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PORTS HARBORS

Official Journal of the International Association of Ports and Harbors



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Baltic bunkering – past, present and proposed Photo: Shutterstock

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Official Journal of the International Association of Ports and Harbors

PORTS & HARBORS

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Precycle

Looking ahead

Secretary General Susumu Naruse looks at what members might expect in the next 12-18 months

Sume

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

> happy new year from Tokyo! I hope you all saw in a joyful new year. As far as the demand side for the global port industry is concerned, I am afraid this year may not be a very good one. IMF lowered its global growth projection for 2015 to 3.8% last October, because of risks such as geopolitical tensions in some areas and stagnation and low potential growth in advanced economies. We need to continue to carefully watch the path of the global economy and monitor consequent port demand this year.

A number of ultra-large container ships with a capacity of up to 19,000teu entered the market last year, which has forced many major ports to prepare to receive these megaships with tremendous efforts: developing sufficient infrastructure, improving operational efficiency, and upgrading other port services. However, this does not only apply to large hub ports; smaller ports also need to prepare for larger container ships because of cascading effects.

Regulations for ships' emissions in the IMO's emission control areas have been tightened since the beginning of this year.

LNG bunkering could become an urgent challenge to the port industry Fortunately, prices of banker oils have been declining but still some shipowners are seriously considering using LNG as a fuel as opposed to oil for near future. LNG bunkering could become an urgent challenge to the port industry, but fortunately the World Ports Climate Initiative's (WPCI's) working group publicised an initial manual on LNG bunkering at ports last October.

On another side of climate change challenges, adaptation measures in ports, IAPH will join the newly established PIANC working group to consider this theme and work on the issues with a variety of researchers and engineers around the world.

Looking at internal matters, a small group appointed by your president, Grant Gilfillan, met in Barcelona last September to draft a new constitution and reach interim conclusions on some of the critical issues. These included the composition of the council, the election processes for the president and vice-presidents, and a new categorisation of IAPH regions. Members will get a chance to discuss these changes at the World Ports Conference in Hamburg in June (see Diary on page 39). If the new IAPH constitution is approved by the members in Hamburg, IAPH is to start a new era from the latter half of this year.

Last, but not least, I wish you and your organisation a prosperous and happy year. PH



Port **updates**

HAMBURG RECORD

Port of Hamburg set a new record in the first nine months of 2014 with total throughput of about 110M tonnes of seabourne cargo, including 7.4M teu of container handling. That's up 6.4% – "growing faster than competing ports in Northern Europe" said the port.

TAKORADI PROGRESS

Belgian contractor Jan De Nul was due to start dredging to 16m depth at Takoradi Port, Ghana, on 10 December. Once dredging ends in March 2015, work will begin on quay wall construction for completion by mid-2016.

SECOND EXIT FOR CSTD

China Shipping Terminal Development has told the Shanghai United Assets and Equity Exchange that it plans to sell its 49% stake in the Lianyungang Xindongrun Terminal for at least CNY9.8M (\$1.6M). It gave no reasons for the sale. This is the second joint venture it has exited since 2013.

DP WORLD TO DELIST IN LONDON

DP World has announced its intention to delist from the London stock market, where its shares barely trade, and focus instead on the emerging Nasdaq Dubai exchange, where it also has a listing.

ACCC WARNING

The Australian Competition and Consumer Commission has warned that prices may rise due to port privatisation. In its report on Australian container terminal productivity the ACCC said there was "significant concern that the sales of ports, if not properly managed, could lead to greater costs for container stevedores and other port users."



At the Green Award ceremony (L-R): Jan Fransen and Pieter Struijs (both Green Award Foundation); Kenji Kitahashi, mayor of Kitakyushu; Tetsuji Hashimoto, Port of Kitakyushu.

Kitakyushu signs up to Green Awards

The Port of Kitakyushu became the first port in East Asia to join the Green Award programme to support increasing environmental initiatives, it was announced at a press conference followed by a ceremony last November.

As a Green Award incentive provider, the port now offers 10% reduction on port dues to all Green Award-certified liquefied natural gas (LNG) carriers.

Reaching this milestone is no surprise given that Kitakyushu is one of the greenest cities in Japan. A while ago, the city was among four cities selected by OECD as a model for its Green City Programme, as well as one of the cities identified by the Japanese government for the "FutureCity" initiative.

The city, together with the port authority, are constantly working towards retaining a green strategy and improving safety, quality, and environmental protection in the port and beyond to achieve excellence in greener performance. Participating in the Green Award programme symbolises this strong dedication and presents a reliable indicator of high quality ships and tools used. It is also hoped that the port will demonstrate as a leading example in spreading safer and more sustainable maritime transport not only among the Japanese ports, but throughout East Asia as well.

"As the main objective of Green Award is to focus on improvement in the quality of shipping, the Green Award programme naturally fits in Kitakyushu's philosophy," Jan Fransen, executive director of Green Award Foundation, told *Ports&Harbors*.

