important. "When people think of MtS they think of a building - we are opening new ones, but we find the need for our centres is less than it was. It's moving away from providing a centre to responding to each need on an individual basis," Bailey explained. Seafarers are much more insistent about having access to transport facilities to take them into local towns, as well as access to MtS teams to talk about their problems. "If you are spending nine months at sea away from your friends and family, the chance to talk to someone who cares not about the ship or the cargo but about you as a person, to make sure that you are alright and help with any issues that you may have, is absolutely at the heart of what the Mission to Seafarers has always been about."

Experiencing this isolation on an oceangoing vessel for months at a time is something most people will never experience, so it can be difficult for non-seafarers to understand the pressures that it brings. Verhoeven noted that even port professionals fail to understand it. "In the past there were more port operators that had been at sea themselves before moving to a career ashore, and therefore understanding the needs of seafarers better." Ships were also spending more time in port, giving crews the occasion to take proper shore leave. Crews also suffer from a lot of red tape, making life onboard "a rather lonely affair, with modern communication tools being both a blessing and a curse".

It is a point that Bailey knows only too well. "We had a seafarer recently who said he'd received 15 text messages saying 'Your tv is broken, you need to fix this," Bailey noted. On land, this would be a minor issue, solvable in a phone call or two, but at sea it becomes something else entirely. "For him it became a real



burden because he was thousands of miles away from home and he wasn't able to fix something so small, and yet the communication from his family was incessant. That was causing him to feel very down and very upset and very stressed about the whole situation."

This does not mean that access to communications should be reduced, Bailey noted, but it is something that ports should be aware of. "We have seen anecdotal evidence from crews who say that their problems are exacerbated because they now have access to wifi on the ship so they are always getting emails."

For this reason MtS is also focusing on providing training to families on how to communicate with their loved ones who are at sea, as well as how to do uncomfortable things such as share bad news without causing undue stress, in addition to the whole effect of social media.

Although the attitude towards seafarer welfare has improved, there is work still to be done. Countries in the developing world are often inexperienced with the Maritime Labour Convention and have no history of providing welfare services in ports, Bailey said. "For them it is very much about helping them understand why this is such an important thing. You can't just walk into a port director's office and slap down a copy of the Maritime Labour Convention and say, 'Look your country has signed this you now need to implement it,' it's very much a journey."

Access is another issue, with security regulations,

often citing the International Ship and Port Facility Security (ISPS) Code, frequently preventing MtS from reaching crews. "For us the key thing has always been negotiating that legislation and working closely with governments to ensure that we can operate as best that we can. It is at that security level we have problems. It's not that ports and terminal operators don't want us there, it's that legislation is used as an excuse for saying 'We can't let the MtS in, or you've got to jump through additional hoops', which makes it impossible sometimes to get onto the ship or into the port and provide services for seafarers," Bailey explained.

"It would be very unfortunate if port authorities and terminal operators were using the security argument to prevent charity organisations such as the Mission to Seafarers to do their valuable work," Verhoeven said, noting that there are several secure ways to provide access under the ISPS Code, which should never be used to deny access. "Luckily, we see also other examples, where ports are taking initiates themselves, such as Rotterdam, Halifax, Bremerhaven, and Antwerp, who have all won awards for their seafarer programs."

However, for now such ports are in a minority, and Bailey is unconvinced that many ports are taking their responsibilities to crews seriously, which is something he would like to see change. "I'm not entirely sure that port operators are focused on providing welfare. The ports where we operate are good to us, and we can negotiate decent rates in terms of having a building or storage for our vehicles. But I am not aware of any port operator actually taking on that mental health agenda."

Verhoeven was keen to point out that the IAPH's World Ports Sustainability Program is one way to stimulate good practices, with action on seafarer welfare tallying with two UN Sustainable Development Goals: Good Health and Well-Being, and Decent Work and Economic Growth. "That is why we encourage those ports that have good stories to tell about seafarer welfare to share them through the online WPSP portfolio so that they can inspire other ports to follow suit. We'd be very interested to work with the MtS in developing this further into a global campaign."

Another area in which the IAPH hopes to be able to improve the welling of seafarers concerns the facilitation and digitalisation of ship-to-shore communication, with the organisation keen to reduce the administrative burden for crews and port workers alike. "The IMO FAL amendments that introduced mandatory electronic data exchange between ship and shore earlier this year is a useful first step," Verhoeven said, adding that several IMO member states do not appear to be ready to implement the requirements yet, something that he described as "very worrying". Given that context, "We should have genuine 'Single Windows' sooner rather than later. The harrowing stories of crews drowning in paperwork must really become a thing of the past, so that seafarers can focus again on what they were trained for: navigating ships," he said. RH

Solar farm at

**Ports Barry** 

**Associated British** 

## **Powering ports**

Ports are looking to become selfsufficient, writes *Gabriella Twinning* 

ougher environmental legislation has prompted a global crackdown on the use of fossil fuels, something that the shipping industry is not immune to. Following the slightly panicked reaction to the International Maritime Organization's (IMO's) 2020 sulphur cap, which requires vessels to use more environmentally friendly fuel, many in the industry are keen to avoid being caught unprepared for new environmental legislation concerning carbon.

Some ports are now looking to act pre-emptively to reduce emissions by installing green energy generators that will help them become self-sufficient.

The UK's Associated British Ports (ABP) is one operator taking renewables seriously. The ABP port of Barry, in Wales, installed 14,904 individual solar panels in 2015, producing 3.6 million kWh of electricity in its first year of operation. When the sun is shining, it is enough to power all of the port's operations, with excess energy being sold to the national grid. "Where there are roof spaces it's a no brainer to fit solar panels on top of them," said Alan Tinline, head of environment at ABP. "They are also easy to retrofit and can be fully fitted and operational from a warehouse in a few weeks. ... to drive greenhouse emissions down [though renewables] is the most straightforward way to do it."

ABP has also looked to wind energy to power its facilities, with turbines in the ports of Newport and Swansea generating 9.1 MWh of electricity in total. ABP now generates renewable energy in all but two ports

via internal grids, also powering third-party operations within the ports.

The implication is that ports can be leaders in clean energy, even contributing to lower emissions at a national level. Of the 16.7 GWh of energy produced in the UK by renewable energy generators last year, 6.7 GWh of that was surplus to local requirements and sold back to the national grid.

The UK is far from the only country where ports are using solar and wind energy to generate power. Nominated for an IAPH sustainability award, the ports of Tenerife have launched their 'Sustainable Electric Mobility Plan' known as e-ISLAND, where, among other goals, the port authorities will "move forward, collectively, towards a new way of producing and generating energy, new methods and improvements, and take advantage of them".

The ports' installation of photovoltaic (PV) solar panels and wind-powered facilities will also help towards the island's goal of boosting clean energy levels. As part of the project, the ports of Los Cristianos, La Palma, and La Gomera will install two fast-charging unit points for electric vehicles for use inside the ports, while Tenerife will install seven. With a total power output of 646.8 kW and a cost of EUR543,974 (USD615,535), as well as a proposal to acquire a fleet of 18 electrical units (eight passenger cars, three scooters, and two industrial), the scheme tallies with the island's low emissions agenda.

The total cost of the installation of the four solar panel areas along with the two mini-wind turbines to supply the energy will be EUR775,000, and is estimated to reduce carbon emissions by 85%. The project was launched in 2016 and works are still ongoing. Another main goal of the e-ISLAND initiative is the electrification of the ports' docks, enabling an onshore power supply to ships during mooring. This would enable them to turn off their engines and reduce emissions while docked.

The port of Antwerp, is another facility looking



to generate renewable energy on site, with the construction and installation of a prototype water turbine in December 2018. The experimentation with hydropower shows how ports are increasingly eyeing innovative solutions to the issue.

In Taiwan, the port of Taichung has completed work on the first of several wind turbine projects to reduce the port's dependency on fossil fuels, as part of the Taiwanese government's goal to install 5.5 GW of offshore wind power by 2025.

In the US, the port of Los Angeles has invested USD27 million in a microgrid solar project, as part of its Clean Air Action Plan, which will incorporate a 1 MW solar PV array and should significantly reduce carbon emissions and power port operations.

Antonis Michail, technical director at the World Ports Sustainability Program (WPSP), commented, "About one out of four projects within the port projects database of the WPSP addresses energy transition. When it comes to clean energy, ports tend to look primarily at wind and solar energy solutions while there are various ongoing research and development projects on hydropower, electrification, and hydrogen. Trends on methods appear to vary between regions and size of ports."

However, in the future ports may be able to turn to the sea for their requirements, based on the advances of companies such as Eco Wave Power.

Although the idea is not new - the first wave energy patent was filed in 1799 - Eco Wave Power has identified a cost-effective solution to convert wave energy into electricity. Compared with previous installations located 3–5 km offshore where the technology needed to be fastened to the seabed, Eco Wave's system can be secured to pre-existing marine structures in port. So-called "floaters" move with the motion of the waves, which turns a piston, compressing hydraulic fluid, which when released provides the energy to turn a hydraulic motor. This then activates an electric motor to produce electricity. Using sensors, the floaters can lower themselves into the water and automatically raise themselves when the waves become too rough, saving on maintenance and damage costs. The systems can range from a 5 MW project ready to be built in La Manzanilla, Mexico, with 200–300 floaters, to a 100 KW project comprising eight floaters in the port of Jaffa, Israel. The project in Manzanilla will make the port completely self-sufficient in energy and is expected to take 24 months to complete.

Sea Wave Energy (SWEL) has taken a different approach to generating ocean power. It has developed a single Waveline Magnet device, made up of recycled plastics, that lays on the surface of the water to absorb the wave as it flows under it, generating electricity.

Given the number of ports looking to generate renewable electricity, and the innovative solutions they are employing to do so, there is cause for optimism that interest in this sector will grow. Yet given the temperamental nature of the weather, for ports to become self-sufficient would require huge advances in energy storage facilities.

There are currently no effective large-scale storage solutions for the energy produced by renewables, which can cause gaps in supply. Currently, when these circumstances occur, ports are supplemented by grid energy, demonstrating that they are not ready to be completely reliant on renewables.

Currently the two most viable solutions to the storage problem could be batteries and hydrogen, but both technologies are still emerging. There are no batteries large enough to store commercially relevant quantities of renewable energy, while the use of hydrogen would mean passing power into an electrolyser to convert it into hydrogen, which in turn can be stored or injected into the grid when needed. However, the technology behind this is in its infancy and the development costs would be huge. With few manufacturers willing to bear the brunt, ports may have to wait some time before achieving self-sufficiency in renewable power. **PH** 

# Ports seek IMO 2020 clarity

Ahead of IMO 2020, a dearth of information about compliant fuels has left many bunkering operations struggling to understand how to prepare, **Stephen Cousins** reports

A n upcoming major switch in fuel demand to low-sulphur products because of new International Maritime Organization (IMO) regulations from next January has forced stakeholders across the shipping industry to make some difficult decisions. The global shipping fleet currently consumes around 5.3 million barrels of fuel a day, but roughly 4 million of these will become non-compliant when the regulations kick in. A quantum shift in supply will be required if trading is to continue without disruption.

Options to achieve compliance with the cap are expected to focus on marine gas oil (MGO) and new low-sulphur fuel oils (LSFOs), while vessels fitted with exhaust gas cleaning systems, known as scrubbers, will be able to continue to burn heavy fuel oil (HFO).

