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SUMMER 2018

THE OFFICIAL MAGAZINE OF THE ASSOCIATION OF BULK TERMINAL OPERATORS

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IMPROVING SAFETY, STREAMLINING OPERATIONS AND ENSURING ENVIRONMENTAL PROTECTION

The Annual Association of Bulk Terminal Operators (ABTO) Conference

23-24 October 2018, Radisson Blu Hotel, Hamburg

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SAFETY AND SECURITY

BY SANDRA SPEARES

Whether the words safety and security have two different meanings in your language or not – and the point did come up at the Lloyd's Register Foundation's conference this month – there is no doubt at all that the topic as a whole is the most important one that the industry, whether on shore or on land, has to face.

Welcome to the latest issue of *Bulk Terminals International*. In this issue, we take a look at various different aspects of safety as the industry faces up to an increasing use of technology in every part of the maritime sector, which brings with it chances to mitigate the risks of the past, but also, if not carefully managed, creates other risks for the future. This comes at a time when the industry faces many challenges from other perspectives.

Everyone who has a role to play in the maritime industry has to step up to the plate where safety is concerned. However, there are often misconceptions of how that safety can be achieved and what best practice actually entails.

There was a good example to be had at the reception following the first day of the Lloyd's conference – a demonstration of party tricks with a safety theme for the assembled crowd, showed extremely effectively how many members of the audience would be prepared to take an unacceptable risk based on someone else's say so, thereby going against their better judgment and industry best practice. It was therefore good to hear the announcement of an award for the work of the confidential reporting programme CHIRP at the same event. Learning from others' mistakes has a key role to play and this is where the work of CHIRP is crucial.

There are plenty of initiatives out there aimed at reducing risks relating to health hazards when handling bulk cargoes, work hazards when entering enclosed spaces and cyber hazards that could leave maritime players vulnerable to attack.

Many high-profile safety themes show how technology and humans interact to improve safety. There is also a good deal of technology out there that can mitigate the dangers to port and ship personnel in a way that has not been seen in the past.

We await with interest the findings of the report into the *Stellar Daisy* accident just over a year ago and what if any lessons can be learned for vessels of this class operating in the bulk trades.

As the industry, hopefully, continues to see some signs of improvement of market conditions, another big issue will be the possible impact of trade embargoes and sanctions and their knock on effect on maritime industry as a whole. Operators will also have to face up to the fact that the next wave of eco regulation is now under a year away as operators strive to deal with ballast water treatment and scrubbing technology as well as availability of low sulphur fuels going forward.

There are also challenges facing ports when it comes to how to develop the port hinterland and to take advantage of different forms of transport, whether it be barge traffic or rail, in order to take pressure off the roads and build a true network between ports and operators and landlocked areas. Some substantial port and transport investments are underway to address these concerns.

Many industry players will be heading to Posidonia either to display the new products in their armouries or for a week of intensive networking with other like-minded individuals.

We hope you enjoy this latest edition of *Bulk Terminals International* and have a productive experience in Piraeus next month.

BULK TERMINALS *international*

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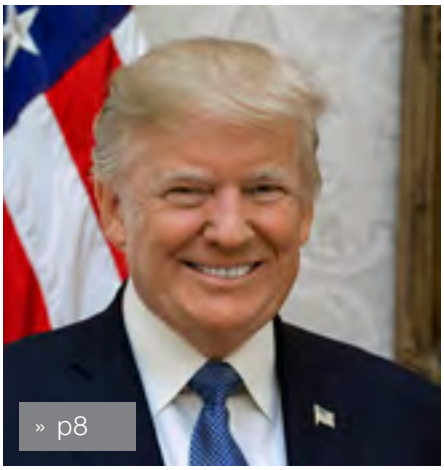
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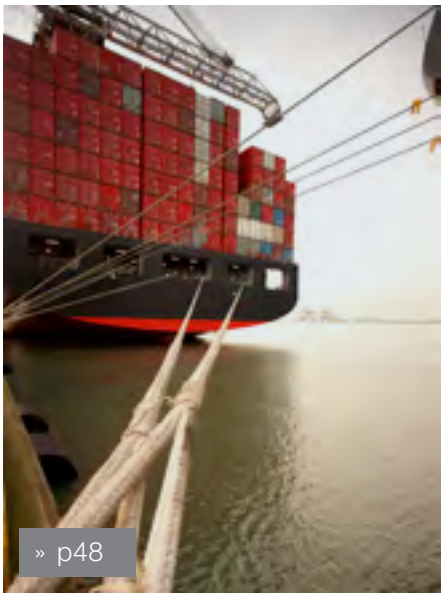
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IT'S TIME TO THINK AHEAD

IAN ADAMS, CHIEF EXECUTIVE, ABTO

COP 21 WAS HELD IN PARIS

There has been a lot of discussion in the shipping industry about the environment and the effect that shipping has on it. As is the way with these things, there are always a lot of acronyms bandied about and people expect others to know what they mean. The trouble is that not everyone does – and this can lead to some misunderstandings.

COP stands for Conference of Parties – with "parties" meaning the countries that ratified the UN Framework Convention on Climate Change (UNFCCC) in 1992 at the Earth Summit in Rio de Janeiro.

The stated and agreed objective of the UNFCCC is to reduce greenhouse gas emissions to prevent dangerous levels of human interference with the climate system. Each year, signatories to the Convention meet to advance that objective and to discuss and adopt measures to address climate change and its impacts on our society.

COP 21 was held in Paris between 30 November and 12 December 2015. It was during COP 21 that the Paris Agreement was negotiated. The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2°C above pre-industrial levels and to pursue efforts to limit the

temperature increase even further to 1.5°C. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change.

The Paris Agreement came into force on 4 November 2016, 30 days after the date on which at least 55 Parties to the Convention – accounting in total for at least an estimated 55 % of global greenhouse gas emissions – have deposited their instruments of ratification, acceptance, approval or accession with the Depositary.

The shipping and aviation industries have been specifically excluded from any negotiations at UNFCCC on the understanding that each industry will act through their own regulatory bodies. For shipping, that body is the International Maritime Organization (IMO).

IMO met for the Marine Environment Protection Committee (MEPC), 72nd session, 9-13 April 2018. It was during this meeting that MEPC adopted an initial strategy on the reduction of GHG emissions from ships, setting out a vision to reduce GHG emissions from international shipping.

The official statement from IMO says the following: "The vision confirms IMO's commitment to reducing GHG emissions from international shipping and, as a matter of urgency, aims to phase them out as soon as possible this century. More specifically, under the identified "levels of ambition", the initial strategy envisages for the first time a reduction in total GHG emissions from international shipping, which it says should peak as soon as possible, and to reduce the total annual GHG emissions by at least 50% by 2050 compared to 2008, while, at the same time, pursuing efforts towards phasing them out entirely."

It was approximately 18 months earlier that MEPC held its 70th session, 24–28 October 2016, at which it agreed what is now being referred to as IMO 2020. IMO's website states: "In a landmark decision for both the environment and human health, 1 January 2020 was confirmed as the implementation date for a significant reduction in the sulphur content of the fuel oil used by ships. The decision to implement a global sulphur cap of 0.50% m/m (mass/mass) in 2020 represents a significant cut from the 3.5% m/m global limit currently in place and demonstrates a clear commitment by IMO to ensuring shipping meets its environmental obligations."

When looked at in isolation these two decisions appear to be a great leap forward for both the world in general and for human health. However, they will have a massive impact on the shipping industry – one which needs urgent attention.

I have been involved in the shipping industry for more than 30 years. I know that the way the industry works is to look for short term fixes to get around a "problem". I hope that this time we take a different approach.

At this time, most of the attention is focused on IMO 2020 – how ships are going to comply with the global cap for sulphur being reduced to 0.5% m/m. One method of compliance that has gained a significant amount of support is Liquefied Natural Gas (LNG). LNG is a fantastic solution for sulphur compliance. It has virtually no sulphur whatsoever in it and on top of that it also has a positive effect on the nitrogen oxides produced during combustion. LNG contains less energy per tonne and so ships will need to burn almost twice as much LNG than they currently burn Heavy Fuel Oil (HFO). Ships will therefore either need to carry more fuel or take on fuel more frequently.

SEA/LNG , which is the main advocacy group promoting LNG as ship fuel, states on its website: "Utilising best practices and appropriate technologies to minimise methane leakage, realistic reductions of GHG by 10-20% are achievable (using LNG as a ships fuel)."

Herein lies the problem –10-20% is not good enough. There currently does not exist an infrastructure to support LNG bunkering. For that infrastructure to exist, it is going to cost millions if not billions of dollars. People are now starting to come forward and voice their concerns about LNG. In 2016, in an interview in *Ship & Bunker* Dr Michael Traut, research associate at the Tyndall Centre, University of Manchester, discounted LNG as a future ships fuel because "the CO_2 emissions reduction is actually pretty small to non-existent when you look at the whole lifecycle". Dr Tristan Smith, writing in *Splash 24/7* last month, referred to LNG bunkering as "a massive red herring" for the same reason – poor performance on Greenhouse Gases (GHG). He said: "To choose LNG bunkers is to bet against COP 21."

I believe that shipping needs to start to really think ahead. We need to be investing in research into fuels that can get shipping to the targets set by IMO. Fuels like hydrogen or ammonia can achieve those targets. SEA/LNG correctly states that those technologies are not fully developed for the shipping industry. Let's do something about it and invest wisely in technology that can get the shipping industry beyond 2050.

Bulk terminals will also need to contribute to the global effort to reduce GHG emissions. I attended some of COP 21 in a delegation that was led by PIANC (the International Navigational Association). The "Think Climate" campaign explored how the infrastructure for shipping can reduce its carbon footprint. The great news here is that not only can you contribute, but it also saves money by lowering costs. By replacing equipment with new, more energy efficient replacements, bulk terminals can do their bit. When you consider the number of electric motors on a conveyor system, it is easy to see where significant savings could be made.

This year, our conference is being held in Hamburg on 23-24 October 2018. We will have an opportunity to discuss environmental issues as well as other topical subjects during the two days. If you have a paper that you would like to present or if there is a subject that you feel should be covered please drop Simon Gutteridge an email on *events@bulkterminals.org*. I hope as many members of ABTO will be able to make it to Hamburg for what promises to be an event every bit as good as last year's.

SHOW BUSINESS

International shipping exhibition Posidonia 2018 kicks off on 4 June for five days of intensive marketing at the trade show — and plenty of social events requiring a considerable degree of stamina from participants, who may feel this is the time to party as markets begin to pick up after the long years of recession

Over 22,000 visitors attended the many events in the four halls and conference rooms at the state-of-the-art Metropolitan Expo when the event last took place two years' ago. Some 1,825 exhibiting companies from over 90 countries were there last time to show off the very latest in technological developments.

As usual, the trade fair will be preceded by a series of sporting fixtures, when football , golf, running and yachting enthusiasts can test their levels of fitness and expertise against competitors and strategic partners alike.

This year's trade fair will offer opportunities for companies, charities and environmental groups to show where things can go wrong and the measures needed to mitigate the dangers faced by seafarers every day. Solutions are out there.

Unmanned smart ships, fully automated ports and getting the most out of cloud gathering will be topics to be addressed by over 60 information communication technology companies set to display their wares at the exhibition.

Market conditions over the past 10 years have placed considerable demands on the industry as a whole and many have fallen by the wayside as a result of weak freight rates, tight access to finance and other economic factors.

Shipping is having to contend with a whole raft of new legislation, not least when it comes to ensuring that it fulfils promises made to cut emissions and present itself as a more eco-friendly sector.

Many are also left wondering what will be the likely impact if trade wars and sanctions are put into force.

As newbuildings become increasingly sophisticated in technological terms, combating threats posed by cyber attacks will be an important element of industry strategy going forward, and some of the solutions available will be on display at Posidonia.

Commenting in the run-up to this year's exhibition which celebrates its 50th anniversary, Theodore Vokos, executive director of event organiser Posidonia Exhibitions says: "During the past decades, little has changed in the way ocean-going vessels dock, load and transport their cargoes to ports around the world, in comparison to other industries where the advent of digital technologies has brought about a profound transformation,"

"But in recent years, we have seen an ever-growing number of ICT companies coming to Posidonia with solutions designed specifically to address the maritime sector's challenges and help it make the transition from tradition to a digitally transformed future."

If the shipping industry is moving to a digital future, it is sadly true to say that many of the problems that have dogged the industry in the past, particularly regarding health and safety and crewing issues, continue to dog it going forward.

Those working on ships and on land continue to face dangerous and life threatening situations that will, hopefully become less frequent with the use of more sophisticated technology and better training.

Thinking outside the box will be key going forward and Posidonia will be showcasing some of the innovations that are already out there.

Posidonia 4-8 June, Athens.
Visit www.posidonia-events.com

WORLD NEWS ROUND-UP

From uncertainty over tariffs to beating the threat of cyber attacks, the industry is facing a range of developments across the globe

US PRESIDENT, DONALD TRUMP

As many wonder what will be the effect of President Trump's tariff regime on the industry, there are suggestions that some tariffs might benefit rather than hinder operators as alternative trading patterns lead to an increase in tonne-mile demand. According to BIMCO, the shipping of soya beans from the US to China is one of the most significant "one commodity" cargoes that may become affected.

Soya bean trade lanes will be affected if Chinese buyers shy away from their traditional suppliers because of the extra cost from the proposed tariff on US soya beans – a move that may favour Brazilian beans, which also hold a higher protein content, according to the trade association.

As US soya bean exports are currently out of season, the first indication of the effect will be an indirect one, as the Brazilian soya bean export season is just about to lift off, peaking in May-July.

BIMCO's chief shipping analyst Peter Sand comments: "The uncertainty in the shipping market has already been felt. Anecdotal evidence of fewer US cargoes heading for China is an indicator of this. Changes in pricing of soya beans is another effect already seen. The coming months will show us how much Brazil can ramp up its exports to China. It is the leading provider of soya beans to China, but unable to become a full substitute for US exports this year."

PEEL PORTS PARTNERSHIP

As Peel Ports recently introduced a freight link for containers to and from the port, global animal feed trader and supply chain leader ADM Arkady has signed a long-term contract with the operator.

Part of the Archer Daniels Midland Company – one of the world's largest agricultural processors and food ingredient providers – ADM Arkady will partner with Peel Ports Group to develop its Glasgow port facilities and significantly expand its northern hub operations in Liverpool.

The contract will enable ADM Arkady to consolidate its regional imports, better servicing its North of England and Scotland markets, and could see a combined throughput of one million tonnes of animal feed imports each year.

Graham Atkinson, managing director, ADM Arkady says: "Combining Peel Ports Group's extensive port network and expertise in handling and warehousing together with ADM's global supply chain makes an unbeatable partnership that will benefit UK agriculture in the coming years."

Mark Whitworth, CEO Peel Ports Group, agrees: "Our long-term agreement with ADM Arkady is a welcome boost to operations in Glasgow and Liverpool. We are in the process of finalising plans for the storage and distribution facilities to accommodate ADM Arkady's business model."

CYBER CENTRE OF EXCELLENCE

Technology group Wärtsilä is partnering with cyber security company Templar Executives to establish a world-class cyber academy in Singapore. The academy will offer courses designed to support and enhance the collective cyber maturity of the wider shipping community, notably operators and owners.

"We believe this is a first for the maritime industry – a centre of excellence including a cyber academy, combining threat intelligence and cyber education designed to support collaboration for our customers and the wider maritime community," says Marco Ryan, chief digital officer at Wärtsilä.

The cyber academy's courses will cover a range of relevant topics, from cyber security coaching for senior management to cyber awareness for all organisational levels within the maritime industry. The academy, which is located in the Wärtsilä Digital Acceleration Centre in Singapore, became operational from May 2018 and courses will initially be delivered in Singapore and London.

The centre of excellence will include the first Maritime Cyber Emergency Response Team (MCERT), a platform for sharing intelligence and a world-class Cyber Academy. This will bring benefits to the whole Maritime ecosystem as greater threat reporting and

intelligence sharing, combined with education and awareness, will enable the industry to better react and protect against future cyber attacks.

The NotPetya attack last year put the maritime industry firmly on the radar and highlighted the need for a paradigm shift in response to the escalating cyber threats. The bulk shipping industry is responsible for transporting essential goods around the globe and a similar attack on the industry would have potentially very serious repercussions globally.

"The international reaction and support we are receiving in the wake of our announcement with Wärtsilä highlights the readiness of the maritime community to work together more effectively to better react and protect against future cyber attacks," observes Andrew Fitzmaurice, CEO, Templar Executives.

CRANE CRANKS UP GROWTH

ABP's Port of Ayr has announced the delivery of a new state-of-the-art Liebherr Materials Handler crane, which will help improve operations and optimise the speed of cargo handling.

Becoming the first port in the UK to purchase this new model, the Port of Ayr has benefited from ABP's wider commitment to promoting business growth in its Scottish ports.

The new crane, representing a £800,000 investment, brings the total figure invested in ABP's Scottish Ports to over £2m in the last 12 months.

With a lifting capacity of 8.1 tonnes at a reach of 23.8m, the new machine will help the Port of Ayr deliver industry-leading vessel discharge rates for local importers while at the same time improving fuel efficiency of up to 30% and lowering vehicle emissions.

POWER SHARING

Antwerp Port Authority has installed seven new onshore power connection points on Quay 75, by which the authority aims to create the necessary conditions to supply onshore power for seagoing ships in the port. Techelec, Schneider Electric, ABB, Siemens and Actemium are associated with the project to promote cold ironing at the port. Using onshore power in this way will immediately reduce emissions of NOx, CO_2 and particulates, thus benefiting the local air quality.

HNS TREATY ADVANCES

Two ratifications to a key compensation treaty covering the transport of hazardous and noxious substances (HNS) by ship have brought the instrument a step closer to entry into force.

When in force, the treaty will provide a regime of liability and compensation for damage caused by HNS cargoes transported by sea, including oil and chemicals, and covers not only pollution damage, but also the risks of fire and explosion, including loss of life or personal injury as well as loss of or damage to property.

The HNS Convention establishes the principle that the "polluter pays" by ensuring that the shipping and HNS industries provide compensation for those who have suffered loss or damage resulting from an HNS incident. An HNS Fund will be established, to pay compensation once shipowner's liability is exhausted. This fund will be financed through contributions paid post-incident by receivers of HNS cargoes.

BALTIC CODE UPDATE

The Baltic Exchange will be introducing a modernised code of conduct for shipowners, charterers and shipbrokers using the physical shipping and freight derivatives markets.

Following a detailed review of the current arrangements led by law firm Norton Rose Fulbright, with oversight by the Baltic Exchange Council and the Baltic Membership Council, the New Baltic Code has been drafted to bring together a set of principles and business practices that will be applicable to not only Baltic Exchange members, but also the wider market. There is a greater focus on fairness and competition, anti-bribery and corruption, and benchmarking related issues than before.

Explaining why the Baltic Exchange has updated its Code and detailing the new arrangements at Singapore Maritime Week, Baltic Exchange chief executive Mark Jackson says: "Times have changed and Baltic Exchange members are operating in an environment with a greater focus than ever before on compliance. Shipping cannot expect to escape the heightened political and regulatory scrutiny that has been placed on the commodity markets since the 2007-2009 global financial crisis.

" By introducing this new code of conduct, we want to preserve confidence in and the integrity of the physical freight and freight derivatives markets, eliminate poor practices and raise standards across the entire market, as well as increase the attractiveness of doing business with Baltic Exchange members."

ANTWERP PORT AUTHORITY HQ


THE BALTIC EXCHANGE HQ

MEMBERS' ESCROW SERVICE

In other Baltic news, the Exchange will be launching an Escrow Service for its members to hold deposits for ship sale transactions. The move will allow Baltic Exchange members to take advantage of the Exchange's trusted position in the marketplace when undertaking the sale or purchase of a vessel.

The paid-for service will be available for use in transactions where the buyer of the vessel is a Baltic Exchange member. The service is likely to be extended to disputes-related payments.

The Escrow Service will be run by the Baltic Exchange's Asia office in Singapore and will be subject to the Singapore Exchange's (SGX) detailed compliance and money laundering procedures. OCBC Bank will be providing the joint deposit account.

Headed up by the Baltic Exchange's head of Asia-Pacific, Chris Jones, a sale and purchase broker with over 40 years of experience, the service will initially be offered from Singapore with a view to further expansion to other Asian shipping centres.

Jones says: "Having the Baltic Exchange provide this service solves the problem as to where the deposit should be held in a vessel transaction. Buyer and seller alike can be absolutely certain that the Baltic Exchange will apply its high standards of compliance as well as have a full understanding of the complexities of any maritime transaction."

"This service will add real value to the many sale and purchase brokers who are Baltic members and are currently expected to provide this service to clients.

"It will allow them to undertake the highest level of due diligence and compliance checks, reduce the administrative burden of organising a client escrow account and allow them to focus on adding value to the transaction."

The service goes live this month and will cost US$5,000 per side.

DRY BULK AGREEMENT

Cargo expert Cargotec has signed an agreement with JCE Invest to establish a joint venture, Bruks Siwertell Group, specialising in dry bulk handling. The new joint venture will own Siwertell (previously part of Kalmar Business Area within Cargotec) and BRUKS Holding (previously part of JCE Group).

Both companies are world-leading suppliers of bulk materials handling solutions. Cargotec will own 48% of the shares in Bruks Siwertell Group, and JCE Invest AB will own the rest, 52%.

"By joining forces with JCE Group, we are able to create a company that will be a significant player in the bulk material handling industry, with a globally competitive and specialised product portfolio," says Antti Kaunonen, Kalmar President.

"Together, BRUKS and Siwertell will have a strong position in the dry bulk handling industry, as well as attractive growth opportunities in new markets and customer segments, including biomass, bioenergy and biofuels industries.

"This co-operation will add customers, competence, additional knowledge, capabilities and products to support the future growth of the new company," adds Peter Jonsson, group CEO at Bruks.


ANTTI KAUNONEN, KALMAR PRESIDENT

COMPLETE SYSTEMS PROVIDER

COMPANY NEWS

As a complete systems provider for packaging lines, BEUMER Group offers the BEUMER fillpac for the efficient filling of bags with material from the construction materials, cement, mineral and chemical industries. In order to further increase the performance and efficiency of this filling machine, the systems provider has now developed the BEUMER bag placer for valve bottom bags and flat valve bags.

With its standardised modular design, the new BEUMER bag placer from BEUMER Group provides numerous set-up options. The user can set it up at any angle by adding an optional turntable for example. This reduces the required floor space considerably. The system is equipped with an ergonomic control terminal. The improved Human Machine Interface concept makes controlling the BEUMER bag placer easy and intuitive. It can also automatically adjust to different valve bag formats.

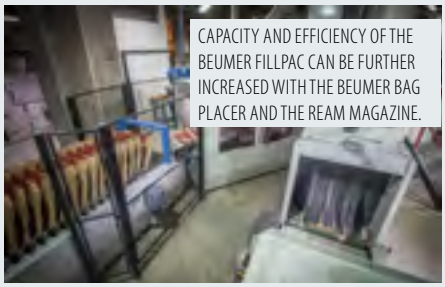
THE GRIPPING SYSTEM AND THE APPLICATION UNIT APPLY THE BAG FROM THE BAG REAM SAFELY ONTO THE FILLING SPOUT.

THE GRIPPING ARM IS SUPPORTED ON BOTH SIDES. THIS ENSURES SMOOTH RUNNING EVEN UNDER LOAD.

BEUMER BAG PLACER FOR VALVE BOTTOM BAGS

The drive unit and the gripping arm are driven automatically by servomotors, ensuring precise positioning and energy efficiency. The gripping system and the application unit apply the bag from the bag ream safely onto the filling spout. The drive technology used in combination with the electric coupling of both servo drives of the gripping arm and the application unit minimises the number of necessary mechanical components. The sophisticated kinematics also reduce the vibration of the machine, increasing its service life significantly. An oil-free vacuum ejector ensures low-maintenance operation. And due to the fact that the gripping arm is supported on both sides, it keeps running very smoothly even at an output rate of 6,000 bags per hour.

The operator can use this version for PP, PE and paper valve bottom bags. Bag lengths of 350 to 650 millimetres and bag widths of 230 and 550 millimetres are possible as well as valve widths of 80 to 160 millimetres. The new system can handle 3,000 bags per hour, the high-capacity version up to 6,000 bags.



CAPACITY AND EFFICIENCY OF THE BEUMER FILLPAC CAN BE FURTHER INCREASED WITH THE BEUMER BAG PLACER AND THE REAM MAGAZINE.

The optional turntable is driven pneumatically with a swivelling range of up to 60 degrees or electrically with a range of up to 150 degrees. The modular design of the ream magazine can be adjusted to lengths from two to nine metres. The drive and end stop can be installed on either side. The ream magazine can be filled ergonomically even with varying heights of the filling spouts.

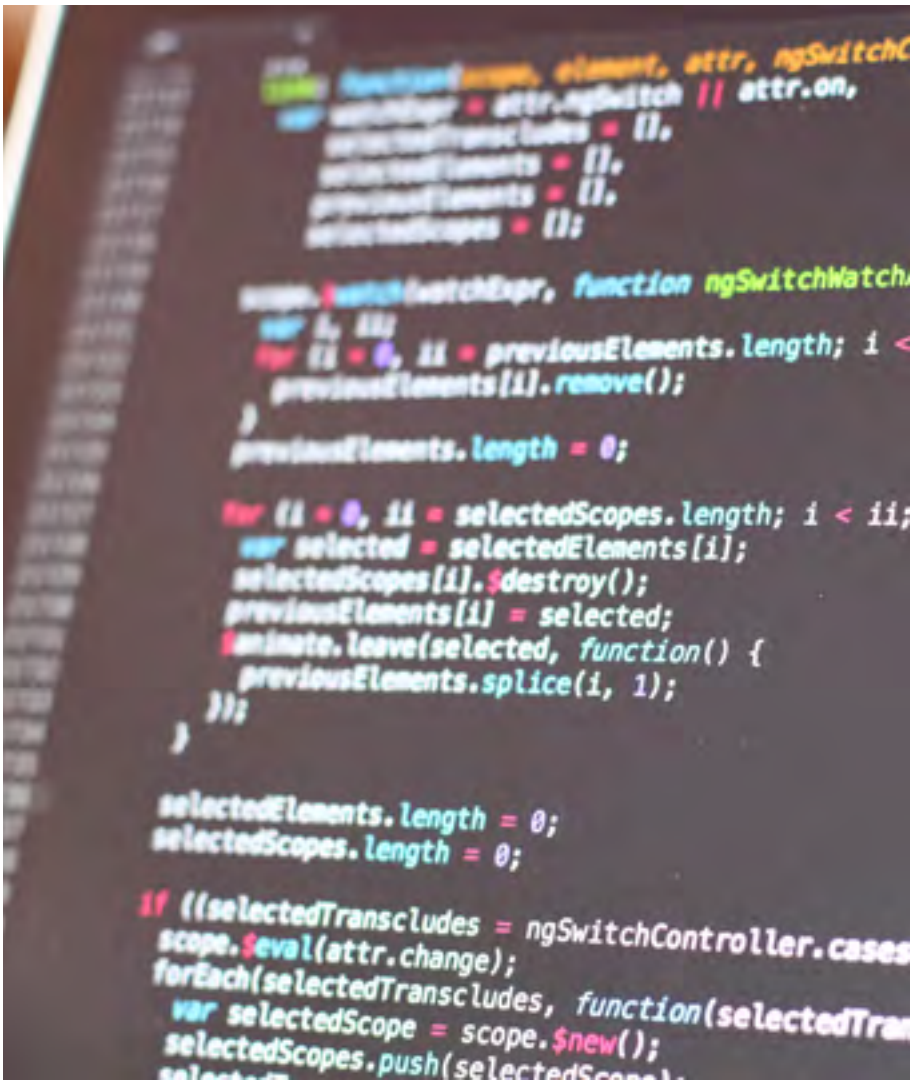
BEUMER BAG PLACER FOR FLAT VALVE BAGS

With the BEUMER bag placer for flat valve bags the operator can chose between two versions, depending on which side they prefer the placing unit. In order to considerably reduce its footprint, the bag placer can be set up at an angle of up to 60 degree by using the optional turntable. The BEUMER bag placer for flat valve bags is used for woven PP and PE bags with lengths of 600 to 800 millimetres, widths of 400 to 550 millimetres and valve widths of 125 to 150 millimetres. Its capacity is up to 2,400 bags per hour.

BEUMERGROUP

STAYING ALERT

Some 86% of companies around the world experienced at least one cyber incident in 2017. With this in mind, classification society Lloyd's Register recently strengthened its portfolio with the acquisition of cyber security specialist Nettitude. *Bulk Terminals International* talks to Lloyd's experts JP Cavanna, group head of cyber business development – cyber security and Elisa Cassi, global product manager, cyber security about the possible impact of cyber threats in the maritime sector and safety strategies to consider



Damage caused to Maersk resulting from the attack on its operations has brought the issue of cyber security to the fore and underlined the fact that complacency is not an option. So what reasons could there be for shipping systems to be attacked?

"We would expect most of the attacks not to be targeted at a particular shipping company and not to have as a motivation cyber war or espionage", Cassi says. These could be attack vectors, but not the most common ones. Attacks are more likely to be carried out by unskilled individuals looking to make a point using malware developed by others, or by someone seeking to benefit financially.

In the case of Maersk, it was an attack on its land-based operations using malware embedded in an email attachment and where remediation was potentially available for the vulnerability that the malware exploited, she adds.

"Most of the attack vectors faced by marine companies are the same as you would see in other industries," says Cassi. Other forms of attack could target specific companies, but these are likely to be a minority of cases.

Some of the attack techniques could be sophisticated and therefore detecting and responding to them needs a more

sophisticated approach based on people, processes and technologies.

"Now that we have acquired Nettitude as a company, Lloyd's Register is able to offer clients a very comprehensive suite of cyber services, enabling them to identify, detect, protect, respond and recover from incidents," says Cavanna.

He adds that as far as the marine industry is concerned, different types of ships might have different vulnerabilities. In the case of a cruise ship, for example, it has every element of cyber on board, including compliance and regulatory requirements covering such areas as PCI-DSS (payment card industry standard), operational technology and information technology.

"Some attackers with criminal intent might target a passenger ship to make money with ransomware, for example," he says. "Similarly, with bulk carriers and cargo ships there have been reported cases where the weight of containers has been changed to make them appear lighter than they are and the remaining space used to store drugs.

"Each type of shipping and marine element will have a different threat surface. In marine, there is a very definite connection between the land-based and sea-based operations in terms of that cyber threat," Cavanna continues.

"Organisations have to think much more strategically about how they approach that rather than just focusing on securing a ship. For every sector, the greatest vulnerability in an organisation is its people and, more specifically, their lack of training and awareness. As we saw at Maersk, ships were affected through a land-based operations breach. That breach was effected, unwittingly, by an employee opening an infected email attachment."

The maritime industry is moving into new technologies and the automation of ships drives business benefits, Cavanna says. This, however, comes at a price in terms of an overall increase in the threat potential of those operations.

These are the kinds of issues shipping companies need to think about at board level when they embed cyber risk. According to Cavanna, cyber security is not just an IT issue, it is a business issue and "needs to be owned by the board". They need to consider what their business drivers are, what the threats are for those drivers and then the associated risks.

"You cannot create an impregnable fortress – you have to accept that something is going to happen at some point. The question is how prepared you are to deal with that," he says.

> "For every sector, the greatest vulnerability in an organisation is its people and, more specifically, their lack of training and awareness

He is concerned that there appears to be a lot of people with their heads in the sand as far as cyber security is concerned. Dealing with cyber risk should not be a standalone topic, but part of the whole risk management strategy of a company.

Historically, companies haven't really understood cyber security and considered technology as something of a silver bullet. Cavanna says that was "nonsense" because as soon as the technology had been installed, a new vulnerability would appear, against which the technology couldn't protect the company. The solution was then to add on additional layers of technology, which meant companies spent millions on systems that were not synchronised, all overlapping and reducing security by their disorganised nature.

The point is "to focus your spend on the right technologies to protect the right things for the right reasons," Cavanna explains.

Although companies should concentrate on an expansive strategy, there are smaller things that can be done, such as risk assessments, penetration tests and threat intelligence modelling, which will allow companies to focus on their areas of highest risk.

The attack vectors are the same regardless of the sector, Cavanna says. "However, the vulnerabilities will be different depending on the nature of the business. In maritime, for example, what is the chain between land-based operations right through to the ship in terms of people? Who can interact with what? What systems interact with each other? Who talks to whom and what systems talk to what systems? The trick is to understand that threat landscape based on how your business is structured. "

Another potential security issue that he flags up is when the ship comes in for dry docking and people move on and off the vessel. "When the ship goes into dry dock and everyone starts swarming all over it and updating systems and configurations, you need to have a base line defining that ship's cyber posture when it came into dry dock. That way, when it comes out, you have a benchmark to understand if anything malicious has been downloaded to the system," he says.

"One way to tackle this is through managed security services, where you have continuous monitoring of data on the ship and keeping tabs on what is actually changing within the network environment," Cavanna continues.

So would increasing security levels, such as upping password controls for example, mean that people could not react as quickly in an emergency?

Cassi says: "Security should not be seen as an obstacle – it should be thought out in advance so that everyone knows exactly how to handle it if there is an incident. You might not be able to prevent a breach from happening, but you should be able to contain the consequences."

This means that if one system is compromised, all the others are

working correctly. Networks need to be segregated so that incidents happening in one network do not affect another. In ships that operate with a high degree of redundancy, with parallel systems being operated, the key point, according to Cavanna, is to ensure there is no single point of failure.

Cassi adds that it is not just a question of systems and data integrity, but also availability of data to ensure continuous business operations, along with the confidentiality of both data and intellectual property.

The aim is to get good people in to assess the environment, understand what the threats are, and prioritise objectives as well as building a phased improvement plan which could span 18 or 24 months.

"We are not saying to go out and spend £10m in the next two months, or else," says Cassi. The main thing is to ensure that priority number one has been dealt with, notably "the biggest risk to your environment" and then build on that. That way, "you don't scare anybody to death. You have to stop talking of millions and millions and put it into a bite-size programme that is affordable and will give you value for money with enhanced security."

So can Lloyd's Register provide advice on the technology to be purchased? It has partnerships with a number of companies, including Palo Alto, which has some very interesting technologies for on-board ship monitoring. Its technology solution is industry-agnostic, Cavanna explains.

"With Nettitude and its security operations centre and ability to do advanced analytics and threat intelligence, we can take the feeds from the Palo Alto offering and provide an incident response capability," he says. "Nettitude can do the assessment and remediation. You could decide you want continuous monitoring of your cyber security posture, or rely on technologies doing the work for you instead of delegating to a provider."

No system is ever 100% secure; you can only make it more secure, Cavanna stresses. A hacker only has to be lucky once, whereas the company has to be lucky all the time.

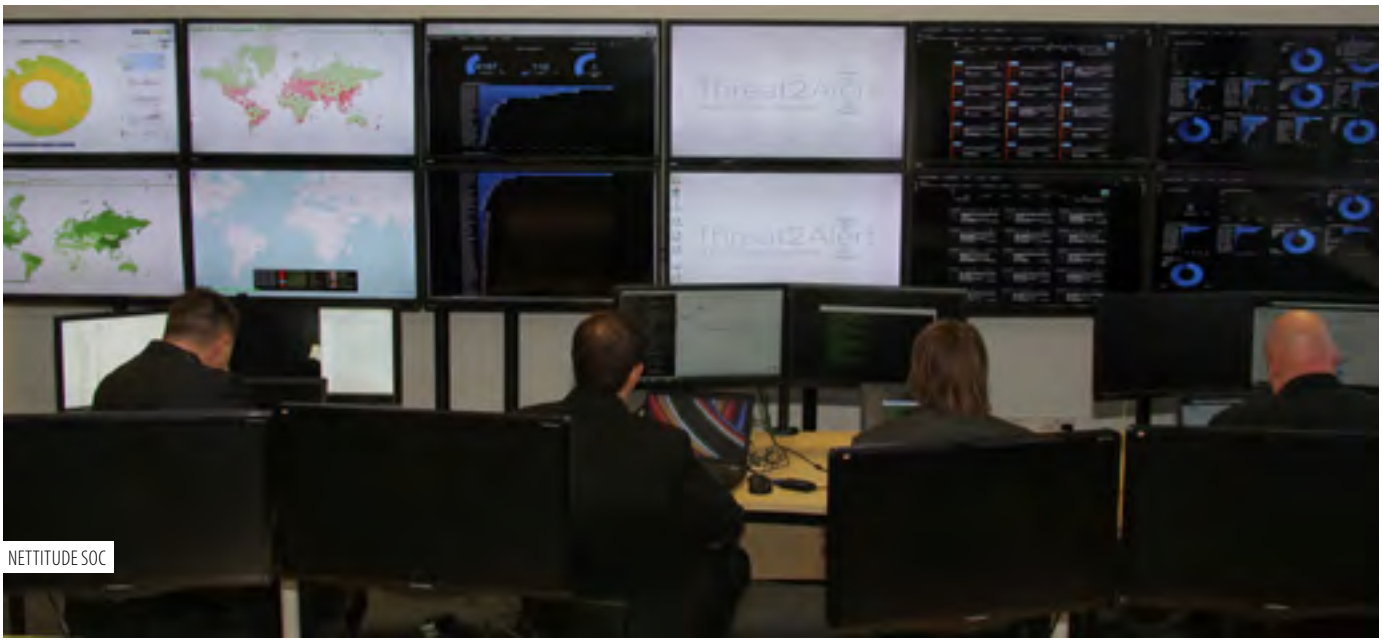
Training is a key issue. As mentioned earlier, people are the weakest link in the chain. Training is definitely part of the Lloyd's portfolio, delivered via a partnership with Axelos. It is delivered during the year and allows for follow-up and add-on material.

A lot of companies will have annual tick box exercises for staff to go through, or they will have to watch a video and read some material, says Cavanna. "What isn't happening is people learning about cyber security and how not to compromise themselves or their companies. That means that you have to make some psychological behavioural changes in the way people think and interact with technologies, both at home and at work, so that rather than simply being told not to open suspicious email attachment, they actually understand the consequence of doing so.

"The threat can begin at home and then subsequently be transported through to the workplace because, if you think about it, the employees can easily by-pass perimeter defences the company has since they have legitimate access to business systems that sit inside those defences."

According to Lloyd's Register, given the increasing complexity of cyber-attacks and the expansion of threat surfaces, it is paramount that the right security focus is given to critical business drivers and assets – and the human factor is considered as one of those critical assets.

No business can make itself impregnable to attacks but by creating a scalable security posture based on risk and driven by threat intelligence a marine organisation can position itself to temper attacks and so provide assurance that, in the event of a breach, its effects can be mitigated and disruption and loss to the business minimised.