However, an incomplete picture on the performance

of different products, their global availability, and how much they will cost, has left bunkering operations at many ports on the back foot. Ahead of the deadline, many ports are uncertain of volume requirements and the need to upgrade and adapt infrastructure. "You ask this question too early," responded Tie Schellekens from the port of Rotterdam to a question about its expectations for 2020. "When the sulphur content in fuel oil in the emission control area [ECA] countries was adjusted in 2015, we noticed the effects of this on demand in the last three months of 2014."

A wake-up call came in June 2019 when, in an article published by international shipping association BIMCO, the Marine Bunker Exchange (MABUX) said the bunker market is far from ready for the switch in demand to low-sulphur fuel. Sergey Ivanov, director at MABUX,



IMO 2020 is set

to complicate

bunker fuels

the handling of

said, "The question of availability of very low-sulphur fuel is critical at this point. No one is sure there will be enough LSFO in all the main ports in the world."

The global bunker supply chain formed in the post-World War II era developed over time to give ship operators a reliable picture on the availability of fuel in different ports and regions.

The 2020 legislation threatens to disrupt this setup by bringing in a range of new low-sulphur fuels, available at different prices and from different refiners and suppliers. This is expected to impact many ports' ability to offer different products, depending on their location and available storage capacity.

The changing fuel landscape is highlighted by the more visible presence of oil majors such as ExxonMobil, Shell, and BP, which are all keen to exploit 'a positive crack' and the ability to sell 0.5% fuel oil and MGO for a premium. Adrian Tolson, senior partner at marine consultancy 2020 Marine Energy, told P&H, "Look at the top 10 oil companies in the world, and you will see every one of them in an attempt to grow their bunker presence in 2020 because they see it as an opportunity to re-engage the market and lead on the supply side."

However, the multitude of methods to produce low-sulphur fuel, either as a pure extracted product, or through blending or refining, makes it difficult to pin down the market with certainty.

Ports' ability to secure a reliable supply could come down to geography and the availability of local resources. For example, ExxonMobil said it can deploy an effective supply chain when ports are in proximity to its manufacturing facilities. This is the focus of its first wave of 0.5% compliant fuels available in the ports of Antwerp, Rotterdam, Genoa, Marseille, Singapore, Laem Chabang, and Hong Kong, with locations in North America to follow.

Meanwhile, ports in some countries that previously struggled to secure bunker trade could thrive post-2020. "Australia has always been a difficult location, stuck at the bottom of the world it has had to import a lot of its HFO from Singapore, resulting in high bunker prices. But now we discover that Australia has large amounts of low-sulphur crude that could be used directly for bunkers and everybody is much more optimistic about that market," said Tolson.

A shift in supply towards ports in the Mediterranean, where LSFO supply is plentiful, partly because refiners in the region have upgraded facilities, is another possible outcome. Some bunkering operations have already made plans to upgrade infrastructure. The port of Singapore, the world's largest bunker port, said in April that it would have no problem securing enough compliant fuel by 2020, and storage operator Vopak has revealed plans to add four new tanks at the port, due to become operational by the end of this year.

European ports planning to expand capacity include Frederikshavn in Denmark, where bunker supplier Stena Oil plans to lease and operate a new oil terminal

### ■ The question of availability of very low-sulphur fuel is critical at this point ■

Sergey Ivanov, director of MABUX

designed to meet demand for lower sulphur marine fuels, from the fourth quarter of 2019. And at the port of Aberdeen, Peterson Energy Logistics has invested GBP3 million (USD3.8 million) in a new 4,000 m<sup>3</sup> tank for storing MGO.

Post-2020 ports will have to focus on adapting facilities to provide the flexibility to handle multiple 0.5% fuels. These will need to be segregated both on shore and on delivery equipment with a greater emphasis on safe handling and preparation.

As a result, medium or small ports could lose trade if they are unable to provide the additional infrastructure. "If you're evenly splitting demand between three products it requires additional systems, and it may be difficult to keep all three products available if there are supply outages because the supply chain will not be very developed in the immediate aftermath of 2020," said Tolson.

Strategic decision-making on the part of bunker operators has been complicated by uncertainty around fuel demand and cost.

Christos Chryssakis, senior researcher at DNV-GL, told P&H, "Ports are trying to understand fuel demand and the time they need to prepare their storage facilities. They need to have fuel products ready for the fourth quarter of this year, which is when bunkering compliant fuels will need to take place."

While Chryssakis anticipates a "limited problem" with the availability of MGO, the supply of HFO is expected to reduce significantly outside major bunker ports frequented by vessels fitted with scrubbers. The situation with LSFOs is less certain, and with the clock ticking some people are getting nervous. "No one is supplying LSFOs today because there is no demand, and even if it was available no one would be buying apart from in very low volumes. Very few people are testing these fuels and there is uncertainty about their properties and fuel quality, which could impact the performance of ships," he said.

The elevated risk could mean bunker ports that do not have fuel supply contracts in place with major ship operators will choose to wait and see approach as the regulation takes hold.

"This is a gradual process, there will be more information coming out as the weeks and months go by," said Tolson. "It's going to be hard for ports to gauge what the real impact is going to be until we are a number of months into 2020." **PH** 

# South Korea port pollution dust-up

Seoul wants its ports to halve fine particle emissions by 2022, reports *Martina Li* 

ine dust has occasionally affected air quality in South Korea, with its ports being identified as one of its main sources, because of the constant entry, exit, and berthing of ships.

The issue has become increasingly politically sensitive, and in its policy plan for 2019, South Korea's Ministry of Oceans and Fisheries (MOF) announced a course of action to reduce fine dust in the country's ports by more than 50% by 2022.

Part of the government's plan is to implement shore-based power in the major ports of Busan, Yeosu-Gwangyang, Ulsan, and Incheon.

Busan Port Authority (BPA), which runs South Korea's busiest container port, announced on 27 March that it will co-operate with the port of Los Angeles to create an environmentally friendly port with reduced fine dust, including using shorebased power.

During a press briefing, Eugene Seroka, executive director of the port of Los Angeles, emphasised how the facility had adopted the use of shore-based power, also known as onshore power supply (OPS), which involves supplying electricity from a landbased source to berthed vessels.

The port of Los Angeles prides itself in using shorebased power to eradicate air pollution from ships at berth. In June 2004, the port of Los Angeles and China Shipping Container Lines (CSCL), now part of COSCO Container Lines, celebrated the opening of Berth 100, the world's first OPS-enabled berth. Later that month CSCL's Xin Yang Zhou became the first container ship in the world to plug into an OPS.

The port of Los Angeles currently has 30 berths where container, refrigerated cargo, and cruise ships run vital onboard systems on OPS, more than any other port in the world.

OPS eliminates 95% of all vessel emissions while a ship is at berth by allowing vessels to switch off their auxiliary engines. The remaining 5% occurs during the brief window in which crews are plugging in the ship when it arrives and unplugging it prior to departure. OPS also eliminates noise pollution and frees up engines for maintenance while at berth.

Such measures come at a cost, however. The port of Los Angeles injected USD200 million to set up shore-



based power in seven container terminals and one cruise ship terminal.

On 5 April BPA staff, led by CEO Nam Ki-chan, planted more than 1,000 trees of various species in the area behind Busan New Port. Nam said that BPA is working alongside the government in taking various measures to reduce fine dust, such as developing shore-based power facilities and converting yard tractors to run on natural gas instead of diesel.

"This large-scale tree planting event is an expression of our commitment to reduce the amount of fine dust emitted from ports," Nam said.

Incheon port, South Korea's third busiest container port, is expected to have its air quality monitored by the government because of the seriousness of air pollution in its namesake city.

Ships and trucks that transport containers to and from Incheon account for more than 13% of the fine dust emissions in the city, according to Korea Maritime Institute.

Incheon Port Authority, Incheon International Airport Corporation, Korea Gas Corporation, and Sudokwon Landfill Site Management Corporation will invest a total of KRW74.9 billion (USD63.3

#### DUST REDUCTION PLAN



Busan Port Authority is developing shore-based power for vessels million) to reduce pollutant emissions by 400 tonnes this year.

Accordingly, Incheon's municipal authorities began setting up monitoring systems across the city in April.

The investment aims to fulfill the municipal authorities' plan to reduce the concentration of PM2.5 fine dust to  $20 \,\mu\text{g/m}^3$  in 2021.

Being primarily an industrial hub and home to South Korea's main international airport, Incheon and its port are the main gateways into Seoul. Incheon is on the west coast of the Korean Peninsula, geographically near China. The National Institute of Environmental Research noted that fine dust particles from China and domestic air pollutants contributed to severe air pollution in January, along with slow air currents in colder months.

Incheon currently has nine industrial power plants including Yeoungheung Thermal Power Plant, refineries, ports, airports, metropolitan area landfills, and 11 industrial complexes. There are plans to cut emissions by dropping the utilisation rate of Yeoungheung's two oldest units to less than 50%.

In terms of pollution sources, the amount of fine dust from construction projects accounted for 32.7%, followed by ship and air at 24.1%, power and

heating at 15.6%, cargo and passenger cars at 11.3%, and manufacturing and production at 9.9%.

Over at Yeosu-Gwangyang, South Korea's second busiest container port, Yeosu Gwangyang Port Authority (YGPA) CEO Cha Min-sik acknowledged in a press briefing in January that ports have been deemed an environmental obstacle because of emissions of fine dust and greenhouse gases.

Cha said that 49 OPS facilities will be installed this year to cater to tugs. YGPA has increased the proportion of electric transfer cranes in the port, where 40 of its 54 such cranes run on electricity. The port also plans to set up a high-voltage OPS facility to power mega box ships.

Cha added that YGPA has pre-emptively converted all its yard tractors to run on batteries instead of diesel, a first in South Korea.

Cha said, "Besides all these, we're doing our utmost to make Yeosu-Gwangyang port the most eco-friendly and cleanest port through light-emitting diode [LED] replacement, solar power, and renewable energy."

In Ulsan, South Korea's main oil port, there are plans to set up an OPS facility in one of the berths, something that Ulsan Port Authority has set aside KRW400 million to complete.

Ulsan already has six shore-based power facilities that cater to tugs and other small vessels. Real-time monitoring of air pollution will also be implemented this year, with the system measuring eight types of air pollutants, including fine dust.

Finally, additional incentives will be rolled out to encourage shipowners to practise green shipping when in port. Currently, if the ship has an Environmental Ship Index (ESI) score of more than 31, its owner can get a 10% discount off port fees. The discount will be increased to 20% this year.

For its part, the MOF will work with the Ministry of Environment to construct eco-friendly infrastructure, create a monitoring system to check for fine dust in all ports, and enact emergency measures should there be high concentrations of fine dust. Work on these will commence within the year.

The MOF has also pledged to continue its support to encourage the take-up of liquefied natural gas (LNG) bunkering, something it has repeatedly stated since 2016 as part of a wider strategy to revitalise the country's maritime industry, which has seen several high-profile bankruptcies.

A pilot project to convert vessels to run on LNG has been launched, with the MOF providing KRW2.8 billion (USD2.4 million) in subsidies to convert two tugs within the year.

The MOF said, "We will strengthen regulations with regard to emissions and our support with regard to the building of eco-friendly ships. We will tighten regulations with regard to exhaust gas, starting with ships arriving from overseas ports, gradually expanding the regulations to include vessels in local ports by 2021." **PH** 

#### FEATURE

# **Collaborative thinking**



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The talk of the IAPH's World Ports Conference in Guangzhou was the ever-building co-operation between ports and their stakeholders, and the benefits this could bring to the industry, writes *Jonathan Robins* 

n a digital, connected world, it can be easy to overlook the importance of meeting face to face to share ideas, exchange information, and form new connections. It was therefore fitting that the IAPH's World Ports Conference, held in Guangzhou, China, in May, had the theme of 'Collaborate Now, Create Future'. It was a theme that ran through the speeches, presentations, and conversations of the event, in the conference rooms, bars, and restaurants of Guangzhou. And now that the event is over, it enables us to understand a little clearer what the future of ports may look like, and how collaboration can help us get there.

The ports in attendance were certainly keen to step up their co-operation effort, including through the IAPH, and saw this as the key to the future. Jens Meier, CEO of Hamburg port, for example, told the closing panel debate that amid all the talk of digitisation, infrastructure remains crucial, and technological gains will take place here. "My thought is that if we have these [technological] developments, we should share it with our network and other ports," he said. Kurt Beckett, deputy CEO, Northwest Seaport Alliance, explained that ports are inherently collaborative places. "Ports are connectors of people and goods and culture, by nature we collaborate with our communities, increasingly through organisations like the IAPH ports collaborate on a global scale."

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Collaboration is certainly something that China sees as key to its port strategy, as it looks to expand its Belt and Road Initiative (BRI). By the end of last year, noted Chen Yingming, executive vice-president of the China Ports and Harbours Association, BRI had seen China construct ports in 42 countries and operate them in 34 locations, as far away as the Mediterranean. In the scheme's second Forum for International Co-operation, held in Beijing in April last year, President Xi Jinping called on countries that have engaged with BRI to deepen their co-operation with the scheme. This would see countries co-operate with China on maritime connectivity, developing port and maritime logistics, as well as offshore industries.

Despite the scepticism that this has raised in some quarters, there is also notable enthusiasm for the scheme. Maersk's Tim Smith noted that BRI connects countries with a combined population of 3.2 billion people and a GDP of USD12 trillion. From Maersk's perspective, BRI would see carriers, operators, and logistics firms benefit from the demand that it stimulates, as well as generate new routes, new ports, and inland services, and providing the funding for expansion – with various estimates of more than USD70 billion having been provided for projects so far. In terms of financing, "Belt and Road addresses a very important need," he said. "For those of us in ports, the boost in trade volumes will enable us to fill up our existing terminals, and provide the funds to build new ones and expand those that we have." Yes, challenges with the scheme exist, he said. A worrying lack of transparency is one aspect that has been raised by the World Bank, as is the chance of white elephant projects that lack solid business cases behind them. Yet Smith was keen to point out that China's Second Belt and Road Forum in April had gone to some length to allay these fears. "A lot of promises have been made to address these worries, including from president Xi himself." He cited the example of the Italian port of Vado, being built by Maersk. The joint venture port is under construction between APM Terminals, COSCO, and Qingdao Port Group, and will begin operations in December of this year. "The port can legitimately claim to be at the western end of the silk road, and is connected to the growth markets of northern Italy, Switzerland, and southern Germany." The terminal will be equipped for 20,000 teu ships, and as the first significant new Italian terminal in more than 25 years, "is a good example of how Chinese players co-operating with international partners can co-develop world class ports and contribute to the economic development of whole regions".

Global ports also have a lot to benefit from BRI, Smith explained, and from greater co-operation with the Chinese. He noted that Chinese ports have grown to dominate the lists of the world's largest container terminals, and that "not only are they big, [but] they are also extremely efficient", featuring heavily in lists of the world's most streamlined facilities. "There is a much better performance than you see in most of the world, particularly the big terminals in Europe and North America." He cited Nansha, with a berth productivity of 106 moves per berth per hour, against 76 moves per hour at the port of Los Angeles, making Nansha 39%

IAPH President Mr Santiago Garcia Milà gives the opening address



more efficient. It was therefore logical, he explained, to deepen co-operation. Large shipping companies such as Maersk can also offer China their knowledge of best practices, the benefits of economies of scale, and a role in co-developing automation, information technology, and digital solutions, he said.

It was a point echoed by Yu Zenggang, executive vice-president and Party Committee member at COSCO shipping, who noted that enhanced co-operation between shipping lines and ports had a big role to play in encouraging further global trade, and influencing the commercial landscape far beyond the maritime industries. He cited the BRI investment in the Port of Piraeus in Greece, which has connected Southern Europe to Asia, creating the "third trade corridor from the Far East to Europe". This had facilitated greater co-operation between the shipping lines and terminals, warehouses, logistics operators, and inland transport. Combined, this enhanced co-operation had reduced shipping times on the route by about 7–11 days on average. Taking this co-operation between ports and shipping lines a step further could see new service models open up, moving beyond port-to-port services to one-stop supply chain solutions that would see inland goods seamlessly transported from location to location, and from factories to consumers, and reducing costs along the way.

The kind of co-operation that would enable this would be, for example, efforts to introduce paperless customs, he said. Carriers and ports would also need to work together to spur technical innovation. There is evidence that this co-operation is already taking place, and bearing fruit, he assured. "Business barriers between ports and carriers are already declining in the face of digitisation and other technological advances." Developments such as the use of blockchain are promising to reduce them even further. In the future, for example, intelligent ships – that may well be at least semi-automated – will communicate with intelligent and automated ports, sharing information, likely on shared platforms. The result should be smoother operations and lower client costs.

Zenggang went even further than this, opining that co-operation may extend beyond firms interacting better together, to enmeshing their ownership. Shipping lines, he said, are likely to become more financially involved in ports, and vice versa. COSCO now holds a higher than 50% stake in 15 overseas terminals, he said. The mutual benefits of this are clear to see, giving carriers a state in terminal development, and being able to support an improvement in services and the industrial chain.

Whether this will come to pass, or is even desirable, is open to interpretation. But what is clear is that as technology works to break down barriers between countries, companies, and entire industries, enhanced co-operation is inevitable and should, hopefully, drive efficiency and performance improvements in ports and their stakeholders. **PH** 





Note: all volumes displayed in metric tonnes Source: IHS Markit – Ports and Terminals © 2019 IHS Markit/Shutterstock: 5100752

# Calling at Contrecoeur

An upgrade of the Port of Montreal will future-proof the container market for Eastern Canada, Montreal, and Québec, writes **Scott Berman** 

> ontrecoeur, a container terminal plan by the Montreal Port Authority (MPA), will turn a nondescript bulk facility about 40 km downstream from the urban Port of Montreal into a modern container terminal with intermodal connections and a 1.15 million teu annual capacity, possibly within several years.

> The USD566 million facility is projected to increase the port of Montreal's container terminal capacity by about 2.1 million boxes annually. Construction is expected to start in 2020 and should be completed by 2024.

"This is the big project for the future of Port of Montreal [and is] the largest project in our history," said Ryan Dermody, vice-president of Contrecoeur, pointing out that it is driven by the growth of "our customers, local businesses, and exporters from around the world", as well as by competition and the prospect of the "major economic benefits here at home".

Landside construction will stay within the current facility's footprint, explained Dermody. The port's new, two-berth wharf, which will be 675 m long and cover a surface area of 2.3 ha, will replace a one-berth wharf that is currently on site. According to the port, the new wharf will be constructed "by driving sheet piles and anchor piles and by backfilling the inside of the wharf

compound". Once this is complete, eight rail-mounted gantry cranes will be installed.

A capital dredging campaign, expected to last about three years, will remove an estimated 839,000 m3 of sediment from the 16 ha approach area, creating a depth of 11 m. Mechanical dredging, likely by two clamshell bucket apparatuses mounted on barges, will load the material into barges to be towed to the wharf, where it will be unloaded and taken to two storage areas on the port property.

A 26 ha container yard, with areas for temporary storage and handling, and landside and maritime transfer, is projected to have an overall storage capacity of about 28,800 teu. Intermodal and marshalling yards with rail lines will cover another 24 ha of the terminal space. As the port plans have advanced, the local municipality, with input from various stakeholders, have begun developing plans for a logistics park on land abutting the terminal.

Contrecoeur will service import and export containers on vessels with a maximum capacity of 4,200 teu. The port is projecting that 55% of boxes will be transported to and from the port by truck, with the remaining 45% travelling by rail. The project follows another container initiative at Montreal: MPA, which in 2016 completed the first phase of its Viau Terminal, converting it from a breakbulk into a container terminal, with a second

#### MAYON MONTREAL



### Future-proofing Québec

Contrecoeur comes on the heels of other investments. A total of USD58.8 million has already been spent on the reconstruction of the port's Alexandra Pier, now renamed Grand Quay, and its Iberville cruise terminal, which re-opened in 2017. The purpose of the initiative, in addition to serving passengers and vessels in greater numbers, is to attract more visitors to Montreal's waterfront while reaffirming the port's place in the life and future of the city.

The wider Québec region has seen a recent flurry of activity taking place on related port projects, centred along the Saint Lawrence River trade corridor, including:

- Plans for Beauport, a container terminal expansion initiative at the port of Québec on the Saint Lawrence River. The USD452 million project, which will include significant dredging requirements, is moving through the approval processes. A second phase, expected to cost about USD591.5 million, also is being planned.
- A multi-user wharf recently constructed and opened at the port of Sept-Îles' iron-ore Pointe-Noire Terminal near the mouth of the Saint Lawrence River.
- Construction of a breakbulk terminal and other facilities that opened in 2018 at Trois-Rivières on the Saint Lawrence River between Québec City and Montreal.
- Developments of facilities at Saguenay on a tributary of the Saint Lawrence River, for liquefied natural gas, phosphate concentrate, and metals mining exports.
- Back at Contrecoeur, port planners are starting to look even further ahead. According to a 2017 report, the port could be developed further in phases over several decades and boost annual capacity at Contrecoeur to 3.5 million teu.
- Regardless of whether that comes to pass, the current activity taking place is certainly significant for the region. Contrecoeur, as Dermody noted, "is the key project to support the growth of the container market for Montreal, Québec, and Eastern Canada".

Rendering of the new terminal at Contrecoeur phase – designed to eventually bring the terminal's capacity to 600,000 teu – slated to get under way soon. In light of that, Dermody explained why MPA, which appointed him to his post in 2018, is developing Contrecoeur. The completed phase of Viau "is running



at full capacity" and once the second phase is complete, "this will be the last development possible" for container operations at otherwise landlocked Montreal. Thus, "the future of the container market for the port of Montreal will take place at Contrecoeur", he added.

However, the port of Montreal is making the most of its urban property in other ways as well.

First, it is about to launch a USD37.7 million project – fully funded in equal parts by the federal and provincial governments – to increase the capacity of its rail network. Work will entail laying 6 km of track, upgrading various network components, and relocating abutting roadway and utilities. Work is scheduled to start later this year.

There is also the port's USD18.8 million Bickerdike Terminal project. Slated to get under way in August, the port plans to upgrade the multipurpose facility by redeveloping truck access and upgrading electrical systems, cruise ship handling areas, and some container and cargo storage areas. MPA is also looking to optimise various wharfs and docks, Dermody said.