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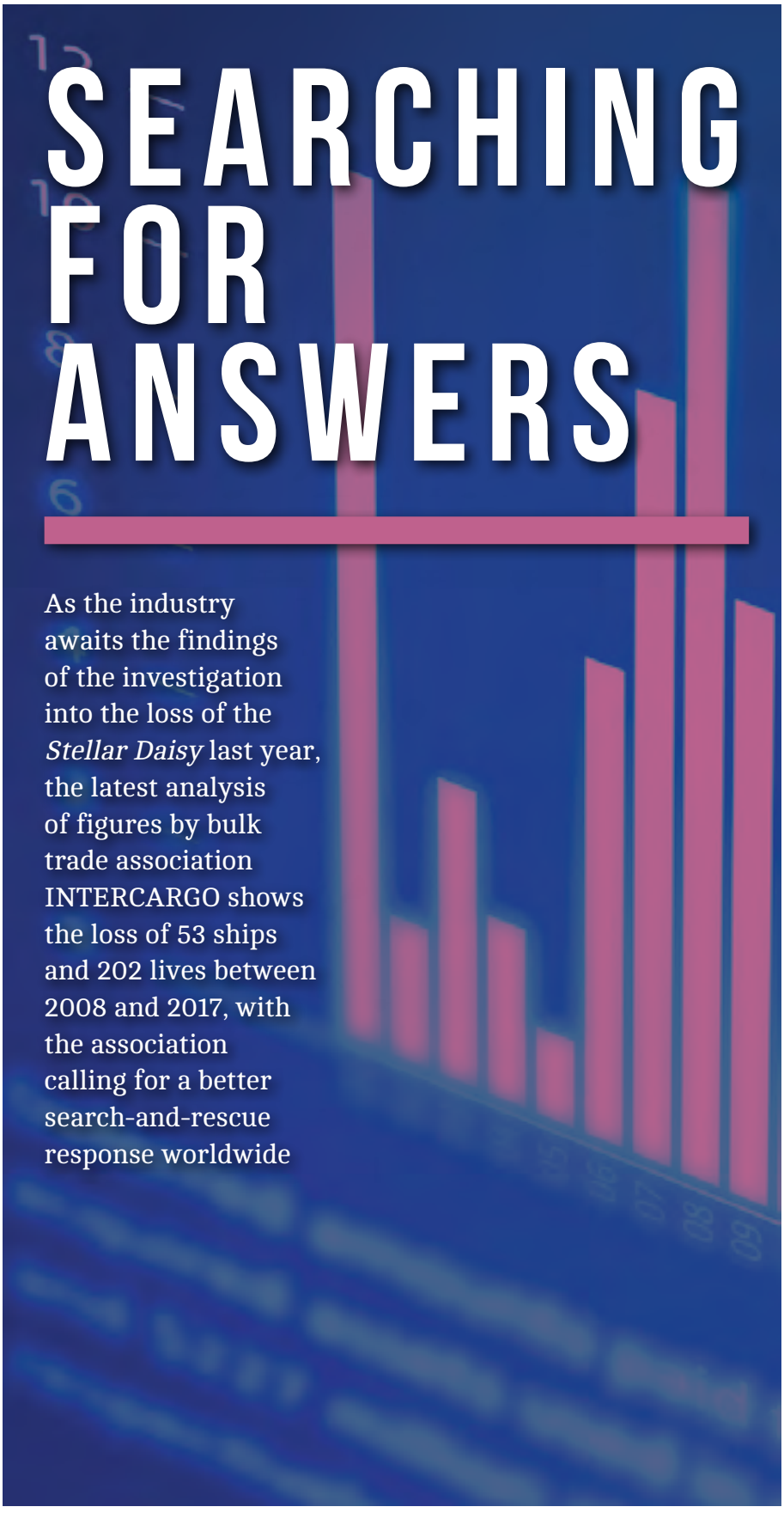
SEARCHING FOR ANSWERS



As the industry awaits the findings of the investigation into the loss of the *Stellar Daisy* last year, the latest analysis of figures by bulk trade association INTERCARGO shows the loss of 53 ships and 202 lives between 2008 and 2017, with the association calling for a better search-and-rescue response worldwide

According to INTERCARGO's latest bulk carrier casualty report, records from 1994 to the present day indicate a gradual improvement over the years in terms of numbers of lives and ships lost. According to its information, there was a downward trend in the average number of lives and ships lost over rolling 10-year periods.

Improvements are attributed to the introduction of new safety requirements by IMO flag states, activity by the International Association of Classification Societies (IACS) and tough port state control oversight, as well as improvements put into place by owners and operators themselves.

However, there is no room for complacency, as the report points out. Last year, the tragic losses of *Stellar Daisy*, carrying an iron ore cargo, and *Emerald Star*, with a nickel ore cargo, raised questions of structural integrity and the safety condition of high density cargoes carried on board. These two bulk carrier casualties caused the loss of 32 seafarers – the highest annual loss of lives since 2011.

While the search and rescue efforts in response to the sinking are to be praised, the report states: "In its aftermath, the shipping community should be concerned about the non-availability of sufficient search and rescue capabilities in the vicinity of busy shipping lanes around the world and revisit this issue." Reports were still coming in recently of sightings of lifeboats from the *Stellar Daisy* nearly a year after the accident.

In October 2017, the sinking of *Emerald Star* claimed the lives of 10 seafarers. "The industry expects that the full investigation reports will provide answers and highlight the lessons to be learnt from these losses," INTERCARGO states.

The report once again highlights that cargo failure, including moisture-related cargo failure mechanisms, "is one of the greatest concerns for the safe carriage of dry bulk over the past 10 years and is likely the cause of the loss of 101 seafarers' lives and nine vessel losses."

The incident onboard the 57,000 dwt *Cheshire* in August 2017 involving high temperatures in the cargo holds and the

release of gases from the cargo again raised serious concerns with the carriage of ammonium nitrate-based fertiliser.

Although the International Maritime Organisation was prompt in issuing guidance on the carriage of such a product, "bulk carrier owners and masters are expecting prompt and clear mandatory safety requirements to avoid recurrence of the Cheshire and Purple Beach incidents", the report states.

The most common causes of accidents in the bulk carrier segment listed in the report include machinery and technical problems, main engine issues, grounding, collisions and allisions.

While much ink has flowed on the issue of technology assisted collisions over the years, the July 1 2017 collision between the bulk carrier *Huayang Endeavour* and oil tanker *Seafrontier* illustrated that even the use of basic communication methods can still result in errors.

The Marine Accident Investigation Branch report issued in March this year identified that a VHF radio conversation between the two vessels had resulted in the two bridge teams holding conflicting views as to what had been agreed regarding *Huayang Endeavour* overtaking *Seafrontier*.

The analysis of bulk carrier incidents in 2016 and 2017 "directs the attention of all stakeholders to ship safety issues related to the human element and leading to grounding and collision, as well as to equipment failures". Crew training, equipment design and manufacturing, and shipbuilding and exploring joint projects to introduce and implement appropriate measures are advocated.

The report has also highlighted the issue of slow reporting following incidents. The highest loss of life has been attributed to cargo failure (liquefaction), totalling 101 lives lost from the nine casualties during 2012 and 2015.

Three investigation reports of those nine cases have not been submitted to IMO. The most common reported cause of ship losses has been grounding, totalling 22 losses among the 53 cases. Ten investigation reports of those 22 cases have not been submitted to IMO. Six ships lost with unknown causes claimed 61 lives, and five investigation reports of those six cases have not been submitted. Reported flooding led to losses of eight ships and 14 lives, with five investigation reports of those eight cases not yet submitted.

In consequence, INTERCARGO has once again stressed the importance of timely submission of casualty investigation reports to IMO from relevant flag states, as a means of identifying the causes of the incidents and enabling corrective actions.

> "The industry should be concerned about the non-availability of sufficient search and rescue capabilities in the vicinity of busy shipping lanes

The accident investigation report into the loss of the *Stellar Daisy* is expected soon, although questions remain over whether it will be possible to pinpoint the causes of the accident with any degree of accuracy because the ship is unlikely to be the target of an underwater investigation.

IACS said that detailed reports provided by its members with converted VLOCs like the *Stellar Daisy* in class showed that "no safety-related critical structural damages have been identified and there is no clear justification for any IACS work on these vessels" it will reassess following the publication of the report "whether there are elements that warrant IACS initiatives".

Although IACS refuses to speculate, most analysts suggest that the hull failure was due to the change of use of the vessel from a VLCC to a VLOC.

As ABTO board member Mike Bradley pointed out recently, current methods available to a ship's master for identifying the dangers of cargo liquefaction – the so-called "splash" and "can" tests – are very rudimentary. Bradley, who heads up Greenwich University's Wolfson Centre for Bulk Solids Handling Technology, adds that "the current IMO protocol for setting Transportable Moisture Limits and certifying actual Cargo Moisture Content is robust for some cargo flows, but sadly falls down too often for others, as evidenced by the number of lives still being lost due to cargo liquefaction.

"Ultimately the master has to take responsibility for whether a cargo is loaded or not, and he is under commercial pressure not to reject it – so in cases where he has suspicions he really needs a more reliable shipboard test he can use to protect his employer's business and the lives of his crew."

The institute has been moving forward with the development of its own test based on a practical approach using low-cost equipment that can be replicated easily. It doesn't replace the current system of TML and MC certification, but provides the ship's master with an opportunity to make his own check where there is doubt over change in the condition of the cargo, the quality of sampling, the veracity of the certification, or the effect of bad weather on moisture during loading.

"We are trying to come up with a test that is low cost and easy for a non-expert to use on board or prior to loading," says Bradley. The test is based on the air voidage within the cargo sample based on Archimedes Principle. What the text does is measure the air in the sample. "All the while you have air, you won't get a pore pressure, and if you don't have a pore pressure you won't get liquefaction."

The INTERCARGO report shows that liquefaction remains a dominant cause of bulk carrier casualties. Hopefully, there will be more initiatives to combat the problem from industry in the future.

SHIPPING'S GREAT HOPE

Since the Baltic Dry Index and especially the Baltic Capesize Index 2014 bottomed in early 2016, there has been great hope for a market recovery ever since, writes Basil Karatzas


BASIL KARATZAS

Between the bottom of the capesize freight market and the Baltic Capsize Index (BCI) reaching a miserly low of 161 points in March 2016 and bouncing to almost 4,300 points in December 2017, a 30-fold increase bottom-to-peak range, there have been great hopes for a market recovery.

Interestingly, it must be noted, despite the great improvement of capesize freight rates, capesize vessels today barely earn enough revenue to pay for their operating expenses and amortise their loans – a matter-of-fact perspective for the bleakness of the market.

Capesize vessels are strongly correlated with the iron ore trade and, more specifically, for the trade from Brazil to China.

The capesize rally seems that it has run out of steam so far in 2018, as per Graph 1, and shipowners and financiers are scratching their heads for an explanation. A prolonged weak freight market for capesize vessels is bad news for the shipowning and financing communities as capesize vessels are rather expensive assets at approximately $55m replacement cost per vessel, thus, weak freight rates have deeper implications than in other markets.

The weakness of the capesize freight market can be partially explained by the fact that capesize vessel newbuilding deliveries keep adding to the world's capesize fleet. It takes almost one year to build a capesize vessel and there is at least another year's backlog with the shipbuilder and therefore vessels delivered now have been ordered at least two years earlier, when market conditions and expectations were rosier.

Graph 2 shows that almost 80 capesize vessels have been added (on net basis) to the world capesize fleet (increasing from 1,620 to 1,700 vessels) from January 2016 to present, an almost 6% growth in terms of number of vessels as well as deadweight tonnage. By historical standards, such a fleet expansion is meaningful and can partially be blamed for the weakness of the capesize freight market.

Taking a look on the demand side, the actual seaborne movement of iron ore, it can be noted that Brazil's iron ore exports have plateaued at approximately 31 million tons per month, or approximately 180 capesize loadings per month since January 2016.

Likewise, the world's largest importer or iron ore, China, has averaged 86 million tons per month of seaborne iron ore imports during the same period. There seem to be volatility and seasonality of imports (in September 2017, China imported 20% more iron ore than the average level – which is promptly reflected in the freight market peak shown in Graph 1).

Thus, while China's seaborne iron ore imports have increased by 82% since 2010 (Graph 2), since January 2016, Chinese iron ore imports grew by less than 1% per month when seasonality is excluded. As stated earlier, between January 2016 and now, the world's capesize fleet grew by 6% while seaborne iron ore trade either from Brazil or to China barely moved. No wonder that capesize freight rates are moving sideways and in a disappointing fashion.

Looking forward, there have been concerns about the strength of the iron ore trade. China has slowly been shifting from an industrial economy to a service economy as great cities and massive infrastructure projects have been completed. The emphasis now is shifting to a more balanced economy based on services and an economy

based on social justice such as a more equitable distribution of wealth, and to higher standards of life, including cleaner air and cleaner environment.

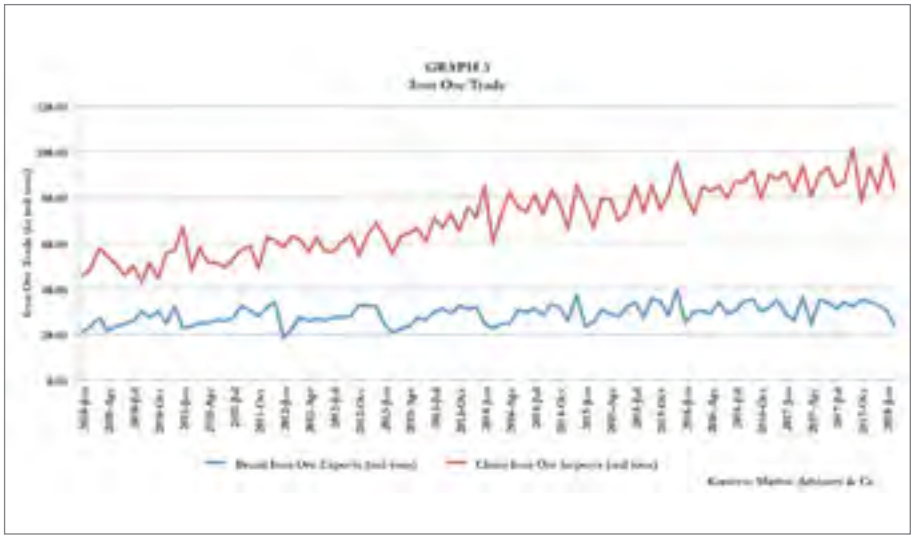
In general, such a trend does not bode well for the iron trade (and trade of other commodities, in general). This does not imply that China is losing its interest in natural resources, just the opposite. However, the rate of growth is slowing for commodity imports as the Chinese economy is shifting to services and quality of life – at a time when shipowners keep adding to the world's fleets based on historic projections.

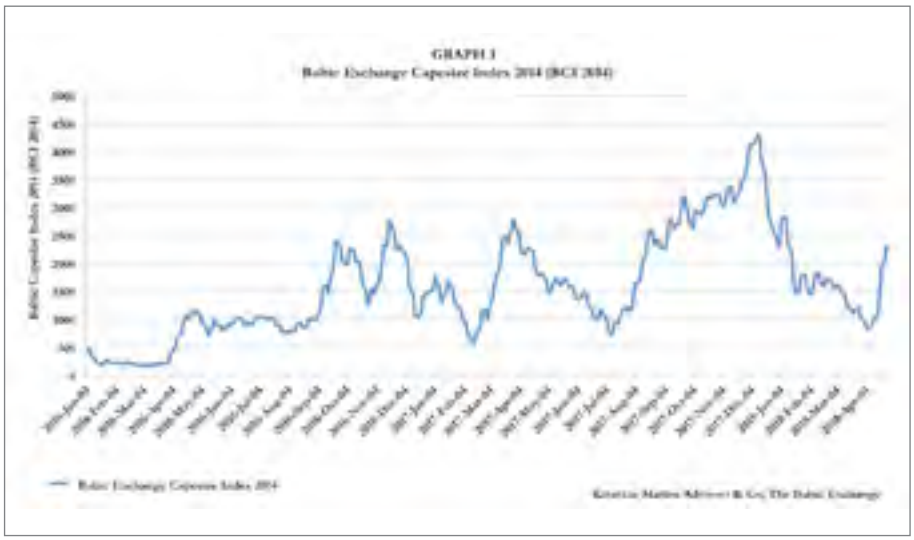
Looking further, the current administration in the US has taken a closer look on tariffs in the steel industry, especially for imports from China. There has even been mention of the words "trade wars" which may have a chilling effect not only on the trade of steel and its underlying commodities (iron ore and metallurgical coal), but on a much broader world trade as well.

There is no much visibility on the extent of tariffs at present and there are several permutations of possible outcomes, however, for now, in a market that barely grows and when China seems to have declining need for steel, one can logically deduct that iron ore imports to China will not be inspiring.

Still, iron ore is a highly needed commodity and modern life cannot go forward without steel. Thus we do not predict a collapse of the iron ore and steel trade. On the other hand, sometimes we have been less enthusiastic than shipowners ordering more capesize and iron ore carrier vessels on the expectations that the market will keep growing at a robust pace. At the very least, for now, a "wait and see" approach may be advisable.

Basil M Karatzas is the Founder and President of Karatzas Marine Advisors, a New York-based shipping finance and shipbrokerage firm (www.karatzas.com). This is an opinion piece reflecting the current opinion of the author on the iron ore market, always subject to change, and cannot be depended upon for investment advice.





MACHINE, REPAIR & SERVICES

COMPANY NEWS

Established in 1977, MRS Greifer GmbH is a leading engineering company providing design, manufacture, supply and after sales services for grab buckets up to 30 m³ capacity. Our commitment to continuous research and development ensures our grabs are world leaders in terms of technology, quality and performance.

With five decades of experience in the design, manufacture, research and development of grabs, plus an extensive after-sales service backed by our team of highly skilled engineers, MRS Grabs has clients from every corner of the world.

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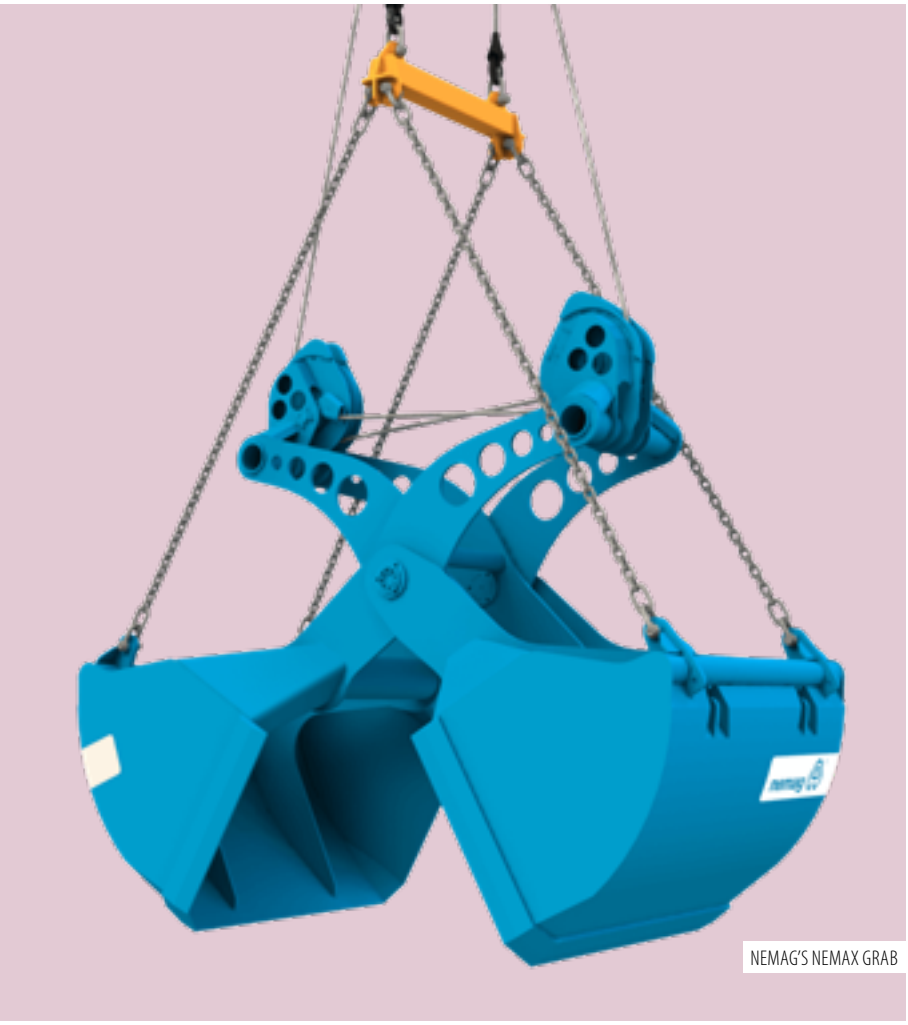
GRABBING THE HEADLINES

Grabs and cranes have to be able to deal with a multiplicity of different products and commodities, as well as ensure that they meet with the right safety and environmental standards



NEMAG'S NEMAX GRAB

With iron ore shipments much in the news, for both good and bad reasons, it perhaps comes as no surprise that a grab that deals with iron ore has been awarded the Red Dot Award for products on the cutting edge of innovative design.

Nemag's nemaX grab was the first industrial grab ever to win a prize in the award's history and joins product design winners such as the iPhone – which it has to be admitted is a good deal better known.

Red Dot, which has been handing out awards for new designs since 1955, says the nemaX "is the most productive grab on the market, increasing the entire productivity of a dry bulk terminal by at least 10%. Its optimised closing mechanism helps it close 20% faster, facilitates ergonomic maintenance at safe heights, and reduces spillage."

It has 70% less moving parts and the lowest maintenance costs on the market. The design capitalises on the mechanical properties of high-tensile steels by preventing multi-axial stresses in the main construction. The resulting lean, graceful design has a minimum of joints and welds that are vulnerable to fatigue, ensuring cost-effective operation and maintenance."

Grab technology needs to be at least as versatile as the products that it handles and this grab aims to provide improved loading times, lower maintenance costs and the like while being specifically adapted for use with iron ore cargoes.

The nemaX features a deadweight efficiency of only 25-28%, and a grab ratio of 2.5 to 3. This means on average it is about 15% lighter than any comparable clamshell grab on the market, the company says.

The increase in productivity of at least 10% starts from the very first grab cycle and continues all the way down in the hatch. In addition to this improvement, there is a productivity gain from extended free digging and improved cleaning up.

The design method for the new grab was developed at TU Delft in the Netherlands and transport technologist Dingena Schott says that, at first sight, the new grab doesn't seem that much different than existing grabs. All grabs have two shells with a hinge in the middle and a closing mechanism. "The aim is to get as much material as possible per grab," says Schott. "The amount is limited by the crane on the quay, which can only lift up to a certain weight. If you go for a really heavy grab, then it will of course penetrate deeper into the materials, but it can't take as much per grab. So the ideal grab is as light as possible, but can still dig itself in well. It's kind of a trade-off between mass and force."

"Since 2007, we have been using discrete element software as part of an innovative design method. Since the arrival of this technique, we have been able to understand for the first time exactly what happens when materials are grabbed. It makes it possible for us to model iron ore pellets as well as the grab, monitor their behaviour in a simulation when the pellets are grabbed, and thus determine whether the grab is being filled optimally. Initially, we modelled and tested with an existing grab at Tata Steel in Ijmuiden in order to validate the model."

Thanks to the software, Schott and her team can compute exactly how much force is needed to grab as many pellets of iron ore as possible.

"In order to be able to move the grab you have to pull the cables at the top. Then the grab tries to close, but because of the resistance of the iron ore, it will become slower and slower. To maintain the same speed, you then have to pull harder on the cables," says Schott.

DOWN TO SPECIFICS

Coming up with a grab with a specific application is the key and Mack Manufacturing has been developing various industry-specific solutions, including its new mag-grab, which is destined for the scrap handling industry.

Typically, mag-grabs are used to improve load retention when lifting fine material or to let operators "sweep" the work area clear of ferrous debris during loading operations.

Like other mag-grabs on the market, the new Mack models also allow continuous rotation of the orange-peel tines, providing extra flexibility and control for operators. The rotator on most grapples is located next to their attachment point. The mag-grabs include a brushless spindle below the attachment knuckle, so the tines can rotate independent of the attachment point. The tines can elevate above the magnet position, allowing the magnet to sweep right to ground level.

With dust suppression increasingly important in port facilities, another product that aims to reduce this is Peiner's radio-controlled single rope grab EGF.

Whether actuated by remote control or pull cable, the opening process can be interrupted and continued several times in order to ensure bulk material is unloaded in a controlled manner and with reduced dust emission.

No additional personnel are needed to open the grab by means of remote control and it is equipped with high-power rechargeable batteries with high charging capacity. An optional dust guard ensures environmental protection when handling fine-grained bulk goods.

Turkish manufacturer Guven says its radio remote control grab is very popular for new generation bulkers – in preference to electro hydraulic grabs – because it avoids the cable drum system and grab stabiliser on the crane jib, without any additional electric supply and consumption of fuel by generators. It can be attached on to the hook of any kind of crane and remotely controlled at a distance of 100m.

This type of grab constitutes 75% of the total production capacity of the company and is produced in sizes ranging from $2m^3$ up to $50m^3$.

The Port of Antwerp, meanwhile, uses the Kinshofer C-series of grabs, which is well fitted for dealing with dry bulk biomass such as grains, sawdust and wood pellets. The model's HPX drive opens and closes the two shells both synchronously and with constant force.

ELECTRICAL ADVANCES

As ports consider more eco-friendly power sources, Liebherr has launched its first purely electrical port crane.

The LPS 420 E can be used for a variety of different types of cargo, from containers to bulk, general cargo and heavy lifts up to 124 tonnes. The crane is specifically designed for ports and terminals with an electrical infrastructure. Equipped with two winches, each with a powerful 190kW electric motor, the LPS 420 E provides a maximum load capacity of up to 124 tonnes. Therefore, the portal crane can be used for heavy breakbulk as well as project and general cargo.

The LPS 420 E is especially optimised for terminals with a power supply ranging from 380 V to 460 V. Thanks to the Liebherr active-front-end frequency converter, deviations in the voltage supply can be compensated easily for safe and stable operation. Due to the critical conditions, such as limited space and harsh environmental conditions, a liquid-cooled and highly efficient multi-drive frequency converter system has been implemented. The frequency converters are Liebherr-built components, which have proved themselves in Liebherr ship-to-shore gantry cranes and material handlers.

As an additional benefit, Liebherr energy storage units can be used to reduce the peak-load in the crane main power supply and to take advantage of regenerative energy within the system. The compact unit ensures a high power storage capacity, which enables the accumulation and supply of 200 kW of power within 15 seconds.

Commenting on the market conditions for port equipment and those geographical areas developing fastest, Philipp Helberg, marketing manager maritime cranes at Liebherr, says: "The market situation has not dramatically changed in the past years. Speaking about regions, Europe is one of the strongest as it was in the past, but Russia is also growing in terms of port equipment. The overall market for port equipment is developing fast and we are always trying to be on top of this development.

"Liebherr considers itself as an innovation leader. Speaking for the maritime sector, we just raised the bar in terms of electrical turnover efficiency. The new LPS 420 E is a big step to into emission free cargo handling. Furthermore, this is an important innovation for the CIS states. A lot of terminals in the CIS states do have an electrical infrastructure. This is where the new purely electrical portal crane can substantially raise the efficiency."

STAYING STILL

Another challenge for port operators is deploying technology that takes into account ship motion. The first TTS Colibri 3D motion compensated crane is nearing completion at the TTS facilities in Poland. Once completed, the unit will be installed on Louis Dreyfus Armateurs' *Wind of Change*. The Colibri technology comprises a compact, efficient 3D motion-compensated handling system.

The system has been developed by Ulstein as a lightweight, hydraulically activated system with a minimum of moving parts, resulting in low power consumption and fast response times. It has innovative anti-sway technology, which allows the crane not only to compensate for vessel-induced motions, but also eliminate wind-induced motions.

The purpose of the Colibri technology is to increase vessel operability, enabling smaller, more cost-effective vessels to be used in harsher weather conditions. The system is a stand-alone add-on device to a standard offshore crane.

The crane maintains its functionality as a full-fledged offshore crane, including for deepwater sub-sea capabilities. The system can be mounted on the tip of a standard crane as a new-build option, or retrofit.

GIANT ON THE MOVE

Since the beginning of the year, the Port of Hamburg has offered an optimised service portfolio for handling ultra-heavy loads.

With a unit load capacity of 600 tons, Enak is the most powerful salvage/floating crane in Germany and was formerly stationed in Bremerhaven.

However, its new owner Lührs Schifffahrt, who acquired Enak from Bugsier Reederei, has transferred the heavyweight floating crane to Hamburg.

The new arrival has already been a frequent guest in Hamburg when especially heavy cargoes had to be loaded. However, a huge amount of effort was involved in bringing it from its former base at Bremerhaven to the Elbe, so cargo often had to be routed past Hamburg and via other ports.

"Stationing Enak in Hamburg gives shippers, project forwarders and heavy-lift shipping companies fresh opportunities to exploit the Port of Hamburg's strengths as a project shipment transhipment hub," says Axel Mattern, joint CEO of Port of Hamburg marketing.

Gas turbines and transformers are two examples of heavy lift products that can be handled by the new technology. Such large transformers have a unit weight of 550 tons. It was impossible to shift them here with Hamburg's crane capacities as they stood. Enak now provides an option for shipping such mammoth transformers and other ultra-heavy cargoes via Hamburg.

Built in 1967, technically upgraded in 1993 and now classified by DNV GL, the crane is 55m long and 25m wide. It operates under the German flag and in Hamburg occupies a berth in Ellerholz docks.

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SUCCESS OVER A LONG PERIOD

COMPANY NEWS

Cimbria's partner in the Baltic States, "Dotnuva Baltic", achieved great success over a long period of years and is today the leading provider of agricultural solutions for the grain and seed industry in Lithuania, Latvia and Estonia. The range of Dotnuva Baltic's activities and services includes seeds, machinery, farming and grain equipment, as well as drawing up of proposals, designing plants, carrying out installation and after-sales service. With a strong local set-up on the market and the ability to offer a full package solution, Dotnuva Baltic has secured a solid positon as a preferred supplier in the Baltic States.

2017 was particularly intense for the team of Cimbria and "Dotnuva Baltic", as they were involved in implementing several grain storage projects in the Baltic States, with most of the installa¬tions built in Lithuania.

Record-breaking grain yields in the last few years have encour¬aged farmers and companies engaged in the trade of grain to invest in grain silo plants. Three new Cimbria silo installations were completed in Lithuania in 2017, augmented by extensions to four previously installed facilities. Many orders were received from farmers, with more than twenty grain handling projects of various size and capacity being built.

Furthermore, two turnkey silo plants were successfully imple¬mented in which Dotnuva Baltic was responsible for everything from design/engineering, construction of the foundations, equipment supply, installation and automation.

The capacity of grain silos built by Dotnuva Baltic UAB in 2017 exceeded 130,000 tonnes, while the total capacity of grain stores established by the company since 1999, when the company was first involved in the business, is approximately 1 million tonnes. In recent years, the total quantity of grain harvested in Lithuania has been more than 6 million tonnes – which means that close on one fifth of total grain yield in Lithuania is stored in grain stores built by Dotnuva Baltic.

The year ahead will be no less intense – four contracts for industrial grain elevators have already been signed and construction work has been commenced. Difficult harvesting conditions in 2017 have encouraged grain growers to continue to invest in grain dryers, silo projects and cleaning machines.

Cimbria equipment has a good reputation and is well known in the Baltic, and it is to be expected that grain growers will continue to choose this equipment, since it is recognised as being amongst the best in the market.

Cimbria was established in 1947 and is today an international organisation with 900 employees in 30 companies throughout the world. Since 2016, Cimbria has been a part of of AGCO corp. Cimbria offers storage, equipment and processing plants for the grain and seed industry and transport and conveying equipment for bulk handling. The company has an experienced, highly qualified workforce, its own development and construction department and modern production facilities, which enable it to construct and manufacture all of the solutions in accordance with the individual requirements of each client. Further information can be obtained on www.cimbria.com

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MARKETING MOBILITY

Mobile solutions have a lot to offer if port developments look likely to be delayed by planning permission or investment decision making

TELESTACK'S COMMERCIAL DIRECTOR MALACHY GRIBBEN

Mobile equipment supplier Telestack's commercial director Malachy Gribben says "We are seeing a global demand for our type of equipment in bulk terminals." That said, while the company might have been targeting emerging markets more in the past, now it seeing a lot more interest from developed ports or terminals whether in North America or in Europe. "They are moving towards using our type of equipment because the mobility".

A lot of the ports are in downtown areas with city restrictions, but can maybe get additional contracts by handling bulk materials. Instead of having a dedicated berth it is easier to use a mobile solution to bring the cargo to an existing berth to load out the contract and move the mobile equipment back off the berth and carry on loading or unloading containers or breakbulk. Telestack's footprint is global.

According to Malachy while the company is dealing with the bulk side of the equation, ports may be handling many different cargoes, including coal, containers or breakbulk. "The beauty of our equipment is that it allows them to utilise a berth that they may use to load containers but they can use our equipment to load or discharge coal or iron ore".

THE TELESTACK TITAN T800-6 AND TS1042 RADIAL TELESCOPIC SHIPLOADER DESIGNED AND MANUFACTURED IN TELESTACK AND EXPORTED TO JAPAN TO BE USED AS PART OF A MULTI-MILLION POUND LAND RECLAMATION PROJECT BY A LARGE POWER UTILITY COMPANY

A big driver for developed markets making use of the equipment is that if they are able to get in the drybulk product in, unloaded and stockpile it using a Telestack-style system, they can then move it out into the hinterland by rail, barge or road.

The same is true in reverse. In Germany, for example, road replacement work is leading to the removal of asphalt, which is being loaded onto barges and transported along the Rhine to take loads off the roads. "We are now seeing emerging economies and the developed world pushing hard on our type of solution".

Interest has also been generated because of the environmental benefits of Telestack's type of solution, he says and the environmental drivers that are pushing people to, for example, recycle asphalt instead of sending it to a landfill site. The other benefit is because the system is mobile, developed ports can consider it without the need to seek planning permission for the project because it does not involve infrastructure and an expensive fixed system. This mean a contract can be entered into and executed quickly.

The other advantage, he says , is that if the client undertakes a contract and it is not renewed at the end of the agreed period, the equipment can be easily dismantled, packed into standard shipping containers and sold on anywhere in the world offering clients the versatility of being able to resell the equipment if a contract comes to an end or if market conditions are no longer favourable.

Demand for equipment in the current market, he says, outstrips supply. "Our type of equipment typically does not come back onto the market anytime soon." Should a change of use prove necessary the equipment is versatile and can be used for "pretty much any type of dry bulk material, we have handled it all".

Products include aggregates, sand, grains, iron ore, biomass or cement and "even the alternative fuel market which is in its infancy". That is why he says ports and customers like their solutions because they are versatile as far as commodities are concerned and a wide range of commodities can be handled using the same system.

In the last six months and in the months to come, Telestack will have shipped systems to North America South America, the Middle East, Africa, Europe Asia and Australia. The company has also been talking to Chinese manufacturers of shiploading systems and have sold product to Chinese companies who he says, appreciated the customisation and smart design which fits into containers.

While there is obviously still a demand for the very large dedicated fixed systems which are part of long term projects, the "world has turned" and there is a demand for smaller stacker reclaimer systems of the type the company produces. "A lot of the time our equipment in the stockyard of a port is there to support the existing stack and reclaimer system if it is down for planned maintenance or emergency breakdown. Instead of grinding the whole process to a halt they can pull in a mobile solution from Telestack and keep the system moving."

The port may have a stacker and reclaimer system that can operate at 2,000 tonnes per hour, but they can pull in a mobile system that can operate at, say 1,500 tonnes an hour. Thus even if the equipment cannot handle up to the usual maximum throughput, the port is still keeping the process moving for the most part.

As the technology has evolved Telestack has moved from loading from barges and coasters up to baby capesize ships. "We are trying to educate the market that loading larger vessels with mobile conevyors is actually possible." He says that if you told a typical operator in a port that you have a mobile solution that will load iron ore at 2000 tonnes per hour and load a baby cape vessel "They would look at you as though you have two heads. We have proven we can do those kinds of projects." In terms of vessel size they haven't advanced to capesize or super capesize yet but "we are up at baby capesize which covers a big part of what we want to do."

Typically the company works through a network of local agents who work with the head offices to establish what the customer wants and needs. When an order is placed the system will be built in Northern Ireland and

THE T-1600-8 BULK RECEPTION FEEDER FROM TELESTACK LOADING AGGREGATES ONTO BARGES IN NORTH AMERICA. THE TITAN T1600-8 IS THE LARGEST MOBILE TRUCK UNLOADER IN THE INTERNATIONAL MARKET AND HAS A THROUGHPUT RATE OF APPROXIMATELY 2,000TPH.

shipped to the end site where it is put in place in conjunction with the agent partners who look after it.

The company has training schools for both customers and agents. "Having a regional and local network of agents fully trained, reduces the potential for problems to arise." Because the technology is innovative in how it is designed and put together its operation and running is fairly straightforward. "As long as guys stick to their maintenance programmes we are in pretty good shape".

There is a good deal of talk these days of autonomous systems and how they can reduce operating costs and the dangers of human error. Telestack's systems operate with limited personnel. "Our type of solution compared to more traditional methods will certainly have a lesser human input but at the same time autonomous is still at the very early days of development and I certainly don't see any time in the short to medium term where you are going to utilise autonomous mobile ship loading systems, whether from Telestack or anyone else".

Probably one the biggest challenges for companies like Telestack in the port business is raising awareness that technology exists and it is proven technology that has been utilised by some of the biggest ports and operators in the world. People within the industry, he says, need to "think outside the box in terms of traditional handling methods".

SAFE LOADING

Safety during loading operations is vital and strength and stability calculations during the process may be difficult without the use of a computer.

Having the relevant software to carry out strength calculations is an International Maritime Organisation requirement and there are a number of software packages in the market to deal with the issues involved.

One such, DeltaLoad, is provided by Delta Marine, which developed the system in conjunction with Mesh Engineering & Software. The software is custom-made according to the type of vessel and can be used to carry out calculations including draught, trim, list, intact and damage stability and longitudinal strength. The calculations are made interactively with the user as a result of virtual loading operations of standard loads, like ballast water, fuel or lubes, or non standard loads.

Another similar product is Kongsberg's ShipLoad Loading Computer, which can provide advance information on issues such as loading, stowage, water ballast exchange, damage stability and even potential grounding scenarios.

ShipLoad will provide the user with a range of possible scenarios if things go wrong, including assistance with water ballast operations, incorporating ballast water exchange according to new rules on harmful marine organisms, as well as cargo distribution, loading and discharging, and the optimum floating position for minimum fuel consumption. It can also handle grounding and damage scenarios outside of the regular pre-defined damage stability conditions that are required by class. Advanced modules and options are available, covering hull girder structure, residual strength calculations, outflow from tanks, grounding and beaching forces.

New technologies also making their presence felt in the maritime industry include advanced non-destructive testing techniques, remote inspections techniques – such as real-time sensing devices carried by drone and remotely operated vehicles – and other techniques including monitoring and diagnosis and condition-based maintenance.

Classification societies have increasingly recognised the benefits of using new technologies in their survey and inspection regimes. The International Association of Classification Societies (IACS) has therefore decided to update its survey requirements to facilitate use of advanced technology in order to make surveys safer and more economic.

Other technologies have also been introduced with a view to reducing environmental hazards, for example dust generation, during the loading process. Bulk products such as cement are specifically prone to dust generation and an increasing focus both on health issues and environmental concerns has led to the introduction of new technology specifically aimed at solving the problems.

DO IT YOURSELF

Self-discharging vessels have proved to have distinct advantages when it comes to unloading material in areas that are difficult to access or need a more versatile approach

MV FURUVIK IS JOINING SMT'S FLEET

Demand for self-unloader tonnage was demonstrated this month with the agreement between SMT Shipping and the CSL Group for CSL to buy 50% of Eureka Shipping, which operates a fleet of self-unloading cement carriers in the Baltic Sea, the Atlantic Ocean, the Mediterranean Sea, the Caribbean and Asia.

The new joint venture will allow Eureka and CSL to combine expertise, resources and innovative technologies to expand services to customers in the seaborne cement powder and fly ash transportation markets around the world.

"The joint venture represents an important step in CSL's strategy to increase its presence in the global construction material sector," says Louis Martel, CSL chief executive. "We are confident that the synergies between CSL and the Eureka team, along with our common values and complementary skills, will further strengthen our ability to provide significant value to our customers and an effective platform for growth."

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NEW MOVES AT LUCKY BAY

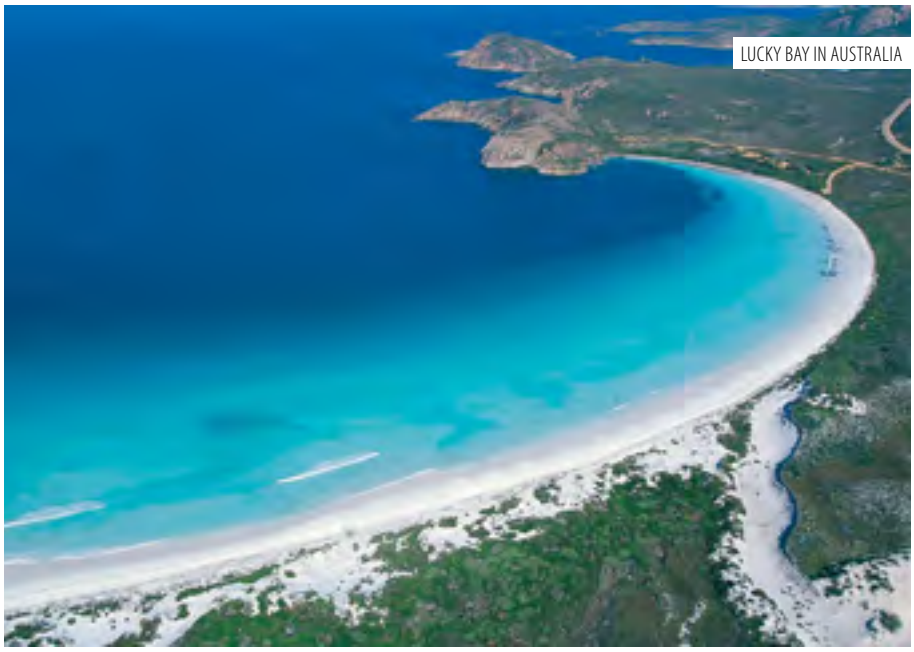
The new grain handling port at Lucky Bay in Australia has invested in a new self-discharging transshipment vessel for use at the port, which is currently under construction in China.