The rail, multipurpose facility, and other upgrades can be seen as examples of MPA's strategy in terms of port space and capabilities. As Dermody puts it, MPA will "be working on the optimisation of our infrastructure in the next few years". **PH** 



Port of Long Beach has seen the impact of the US-China trade war firsthand

# Trade war fallout

US-China trade tensions have hit the port of Long Beach, yet *Dr Noel Hacegaba*, deputy executive director, remains bullish

S ince July 2018, the US and China have been engaged in an unprecedented trade dispute. By 1 June 2019 a total of USD360 billion in trade between the two countries was subject to tariffs as high as 25%. In a sign that the situation could escalate further, the US announced that it could levy new tariffs on an additional USD300 billion of Chinese imports, including electronics, apparel, footwear, and other consumer goods.

Although the US and China are at the centre of what the media calls a "trade war", many more countries stand to be affected. The rise of globalisation over the past 30 years has reshaped international trade. The modern supply chain is more complex and connects multiple countries and continents. For example, products manufactured in China could consist of hundreds of components made all around the world. This means that the ramifications of a trade dispute between the US and China would not be limited to the number one and number two economies in the world. This possibility is already receiving notice. *Alphaliner*, a widely cited trade publication,

# • On the export side, ports such as Long Beach have seen a precipitous decline in exports

**Dr Noel Hacegaba** 

Deputy executive director, port of Long Beach

recently adjusted its container throughput forecast for 2019 from 3.6% to 2.5%.

Closer to home, we have seen the effects of the "trade war" firsthand. In an effort to avoid the new tariffs. US importers advanced their orders, creating a cargo peak in the fourth guarter of 2018. This peak catapulted the port of Long Beach to its busiest year on record, but the late-year surge also stressed the supply chain. Shipping lines deployed extra loaders on top of their regular vessel services, leading to temporary chassis shortages, longer container dwell times at marine terminals, increased truck turn times, and an overstock of empty containers, which created a system-wide equipment imbalance. On the export side, ports such as Long Beach have seen a precipitous decline in exports. For the first four months of 2019, exports were down 11%. Overall container volumes were down 3% for the same period, during which ocean carriers cancelled no fewer than 15 voyages bound for Southern California because of decelerating demand.

It is worth mentioning that not all of the declines are attributable to the "trade war". Since 2017, China has enforced stringent environmental regulations banning the importation of "foreign trash". The recyclable materials, including wastepaper, scrap metal, and plastic scraps, account for a sizeable share of the export volume from Southern California. In fact, our data show that exports of recyclable materials have fallen by approximately one-third.

That is why the port of Long Beach continues to explore new and emerging markets. These alternative markets include Southeast Asia, Latin America, and, potentially, the India subcontinent and Middle East. As validation of our efforts, we are beginning to see ocean carrier services that include direct calls to Vietnamese ports such as Cai Mep and Haiphong.

While we remain concerned about the impact of a protracted tariff dispute on the trans-Pacific trade, we remain optimistic that a resolution will be reached in the near term. We also remain bullish on Southern California as a key gateway for international trade. That is why we are investing more than USD4 billion to upgrade our infrastructure, modernise our facilities, and expand our rail capacity. These improvements will put us in a position to handle the big ships of today and tomorrow. We are also working collaboratively with our stakeholders to drive efficiencies and deliver world-class customer service. This includes the use of digital solutions to inject visibility and predictability into the supply chain. PH



# Nansha dredging goes high-tech

The largest dredging vessels in the world are at work in Nansha, reports *Martina Li* 

#### Dredging at Zhuhai; Nansha port is expanding rapidly

he port of Nansha is thinking big, and big plans require big equipment. It is therefore no surprise that China's largest trailer suction hopper dredger (TSHD) is working on the fourth phase of a container terminal in Nansha port.

Scheduled to be completed in the second half of 2020, the fourth phase will enable Nansha International Container Terminal (NICT) to accommodate the world's largest container ships. NICT covers several cities in Guangdong province, including Guangzhou, Foshan, Zhongshan, Zhuhai, and Dongguan.



## 71%

Nansha processed 15.57 million teu of containers in 2018, accounting for almost 71% of Guangzhou's entire throughput The dredging will expand the bottom width of the channel from 243 m to 385 m, allowing round-the-clock two-way navigation of mega-container ships. Dredging for this fourth phase commenced in July 2018, with the 2016-built TSHD *Jun Yang 1* being one of three dredging vessels assigned to the task. The other vessels are *Jun Hai 5* and *Jun Hai 6*, which also saw action during the decade-long construction of the Hong Kong-Zhuhai-Macao Bridge that was completed in February 2018.

The three dredgers are part of a fleet operated by CCCC Guangzhou Dredging Co, Ltd, the Guangzhou branch of the state-owned construction and civil engineering group China Communications Construction Co (CCCC).

Jun Yang 1 was built at Royal IHC's shipyards in Kinderdijk in the Netherlands. Described as the largest TSHD to date in China and one of the world's most advanced TSHDs, the 167.5 m long vessel was designed with inputs from CCCC Guangzhou.

Touted as a "giant dredger" and a "miracle dredging tool" in the Chinese media, *Jun Yang 1* is primarily designed for dredging medium sand with a grain size of up to 1.5 mm. With a single hopper capacity of 21,028 m<sup>3</sup>, *Jun Yang 1* is equipped with two suction tubes with integrated submerged pumps, with which a dredging depth of 40–60 m can be achieved. The starboard tube can be extended so that a dredging depth of even 90 m can be reached, while *Jun Yang 1* is estimated to have a dredging capacity of 20,000 m<sup>3</sup> per hour.

According to CCCC, the dredged area is mostly based on silt. "Silt is sticky and makes excavation difficult," a CCCC source told *P&H*. "To this end, we worked with Royal IHC to design dredgers featuring technological innovations. The *Jun Yang 1* is fitted with more than a dozen steel molars that are more effective at excavation."

The expansion of Nansha port is part of the Chinese government's Greater Bay Area, which was featured in China's 13th five-year plan in 2016 and is widely viewed as an extension of Guangdong's participation in the Belt and Road Initiative (BRI).

Greater Bay Area cities are integral to BRI, which has seen Guangdong province consolidate and upgrade its ports, especially Guangzhou, Nansha, and Shenzhen, to combine its traditional advantage as a trade centre with the opportunities presented by the initiative.

Nansha is set to play a crucial role in the Greater Bay Area and BRI, with the Nansha Pilot Free Trade Zone facilitating transhipments. Nansha processed 15.57 million teu of containers in 2018, accounting for almost 71% of Guangzhou's entire throughput.

At Marine Money's Singapore Offshore Finance Forum in April, Ince & Co partner Rosita Lau said that the Greater Bay Area strategy particularises the development of the region in the context of the BRI.

"This initiative is even more valuable and relevant than BRI, because BRI is a 30-year initiative and there are 25 years to go before we can see what the result is, but Greater Bay Area is just an 18-year initiative. We will see the results very soon," Lau said. **PH** 



# Data dredging

Ports on the US's Great Lakes will require plenty of dredging going forward, writes *Jonathan Robins* 

stimating dredging requirements ahead of time can be a tricky business. Indeed, so tricky that few have tried to do it, at least not on a regional level. Yet the information would not be without its uses, enabling dredging companies, shipping lines, and maritime authorities to plan ahead.

Enter Craig Harley and his team from US engineering firm OBG, now part of Denmark's Ramboll.

They have calculated the total dredging requirements from 2020 to 2030 for the port and harbor network of the US Great Lakes, consisting of more than 171 facilities across 85,000 km of coastline.

"We estimated dredging demand in federal harbors and non-federal harbors, and in categories of maintenance dredging, environmental dredging, and improvement dredging," Harley told the Western Dredging Association (WEDA) dredging conference in Chicago in early June, although currently the numbers for improvement dredging are unavailable. "We did not include in our study major waterways, [...] just ports and harbors that were on US coast of the great lakes."

For maintenance dredging, the main information source was federal government surveys of ports and harbors, something that can be guaranteed to a high degree of accuracy. From this they were able to estimate what the requirements would be on a location by location basis.

Take the case of the town Algoma, Wisconsin, which has a recreational harbor on Lake Michigan. Algoma's harbor contains a federally maintained channel, as well as a non-federal harbor. By taking information from surveys by the US Army Corps of Engineers (USACE), they were able to estimate that within the 2020–30 timeframe the likelihood is that dredging will be required.

"They do have an issue with their harbor in the federal channel," Harley explained. "The last time it was dredged was in 1993 when 18,000 m<sup>3</sup> of sediment was taken out. Luckily lake levels are high so it's not yet an issue for them, but if it comes down closer to average or where it was a few years ago they will need [to] be dredged," he explained.

Because the USACE often perform hydrographic surveys beyond federal areas, Harley and his team were also able to use this information to examine Algoma's non-federal harbor, in combination with other sources.

"We looked at it and said they do have a sedimentation issue here," he said. In this case, they estimated that around 25,000 million  $m^3$  of sediment would need to be removed.

For environmental dredging, which is required to remove contaminates for wildlife protection, the group's primary resource was the Great Lakes Areas of Concern, as defined by the Great Lakes Water Quality Agreement. They used this data to develop estimates for dredging quantities for the period, together with a snappy analysis on individual locations. For the port of Duluth, for example, they estimated that 1.2 million m<sup>3</sup> of sediment would need to be dealt with, although half of this would likely be capped, with contaminated material trapped under stable layers of sediment to reduce its exposure. Of the remainder that does need to be removed, about 75% of this would need to take place in the 2020–30 timeframe, equalling about 450,000 million m<sup>3</sup>.

The end result is that for US federal ports and harbors on the Great Lakes, about 26 million m<sup>3</sup> of material will require dredging for maintenance purposes alone in 2020–30, indicating plenty of activity for regional dredging companies. For environmental dredging, the figure is 2.3 million m<sup>3</sup>, and for non-federal maintenance it is about 1 million m<sup>3</sup>.

Interesting information to know, but how the industry makes uses of the data – or even expands on it – remains to be seen. **PH** 

# Black gold

Beneficial use schemes show that far from being spoil, dredged sediment can benefit ports and the economy, *Jonathan Robins* reports

Predging is not traditionally thought of as an activity with much inherent environmental benefit, while dredging spoil has been viewed as just that – waste to be disposed of. But as the case of the port of Duluth, USA, highlights, new approaches are challenging these assumptions.

Although the port of Duluth on Lake Superior is not well known internationally, it is the largest Great Lakes port by gross tonnage and the second-largest dry bulk port in the US. "It is a big economic engine for the city and the region," explained Mike Bars from the Minnesota Pollution Control Agency to the Western Dredging Association (WEDA) annual conference in Chicago in June, "You're in the middle of the continent, and you're less than two weeks from Europe." As a result, it requires dredging to keep its channel clear. Duluth also has environmental importance, sitting in the St Louis Area of Concern (AOC), as defined by a 1987 agreement between the US and Canada to protect Great Lakes environmental sites. The St Louis AOC is the second largest of 43 AOCs, comprising of the lower 63 km of St Louis river and estuary.

Being an important trading port that requires frequent dredging, and a location of environmental protection might seem to be contradictory; economic activity rarely leads to an improved environment.

But the practice of beneficial use of sediment, whereby dredged material is used for an environmental, or social good, is changing that. And as Duluth's experience shows, it can also be used to benefit ports, dredgers, and the economy.