The transshipment vessel will load grain from the port and unload on to deep water vessels, five nautical miles away. It is an 87m, self-propelled self-discharging vessel. The shallow draught, no ballast, quad-screw vessel has a capacity of 3500 tonnes and only requires 3.9m of depth in the harbour terminal.

The design is based on Sea Transport Corporation's previously designed and built vessels, such as the ***Aburri***, which has been used for the past 20 years for transshipment of lead nitrate in northern Queensland.

The target loading and unloading time is approximately two hours each, based on a nominal load and unload rate of 1800 tonnes per hour. For a 55,000 tonne Panamax, with all load operations working at maximum design capacity, the vessel can be completely loaded within industry standards, at a nameplate capacity of 10,800 to 13,250 tonnes per day. The transshipment vessel material handling systems are tailored for grain.

The vessel is currently under construction in China by Bonny Fair Development, a subsidiary of Guangdong Shipbuilding Import and Export Corporation. The vessel was launched on May 4 and is to be transferred to the yard of CCCC in Shanghai, where it is having its material handling systems installed, and is due in South Australian waters before harvest.



LUCKY BAY IN AUSTRALIA

VERSATILE UNLOADERS

Self- loading technology specialist American Steamship Company (ASC) says the advantage of self-unloaders is that they have increased versatility in terms of working hours as they do not need assistance from shore-side equipment or personnel and can unload almost any free-flowing dry bulk commodity. The company's self-unloaders can carry from 18,000 to 70,000 tons per trip and self-discharge cargo at rates up to 10,000 tons per hour. Customers obviously save in terms of not having to invest in expensive shore-side unloading equipment.

The cargo is unloaded using a system of conveyors built into the ship and holds are "hopper-sloped", or slanted on their sides, so that the cargo will flow down through gates located at the bottom and from there the cargo drops onto a tunnel conveyor belt, which carries the cargo to one end of the ship and transfers it on to a loop or incline conveyor belt system.

This system carries the cargo up to the main deck of the ship, where it is then transferred on to the boom conveyor belt. The boom conveyor can be lifted and swung hydraulically left or right to position the cargo on the dock or into a receiving hopper.

Another product aimed at this market is Silexport's automatic reclaimer Vibrafloor, which reclaims bulk products from ships' holds. This technology is aimed at either new-build or retrofit self-unloading bulk carriers.

Vibrafloor recovers and cleans up residual piles on slightly inclined floor decks. Most commodities can be handled, such as cereals, meals, ash, cement, wood chips and aggregates.

The product is made of independent vibrating modules designed to suit the shape and dimensions of the holds. Modules are laid side-by-side and end-to-end to cover the deck area.

Modules are typically 2.2m wide, 3- 4m long and 50mm thick. Each module is powered by a three-phase electric vibrator of 700W unit power.

Lower modules are triggered first, to destabilise and carry residual piles into a central conveying system. Then upward rows of modules are triggered successively from bottom to top, until clean-up of the holds is completed.

In the event of using the system, the ship's holds, with tank top sloped as low as 12°, are entirely self- cleaning with 100% recovery of product and recovery rate is easily controllable, the company says.

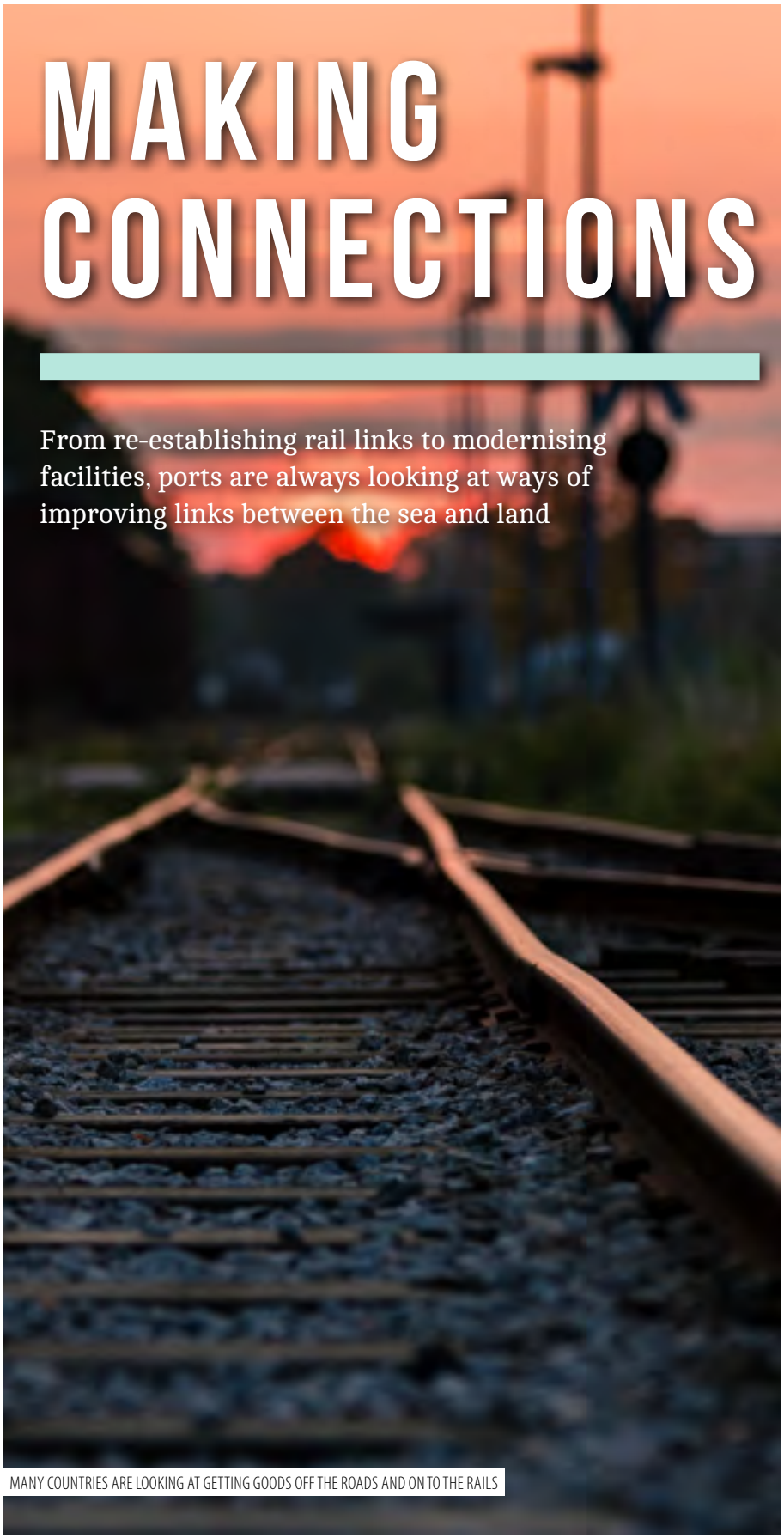
By careful design, the hold capacity can be optimised to avoid any ullage space giving increased cargo volume for a given vessel size.

The system is extremely simple, very reliable, fully automated, and maintenance free with very low power requirements.

It can be customised to any configuration and is efficient on a wide range of products including grains, wood chips, cement, and minerals.

MAKING CONNECTIONS

From re-establishing rail links to modernising facilities, ports are always looking at ways of improving links between the sea and land



MANY COUNTRIES ARE LOOKING AT GETTING GOODS OFF THE ROADS AND ON TO THE RAILS

Developing the hinterland around ports has become an increasing trend, resulting in a closer look at improving connectively between ports and inland centres using a variety of different methods of transport.

The need to develop technology to keep pace is one aspect, another is improving the infrastructure to facilitate the smooth processing of product and also to make use of means of transport that may have fallen into abeyance due to concentration on one form of transport, for example the road network.

In addition, the need to reduce emissions is an ecological imperative and this is where rail and barge operations using more eco-friendly methods of transport come into their own.

Malachy Gribben of Telestack says there is definitely a shift going on in developed and emerging markets for getting bulk commodities off the roads and on to rail or barges.

One project it has been involved with in the UK has been with Cemex to reduce product movements by road. The company is also involved in a project with the Port of Bristol, where it is going to export aggregate up to Hinkley Point. This involves loading on to feeder vessels that are heading up the coast.

In India, there is also a huge push to improve the inland waterway system because, again, it wants to move product on the waterways and not on the roads. India has huge problems with internal transport and the rail and road networks cannot cope, so inland waterways are coming to the fore.

"We have been working closely with the inland waterway authorities, educating them about the solutions that are there if you do want to develop your waterway solutions to get the material from the landside on to the barges," says Gribben.

A lot of India's mines require product to be taken by truck from the mine to the nearest rail depot. There is therefore talk of extending the rail network without having to put in the dedicated loading facilities and then use a mobile facility to load from rail on to barge.

RESPONDING TO CHANGE

In its recent survey of UK transport, the UK government stressed the fact that "port and freight markets are changing and so our national, regional and local transport networks need to have the ability to respond. New commodities, replacing core bulk freight markets like coal, do not necessarily travel on the same road or rail routes or to the same destinations.

"The freight and logistics sector, of which ports are a vital link, is one which must be able to facilitate and respond to these changing markets, adapt to shifting business models, and providing a service which meets the needs of ever-evolving consumer habits such as next-day delivery," the report says.

Previous forecasts have predicted that bulk traffic will increase by 8% over the same time period from 2004- 2030, with total port tonnage for the UK forecast to grow by 37%.

Ports are investing many billions in their own infrastructure to ensure larger ships and volumes can be accommodated to maintain the UK, as a key destination for maritime services despite strong global competition.

It is therefore vital that there is appropriate capacity on road and rail networks, to and from international gateway ports, to meet demand, the report suggests.

PART OF THE PLATOON

New technologies are also leading to new methods of transporting goods from ports. In its round-up of current issues facing the insurance industry, the International Union of Marine Insurers said that freight shipments with trucks driving in "trains" along the highway are now being tested.

Truck platooning – in which two or three trucks drive in a column connected by Wi-Fi with the first truck determining the speed – enables shorter gaps between trucks.

This frees up space for other vehicles and ensures better traffic flow and speed of deliveries. Truck platooning is also said to realise up to ten per cent fuel savings, as well as reducing CO_2 emissions.

KEEPING IT GREEN

Climate issues have played a major role in the shift of cargo to rail or barge transport. One recent example has been a collaboration agreement, Domsjö Fiber and Green Cargo, which has moved over 5,000 tonnes of pulpwood a week from road to rail freight for safer, more efficient and greener transportation.

The first rail consignment, loaded with Inps-model timber wagons, ran in mid-February.

Having previously transported pulpwood by road, deliveries now occur in a more efficient and more environmentally friendly manner, with four to five rail shuttles a week from Storuman and Tågsjöberg to Örnsköldsvik, the company says.

"It is gratifying to have started rail-freight services again. We have succeeded in linking together volumes from Tågsjöberg and Storuman, and put together sufficiently large volumes for this shuttle service.

"A few years ago, we switched from rail to road transportation from Tågsjöberg/Backe owing to problems with the new signal system on the Bothnia Line, so it is a real pleasure to be loading timber in Tågsjöberg onto rail wagons under this setup," says Patrik Lundgren, logistician for Domsjö Fiber.

For Domsjö Fiber, stability in production without surprises or unforeseen stops is important. The Swedish forestry industry is the largest purchaser of transportation services. Green Cargo transport nine million tonnes of timber, wood products, paper, and paper pulp every year.

EMCO UPGRADING

East Mining Company (EMCO), meanwhile, continues to modernise and equip its production facilities in order to enhance coal mining and shipment capacities in Sakhalin.

In 2017, EMCO marine terminal in Shakhtersk port built six new vessels adapted for island conditions, and purchased two other vessels. The company has increased the capacity of its land-based loading complex and bought a second 1,500 tonne/hour capacity loader. EMCO marine terminal has since set a new annual offloading record of 4.6m tonnes of coal.

Its plans for 2018 are even more ambitious. The company aims at doubling mining and offloading figures, reaching the value of 8m tons. The facility's Emco-1 transshipment barge has also been undergoing design changes and upgrades.

Emco-1 is a power-fed barge with two grab-type units and a conveyor line. The vessel was built for Panamax-type vessel discharge. The work cycle included freight transshipment from bulker to barge using grab cranes, followed by its shipment to the berth and discharge using shipboard-type conveyors.

The barge was operated at Italian ports with its capacity reaching 1,000 tons per hour. Following upgrade, its planned capacity will rise to 2,500 tons per hour.

As the transshipment barge was not originally intended to be operated in rough seas , Chinese shipyard Chengxi has designed a new bow section in order to cope with slamming, which has already been fitted.

Bedeschi and Liebherr are involved in the production and installation of the new cargo-handling complex of the transshipment barge, including replacement of a conveyor line and installation of a new loading unit, with more efficient grabs with 20.6m^4 capacity. The work cycle speed of scissor type grabs is twice as high compared with standard ones.

This technology, developed by German company Peiner SMAG, is the first of its kind in the world. It has a contract with EMCO for production and servicing, followed by future co-development projects and production innovation initiatives related to grabs and lifting equipment.

The total cost of the project will be about €9m. It is planned to complete all the work and arrange transfer from the Chinese shipyard Chengxi to Shakhtersk port by the end of the first half of this year.

The transshipment barge will contribute to raising offloading capacities and reaching the annual plan figures of 8 million tons of coal.

COMPANY NEWS

MOVING TO MOBILE

Redcar Bulk Terminal Limited operates a deep-water terminal on the south bank of the River Tees, capable of handling Cape Size Vessels with drafts up to 17 metres.

The quay is equipped with two gantry cranes, with both bulk and hook capability, offering bulk discharge rates in excess of 40,000 tonnes per day. The adjacent 320-acre Terminal which is HMRC approved offers both short and long-term storage for bulk and conventional cargoes.

The terminal offers separate rail handling facilities for rapid loading and off-loading of rail freight traffic and enjoys direct access to the UK rail and road networks with links to the A66, A19 and A1(M).

Given its location the terminal is ideally placed to handle large off-shore wind projects in the North Sea. The terminal offers 24/7 working which is provided by its own flexible and highly motivated staff.

Following the closure of the Redcar steelworks in 2015 Redcar Bulk Terminal was provided with an opportunity to move away from traditional coal and iron ore imports by proactively marketing its unique assets to the wider ports and logistics sector.

Continued investment in port equipment and rail infrastructure by its controlling shareholder British Steel has seen terminal throughput continue to grow and the business pipeline is extremely strong.

RBT is a key player in the regeneration of the adjacent former steelworks site as it facilitates trade to and from the region.

Over the past 2 ½ years many businesses have relocated their trading operations to the area in order to benefit from the logistical advantages RBT can provide particularly with its deep water and proximity to the North Sea.

A QUIET REVOLUTION

An exciting new development in commodities handling has got the green light at Lucky Bay, which aims to revolutionise grain handling and serve as a prototype for similar operations

TRANSHIPMENT VESSEL LAUNCH

In a breakthrough for Eyre Peninsular growers, South Australia's first farmer and private equity partnership port will be built at Lucky Bay, providing an alternative grain storage and export option that will be fully operational for the 2018-19 grain harvest.

Funding for the $115m port infrastructure and supply chain development project was finalised recently, which involved securing $96m in private investor equity and debt. As a result, work on the facility has already started .

After an expression of interest phase last year, 120 Eyre Peninsular grain growers indicated their support for the project, with 377,000 tonnes of estimated throughput. These growers will acquire equity in the port for ongoing throughput over the next seven years.

Key features of the development include:

» The Lucky Bay port facility, a shallow harbour port located in the upper Eyre Peninsula grain catchment zone
» A state-of-the-art shallow draft transshipment vessel with a 3,500-tonne capacity, allowing Panamax vessels to be loaded within the usual five-day industry standard.

The transshipment vessel is currently under construction in China and designed by the naval architects at Sea Transport Solutions – specialists in transshipment vessel design and operation

» Grain storage facilities at the port, with the capacity to hold 430,000 tonnes

» Up-country storage at Lock, with the capacity to hold 150,000 tonnes. In addition to the increased competition in the EP supply chain, grain growers are expected to save from $5-$20 per tonne in transporting grain from farm to port, depending on their proximity to Lucky Bay.

Future diversification at the port into fertiliser importation will generate further freight savings of $25-$40 per tonne for growers currently importing fertiliser from Port Lincoln and Port Adelaide, those behind the project believe. Over time, growers could avoid upland storage fees by building on-farm storage to deliver directly to Lucky Bay.

The port's development has been a joint venture between Inheritance Capital Asset Management, Duxton Asset Management and Sea Transport Corporation, a world leader in transshipment vessels.

From these three partners, a new company T-Ports has been formed as the port operating entity. Chairman Rob Chapman says the company's ports infrastructure strategy centres on developing a more financially feasible ports model. This includes shallow water ports with a lower build cost and smaller environmental footprint requiring modest throughput, providing sound financial returns to investors.

The ports will be multi-user and multi-commodity transshipment ports, with the first at Lucky Bay and a second under investigation for Yorke Peninsula. "South Australia is in need of new export infrastructure in order to improve agricultural economics and allow development of its mining assets in an increasingly competitive world environment," Chapman says.

"While this port development is based on agricultural product, it can readily expand to allow exports of local minerals and T-Ports will be pursuing opportunities to further diversify and grow the commodity base."

T-Ports CEO Kieran Carvill says the clear direction from growers has been to increase supply chain efficiency which will be achieved through Lucky Bay as a low capital expenditure and flexible port close to the product origin.

"This investment innovates upon the traditional port model and almost monopolistic grain supply chain in South Australia through proven transshipping technology that has been utilised in other industries for the past 20 years," he says.

"The lower build cost and lower environmental footprint compared with traditional export port facilities in South Australia has made the financial feasibility of the investment easier to attain with a lower throughput requirement from growers. "This model means growers can access multiple small ports that can load vessels up to and including cape size, allowing product to be exported profitably, which will prove a great benefit to EP growers and South Australia."

Lock grain grower and T-Ports board member Andrew Polkinghorne says the Lucky Bay project had been the breakthrough that many EP growers were waiting for in supply chain competition. "While there have been a number of projects flagged for EP, Lucky Bay is a reality, it is funded and work is starting. The benefits of this project will flow through to farming families and their local communities, as they secure equity in T-Ports and, as a result, a share of the profits of storing and shipping their grain."

Handling facilities at the port have been designed to be competitive and efficient for the long-term. They consist of a dual hopper that can facilitate two-truck simultaneous discharge of 16 tonnes per minute feeding into a conveyor loading system. The hopper feeds a 1000 tonne per hour conveyor system which feeds directly to the loading conveyor or is tripped back to the silos.

Lucky Bay will have 386,000 tonnes of bunker storage, dual-automated 40-metre weighbridges and two dualsided sampling offices with automated probes. The storage construction will take five months and be ready for grain deliveries from October.

Initial construction will occur on the western block of six bunkers to coincide with completion of associated weighing, sampling and road networks. An eastern block of bunkers will be constructed immediately after in readiness for continuous harvest deliveries.

Bunker design is based on operational efficiency, including intake speed at 24,000 tonnes per day, efficient truck turnaround, out-loading speed, compliance to fumigation rules, automation and minimising work health and safety risks. The second stage of Lucky Bay involves 27,000 tonnes of silo storage in fumigable permanent silos, scheduled for completion well in advance of harvest 2019-20. This storage can be readily expanded in future.