Slip 2 in the Duluth harbor was a disused ship berth sitting close to a key entertainment and tourism area. Although a developer was keen to regenerate the location for housing, it was contaminated with chemicals such as lead, PCBs and Dioxin. "It was dangerous," noted Bars, while the need to clean up the pollution "threatened the financial viability of the developers' scheme".

Not only this, but the dock walls were in an extremely poor state of repair. Diver inspection found that the slip's piles had become unsupported as material had washed away from around them.

Herein lay a prime opportunity for beneficial use. With coordination between the US Army Corp of Engineers, the body that is responsible for dredging federal waters, Duluth port and the developer, dredged material from the harbour was used not only to support the piles, but to create a three meter stabilisation and remedial cap over the contaminated seafloor within the slip.

The result: the contamination was contained, the dock walls were strengthened, and the developer could proceed with the project, unlocking land for housing.

"This was win win win," explained Bars, "the developer paid no cost to get the material. The Army Corp was able to place material nearby [to its dredging operation], reducing its costs, and the contaminated sediments were remediated with a thick cap with no cost to the city, state, or federal government".

Duluth has now seen several such beneficial use projects. When complete, the 21st Avenue West and 40th Avenue West environmental remediation and restoration projects, for example, will have used over 1.1 million m<sup>3</sup> of dredged material from Duluth harbor to recreate shallow water wetland habitats to benefit birds, plants, and fish. So prevalent have local beneficial use projects become that "there is more need for the sediment than [the dredging] can provide", Bars explained. "Projects are now actually competing for the dredged material".



Dredged material placement at Duluth



# Future modelling

Building a port is a tough, expensive business, which can see investors struggle to hit the return on their investment. However, the latest generation of simulators is here to help

> nside a nondescript office building near Southampton, UK, lies the latest advance in port design. Down a corridor in a darkened room sits a ship's bridge, complete with controls and screens to mirror real-life conditions, so sensitive that when *P&H's* Jonathan Robins attempted to berth a container ship in a nice, safe port, with a little bit of weather to make it interesting, he felt distinctly queasy.

> "Terminals, ports, floating oil and gas, floating LNG, anything that is of a significant potential investment offshore or on the ship-shore interface," said Phil Thompson, director for simulation and training at UK-based engineering and technology firm BMT Global, rattling off a list of projects that its REMBRANDT simulation technology has been used to model.

> REMBRANDT, which stands for real-time manoeuvering berthing and training, was originally

designed in 1991 to mock-up berthing requirements for Dover-Calais operators P&O Ferries and Stena Sealink.

Bymathematicallycalculatingreal-lifeocean conditions for wind, waves, currents, ship manoeuverability, and a myriad of other variabilities, REMBRANDT, along with other simulation technology such as Kongsberg's K-Sim, allows users to navigate and moor vessels, practice shipto-ship transfers, or, by linking it with black box or AIS data, create visual 3D reconstructions of events, such as a marine accident. Other simulation providers, such as SimPlus, focus less on hydrodynamics and more on navigation and capacity.

However, simulators have another key use: port design. The same features that enable them to create ocean conditions, also allow them to simulate how ports will look, feel, and function in real life, and how vessels will use them.

Such is the sophistication of the technology that simulators have become a key tool in the planning of new projects, enabling the changing of designs well before work begins on site.

"The simulator and the ships are a synthetic world, so you can do modifications to the port or even create a new port in the simulator to test all kinds of weather interactions or ship traffic," said Terje Heirstad, vicepresident of business development and Kongsberg.

"Simulators enable customers to save a lot of money in the early phase of a project because they can test out the design. With the simulator you get the look and feel of the project, you really are in the environment and you get a really good perception of what it will be like – and you can test them," he told *P&H*.

Because the system calculates all the physical forces in the simulator – lines, hawsers, frictions, tensions, and everything else, it is also, he insists, incredibly accurate. "It's designed to measure all the hydrodynamic effects – pressure effects, shallow water effects, and others."

A key priority for simulators involved in port planning is ensuring that the design will not limit the operability of the port, explained BMT's Thompson. "When the port gets built, there should be nothing that was unexpected from the simulation."

This also enables the system to examine how vessels will function in ports and under differing weather conditions. Because adverse weather gives vessels significant vertical motions, effectively seeing them bounce, modelling how they will behave under different conditions is critical for knowing dredging requirements and under keel clearance. "We usually simulate port designs with more challenging extreme weather envelopes, because if it works within the extreme weather its clearly going to be ok within calmer weather," he noted.

Take a recent Nigerian greenfield port that BMT was involved with. "[The developers] came to us to explore the operational windows on a proposed new port layout in terms of channel design", explained Thompson, with REMBRANDT specifically looking at the issues of depth, channel approach, and vessel manoeuverability onto a berth – including the viability of accommodating different vessel types and sizes in a variety of weather conditions, as well as knowing their tug requirements.

The dredging design for the Nigerian port was initially set around 17 m, "but the simulation was able to tell them that for arrival and departure, given changing weather conditions, unless they dredged deeper there would be quite a lot of downtime for the vessels that they plan on using". To ensure the port would be operable 90% of the time, it would need to be dredged to a minimum of 20 m, at least in some places.

"REMBRANDT enables ports to target their dredging requirements," Thompson explained, "in some areas it can highlight the need for the bottom to be dredged to a greater depth, but in others it may demonstrate that less dredging is required".

For the Nigerian greenfield port, the software also highlighted the inadequacy of an initial breakwater design, which was failing to absorb wave loadings, much of which was entering the port. The simulator could model this, and test out an improved breakwater.

The end result was that as well as maximining the ports operability, the simulation will also allow its designers to incorporate cost savings.

The influence of simulators can also be seen across other types of maritime projects. Kongsberg's K-Sim, for example, was recently used to measure the impact of a river entering a new ship channel, enabling the designers to understand the size and number of tugs that would be required to support large vessels in passing through the new channel.

SimPlus has been used heavily to plan for the dredging and reclamation work required to shift Singapore's vast container terminal westward from the centre of the city, not only to see how the port will look like and function, but to ensure that dredging and construction work can be carried out safely in an area thick with marine traffic. Through modelling how vessels are likely to behave, becoming "the brain of the ship master and pilot", the software was able to make several design recommendations to the port of Singapore's plans, SimPlus's Stuti Nautiyal told *P&H*.

But what could be simulators' greatest impact on ports is perhaps yet to come.

Kongsburg's Heirstad notes that customers are increasingly using the technology to understand how

# • Ports need to have the facility to support autonomous ships

#### **Terje Heirstad**

Vice-president of business development and Kongsberg

autonomous vessels will behave in shared water spaces. "Ports need to have the facility to support autonomous ships into the port, so some of our customers are running the prototypes of these processes," he said.

BMT's Thompson notes that fully autonomous vessels are unlikely to be occupying congested water spaces for another 20–30 years, but it is in this transition period, when manned and part-autonomous vessels are interacting with each other, that there will be uncertainty. And with uncertainty comes accidents.

Simulators can model how autonomous vessels will behave in shared water spaces, and how to navigate safely with them, by using the exact same software that is being developed for autonomous vessels. This opens up the possibility of vessels and simulators developing in tandem.

Simulators can even be used to train the artificial intelligence behind autonomous vessels how to behave in certain situations, or to, for example, recognise new marine objects. REMBRANDT has already integrated with an autonomous vessel control system currently being deployed in UK water spaces.

"You're going to have to train systems to recognise virtually anything in the water. But now what they do rather than having to tow sensors around in the water, they're using REMBRANDT,"Thompson said.

Given the expected explosion in the use of automated vessels over the next few decades, the role and importance of simulatiors to ports, and the wider maritime industry, is only set to grow. **PH** 

#### A REMBRANDTsimulated vessel enters a port

Watter

# Connecting continents

A vast new Black Sea port in Georgia has lofty aims of connecting Europe and Asia, yet the plans have plenty of detractors, writes *Keith Wallis* 

Anaklia will be able to accommodate 10,000 teu container vessels n Greek mythology, Jason and the Argonauts sailed to Colchis, now modern-day Georgia, to secure the Golden Fleece that would put him on the throne of lolcus. Backers of a new deepwater port at Anaklia have embarked on a similar quest, but instead of a golden fleece, they are hoping to win Georgia's Black Sea port crown. Outlining the plans for Anaklia, Dimitri Papashvili, head of investor relations at the Anaklia Development Consortium (ADC), told *P&H*, "Our goal is to become the key transportation node and state-of-the-art maritime centre on the eastern Black Sea coast linking Europe and Asia."

With a 16m draught, Anaklia will be capable of handling 10,000 teu container ships and 45,000 dwt Handymax dry bulkers, a significant expansion on the 2,000–3,000 teu feeder vessels currently handle by Georgia's ports at Poti and Batumi.

"A ship with a 20 m draught can get through Bosporus into the Black Sea. Ships from Asia of 12,000 teu already call at several Black Sea ports, including Varna, Constanta, and Odessa and with larger port facilities could also incorporate ports in Georgia," Andy Lane, partner in marine advisory firm CTI Consultancy, told *P&H.* Poti, operated by Denmark's APM Terminals, is mainly served by Zim Integrated Shipping Services, CMA CGM, and Turkey's Arkas Line, while cargo through Poti and Batumi is transhipped at Constanta in Romania or Piraeus in Greece.

ADC, whose main shareholders are Georgia-based TBC Holding and US-based investment firm the Conti Group, has a 52-year build-operate-transfer concession from Georgia to build and operate the port in nine phases, costing a total of about USD2.5 billion.

While Georgia is a key cargo corridor between the west and the east, with two main hinterlands, Papashvili said the imposition of sanctions on Russia by Europe meant Georgia has become a very attractive alternative route for European and Central Asian countries, "hence we see the growth of European seaborne cargo through Georgian ports".

But Anaklia has also become a potential flash point in Russia's relations with the West. Not only will the port compete with Russia's main Black Sea port at Novorossiysk, but with Georgia a member of NATO, Moscow is suspicious Anaklia will be a future NATO naval base. While these issues have the capacity to unnerve potential investors, ADC is pressing ahead with the Anaklia development. Dutch contractor Van Oord



has been working to reclaim the port site from the sea since mid-2018.

Papashvili said Anaklia will serve two key markets – the Caucasus, including Armenia, Azerbaijan, and Georgia and the regional market of the Central Asian states, mainly Kazakhstan, Turkmenistan, and Uzbekistan.

Cargo from these areas already represents about 65% of Georgia's container traffic, which totaled about 460,000 teu last year, mainly through Batumi and Poti.

"The goal of Anaklia deepsea port is to expand the market shares from the hinterland countries by offering reliable, cost-efficient transportation and utilising ongoing improvements and expansion of road and railway links between the Georgian Black Sea and Azerbaijan's Caspian coastlines and ports in Central Asia. These comprise Azerbaijan's new port at Alat, the new port at Turkmenbashi in Turkmenistan, and ports at Kuryk and Aktau in Kazakhstan," Papashvili said.

"Anaklia port sits at the western end of the Georgian transport corridor, presenting an alternative for the Northern Corridor via Russia's Trans-Siberian railway and the Southern Corridor via Iran. Consequently, it's an important constituent of the 'Middle Corridor' for China's Belt and Road Initiative," he said, although currently none of the Anaklia investors are Chinese.