The silos can be filled either directly by trucks from external storage or from nearby bunkers. The silo design includes belts, gantries, services, framework, conveyors, piling and concrete works and is based on "off-the-shelf" solutions. The infrastructure will enable diversification through fertiliser importation using a separate berth directly adjacent to the grain berth.

The Lock storage site is valued at nearly $8m and will be built on a site at the north-west corner of the town. The site will be equipped with 150,000 tonnes of storage across eight bunkers, dual-automated 40m weighbridges and a dual-sided sampling office with automated probes. The Lock site is strategically located so growers have easy access from their properties, regardless of which direction they approach from.

There will be a major upgrade to the intersection where the site entry meets

the Tod Highway so traffic can easily navigate the junction.

As far as equipment for the new port is concerned, Carvill says: "We are investing in grain handling equipment, but are working together with a single principle contractor for the port and grains handling equipment there – Ahrens. It is a local company with vast experience in the area. Its previous grains port project it built on a similar turnkey basis was the Bunge Bunburry facility.

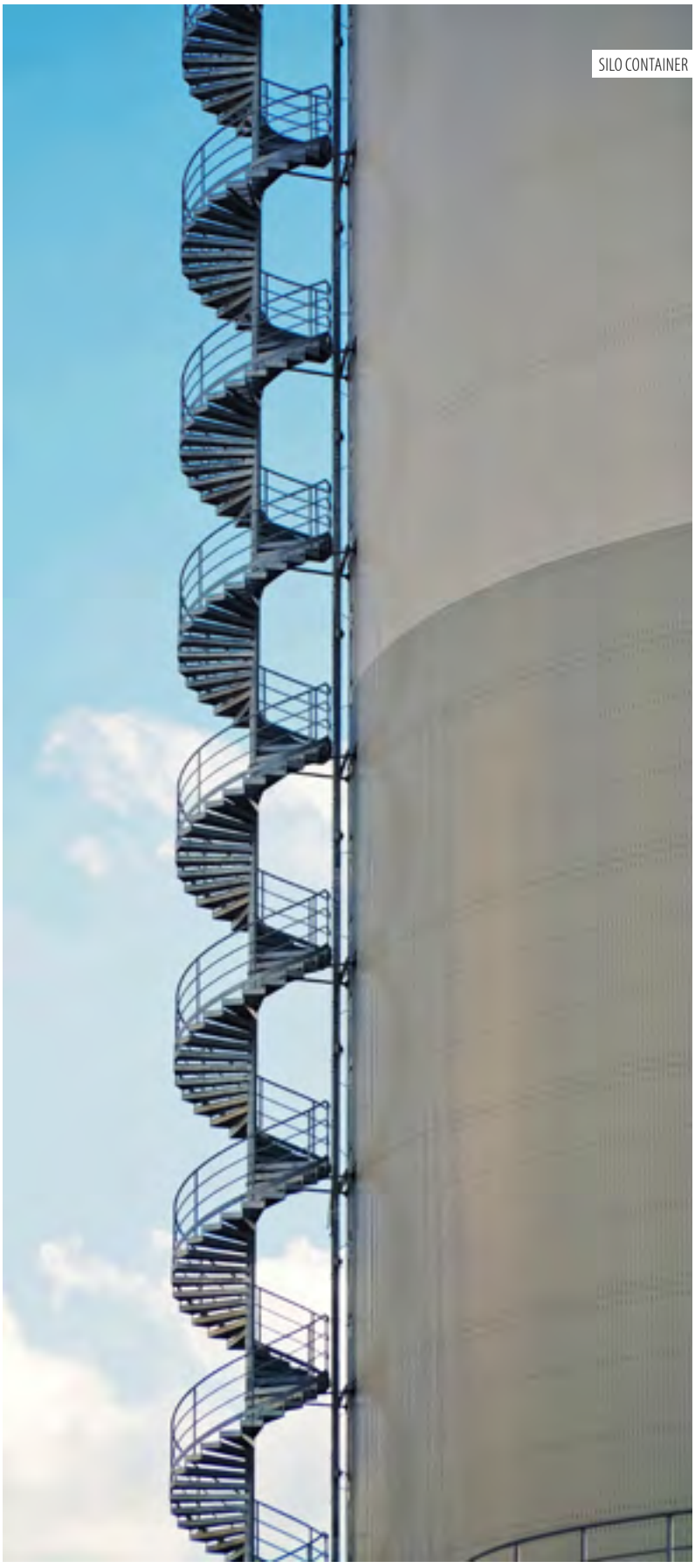
"The other main equipment supplier is Kilic, which has signed a significant supply contract for DOH Stackers to work on the bunkers storage sites. We are opening up the pathways for consumers to get involved as they do not have to pre-book export slots as has been the case with the incumbent providers. This increases the capacity for increased integration of growers and end consumers directly.

"The model overall reduces the domestic haulage costs to growers by up to $15 per tonne, which are then direct savings on supply chain costs. We will be building the fertiliser facilities in 2019. These will consist of separate material handling systems on the vessel, shore based discharge conveyors and a 50,000 tonne warehouse. We are looking at other opportunities such as hay and pulses. Over time, if minerals developments do go into operation on the Eyre Peninsula, such and kaolin and graphite we would of course want to provide an export service to these products," he continues.

"At present, we have secured the land and are working on section 49 approval for our second port on the Yorke Peninsula. This will cater mainly for agricultural produce principally. We have two other port prospects on the drawing board that are focused on minerals export, one to the North of the Spencer Gulf and another west of the Eyre Peninsula."

Mangalo farmer Isaac Gill, whose farm is 60km from Lucky Bay, says the development will help save growers a lot of money in the long run. "It's fantastic because we are going to save off our bottom line extra freight, which we have been doing down to Port Lincoln and we often can't deliver straight to port at harvest time. Now we will be able to deliver it straight off the header, straight out of the paddock and straight to port –it could be saving us around $15 a tonne."

"It's fantastic because we are going to save off our bottom line extra freight which we have been doing down to Port Lincoln and we often can't deliver straight to port at harvest time… now we will be able to deliver it straight off the header, straight out of the paddock and straight to port and it could be saving us around $15.00 a tonne."



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COMPANY NEWS

Golfetto Sangati has more than 90 years of experience in the grain handling industry

Part of the Pavan Group since 2010, Golfetto Sangati develops, builds and installs turnkey plants for durum wheat, maize and rice mills, as well as ship loading and unloading systems, and storage for raw materials and finished products.

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At the end of November 2017, Düsseldorf engineering group GEA – one of the largest suppliers for the food processing industry — purchased the Pavan Group.

This acquisition creates a truly global group, with design and engineering know-how marrying up with an extensive sales and servicing network, offering all sides growth opportunities and new markets.

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GRAIN TERMINALS


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RECENT PROJECTS

Yuzhnyi Port project (Ukraine): design, manufacture and delivery of one mobile TRANSLOAD shiploader, rated at 2,000 tph with KIKO system.

SHIP UNLOADING

TRASMEC continuous mechanical unloader

Barcelona Port project (Spain): supply of one TRASMEC ship unloader (600 tph) for soya beans, including a shiploading boom for soya meal (200 tph).

Cocoa beans project in Toronto (Canada): design, manufacture and delivery of handling system for cocoa beans. Intake, cleaning and bulk load out for raw material to chocolate manufacturers.

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Golfetto Sangati is a reference point for the design and construction of complete port systems for loading and unloading ships. The company designed and built more than 50 port systems all over the world and plays a primary role in technological advancement from the first pneumatic ship unloader to the more advanced mechanical loaders and unloaders.

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REACHING RECOVERY

Those operating in the breakbulk segment will be pleased with comments that multi-purpose shipping is set to suffer less from competing sectors, according to shipping analysists' Drewry.

DRY CARGO IS GROWING AS ECONOMIC CONDITIONS IMPROVE

In its recent analysis, Drewry suggests one of the drivers of the breakbulk recovery is the fact that demand for dry cargo is growing as economic conditions improve. In addition, some of the older vessels in the multi-purpose fleet, which includes both breakbulk and project cargo tonnage, are finally going for scrap.

"This year has started with renewed optimism and it is Drewry's belief that the market has finally turned that corner," says Drewry's lead analyst for the multi-purpose sector Susan Oatway. "Rate rises are never stratospheric in this sector, but we believe a steady growth of around 2-3% per year is possible over the forecast period."

Drewry, like a number of analysts assessing prospects for the imposition of tariffs on US steel imports, suggests that their impact will be limited, at least for the moment. "The 45 million tonnes of steel imported into the US on a yearly basis represents just 8% of the global trade. Many countries have now been exempted from tariffs, including the two largest US suppliers, Canada and Mexico. Furthermore, under certain scenarios, alternative trading patterns could lead to an increase in tonne-mile demand."

Breakbulk operators, like others in the industry, are having to face up to the

looming 0.5% sulphur cap deadline in 2020 and continue to have to face the prospect of either installing scrubbers – a costly per-ship expenditure – or alternatively switch to low sulphur or alternative fuels, including LNG.

Drewry believes that for the older, simpler vessel this could be the impetus needed to send over-age vessels for demolition since almost 10% of the fleet is over 30 years old.

The simple multi-purpose fleet, that is those vessels with lift below 100 tons, has already started to contract at a rate that is affecting the whole fleet. However, Drewry suggest that the future is with the project carrier sector, or those vessels with lift greater than 100 tonnes.

"Some 80% of all newbuildings over the last five years have heavylift capability, and at least 70% of the orderbook has this capability. The project carrier fleet is growing, but it will be some time before it reverses the decline in the overall multipurpose fleet," adds Oatway.

SQUAMISH SWITCHES HANDS

Companies scenting good prospects in the breakbulk segment include Western Stevedoring, which announced in May that it is buying Squamish Terminals from Grieg Star.

Squamish Terminals break-bulk facility is located at the north end of Howe Sound in the District of Squamish, British Columbia. With 60 acres, two berths and three warehouses the terminal handles forestry products, steel and project cargoes.

"This acquisition strengthens Western Stevedoring's continued commitment to the break-bulk sector in British Columbia's Gateway and expands the service options currently provided to our customers with greater capacity for the coordination of efficient service and consolidation of cargo," comments Western president, Brad Eshleman.

Western Stevedoring is a wholly-owned subsidiary of Carrix, the parent company of SSA Marine Inc, and is the world's largest privately held marine and rail terminal operator.

LATEST CONTRACTS

Bristol port recently received the first shipment under a new contract expected to bring significant volumes of wood pulp from Brazil to Royal Portbury Dock.

Shipped by Fibria, one of the world's largest manufacturers of wood pulp, the cargo will be arriving from Santos in São Paulo on Saga Welco vessels.

The new shipments will be warehoused at the docks before being distributed to various paper mills across the UK, where it will be used to produce a full range of paper products, such as paper, tissue and nappies.

Bristol Port's central location, placing it closer to Fibria's customers, was a key reason for the operation relocating from another UK Port.

Bristol's commercial manager James Stangroom says pulp and paper are among a wide range of cargoes it receives. "We handle the largest break bulk vessels in operation, and our extensive 1m sq ft of warehousing facilities offers polished concrete floors or open storage." The first shipment weighed more than 15,000 tonnes.

Beumer, meanwhile, has won a contract from Mexican cement manufacturer Cruz Azul for its fillpac R filling system, which has been adapted for filling different materials.

The manufacturer operates four plants with a yearly production of around eight million tons of Portland cement per year, which is only one of their end products. The main plant is in Jasso in the state of Hidalgo. Cruz Azul's cement production represents 22% of the national market. With the goal to further increase this share, the co-operative developed high-quality tile mortar in eight different variations as one of their new products. The majority is sold in 20- and 25-kg bags. This is why the manufacturer needed an entire packaging line that could meet very specific requirements. The filling system had to be adjustable to different materials as well as to smaller bag sizes without extensive retrofitting of the machine. The line will then palletise stable bags stacks and package them to protect the content against transport damage and atmospheric influences.

MOBILANA ENTERING THROUGH THE LOCK

GOODBYE TO BLOCKAGES

Safety is vital when using equipment and new technology from Flexicon stops the equipment automatically if the laser beam is blocked.

Its new product Bulk Bag Conditioner has a laser safety curtain that automatically stops the system's hydraulic rams, scissor lift and turntable if the laser beam is obstructed, eliminating the need for safety-hinged doors and interlock switches for operator safety.

The conditioner loosens densely packed bulk solid materials in bulk bags by means of hydraulic rams with specially contoured end plates that press and release opposing sides of the bag.

A hydraulically-actuated, variable-height scissor lift with accordion style dust skirt and turntable allows conditioning of the bag on all sides at all heights.

The number and pressure of hydraulic ram actuations, the height of the turntable, and the number of 90-degree rotations are user adjustable. The system controller and hydraulic pump can be mounted on the exterior of the frame or remotely.

The new conditioner is intended for bulk bags containing hygroscopic chemicals, certain types of spice blends, heat-sensitive products, and other materials prone to solidifying to the point at which pneumatically-actuated flow promotion accessories integral to bulk bag dischargers are inefficient or completely ineffective.

TOP OF THE CLASS

Safety, energy efficiency and construction methods are three important items on the class agenda, according to the International Association of Classification Societies

Common structural rules for bulk carriers has been a topic high on the agenda of the International Association of Classification Societies (IACS) for some time. Class societies continue to work closely with the International Maritime Organization (IMO) on ensuring members' rules comply with IMO ones on goal based standards for bulkers and tankers.

IACS has also been advising IMO on some types of bulk carriers' compliance with Phase 3 of the Energy Efficiency Design Index. Capesize bulkers and larger bulk carriers, including VLOCs, will struggle to meet Phase 3 requirements. Newly constructed VLOCs vessels "significantly exceed the maximum deadweight value used by the IMO for the development of the bulk carrier EEDI reference lines," IACS' environmental panel chairman Bongchan Ko says in the organisation's annual review.

Construction of new VLOCs has been gathering pace in recent months as operators seek to renew older tonnage, which includes a sizable percentage of VLOC conversions from former tankers, many of which are deployed in iron ore trading between Latin American and China.

The safety of converted VLOCs has been much in the news over the past year since the sinking of the *Stellar Daisy* in March 2017 with the loss of 22 lives. According to Robert Ashdown, secretary general of IACS, all class members made inspections of converted VLOCs following the accident to satisfy themselves there were no structural defects. Information fed back to IACS for consideration indicated "there was no trend here", he says. He felt it was too early to jump to any assumptions and IACS was keeping an open mind on the accident. The association is awaiting the results of the accident investigation and will be looking at the issue again when the investigation was complete.

IACS has also decided to update its survey requirements to facilitate the use of advanced technology in order to make surveys safer and more economic. Specific areas under consideration include non-destructive testing technologies, remote inspection techniques and remote monitoring and diagnosis for condition-based maintenance.

Other issues include cyber security and improvements to the IMO's Global Integrated Shipping Information System, which aims to facilitate the analysis of accident data that will in turn be fed into the IMO's deliberations.

IACS chairman and DNV GL chief executive maritime Knut Ørbeck-Nilssen recently stressed highlights for IACS and members over the past year as including achieving full compliance with the IMO's Goal Based Standards; ongoing

industry involvement in cyber security and autonomy; and the launch of new membership criteria.

Matters digital look set to dominate during the next decade. "It will not be, as many might want to think, a revolution or a major disruption. I think that shipping to a large extent will be subjected to a digital transformation gradually taking hold of all the various players in the maritime industry," he says.

The role classification plays in this process will be a key one. Over the next 10 years there will be a huge increase in connectivity, which will include vessels on the high seas, so there will be opportunities to connect vessels with shore operations, he says. This may lay the foundations for more efficient services and will certainly result in a lot more transparency on vessel performance and which port calls they make, according to Ørbeck-Nilssen. It should also facilitate improvements in both the environmental and safety performance of vessels.

Many class societies started the digital transformation several years ago and "more and more are catching on" he says. One example of this is surveys conducted by drone. The process was introduced a couple of years ago and has become increasingly popular since. Use of drones has significant safety benefits in terms of inspecting parts of ships or structures that are difficult or dangerous to access, so information can be brought to the inspector, rather the inspector have to visit places at high altitudes for example. Drones hold "great potential for the entire maritime industry".

Another issue Ørbeck-Nilssen raises is the use of digital twins, or an electronic digital replica of the vessel itself. "These digital twins will take the form of virtual testing grounds – virtual laboratories to continuously improve performance and enhance safety".

Coming off the starting blocks are issues like additive manufacturing with examples of class societies certifying 3D printed spare parts and how class can follow up a vessel based on sensory information and data streaming. The more modern vessels to be built will be fitted with more sensors and the possibility of combining the use of sensors with increased connectivity will "allow for more big data to be harvested from the industry".

Another point he raises is machine learning which "holds tremendous potential". With the proper machine learning algorithms, responses can be in a matter of hours rather than weeks." Information including drawings and other documents will be used in a much smarter way going forward, he adds. Not only will processes be speeded up, but quality will improve because there is a built-in consistency in the way things are being looked at.

Going forward, it is essential that rules and regulations of class societies allow for innovation that will help make use of these processes. That might seem a trivial point, he says, but class societies have lots of specific regulations and requirements that don't allow these new technologies to be used.

The use of autonomous ships has been a big talking point recently. Technology is there already for fully autonomous vessels but used for ships operating on the high seas, rather than close to the shoreline. Ørbeck-Nilssen said it would be likely be the 2030s before the regulatory processes were in place to operate on the high seas.

IACS is currently reviewing its own resolutions currently in force in order to address possible requirements that might hinder technical development of autonomous ships. "Based on an initial screening, the IACS initiative has tentatively identified a significant number of IACS Resolutions which contain requirements that only a human presence on board a vessel can fulfil," IACS General Policy Group chairman Sverre Dahl says.

"IACS has initially chosen to focus on hindrances for completely autonomous ships, assuming a self-navigating ship without crew or remote controls. Following the initial screening exercise, IACS intends to commence a pilot project aimed at removing all barriers for complete autonomy in a few selected resolutions. The intention is that the focus on complete autonomy may reveal all possible barriers and facilitate a discussion on priority and relevance of requirements for lower levels of autonomy."

In considering any move towards cutting the crew members on ships, or operating unmanned vessels, ships' cyber resilience becomes increasingly important. "As connectivity increases, the exposed surfaces of a vessel need to be mapped out," he says.

IACS is leading a joint industry working group on cyber safety and is also developing a risk model that can serve as a basis for managing cyber risk on vessels. During the course of the year it will be developing recommended practices that will help the industry address many of the challenges, he said. Twelve recommended practices will be progressively rolled out by IACS and should all be ready by the end of the year.

The 12 recommendations look at newbuildings, which are more vulnerable to attack because of their increased technology. As the Cyber Systems Panel chairman George Reilly points out in IACS' annual review, "attack surface drivers could consider the number of network nodes, the number of log-on points, the amount of networks and the criticality of a digitised system. Severity impact drivers could include environmental factors, safety factors, commercial factors, factors relating to the size of a vessel and nature of the cargo".

In a complex period for the industry as a whole, Ørbeck-Nilssen also stressed the need for a "more agile IACS" able to address relevant industry topics based on the technical knowledge of its members, saying that IACS also has a role to play in providing sound and practical advice on issues affecting the industry including key areas like the implementation of new emissions regulations.

KNUT ØRBECK-NILSSEN

TRADE TACTICS

What effect potential trade restrictions may have on bulk cargoes moving through US ports has yet to be seen and while the US East and Gulf Coasts play a key role, the US West Coast is prominent in a number of niche markets

One question being asked by many is the likely impact US trade sanctions will have, in particular the movement of bulk commodities, although many observers believe the real crunch time may not come during the course of this year. In the US context, another question will be whether US West Coast ports have more to lose.

In response to a question on the possible impact of a trade war, a spokesman for the American Association of Port Authorities told *Bulk Terminals International*: "AAPA favours reciprocal international trade liberalisation on a fair and equitable basis, supports new trade legislation which is consistent with US international obligations and has the effect of strengthening the president's ability to expand US exports rather than creating new US import restrictions."

The association supports efforts within Congress and the administration to emphasise the importance of international trade to the American economy and to structure the government's organisation and policies to bring maximum focus and efficiency to that effort. It also favours continued US participation in comprehensive negotiations to expand trade in goods and services on a fair and equitable basis, he told *BTI*.

Above all, he said, "AAPA encourages consideration of the economic and employment impact on seaports and their surrounding communities prior to imposing trade sanctions on imports from other nations, and to give standing in trade remedy proceedings to affected consumers and industries to allow them to discuss potential impacts.

"AAPA supports the goals of increasing employment and economic vitality, and is sharing its policy and infrastructure investment recommendations toward those objectives with the Administration and the Congress."

Paul Bingham, a director at analyst Hackett Associates, considered the situation following the announcements that the US was using national security concerns as a justification for steel and aluminium tariffs and in the light of likely China import tariffs.

He told a recent AAPA conference that American Hemisphere trade partner Brazil was likely to be most affected by metal tariffs, after Canada and Mexico exemptions. "Retaliation by trade partners is typically against high-profile US export commodities significant in US politics, for example agriculture, and which ports are affected partly depends on which commodities are selected for retaliation".

He suggested overall impacts on US port trade volumes were likely to be limited in 2018, but there was further downside risk if the US expands import tariffs to other commodities in response to retaliation.

As far as key drivers of port volumes are concerned, notably consumer and business import demand, these are forecast to be stronger in 2018 than 2017. Strong consumer demand for imported finished products supports increases demand for trade in bulk and breakbulk intermediates and scrap. Retaliation against US import tariffs was unlikely to reduce Western Hemisphere port commodity volumes significantly in 2018, he said, although there were significant risks to the downside if trade retaliation increases back and forth, if inflation prompts the Fed to spike interest rates, or a sharp recession occurs.

A wave of broad tariffs against China have been introduced since the conference, but Bingham says that the general point about trade tariff retaliation stands, which is that trade partners do retaliate against imposed tariffs. Those retaliations are usually placed against US export commodities that have been selected to put visible political pressure on specific members of Congress and thus indirectly the White House.

One aspect is "the implications for bulk commodity exports due to the US export commodities being selected for retaliation based on them being more politically-sensitive commodities and where the US has successful exporters. Trade partner country retaliation is usually designed to affect commodities that have associated with them US exporters with political clout.

"The foreign trade partners want their retaliation to pressure the politicians who may be able to help reduce, stop and/or delay the US import tariffs. Example commodities are farm crops with production spread across many states, or export commodities located in key states with US senators and representatives influential with the administration. The agriculture industry is fairly well organised politically and is a very successful sector among US exporters, so the fact that its bulk commodities end up targeted in trade retaliation isn't really a surprise.

"The specifics of the US trades affected on the import side by the steel and aluminium US tariffs is likely less on bulk commodity shipping, because much of the steel and aluminium moves as breakbulk. The more recent set of China-specific broad tariffs affects a long list of import commodities, but generally those seem to be manufactured commodities tending to move by container, ro-ro or breakbulk. It is in the retaliation, announced and threatened, against US exports, especially in agriculture where the bulk commodities are most significantly potentially affected," he says.

As to whether tariffs and retaliation then significantly affect overall US trade this year, or even overall US bulk trade this year, it now seems a greater risk than when the association held its conference, he says. This is because the share of overall affected US trade would be increased with the imposition of the substantial tariffs against Chinese exports.

"The US steel and aluminium tariffs applied to several more key countries than subsequently the administration has moved forwards with, exempting more than just Canada and Mexico (at least temporarily.) Whether some deal can also be made between the US and China to satisfy the Trump Administration enough to suspend/reduce or limit in some way the latest long lists of tariffs against Chinese exports, and head off or delay the retaliation against US exports is a big question," Bingham adds.

Overall for the entirety of 2018, it still seems likely that from the perspective of the entire economy, that the actual value of trade impeded by the US tariffs and the trade partner retaliation won't be enough to disrupt the overall economy. However individual sectors, such as the industries that depend on steel and aluminium for inputs for manufacturing, will be affected, he says.

"If the administration goes through with, let alone expands, the larger set of import commodities subject to tariffs, most all trade could suffer, especially if the countries fall into recession. A recession scenario could be the Federal Reserve Board raising interest rates more rapidly as it sees signs of inflation with the increased import prices due to tariffs. Export sales and even US retail sales may fall with the trade price changes, resulting in reductions in related employment. Consumers then reduce spending and we could find the US in recession."

For the West Coast bulk commodity port terminals, China is generally more important as a trade partner than for the bulk terminals on the Great Lakes, Gulf or East Coast. This is because a greater share of West Coast port bulk exports are destined across the Pacific going to China. The West Coast ports are not favoured as gateways so much for bulk commodity shipments to non-Pacific trade partner countries as they are for transpacific trade, meaning the West Coast ports have disproportionately more to lose from these tariffs and retaliation than do the US bulk terminals located on the other coasts.

"Some US bulk exports may even be diverted to other coasts by rail and/or barge if non-Pacific trade partner countries are the substitutes for China as buyers," Bingham says. "There are some bulk agriculture products such as grains that shipped a long distance west to be exported out of Washington and Oregon bulk terminals that could be diverted from their origins inland towards the Gulf Coast or to the Great Lakes for export other than to China. In that scenario, what amounts to trade diversion could disproportionately affect West Coast bulk terminals losing business at the margin to facilities elsewhere."

PORTS ROUND-UP

A number of west coast ports did produce good results for 2017. For example, at the Port of Vancouver imports climbed to 1.24m metric tons from 1.17m metric tons in 2016 – a 6.5% increase overall. Steel and dry bulk commodities continue to be the largest imports at the port by volume, increasing 14.8% and 47%, respectively.

Some exports, such as wheat and soybeans, increased in 2017, but overall exports were down 1% over 2016.

This year is expected to be another good year for the port with cargoes such as steel, minerals, wind energy components and grain continue remaining at strong levels.

Meanwhile, Port of Longview has signed an agreement with International Raw Materials (IRM) to lease the port's Bridgeview terminal. IRM plans to maximise throughput of existing terminal infrastructure – focusing primarily on the export of bulk minerals, fertilisers and grains. While it operate several West Coast facilities, IRM intends to make Longview its flagship location for dry-bulk cargo exports.

IRM has operated from the port previously and, according to vice president Tim Mahoney, "We have immediate intentions to improve existing components of the bulk loadout facility, while working to expand the on-site rail footprint."

The port sought a new operating tenant for Bridgeview Terminal after its contract with Kinder Morgan expired.

In other news, BHP is proposing a new potash export facility at the Port of Grays Harbor's Terminal 3 in west Hoquiam.

The proposed project consists of redeveloping the existing Terminal 3 industrial site and portions of adjacent parcels for unloading and storage of potash transported to the site via rail from the Jansen Mine in Saskatchewan, Canada, for shipment to international markets.

The project will include rail unloading and storage facilities, a conveyor system for transferring potash from the rail unloading area to the storage facilities or directly to the shiploader, and administrative and maintenance buildings. The shiploader and new berth facility will be located directly west of the existing Terminal 3 dock located in Grays Harbor.

Work on the project, which needs environmental clearance, would include rail improvements, including a rail loop to accommodate an 8,500ft train, with two inbound tracks, one outbound track, and one circulation track.

Unloading facilities, including receiving gates, hoppers and railcar unloading areas, will also be needed, as will conveyors, dust collectors and other transfer facilities and a potash storage depot among other amenities and infrastructure including berths and storm water handling facilities.

Potash has also key to developments at the port of Portland, where operator Canpotex completed its terminal expansion in March.

The terminal expansion includes a new shiploader, a newly constructed warehouse facility with a capacity of 110,000 metric tonnes, and an upgraded vessel loading system that can transfer potash directly from trains and through the warehouse system onto vessels more efficiently.

The improvements increase the overall terminal system capacity by an estimated 3.5m tonnes per year to a total of 7.5m tonnes per year. The project took approximately five years to complete.

Canpotex has invested nearly $150m through this project to develop the facility, with new technologies to realise efficiencies in ship loading, rail operations and potash storage.

PORT OF LONGVIEW

FACING THE CHALLENGES

As Indian ports are looking to develop the range of services they provide, investment in the massive Sagarmala project continues, although inland waterway development may not be so easy

INDIA FROM ABOVE

Like many countries, India has been trying to easy pressure on the roads and increase connectivity in the ports structure. Projects under the massive Sagarmala plan are worth a massive R8000bn, although getting funding together continues to be a challenge.

The project has for its aims the modernisation of the country's ports, including new port developments, improved connectivity between ports, as well as a boost to industrialisation surrounding ports and an expansion of coastal communities linked to the port developments. The development phase will span the years to 2035.

Of a total of about 700 projects identified as part of the project, about 500 have already started with feasibility studies or calls to tender underway. Progress is particularly advanced in the port modernisation and connectivity end of the project and there have been a number of project awards.

Having said this, a recent report by investor ratings service ICRA suggests that the level of budgetary support for the year of R6bn means there will be significant challenges in trying to develop industrial clusters and coastal communities around port areas. Volume growth in Indian ports has been affected by declining coal volumes. Although there have been some signs

of improvement, weakness in the coal segment has been a source of concern for many ports, because of their dependence on coal imports, according to the report.

Diversification is therefore the name of the game and there was a slight increase in total cargo handled during the first half of the 2018 financial year, or a 2.5% increase to 575m tonnes compared to 561m tonnes for the same period in the previous year.

"Overall volume growth was pegged down by a 9% decline in coal volumes. Major ports and non-major ports registered cargo growth of 3.2% and 1.4% respectively. While major ports benefitted from a relatively stronger growth of 7% and 29% in POL and iron ore, non-major ports largely benefited from a strong growth of 20% in containers and 12% in other cargo," the report says.

ICRA Research believes that the "Mundra-JNPT (North West) and the Chennai cluster (South East) of container terminals are likely to witness faster growth in overall handled volumes as well as see higher competitive intensity on account of surplus capacity additions in these regions."

It suggests that with JNPT adding large capacity over the next three years, there is likelihood of Mundra, Pipavav, Hazira and other JNPT terminals facing severe competitive pressures for a larger share of the exim cargo belonging to the northern region."

"Higher competition will not just lead to a fight for incremental volumes, but could also drive down average realisations for terminal operators as companies grapple to corner higher volumes. Similarly, the Chennai-Ennore-Kattupalli-Krishnapatnam (South East) cluster is likely to face strong competition for volumes over the next 3-5 years, with current surplus capacity. While the recent capacity creation in these region is in anticipation of strong demand growth, increase in exim cargo movement would be gradual and in the interim, terminals could witness pressure on volumes."

The report suggests the business risk profile of major ports, in addition to their government parentage, would benefit from the greater autonomy for decision making with the enactment of the Major Ports Authority Bill, 2016 in the future.

"Performance of some major ports remains constrained by connectivity issues and competition from more efficient non-major ports. For some non-major ports, access to a larger hinterland along with diversification in cargo have supported cargo growth as all Indian ports continue to grapple with the challenge of declining coal cargo.

"However, several non-major ports have also underperformed owing to cargo ramp-up issues amidst stiff competition for hinterland cargo. Given the low returns and high leveraging being faced by certain private sector port players, the sector could see further consolidation."

> "Overall volume growth was pegged down by a 9% decline in coal volumes. Major ports and non-major ports registered cargo growth of 3.2% and 1.4% respectively.

The Major Port Authorities Bill 2016 is likely to usher in the changes that would allow incumbents to take investment decisions at major ports with more clarity. The major ports are already being targeted for modernisation and efficiency improvement under the Sagarmala project.

The Indian government has expressed a keen interest on port-led development and the shipping ministry has put together a roadmap for the next five to 10 years including significant investments in the sector to boost trade and development.

"In the long run, ICRA believes the implementation of the project could lead to increased cargo for the ports. However, several challenges remain, given the vast scale of the project and the significant funding resources and PPP participation required to make the targets a reality."

While greater use of inland waterways has been under consideration to easy congestion on the roads, a recent report by the Inland Waterways Authority (IWAI) of India suggests that 20 proposed national waterways are technically not feasible.

These include five in Tamil Nadu, four in West Bengal, two each in Odisha, Karnataka and Maharashtra and one each in Assam, Andhra Pradesh, Gujarat and Goa besides one jointly in Assam and Arunachal Pradesh.

IWAI does remain committed to the concept of national waterways as an alternative mode of transportation which could ease the burden from roads and rail, and the Jal Marg Vikas Project could play an important role in providing supplementary mode of transportation.

The government has already approved the ₹5,369-crore Jal Vikas Marg Project for enhanced navigation on the Haldia-Varanasi stretch of the National Waterway.

Breakbulk is becoming a popular alternative to container business for Indian ports as some carriers have been diverting tonnage to carry breakbulk or project cargo.

One recent example was the MSC Sola – a 11,600 teu ship deployed in the Himalaya Express Service between India and Europe that loaded a 100-tonne oversize freight item when it called at DP World's Nhava Sheva (India) Gateway Terminal. The shipment is reported to be the heaviest lift ever by any terminal at Jawaharlal Nehru Port Trust. Given the difficult – albeit improving – market conditions, carriers believe the emerging market economy represents a lucrative market for all types of cargo, whether dry, refrigerated, and oversized.

India's participation in turnkey projects in the Gulf and in Africa is also boosting demand for project cargo handling. The Indian government, for

example, has promised to invest $500m in the revamp of Iran's Chabahar port, and to tackle logistics issues regarding a direct procurement of new harbour cranes from China for the project. Heavy cargo projects have also been attracting funding from Exim Bank of India.

Meanwhile, Kolkata Port Trust (KoPT) has started lightering operations at the sandheads and Sagar anchorages using floating cranes. The barges to which the cargo is being loaded no longer have to enter the confines of the Haldia Dock Complex and are off-loading cargo at a jetty outside the port from where it is being moved to other destinations by rail or road.

While India has massive potential there are also challenges to be faced as far as port development is concerned, including high turnaround times and logistics costs vis-à-vis international ports, which were flagged by BCG in their detailed 'Benchmarking and Capacity Maturity Assessment Study', Vinit Kumar , chairman of Kolkata port authority says.

Various recommendations aimed at improved operational efficiency and berth productivity, mechanization, rational deployment of facilities, reduction of non-working time through hot seat arrangements, innovative dredging techniques, and commercial operationalization of trans-loading facilities have already been implemented and are showing positive results, he says.

Due to the industrial growth around HDC the opportunity for handling various dry bulk cargoes is on the rise. The importance of coal is increasing due to requirements of various steel and power facilities as well as the establishment of cement plants in and around Haldia which have led to imports of cement clinker and gypsum.

An increasing demand for edible oil should see around 3mt of the product being handled in 2018-19. Handling of LPG and naphtha is also increasing due to government initiatives like Swachhta Mission to supply LPG in every household. Imports of LPG are rapidly increasing.

Riding on this trend, Kolkata has reached a concession agreement for a liquid handling terminal at Salukkhali and placed an order for an Outer Riverine Terminal, downstream of No. 2 oil jetty, Kumar says. This should lead to handling of a larger number of dry bulk vessels.

"In the interest of reducing turnaround time we have already mechanized four berths at HDC during last the few years and are in the process of mechanizing berth no.3 next year. This would help a larger number of gearless ships with higher parcel loads to visit our docks."

"In order to harness deep-draft facilities of the port, we are handling cargo at various anchorages namely Diamond Harbour, Sagar, aside from organizing trial runs for commissioning transloading facilities at Sandheads for transshipment of dry and liquid bulk cargo, at a much reduced cost to the trade."

He says that Kokata's unique selling point is "that it has a huge hinterland, spread over West Bengal, Bihar, Jharkhand, Assam and other north eastern states as well as the landlocked countries of Nepal and Bhutan."

In addition, the infrastructure at HDC has been improved on a continuous basis to cater for the demands of maritime trade. HDC being a high productivity blk cargo handling port, provides opportunities for the trade for faster turnaround of their vessels with two fully mechanized berths and four semi-mechanized berths for bulk cargo.

Operators are being encouraged to bring more cargo by gearless vessels, taking advantage of deep draughts at Sagar, Sandheads, and other locations. The mechanised mini-bulk vessel/barge handling jetty on the river, outside Lock Gate will be predominantly used for the incremental cargo that will be transhipped by floating cranes at lighterage points into barges and brought to HDC berths. "Thus, HDC is fully capable of developing int a bulk cargo hub."

Personal targets for the coming year include boosting the ports profile on the maritime map of India, Kumar says.

"We are trying to decentralize the decision making process, by cutting down on unnecessary paperwork, streamlining rules and procedures to make them purpose driven and transparent in order to create an e-friendly digital ecosystem."

"The port, as you know, is vested with large parcels of land which are given under lease orlicence. Taking advantage of the new policies of the government we are also on a mission and making land the key enabler in excess to our commercial requirement and lying beyond the customs bonded zone for port related industries and commercial use, making land, the key enabler of our much needed revenue buoyancy."

As chairman, he says, his personal target is to try and achieve a 12-13% annual growth in our cargo traffic and provide the much needed impetus to a spate of infrastructure projects currently underway, "so that we can act as key facilitators to our trade to achieve and sustain the cargo surge".

VINIT KUMAR, CHAIRMAN, KOPT

A SAFETY FIRST

A pioneering product from a Norwegian start-up looks set to revolutionise crew safety

AURORA BOREALIS IN NORWAY

Norwegian start-up technology firm ScanReach is set to redefine safety standards at sea with In:Range, a system capable of locating anyone on a vessel or offshore installation in real time. The plug-and-play technology is deceptively simple, easy to install, low cost and, according to the team behind it, could save countless lives at sea.

The technology is capable of sending and receiving data signals wirelessly through any structure, including steel. Utilising a combination of advanced radio technology and intelligent software algorithms and protocols, signals transmitted from bracelets worn by crew members are picked up by sensors that simply plug into standard power points. This data is then transmitted to screens on the bridge or, during incidents, to emergency services, land-based facilities or nearby ships.

The result is a real-time overview of the exact location of all personnel, negating the need for lengthy and often dangerous searches and ensuring that those that need assistance receive it as quickly as possible.

In:Range has undergone extensive testing and will have completed rigorous pilot tests on a number of vessels, including North Sea Shipping's *North Sea Giant*, before its official launch at the end of this year.

To ensure privacy for those wearing the transmitters, the system's default setting is "sleep", springing to life in a range of situations, such as when alarms are sounded, the wearer presses a button, or movements are made that show distress. The system is robust, reliable and, despite its advanced nature and artificially intelligent data transmission and capturing capabilities, simple to operate and maintenance free.

Jacob Eide, Chief Business Development Officer at ScanReach says it has taken four years and 30,000 hours to develop the system to get wireless signals to pass through steel.

The level of innovation in the process has been incredible, he says and represents a market first for the use of that particular methodology and a breakthrough in terms of tracking

crew members who may be entering enclosed spaces including tanks or holds. "That is why we concentrated on transporting and harvesting data in enclosed steel environments".

Commenting on pilots carried out on *North Sea Giant*, one of the biggest offshore vessels in the world, he says, these offered a perfect opportunity to test the product in a complex structure with many enclosed spaces and watertight compartments. There is, he says, "complete connectivity in all these enclosed areas so that when people access them, we can communicate with them, follow them and know if they are in danger, for example if there is toxic gas or if they fall down and need help".

No cables are involved and for a vessel like *North Sea Giant*, which is 160m in length, 20m wide and with 10 decks, installation of the product can be achieved in a few hours, he says. The system is "plug and play" and the crew can do this by themselves. It is merely a case of establishing which areas of the vessel need extensive battery life.

Another important advantage is that if there is an accident, a cable-based system could be damaged, while a wireless system would not. In addition the cost of installation is extremely low when compared to a cable-based alternative. Installation can also be done while the ship is in operation, he adds.