Lane says, "Anaklia might be a reasonable project, if built modestly to scale and able to stand initial tests of time to see if supply chains radically shift under the BRI [China's Belt and Road Initiative] – which is not a given."

"When Anaklia port starts operating, we are confident the commercial attractiveness of the corridor will be enhanced both for European trade with Central Asia, as well as cargo transiting via the Middle Corridor between China and Europe," Papashvili said.

Not everyone is convinced though.

Klaus Laursen, managing director at APM Terminals Poti, told *P&H*, "Containerised cargo through the Caucasus will not increase on the basis of a new port. Hence, Anaklia port will be in direct competition with



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the existing port infrastructure in Georgia."

APM Terminals Poti and Poti New Terminals are working to develop a deepwater port at Poti, including a 400 m bulk facility. But they hit a major roadblock in May when Georgia's government approved and then revoked the construction permit for the project within a matter of weeks.

Süleyman Avcı, managing director of regional player Arkas Line, also sees few opportunities from Anaklia. "Since Arkas is a regional carrier, we live on local market abilities, realities, and growth. Unfortunately, the container trade between Georgia and some countries around [it] are quite limited with the countries within our market scope. So, it will not have much effect on our business actually unless there will be significant changes on the markets," he told *P&H*.

But Papashvili is confident about future cargo growth. "ADC has signed MOUs [memorandums of understandings] with several cargo owners in Central Asia, securing volumes for the bulk terminal to be developed within phase one of the project. A special economic zone, comprising logistics and industrial parks, will be built adjacent to the deepsea port."

That comes as Georgia's existing ports will reach full capacity by 2021 based on current growth rates.

"The overall annual capacity of Poti and Batumi, considering their design and infrastructure limitations, is about 600,000 teu. After the slowdown of the regional economies in 2014–16 ... container volumes at Georgian ports are growing for the fourth consecutive year at about 15–20% annually," Papashvili said.

Anaklia's investors come from Georgia, the United States, and other countries, with part of the funds coming from the government of Georgia. ADC is working with four development finance institutions – the European Bank for Reconstruction and Development (EBRD), the Asian Development Bank, the Asian Infrastructure Investment Bank, and the US government's Overseas Private Investment Corporation – to attract debt capital.

Together these four organisations are contributing USD400 million to the project. Speaking in March, Georgia's Minister for Regional Development and Infrastructure Maia Tskitishvili said while these financiers had put several conditions on making finance available, ADC had also failed to raise the necessary USD600 million for phase one to proceed, making it impossible for completion by November 2020.

However, Papashvili says, "We expect the loan terms to be in line with the standards of development banks."

"Currently, ADC is assessing tenders for the engineering, procurement, and construction contract and is aiming to select the contractor, which will carry out most of the remaining construction works by the end of June. Anaklia is scheduled to receive the first container vessels in 2021," Papashvili said.

US-headquartered port operator, SSA Marine, has been chosen by ADC to operate the port and the container and bulk terminals at Anaklia. **PH** 



# Cyber roundtable: Coping with a crisis

The best way to prevent cyber attacks, and handle them when they do occur, is to be well prepared, writes *Charlie Bartlett* 

rom a maritime cyber perspective, it is unanimously agreed that the 'human element' remains the weakest link in a firm's defence. But at the Safety at Sea and BIMCO Cyber Security Roundtable, held at NorShipping in Oslo, what was harder to discern was how to approach this problem constructively.

While humans can certainly be better taught to identify the hallmarks of a potential phishing effort, ship crews and port employees are not cyber experts. Lewis Woodcock, cyber-security expert at Maersk, outlined what the industry is dealing with. "NotPetya was a state-sponsored cyber weapon," he said, referencing the 2017 cyber attack that heavily affected Maersk Line. "It was

a supply chain attack which targeted a specific type of accountancy software used in Ukraine. The exploit didn't rely on a single missing patch."

The attack completely confounded Maersk's own cyber experts on shore, with the company being forced to communicate on WhatsApp so as to not transmit the virus. "We lost around 49,000 end points [servers, routers, and PCs/laptops] and all of these servers had to be rebuilt, meaning we had to rebuild our entire IT infrastructure over 10 days," Woodcock told the roundtable, which was supported by ABS Advanced Solutions.

In the face of a state-sponsored attack such as

NotPetya, Woodcock explained, almost nothing could be done; but ports and shipping companies should still have a plan in place. "Start with the worst-case scenario for a cyber attack," Woodcock said. "Think about all the different teams which will be involved – commercial, legal, HR teams. Ensure there are no silos.

"Try to keep communication aligned without the assumption of access to email or intranet. We have to think about what other channels we would have to use. We cannot stop every future attack, so the mindset changes to 'when' and not 'if."

When it comes to keeping systems offline, part of the focus has typically been in keeping the realm of internet-connected IT away from sensitive operational technology (OT) systems. These can be incredibly easy to disrupt because they are often bespoke systems, so if just one parameter is incorrect they will shutdown.

Keeping IT and OT separate is normally done using so-called "air gaps". A physical disconnect between two systems yields the quite reasonable presumption that malware will never cross between them. "The idea is that we don't have to worry about interactions between this system and that system because they're not connected. For example, the navigation system and the crew entertainment system – they do not connect." However, in practice this can be difficult, and staff are often unaware of the importance of maintaining air gaps.

Cris Dewitt, ABS cyber-security senior advisor, uses the example of a printer to demonstrate how vulnerable mixing OT and IT can be. Most printers have a wired interface, but also a Wi-Fi Protected Setup (WPS) interface for remote connections. "In this case there are two access points, one of which – the wired – is known, the other – the wireless – unknown," he said. "There are automated exploit tools that are designed to take advantage of that exact thing."

All systems, then, must be hardened against cyber attack. As one attendee described it, crew and employees are akin to "white hat hackers" – revealing issues that would not otherwise have been considered. "In this industry we are trained in redundancy; we build all of our other systems with redundancy, and cyber security is no different. Think: have I built my company structure, my processes, with redundancy?"

The law has yet to catch up with cyber crime, explains insurance expert and CEO of Nimble Legal Hari Krishna. "Not much has changed," he said. "From an insurance perspective, there is certainly the understanding that cyber is 'out there'.

"Buybacks are becoming the norm. People are buying back their risks. This is happening because almost no one is doing their business in an offline world."

According to Krishna, insurers may be unwilling to cover a vessel whose owner has shown insufficient preparation for a cyber attack."A lack of adequate cyberrisk protection might cause a ship to be unseaworthy, legally speaking," he said. It should not be forgotten that the motivation for a cyber attack is almost always some form of financial gain – whether it be simple extortion, theft of financial information, or simply an attempt to misappropriate funds. "We are dealing with situations in the Middle East; bunker suppliers have been attacked, fake invoices [were sent] to accounts in Bolivia.

"One London insurance broker got an invoice apparently from a longstanding customer and just paid the money," Krishna indicated, showing that ship crew are not uniquely susceptible to cyber-security risks. "Before you make a payment, pick up the phone and check the banking details. You're less likely to be caught up in a war between countries than to be attacked for financial gain."

Even so, says Kevin D Jones, head of the Maritime Cyber Threats research group at Plymouth University, uniquely asset-heavy shipping differs from banking, legal, media, or many of the other segments frequently targeted. Here, there is a large proportion of vulnerable OT in the system. Jones' facility at the university includes a 'cyber range' – where various original equipment manufacturers (OEMs) send their equipment to be bombarded, in a controlled environment, with the worst humanity has to offer. "We play with some truly obnoxious malware," said Jones. "We have a cyber ship lab, where we bring in real world kit, set it up in a configuration akin to what you would find on a ship bridge, and do nasty things to it. We test the set up more than the individual devices."

The facility has put together a risk model for cyber, to help organisations identify where their weak points are. "The risk model we have includes all the vulnerabilities, what can be done to exploit them, and also the possible motivations for doing so."

The latter is extremely important for owners handling politically sensitive trades, says Jones, echoing Dewitt's earlier statement, "If a nation state wants to get inside your company, they'll get in. You need to know who is likely to be interested in targeting you, and why."

Collective responsibility will be necessary for dealing with cyber attacks going forward; both in terms of shoreside staff being prepared to take responsibility for the safety and security of their crews and vessels, but also in terms of companies assisting one another. There exist myriad incentives to keep quiet when a cyber breach happens, Intelsat Maritime Director Shane Rossbacher explains. "Relevant training coming down from the management to the staff and crew on board is key," he said. "But people need to recognise that a cyber-security breach has occurred, and there is a responsibility to come forward."

All stakeholders have a role to play in protecting their industry fellows, suggested Rossbacher. "One of the lessons we took from the discussion today is that we are all part of the maritime supply chain, and [we] have a key role to play, and a responsibility to ensure the security of our partners and of our end users." **PH** 

Human error is the weakest link in cyber defence, the roundtable heard

# Pushing for progress

Ports remain a male-dominated industry, but, aided by the IAPH's Women's Forum, perhaps that is beginning to change

Promoting gender equality in the maritime industry – and specifically ports – has long been an issue on the rise. With the IAPH's Women's Forum now in its seventh year, the World Ports conference in Guangzhou, China, was a moment to take stock of what has been achieved, and see how things might progress over the coming year.

There has certainly been no shortage of activity from the forum. Outgoing chair Siti Noraishah Azizan, general manager of Sabah Ports, Malaysia, highlighted discussions and talks at IAPH events, an exchange programme, as well as a push for greater visibility of the issue – something that includes a regular feature in *P&H*. The forum has even received recognition from the International Maritime Organization (IMO).

A centrepiece has been the launch of women in ports mentoring programme, Mentorloop, which has now come into operation. "This is a long-awaited programme that we have planned for over five years", Noraishah Azizan explained, "but only now it is being realised". The initial scheme is a pilot programme open to 25 mentees, all of which have now been matched with mentors, and that seeks to provide women with insight into senior management in the industry. As well as connecting women to male or female mentors from across the global IAPH community, it links with the work that IMO and other maritime organisations have done. After a year of operation, the Women's Forum will assess

[The] number of women in maritime professions remain[s] at unacceptably low levels

Jeanine Drummond, incoming Women's Forum chair

the success of the mentoring scheme in 2020, with the hope of improving and expanding it.

Work has also begun on the Women in Ports database, which will collect data on how women's careers are developing in the sector. "We have started this, but we need more support and participation from the ports to provide the statistics to us," Noraishah Azizan said. In addition, an appreciation award for ports that take the initiative in women's issues is also in the works, "for example if they have policies to assist women in their career advancement."

More is to come. "In order for us to do more, and to promote the IAPH's Women's Forum outside the industry, we are also collaborating with other women's maritime organisations, such as WISTA, to share best practices and exchange information," Noraishah Azizan said.

The event also saw the announcement of the Women's Forum's scholarships. The Nigerian Ports Authority's Anthonia Ohagwa won the Biennial Training Scholarship, which will provide USD15,000 towards a port-related course. "A gender balanced workforce enhances motivation, increases performance, and unlocks inherent potentials of the workforce of an organisation and nation at large," she said. Bibi Nazeema Jaulim-Seelarbokus of the Mauritius Ports Authority was the winner of the annual award, enabling her to attend and make an original presentation at the Women's Forum panel of the IAPH's 2020 mid-term conference.