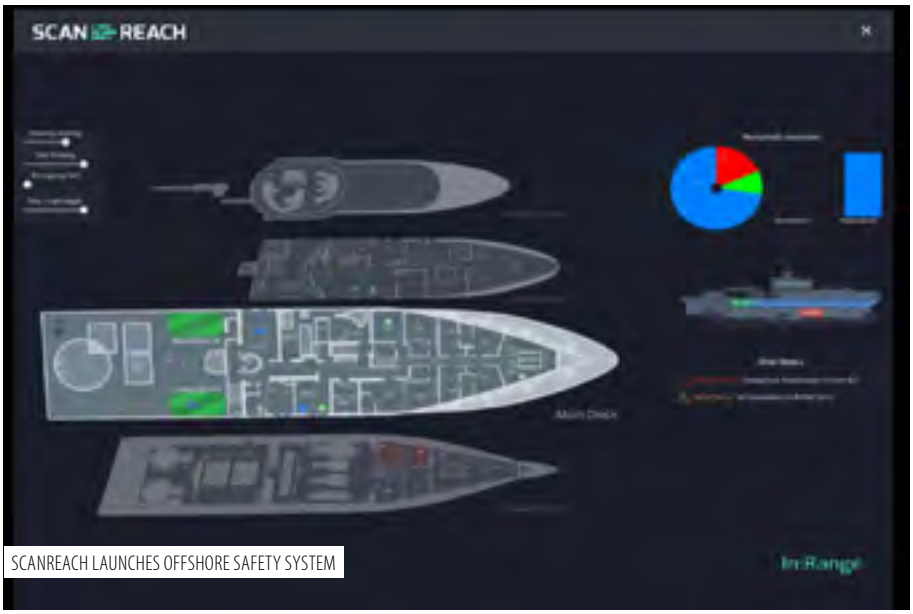
The equipment also serves as an accelerometer, which means that an alert would be activated if, for example, a crew member entered an enclosed space and collapsed suddenly through lack of oxygen, as the equipment would register an abrupt halt.

There are different types of sensors, one which is fitted in the hold and that will send a signal if, for example, oxygen levels within the hold are depleted.

The most important thing, says Eide, is "to know where people are". To be able just to know where people are to the level of accuracy obtained by using the equipment is "incredible. "We have broken through a huge barrier". He describes the advance as being similar to moving from a traditional telephone to a mobile, giving the master of the vessel the chance to track each crew member on board the ship.

The arm bracelets are watertight and would register if the individual was outside the boundary of the vessel, although other types of sensors would be used to track people that had fallen overboard. Drone technology can also be used in many situations. The company is working with the Norwegian Navy to test the ScanReach system in a number of different scenarios.

Eide stresses that the technology is not the product of some large corporate investment, but a start-up with 10 dedicated personnel who, he says, are passionate about the product and its ability to save lives. "That is our mission and we are not owned by any big corporation, or money-making machine. We are here to find a way to use smart ISP technology that is cheap to install so we can save a lot of lives."



SCANREACH LAUNCHES OFFSHORE SAFETY SYSTEM

Considering applications for bulk terminals, he says: "We believe this technology also can be very beneficial both with regard to the safety issues regarding cargo handling, but also increase the efficiency of operations since communication between humans and machines can be improved significantly."

Additional areas where it could be applied include ballast tank inspection, Cargo hold cleaning, maintenance work, inspections in enclosed spaces and trading in pirate or war zones when the alarm goes or on lookouts and inspection rounds.

"InReach is like Superman," states CCO Arild Sæle. "Plug it in and suddenly you can see through walls to know exactly where your crew are located and how to get to them quickly if they need help. From saving individuals to conducting entire vessel evacuations in a fraction of the usual time, this technology can fundamentally transform safety standards at sea. What's more, its applications are almost limitless."

CEO Jon Roger Nesje adds that he expects the offshore, energy and merchant shipping sectors to be the first to seize on the potential of In:Range, but that other sector markets and uses will develop rapidly.

"Cruise, for example," he says. "If passengers were issued with In:Range technology upon boarding then the crew would always be able to find and assist them when required. The system can also be used as a simple, reliable and incredibly powerful platform for wireless data exchange. Equipment that gathers data can use In:Range to transmit data straight to the bridge, giving officers real-time insights and leading to safer, more effective and efficient operations.

"This can be used as the cornerstone of smart ships – it can empower the shipping industry of tomorrow."

MASSTERLY APPROACH

As the appetite for autonomous ships continues to grow, Wilhelmsen and Kongsberg have recently set up a new company called Massterly, which the participants say will take the development of the autonomous approach to a new level.

The aim of the venture is to create a complete value chain for autonomous ships, from design and development, to control systems, logistics services and vessel operations.

Infrastructure and services will be set up to design and operate vessels, as well as advanced logistics solutions associated with maritime autonomous operations.

Wilhelmsen chief executive Thomas Wilhelmsen, says: "Autonomy and remote operations are an important development for the maritime industry and Norway's lead has been made possible as a result of close cooperation between the Norwegian maritime cluster and the Norwegian authorities."

Massterly will be crucial for digitalising the infrastructure and operations," says Geir Håøy, CEO of Kongsberg.

Norway is already a market leader in autonomous ship development, with the establishment of a service between Yara's Norwegian production facilities at Herøya and the ports of Brevik and Larvik operated by the Yara Birkeland. The service is expected to be autonomous by 2020.

The new joint venture company will be based at offices in Lysaker, Norway, and be fully operational from August.

SAFE AND SEALED

Wet damage is the most costly claim type and bulk carrier operators need to get back to basics in their approach to the problem, the Swedish Club is warning.

The P&I club recently produced new guidance on how to avoid wet water experiences.

Some 34% of all insured bulk carriers suffered a cargo claim in 2017. This is an increase of 75% since 2014. For 2017, the average cargo claim on a bulk carrier was almost US$70,000 and the average cost for a bulk carrier wet damage cargo claim is almost US$110,000.

Leaking hatch covers are the most common wet damage cause, followed by heavy weather. Proper weathertightness is a key factor in keeping cargo dry and to ensure that the hatch covers are weathertight the sealing system needs to be in a good condition.

It is also important to ensure that the cargo hatch covers' system components are in proper condition as this will reduce the risk of seawater entering the cargo holds

The club advises that before leaving port, the crew should inspect the hatch covers to ensure they are in a weathertight condition. There should be no cargo in the drain channels, each hatch cover should be secured properly, paint should be intact and the gaskets and coamings should be in good condition.

It recommends carrying out a weathertightness test at least annually and always after repairing or replacing components in the cargo hatch system.

When carrying water-sensitive cargo such as grain, soybeans or paper, it is recommended that weathertightness is tested before each loaded voyage.

Cargo hatch covers must be inspected and tested at regular intervals in accordance with vessel-specific procedures, for example opening, cleaning before closing, closing or cleating.

These records should be kept in the Planned Maintenance System. If complicated repairs are required, professional specialists should be employed, the club says.

It strongly recommends that a service engineer from the manufacturer inspects the cargo hatch system regularly in order to determine the condition of the hatch cover system and the repairs needed.

The new report, *Wet Damage on Bulk Carriers*, was produced in conjunction with class society DNV GL and MacGregor. The report says that the most common causes of wet damage are: leaking cross-joints; compression bars, rubber gaskets or hatch coamings in poor condition; leaking transverse packings; or drain channels, non-return valves or cleats in poor condition.

It emphasises the importance of testing and says the hose pipe test is typically carried out to check whether hatches are watertight.

"This test will provide an indication if there is a leak, but not necessarily the exact location of the leak. It will also give an indication of the condition of the transverse joints, but the transversal gaskets on the coamings are far more difficult to address."

The report goes on to say: "A much more effective method is to use an ultrasonic device, which is designed for this purpose and can pinpoint the area which is leaking, and if the compression of the gasket is sufficient.

"The advantages of using this type of equipment are evident, since ultrasonic tests can be carried out during any stage of the loading without risking cargo damage. The test can also be completed in sub-zero temperatures."

GRAIN DAMAGE © ANKER OLESEN SURVEYORS APS

KEEPING IT CLEAN

Health and safety have been behind a number of new safety initiatives by US firms at a time when issues like the dangers of inhaling dust are high on the priority list for bulk terminal facilities being operated in built up areas, and when moisture in bulk cargoes is an increasingly serious concern

DUSTBOSS® DB-60 © TRANSINVESTSERVICE

"I can tell you that ports and bulk terminals are a hot market for dust management right now and we are seeing an increase in the number of inquiries from those applications," Rick Felde of Illinois-based BossTek says.

"It seems that operators are more concerned than ever with controlling fugitive dust and preventing it from leaving their sites. They're telling us that they appreciate not only the efficacy and range of the fan-driven atomised mist designs, but also the ability to quickly relocate and re-target them to suit the cargo and weather conditions."

BossTek, which has pioneered in atomised mist technology for dust suppression recently announced an upgrade to the company's product warranty. Having previously set the industry standard with three year/3000-hour coverage, BossTek has increased the term to a five-year or 5000-hour replacement warranty on the direct drive fan motor of its entire product lineup.

According to Felde: "The new warranty announcement gives clients added peace of mind, knowing that BossTek has the confidence in the equipment to extend coverage beyond


DUSTBOSS® DB-60 IN USE

the industry standard set 10+ years ago, and that the company will stand behind its products in the unlikely event that something does go wrong. The electric drive motors are more durable and reliable than diesel-driven designs, and they require far less maintenance than internal combustion engines".

BossTek CEO Edwin Peterson adds: "With so many of our old units still in the field cranking out wide area dust suppression, extending the warranty was an easy decision."

The demand for atomised mist dust suppression technology has increased since air quality inspectors now test for smaller, non-visible fugitive particle sizes (<10 microns in diameter or roughly the size of pollen). These particulates can leave the site line and expose the surrounding community to potentially hazardous respiratory issues.

Previously, industries such as demolition contractors, bulk product storage for coal, ash, scrap metal and the like and ports have controlled dust by applying surface suppression using water sprayed from hoses, which create droplets from 200–1,000 microns in size.

However, over time, operators have discovered that in order to control dust emissions, droplet sizes must roughly match the size of airborne particulates, which hoses cannot accomplish.

The BossTek product has wide scope with a single unit able to cover the equivalent of five American football pitches. Using a powerful industrial fan in the back of the cannon, engineered droplets are shot from a misting ring on the front in a cone-shaped pattern, reaching up to 100m.

The huge coverage area is achieved by using the vertical adjustment and optional 359º oscillator. The tiniest droplets are small enough to travel with dust emissions, collide with particles too small to see and drag them to the ground. The larger droplets deliver surface suppression, without excessive pooling or saturation of material.

Hoses can pump out >100 GPM of high-pressure water and need to be controlled manually. At that volume, without extra steps taken to control pooling and runoff, operations can face workplace and environmental violations. DustBoss units are a one-touch operation, allowing workers to turn them on and walk away.

The cannons can be mounted on a tower, steel skid or wheeled frame. They can also be purchased as Fusion units that feature an enclosed tank and gen set on a roadworthy trailer for applications that lack easy access to water and power or require exceptional portability.

Clients for the DustBoss equipment include the Panama City Port Authority, TIS is Ukraine, and Hendricks River Logistics in Iowa.

ZERO TARGET

Los Angeles and Long Beach ports have set a 2030 target for zero emissions cargo handling at the ports and are confident they can meet the deadline –although they are now on the look out for clean air technologies.

The ports are offering seed money to foster the development of new goods-movement technologies that improve air quality.

The funding is part of the ports' Technology Advancement Program, and a number of projects have the potential to reduce emissions, including particulate matter SOx, NOx and greenhouse gases.

Since 2007, the ports have distributed over $21m in funds to advance the commercial availability of technology that will help lower health risks posed by air pollution from ships, trucks, harbour craft, cargo handling equipment and rail locomotives.

Compared to 2005 levels, port-related air pollution emissions in San Pedro Bay have dropped 87 % for diesel particulate matter, 56% for nitrogen oxides, and 97% for sulphur oxides.

Targets for reducing greenhouse gases from port-related sources were introduced as part of the 2017 CAAP update. The document calls for the ports to reduce GHGs 40% below 1990 levels by 2030 and 80% below 1990 levels by 2050.

SCE supplies electrical power to the port of Long Beach, which has already introduced cold ironing by which the port and vessels visiting it can use shoreside electrical power.

Having a clean source of energy shoreside has been the brake on a number of projects to introduce cold ironing for ships as the ship's own power generation has often proved cleaner than that available in ports.


DOYLE DRIVE LINEUP

ASTEC R3000

MEASURING MOISTURE

Ensuring the correct degree of moisture, and more importantly that moisture levels are not exceeded, is a topic that has been raised repeatedly, in particular in relation to bulk cargoes. One product coming from US manufacturer MoistTech is an at-line moisture detection system.

The MoistTech MB series is an affordable lab method for measuring moisture content that provides a fast and accurate result. The MoistTech Moisture Balance System is a high quality, compact and simple to use laboratory moisture analyser.

Designed for a wide variety of applications for accurate dependable results with a simple-to-use design, it is equipped with a high-resolution lattice LCD back light and high precision thermal sensor with halogen heating/ drying and short test times. Simple touch-button operation allows for ease of use.

The sensor is equipped with an automatic peeling function for immediate continuous measurement for accurate zero drift correction. It tests free water content of chemicals, raw materials, grains, minerals, solids, food products, powders, paper, textiles, wood and other products.

MoistTech has also developed the IR-3000 online NIR sensor for instant, non- contact measurement of many products and raw materials in the harshest manufacturing environments. Insensitive to material variations such as particle size, material height and colour, the IR-3000 provides continuous, reliable readings.

Its one-time calibration, maintenance free, drift free optical design allows operating personnel to confidently make immediate process adjustments based on real-time measurements.

TACKLING SAFETY

Classification society ABS, the American Club and Lamar University are launching a new initiative aimed at reducing maritime-related safety incidents. The initial focus of the partnership's analysis and industry guidance will be on slips, trips and falls, a significant cause of maritime injuries.

ABS manager of human factors Kevin McSweeney comments: "We are excited to work with our partners to develop pragmatic guidance for some of the most common hazards and behaviours affecting maritime personnel. Much still remains to be done in reducing these incidents. Slips, trips and falls have received a lot of attention over the years, but remain a leading cause of incidents aboard ship. This initiative will identify, prepare and share actionable safety-related guidance to help organisations prioritise resources and measure progress to improve seafarer safety and health."

According to the ABS Mariner Safety Research Initiative, the commonly reported causes of slips, trips, and falls are situational awareness (40%) and poor housekeeping (29%). The American Club's senior vice president William Moore emphasises the collaborative nature of the initiative: "The specific talents of all three partners have come together in identifying common behaviours and hazards impacting maritime personnel, developing recommendations for interventions that can improve safety, as well as presenting guidance to marine owners and operators in understanding key causes, with the ultimate aim of implementing onboard strategies to mitigate these incidents."

"Our goal with this initiative is developing practical industry recommendations to improve the day-to-day safety of maritime crews and staff," Moore says. "By working with ABS, a recognised leader in maritime safety, and Lamar University, this effort will move the ball towards the ultimate objective of reducing work-related incidents; we all fully appreciate what impact fatalities and serious debilitating injuries will have on associated costs to marine liability insurers – let alone the abject misery caused to the families of affected seafarers."

TERMINAL TALES

OUT OF PRINT

There was good news to be had for those working in the bulk trades in Singapore recently, where shipping association WISTA was holding a conference. The message was that those in the container industry should be taking a bit more notice of bulk trades as new technological approaches such as 3D printing could make current practices in the container industry redundant.

At least one speaker suggested that 3D printing was going to run a coach and horses through containerisation in the years to come and the container segment was being slow to react to technological advances. IMC Industrial managing director Lim Sim Keat told WISTA delegates that there needed to be more investment in bulk and oil terminals, partly as a result of the increase size of bulker and tanker tonnage. A Singapore port representative, meanwhile, said that 3D printing expertise was in short supply at the moment. Looks like there are good opportunities out there for the bulk segment, so get investing, terminal operators...

QUIDS IN

"Ship financing just got less complicated" ran the headline on a recent news item from BIMCO. Could it be banks were beginning to loosen the purse strings further after all these years of austerity, we hoped? Well, it wasn't quite like that – basically BIMCO has developed a new standard term sheet for syndicated ship financing, SHIPTERM S, which we gather is the first industry standard of its kind for syndicated loans. The new form is not only user friendly for banks, but owners as well. No excuses then for banks to refuse funds, then – we've got the form to prove it!

BIRD WATCH

As the maritime industry continues to grapple with the topic of cyber crime, drug smuggling on ships and the like, other pests trying to cross borders recently include a cockatoo that apparently tried to take a cruise to New Zealand from Australia. According to recent news reports, New Zealand border patrol teams have also had a busy time in recent months trying to stop visitors bringing in dodgy food products. Another individual going on holiday was the brown marmorated stink bug, which was stopped close to 200 times trying to enter the country illegally. The cockatoo, we understand, was eventually repatriated to Australia.

SUN, SEA AND...SEAWEED

Blockchain is something of a hot topic at the moment and Vincent Doumeizel, vice president of food and sustainability at Lloyd's Register put forward some of his views at the LR Foundation conference recently. One key message from his presentation is that seaweed is a key commodity as not only is it healthy and good for lots of things, but it only needs sunshine and salt water to grow, and hopefully we have still got plenty of that.

Blockchain, he told the audience, does have the capacity to create a global ecosystem. It is decentralised, open and public and, perhaps most importantly, is not owned by anyone. The system, however, is not mature yet when it comes to food. "Blockchain is a bit like teenage sex. Everybody talks about it, everybody pretends they do it, but actually very few are actually doing it and the very few who are actually doing it are doing it pretty badly." So now we know.

WHAT'S ON

The not-to-be-missed events for all those in the industry

04-08 JUNE
POSIDONIA
ATHENS
www.eventseye.com/fairs/f-posidonia-14329-1.html

04-05 JUNE
5TH COALTRANS POLAND
SOPOT
www.coaltrans.com/poland/details.html

05-06 JUNE
PNEUMATIC CONVEYING SYSTEM DESIGN ADVANCED COURSE
WOLFSON CENTRE,
GREENWICH, UK
www.gre.ac.uk/engsci/research/groups/wolfsoncentre/coupro/sc/adv-pc

07 JUNE
ROTARY VALVES; DESIGN, SELECTION AND OPERATIONAL ISSUES
WOLFSON CENTRE
GREENWICH, UK
www.gre.ac.uk/engsci/research/groups/wolfsoncentre/coupro/sc/rotary-valves

12-14 JUNE
TOC EUROPE
AMSTERDAM
www.tocevents-europe.com/en/Home.html

25-27 JUNE
GLOBAL GRAIN MENA
DUBAI
www.globalgrainevents.com/mena/details.html

26-28 JUNE
HILLHEAD
BUXTON, UK
www.hillhead.com

12-17 AUGUST
ISHPMIE
KANSAS CITY
www.fike.com/ishpmie-2018/

04-07 SEPTEMBER
SMM, HAMBURG
HAMBURG, GERMANY
www.smm-hamburg.com/en/

10-14 SEPTEMBER
CONVEYING AND HANDLING OF PARTICULATE SOLIDS – CHOPS,
WOLFSON CENTRE
GREENWICH
www.constableandsmith.com/events/chops-2018/

11-13 SEPTEMBER
GLOBAL GRAINS SOUTH AMERICA
SAO PAULO
www.globalgrainevents.com/south-america/details.html

18-20 SEPTEMBER
SUGAR AND ETHANOL AFRICA
NAIROBI
https://energy.knect365.com/sugar-ethanol-africa/

01-03 OCTOBER
AFRICA PORTS EVOLUTION
DURBAN
www.portsevolution.com

02-04 OCTOBER
BREAKBULK AMERICAS
HOUSTON , USA
www.breakbulk.com/events/breakbulk-americas-2018/

07-10 OCTOBER
AAPA 107TH ANNUAL CONFERENCES
VALPARAISO, CHILE
www.aapavalparaiso2018.com/en/

09-11 OCTOBER
OVERVIEW OF PARTICULATE HANDLING SHORT COURSE,
WOLFSON CENTRE
GREENWICH, UK
www.gre.ac.uk/engsci/research/groups/wolfsoncentre/coupro/sc/pht

23-24 OCTOBER 2018
OCTOBER 2018: BULK TERMINALS 2018 – IMPROVING SAFETY, STREAMLINING OPERATIONS AND ENSURING ENVIRONMENTAL PROTECTION.THE ANNUAL ASSOCIATION OF BULK TERMINAL OPERATORS (ABTO) CONFERENCE
HAMBURG, GERMANY
www.bulkterminals.org/events.html

BULK TERMINALS 2018

IMPROVING SAFETY, STREAMLINING OPERATIONS AND ENSURING ENVIRONMENTAL PROTECTION

The Annual Association of Bulk Terminal Operators (ABTO) Conference

23-24 October 2018, Radisson Blu Hotel, Hamburg

More details at
www.bulkterminals.org/events.html

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