Guangzhou also saw the chair of the forum pass from Noraishah Azizan to Jeanine Drummond, harbor master at the Port of Newcastle, Australia, who said the focus looking forward would be on stewarding the mentoring programme as well as increasing exposure of the Women's Forum's and working with other women's maritime groups.

"While there is exemplary work in progress in many regions and organisations ... [the] number of women in maritime professions remain[s] at unacceptably low levels; we must come together in global partnerships and bold actions in the pursuit of achieving the United Nations Sustainable Development Goal 5 relating to gender equality for our maritime communities," she said.

Outside of the Women's Forum and the IAPH, the success or failure of the programme will ultimately be decided in the boardrooms, the offices, and on the quaysides of the ports themselves, with the group's work only being complete when women face no more resistance to a career in ports than men do.

How much progress has been made



The Women's Forum panel debate gets under way

along that path, and what can be done to speed up the journey, is less clear. The Guangzhou session brought together a collection of senior figures from the port industry to discuss these very issues, hosted by *P&H's* Jonathan Robins.

Hadiza Bala Usman, managing director of the Nigerian Ports Authority and the vice-president of the African region of the IAPH, noted that her very presence as a woman leading her organisation was a sign of progress, "and I see that's happening across the board". Of the 12 people on the board of the Nigerian ports Authority, for example, 4 of them are women, something that she was keen to stress did not happen because of government targets or quotas. "So yes, things are improving, but I believe we need to do more. We need to do more to assert ourselves," she said.

The discussion highlighted that although progress has undeniably taken place, it has not been seen uniformly. Elizabeth Blanchard, a commissioner at the port of Stockton in California, noted that larger ports have often made greater strides towards gender diversity than smaller ports. "I have seen many women being hired by boards to be their directors, and that are operating very efficiently and very excellently in the port industry. But the smaller ports don't seem to have that."

# I have seen many women ... operating very efficiently and very excellently in the port industry

#### Elizabeth Blanchard, commissioner, Port of Stockton

The way to tackle the issue was to start "from the bottom up", noted Bala Usman. "We need to ensure that more women can study within the maritime domain, and more women get an employed and retained in the sector – that is the way we can have women reach the top. To a certain extent you need to plant the seeds and they will then grow up."

It was a sentiment echoed by Captain Allen Grey from Fremantle Port, attending in his capacity as president of the International Harbour Masters Association, who highlighted that while women are well represented at his port in finance, human resources, and at senior levels – including five out of seven board members – in some sectors women are almost entirely absent. "We had two women across the operational area which I was responsible for. And every time we advertised we would get 240 applicants and every single applicant was a male, so I didn't even have any women to choose from." He noted that after the launch of a female only advertisement, they received 120 applicants, but prior to that they were just not interested in applying.

"The biggest thing we found was that our own husbands, fathers, brothers were telling the female members of their family 'do not apply for a position because it's a male dominated area," he explained, although he noted that there were positive signs of change.

"From the international point of view quite a number of women are now rising to harbor master, particularly in Europe, mainly because those countries put a considerable amount of work in getting women involved – and promoting women early in their careers – and they're starting to get those bubbling to the surface now."

While this sentiment is positive, for the Women's Forum, ports themselves, and the wider maritime industry, there is clearly plenty more work to be done. **PH** 





The port of Vancouver and Kenya Ports Authority collect their Government and Ethics Awards

# Rewarding sustainability

A host of top-quality projects were entered for the IAPH's World Port Sustainability Awards, and here are the winners

ost ports recognise the need to act sustainably and pay the subject more than lip service. But if proof were needed of how seriously the industry is taking the issue, and coming up with innovative and successful projects, then the IAPH's World Port Sustainability Awards is it.

Presented at the IAPH's World Ports Conference in Guangzhou, China, in May, the awards highlight projects that demonstrate best practice across the World Ports Sustainability Project (WPSP) themes of resilient infrastructure, climate and energy, safety and security, community outreach and port-city dialogue, and governance and ethics, which in turn are based on the 17 Sustainable Development Goals (SDGs) of the United Nations. In total the IAPH received 62 entries, with many projects cutting across several SGDs, amplifying their effect.

"Since the World Ports Sustainability Program was launched in March last year, we wanted to recognise and appreciate the effort of the ports involved in creating best practices," said IAPH Managing Director of Policy and Strategy Patrick Verhoeven. "They form the basis of our next step to translate those best practices into concrete guidance, for the benefit of ports and the communities they serve".

The awards also seek to raise awareness of ports' sustainability efforts, promote their experiences across the wider port community, and empower them to create a sustainable future that takes account of social and environmental



needs, as well as economic ones.

Selecting the winners consisted of two steps. A jury of senior industry figures from the World Maritime University, UNCTAD, the Institute of Chartered Shipbrokers, and the University of Antwerp Management School made the initial shortlist, with the remaining categories being thrown open to an online vote that closed in late April.

Congratulations to the following awardwinning ports, whose groundbreaking projects will help to provide inspiration to next year's entries, with the winners to be announced at the IAPH's World Ports Conference in Antwerp in March. For any ports that would like to enter projects, the terms of reference will be released in the coming months on the WPSP website. **PH** 



### Resilient Infrastructure: Abu Dhabi Ports' MAMAR system

This award aimed to recognise schemes that find innovative, digital solutions to drive efficiency gains in areas such as the optimal use of port capacity or just-in-time arrivals. Abu Dhabi Ports' MAMAR system is a digital single window that links together all the port's maritime stakeholders, as well as road and air freight, enabling the use of standard information for import, export and regulatory needs, and removing the need for paper records. Not only does this boost transparency, but it also increases efficiency. "MAMAR simplifies trade procedures, harmonises the use of data and offers more than 130 digital services," iAbu Dhabi Ports said.

### Climate and Energy: Port of Amsterdam's Integrated Green Energy Solutions

Fighting climate change is at the core of sustainability. This award recognises a project that reduces carbon dioxide (CO<sub>2</sub>) emissions through energy efficiency, renewable energy, clean fuels, or the circular economy, which aims to minimise waste. The Port of Amsterdam

has partnered with IGES to work with local industry to transform waste plastic into diesel, with an initial plan to turn 100 tonnes of plastic waste/day into 35 million litres of ultra-low sulphur diesel/year, saving 57,270 tons of  $CO_2$  emissions annually. IGES estimated four

times that amount of plastic could eventually be processed. "This award is a reward and an acknowledgment of Port of Amsterdam's strategy to be the circular hotspot in Europe," said Port of Amsterdam director of Circular & Renewable Industry Roon van Maanen.

### Community Outreach (port development): Busan North Port project

The award for community outreach was so popular, with over 25 entries in total, that the IAPH split the category in two. The port development award focusses on facilities that have engaged with their local communities to the benefit of both parties. South Korea's Port of Busan won based on its ambitious 15-year plan to regenerate an unused waterfront, creating a vibrant area that has become cherished by the city's residents. In the spirit of close community ties, the port sought the opinions of local people about how the waterfront should be revitalised. The result has been a brand new park, swimming pool, campsite, and even a free outdoor foot spa, right in the middle of the busy city. And, of course, a happy port-community relationship.

### Community Outreach (addressing externalities): Civitas Portis

Ports can often feel cut off from their communities, which fail to foster good relations. The award for addressing externalities rewards projects attempting to fix this, via resolving bottlenecks or integrating the facility into the fabric of the city. One such plan, the Civitas Portis project, involves 33 partners from five port cities, being co-ordinated by Antwerp. Participants work on sustainable solutions to improve port access, with cities acting as "living labs" to test new methods. The result has been initiatives such as new tram connections and cycle infrastructure in Antwerp, more space for walking and cycling in Aberdeen, and plans to redevelop port space in Trieste based on input from thousands of its inhabitants. "The project aims to show that sustainable mobility can increase functional and social cohesion between city centres and ports, while pushing the economy forward and boosting the allure of urban environments," Civitas Portis said.

### Government and Ethics: Joint winners Kenya Ports Authority's Tunahusika Corporate Social Investment and Port of Vancouver's sustainability governance plan

The joint winners of this project come from different sides of the world, with different cultures and problems, but they both displayed strong corporate governance, transparency, ethics, and promoted equal rights and opportunities. Kenya Ports Authority has allocated a percentage of its revenue to the Tunahusika Corporate Social Investment scheme, which funds school infrastructure in the local area, as well as working with communities to improve healthcare facilities. Vancouver Fraser Port Authority has engaged with its stakeholders to integrate sustainability throughout its processes, including by creating annual sustainability reports. It has also launched live environmental monitoring and information about the sustainability of the port of Vancouver's supply chain.

### Safety and Security: Port of Antwerp's PIN project

The Port of Antwerp's Port Information Network (PIN) initiative highlights how organisations can reduce security threats through cooperation. The program has

seen the local authority and companies from across the port's 130 km squared area report suspicious activity to each other via the police, with participants receiving real time updates about potential threats. So far, more than 450 port companies have joined the free scheme, a recognition that security is a shared responsibility.

# IMO issues sulphur cap guidance

The 74th meeting of the International Maritime Organization's (IMO's) Marine **Environment Protection** Committee (MEPC) saw member states approve fresh guidance for the implementation of the 0.5% limit on sulphur in ships' exhausts, which comes into effect from 1 January 2020.

The new guidelines cover the regulation's effect on fuel and machinery systems resulting from new fuel blends; verification issues and control mechanisms and actions, including port state control and samples of fuel oil used on board; a standard reporting format for fuel oil nonavailability (FONAR); and possible safety implications relating to onboard fuel oils meeting the 0.5% sulphur limit.

For port state control, the guidelines include updated enforcement guidance for nitrogen oxides, sulphur oxides, and particulate matter, as well as contingency measures for addressing non-compliant fuel oil. They cover what to do when a



Delegates attend the 74th session of the IMO's MEPC committee

ship is found to have noncompliant fuel oil on board, either because testing has revealed that the fuel oil is non-compliant or because compliant fuel oil was not available when bunkering.

Further guidance was issued for non-functioning exhaust gas cleaning systems, known as scrubbers, as well as guidelines for onboard sampling for fuel oil. The MEPC's Sub-Committee on

Pollution Prevention and Response (PPR) is also undertaking a review of the 2015 Guidelines for Exhaust Gas Cleaning Systems, looking at, among other things, washwater discharge standards.

The MEPC also noted that the global average sulphur content of marine fuel oils for 2018 was 2.59% for residual fuel oil, while for distillate fuel oil it was

0.08%. The MEPC approved amendments to monitor the sulphur content of fuel oils to take into account the 2020 sulphur cap.

The IMO plans to hold an 'IMO 2020' seminar in the autumn; by then there should be a clearer understanding of the availability of compliant fuel oil and some experience of implementation that can be shared.

### Norway partners with IMO to cut GHGs

The International Maritime Organization (IMO), in partnership with Norway, has launched a project to reduce greenhouse gas (GHG) emissions from shipping.

GreenVoyage-2050 will initiate and promote global efforts to demonstrate and test technical solutions for reducing emissions,

as well as enhancing knowledge and information sharing in support of the IMO GHG reduction strategy.

The programme will run for an initial two-year period, with more than 50 countries expected to participate. The project will also build capacity in developing

29.3 million m<sup>3</sup>

countries, including small island developing states and least developed countries, to fulfil their commitments to meet climatechange and energy-efficiency goals for international shipping.

Initially, eight countries from five high-priority regions (Asia, Africa, the Caribbean, Latin

America, and the Pacific), are expected to take pilot roles to pursue and undertake actions at the national level. These countries will then become "champions", galvanising momentum by supporting other partnering countries in their respective regions to follow a similar path.

### **Notable numbers**

US Great Lakes port dredging for 2020-30

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### IMO secretary-general outlines case for blue growth

At the Nor-Shipping 2019 conference in Oslo in early June, IMO Secretary-General Kitack Lim delivered a strong reminder about the importance of balanced and sustainable development.

In a keynote address, Lim spoke of Sustainable Development Goals as a unifying factor, breathing life into global efforts to improve the lives of people everywhere and confirmed the IMO's strong commitment to the 2030 Sustainability Agenda. He reminded delegates that the IMO's environment regulations were driving many of the technological innovations being showcased at the Nor-Shipping exhibition.

He highlighted moves to cut greenhouse gas emissions, reducing the sulphur content of ships' fuel oil, requiring strict ballast water management, and adopting the Polar Code as outstanding recent examples of IMO's own sustainability agenda.

"Events such as this remind us that the world is no longer prepared to accept services or industries that are simply costeffective," he said. "We now demand them to be green, clean, and energy-efficient and safe. Through IMO, governments ensure that shipping is responding to that challenge."

Lim took the opportunity to reiterate his strong personal support for the themes of this year's World Maritime Day and Day of the Seafarer, both of which deal with gender equality in the maritime community.

IMO pushes shipping emissions plan

The International Maritime Organization's (IMO's) Marine **Environment Protection** Committee (MEPC) has proceeded with several measures to reduce greenhouse gas (GHG) emissions from ships. The MEPC 74 session approved plans to strengthen mandatory requirements for new ships to be more energy efficient, and adopted a resolution encouraging co-operation with ports to reduce emissions. It also discussed possible short-, mid-, and longterm measures to reduce GHG emissions from ships, to be further considered in later sessions.

The MEPC approved amendments to MARPOL Annex VI to significantly strengthen the Energy Efficiency Design Index, for adoption in April 2020. This brings forward the entry into effect date of phase 3 to 2022 – from 2025 – for several ship types, including gas carriers, general cargo ships, and liquefied natural gas (LNG) carriers. This means that ships



Reducing greenhouse gas emissions from vessels is a key IMO priority

built from that date must be significantly more energy efficient than the baseline.

The MEPC will invite member states to encourage voluntary co-operation between port and shipping sectors to contribute to reducing GHG emissions from ships – something that could include regulatory, technical, operational, and economic actions, such as the provision of onshore power supply (preferably from renewable sources); safe and efficient bunkering of alternative low-carbon and zero-carbon fuels; incentives promoting sustainable low-carbon and zero-carbon shipping; and support for the optimisation of port calls including facilitation of just-intime arrival of ships. The MEPC agreed to establish a voluntary multi-donor trust fund, to provide a dedicated source of financial support for technical co-operation and capacity-building activities to support the implementation of the initial IMO strategy on reduction of GHG emissions from ships.

It will also examine short-term measures to strengthen the energy efficiency of existing ships, such as reducing speed and various technical and operational actions. Further measures that the IMO working group will look into include concrete proposals to reduce methane slip from LNG-powered vessels, voluntary national action plans to contribute to the reduction of GHG emissions from international shipping, solid proposals to encourage the uptake of alternative low-carbon and zero-carbon fuels, and further actions on capacity-building, technical co-operation, and research and development.

## USD566 million

Cost to increase Port of Montreal's annual container capacity to 1.15 teu

## USD200 million

Cost to establish shore-based power in eight Port of LA terminals



# IAPH board for 2019–21

The IAPH board was confirmed at a meeting on 7 May at IAPH World Ports Conference in Guangzhou, and then elected by members at the annual general meeting on 9 May



President

**Santiago Garcia Milà** Deputy managing director Autoritat Portuària de Barcelona, Spain

Vice-presidents



Africa region

Hadiza Bala Usman Managing director Nigerian Ports Authority, Nigeria



America, central, and south region

Guimara Tuñón Guerra Director-general of Ports and Maritime Ancillary Industries Panama Maritime Authority, Panama



America, north region

**Robin Silvester** President and CEO Vancouv er Fraser Port Authority, Canada



Asia, south/west, east, and the Middle East region

Masaharu Shinohara Executive officer Kobe-Osaka International Port Corporation, Japan



Asia, southeast,

and Oceania

Subramaniam

General manager

Port Klang Authority,

Karuppiah

Malaysia

region



**Europe region** 

**Jens Meier** CEO Hamburg Port Authority, Germany

# IAPH elects new honorary members

Three new honorary members were proposed at the IAPH board/council meeting on 7 May at IAPH World Ports Conference in Guangzhou, and then elected by members at the annual general meeting (AGM) on 9 May. The accolade of honorary member is bestowed on individuals who have given meritorious services to ports administration and the development of the IAPH. Further, they must have been selected to the board, and have severed their ties with IAPH in the last two years, or plan to do so soon. The following received their honorary memberships from president Santiago G Milà at the AGM:

#### Monica Bonvalet

Former director, communication department, development division Grand Port Maritime de Marseille, France For serving as cruise committee chair.

#### Martin Byrne

CEO

Port Nelson Ltd, New Zealand For serving as member of Executive Committee, vice-chair, and chair of Communications & Community Relations Committee and vice-president (Asia, Southeast, and Oceania region).

#### Susumu Naruse

Secretary-general IAPH

For serving as member of Executive Committee, chair of Port Planning and Construction Committee, as well as Port Planning and Development Committee and secretary-general of IAPH.

### Women's Forum new chair

Jeanine Drummond, harbor master at Newcastle, Port Authority of New South Wales, became chair of the IAPH Women's Forum in Guangzhou in May. It is an exciting time for the Women's Forum, with the group's mentoring programme launching to link together women from across the industry, facilitating their career development, providing them with insight into different organisational cultures, and connections with senior management. It will also join with other mentoring programmes from across the



Jeanine Drummond

sector. Jeanine has more than 20 years of experience in shipping and ports, and throughout her career has striven to promote better opportunities for women in maritime. See more on pages 32–33.

### Autonomous vehicles report

The IAPH's Port Planning and Development Committee has published a report entitled *Autonomous Vehicles' Impact on Port Infrastructure Requirements*, which analyses the impact of autonomous vehicles on port infrastructure requirements. The study was carried out by the Frauenhofer Centre for Maritime Logistics and Services and was supported by Hamburg Port Authority. Based on numerous interviews with representatives of innovative projects, the knowledge of the study's authors as well as in-depth research, the report provides a comprehensive view on how autonomous vehicles will be deployed in various transport modes. The report outlines the impact these developments will have on ports, and how ports should prepare for the arrival of automated or autonomous vehicles. The report also investigates the infrastructural requirements and the knowledge ports need to have to successfully meet the challenges. Finally, the report sets out how ports can play a role in the development and setup of surroundings for autonomous vehicles.

### Operational technology report

The IAPH Port Operations and Logistics Committee recently published a report in Port Operation entitled *Study on Digitisation and Disruptive Technologies (Big Data, IoT, Blockchain, AI, etc.)*, which analyses the possible uses of digitisation and disruptive technologies, such as blockchain, big data, and the internet of things, for the port industry.

As today's ports and terminals are heavily interconnected between stakeholders, such as shipping lines, terminals, port authorities and trucking companies, the report presents case studies of how disruptive technologies have impacted the maritime industry. Categorising the industry into three main groups: supply chain stakeholders; ships; and ports and terminals, it then analyses how these disruptive technologies are expected to impact port operations.

Both reports are available on the IAPH website.

MORE INFO: www.iaphworldports.org

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2021

## Dates for your diary

A selection of forthcoming maritime courses and conferences

#### July

22–26: TTPM: Port Efficiency Management London, UK www.ttpminternational.co.uk

#### August

- 1–2: Colombo International Logistics Conference 2019 Colombo, Sri Lanka www.cimc.lk
- 7–8: Digital Ports Singapore www.trueventus.com
- **12–21:** GAPEC Port Logistics Seminar Guangzhou, China www.gz-gapec.com

#### 21: IAPH Regional Meeting (Asia – Southeast and Oceania Region) Double Tree By Hilton Kuala Lumpur, Malaysia. Contact: cckoh@pka.gov.my

#### **September**

- 2–3: APEC Seminar: Port Logistics Antwerp, Belgium apecporttraining.com
- **9–13:** London International Shipping Week London, UK londoninternationalshippingweek.com
- **10–12:** The First International Conference on Maritime Transport Rome, Italy www.wessex.ac.uk
- 10–12: 17th ASEAN Ports & Shipping 2019 Phnom Penh, Cambodia www.transportevents.com
- 12–13: IAPH Board/Council Meeting London, UK
- **16–18:** Container Trade Europe Hamburg, Germany www.joc-container-trade-europe.com
- 17–20: NEVA 2019 St Petersburg, Russia transtec-neva.com
- 18–29: IMO: World Maritime Day 2019 London, UK www.imo.org



This growth strategy centres on forging partnerships with global shipping leaders that enable them to own and operate container terminals

# Partnership is key to Abu Dhabi Ports

Abu Dhabi is known globally for pioneering investment in infrastructure, strategic international alliances, and rapid economic growth, writes **Ross Thompson**, chief commercial and strategy officer at Abu Dhabi Ports

Even accounting for Abu Dhabi reputation for whirlwind-fast expansion, the evolution of Khalifa port since its inception in 2012 into one of the world's most advanced deepwater ports today is still remarkable.

Abu Dhabi Ports plans to almost quadruple cargo capacity at Khalifa port to 9.1 million teu per year over the next five years, attracting trade and investment to Khalifa Industrial Zone (KIZAD) – Abu Dhabi's adjacent, fully connected trade, logistics, and industrial hub. Since officially opening in 2010, KIZAD has attracted more than 200 tenants and over USD17 billion in foreign direct investment.

This growth strategy centres on forging partnerships with global shipping leaders that enable them to own and operate container terminals, bringing with them connectivity to global maritime networks and international trade activity.

In December 2018, COSCO SHIPPING Ports, a subsidiary of the world's largest integrated shipping company, inaugurated a USD430 million new container terminal at Khalifa port, which includes the largest container freight station in the Middle East. In March 2018, Mediterranean Shipping Company, the world's secondlargest shipping line in terms of container vessel capacity, signed a 30-year concession agreement to jointly manage the container terminal at the port.

For partners, the concession model enables them to establish and operate a regional hub to transport goods from Asia through to Africa and Europe and back, along the Belt and Road maritime route. Abu Dhabi Ports is an ideal partner to facilitate these trades, offering investors advanced transport connectivity and an ecosystem that is backed by purpose-built infrastructure, efficient investor support services, and low operational costs.

Concession partnerships connect international operators to market demand across the GCC and wider Middle East. GCC economies remain resilient on the back of major government reform initiatives and ongoing large infrastructure investments to develop ports, airports, and world-class development projects across the region. Most importantly, they connect Abu Dhabi to an ever-growing international network of ports across China, Southeast Asia, the Mediterranean, and the Black Sea. It is a win-win scenario for all stakeholders, which continues to reap rewards. INH



# Safety at Sea

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