"This could be our bridge to Asia and will most definitely have an effect also on South Asian ports. We think within the Green Award Foundation that Kitakyushu is a game changer in our programme." One of theaward scheme's many stakeholders – Kyushu District Development Bureau, a governmental agency under the Ministry of Land, Infrastructure, Transport and Tourism – also welcomed this achievement.

"As the importance of environmental initiatives increases, we put more emphasis on installing high-tech cargo handling equipment that contribute to reducing environmental burden, and developing environmentallyfriendly port by creating and protecting the coastal marine environment," it said.

For now, only certified LNG carriers can benefit, which is attributable to the fact that the city promotes clean energy source. An increase in LNG carrier callings is expected, due to the city's new LNG terminal, along with the country's growing appetite for LNG.

Fransen told *P&H* that "the city mayor and the chief executive of the port have both clearly indicated that granting LNG carriers port dues reductions is only the start. They will continue to assess the possibilities to broaden the scope of incentives to other ship types in the future".

Green Award certainly looks forward to that, as well as welcoming other Japanese and non-Japanese ports in Asia actively engaging with the programme.

Van Heck Engineering, a company active in the field of water control and management, has also recently joined the Green Award scheme. From 1 December 2014 it provided a discount to both Green Award certificate holders and incentive providers, pioneering a new approach to the scheme.

The Green Award programme is looking forward to expanding the global network of qualifying ports and supportive companies that show commitment to the highest safety and quality practices and reward Green Award vessels with incentives.

Job seekers want better conditions

There is no dearth of skilled seafarers, but employment conditions need to improve to attract the candidates, a new survey by Worldwide Recruitment Solutions' (WRS) has found.

An analysis of 5,300 responses from job seekers found that there are a high number of long-serving seafarers in the marine industry worldwide. However, speaking to P&H, WRS marketing manager Emma Mills noted that gender diversity came out very badly in the survey, with marine falling behind other industries surveyed by WRS (mining, and oil and gas). No less than 99% of marine respondents were male, compared with 94% and 98% in the other industries, respectively.

Doraleh gets going

The Port of Djibouti, located at the entrance of the largest global maritime trade route, said it is "the natural hub for the East Africa and the Red Sea regions". Over recent years, it has invested in various projects to make the most of its location. One of those is the 690ha Doraleh Multipurpose Port (DMP).

Intended as the ideal location for the import and transhipment of breakbulk, general cargo, and vehicles, Doraleh's first phase construction was started in August 2014 by China Civil Engineering Construction (CCEC) and China State Construction Engineering Corporation (CSCEC).

DMP will have modern equipment capable of handling about 12M tonnes of cargo a year and will accommodate 100,000dwt vessels at its seven-berth 1200m-long quay. It will be linked by road and rail transport in order to develop "an integrated transport and economic corridor". According to Saad Omar, Port of Djibouti's general manager, the construction will take two years before it

becomes operational in 2016.

Billion-dollar deal

China and Australia have entered a free trade agreement promising billions of dollars for Australian exporters. Australian dairy, meat, grain, wine, and mining exports are set to benefit, while China will have fewer restrictions on foreign investments. Speaking to P&H, Rod Nairn, CEO of Shipping Australia, said the deal provided hope that Australia's exports would now be more competitive. "It will provide better access to the dairy and live animal export sectors and thus increase volumes," he predicted.

Port updates

IRAN LINES

Four shipping lines – Hyundai, COSCO, Hanjin, and Wan Hai – are to resume operations at Shahid Rajaee Port, after the easing of sanctions again Iran, the Ports and Maritime Organization of Iran has announced. Direct shipment through Shahid Rajaee Port could decrease costs by \$40,000–100,000/tonne of cargo.

HONG KONG VTS ORDER Hong Kong has awarded a \$52M contract to defence and security company Saab to completely renew the existing Hong Kong vessel traffic services system, to be operational by 2016.

\$52M

MSC 94

IMO's Maritime Safety Committee's 94th session, from 17-21 November 2014, approved draft SOLAS amendments to make mandatory the International Code of Safety for Ships using gases or other Iowflashpoint fuels (IGF Code). It also adopted other SOLAS amendments, continued its work on its action plan on passenger ship safety, and adopted the Polar Code and related SOLAS amendments to make it mandatory (fuller report in the next issue).

▶ UNEP's COP20

An agreement on climate change took a further important step forward in Lima, Peru, following two weeks of negotiations by more than 190 countries. Nations listed the elements of the new agreement, scheduled to be agreed in Paris in late 2015, while agreeing the ground rules on how all countries can submit Intended Nationally Determined Contributions during the first quarter of this year.

South Africa, Kenya sign MoU

Transnet National Ports Authority (TNPA) chief executive Tau Morwe and Justus Nyarandi of the Kenya Port Authority (KPA) have signed a memorandum of understanding (MoU) to share expertise with other African ports, according to a Transnet statement. It is the fourth of such MoU – the others are with the Maputo Port Development Company, Namibian Port Authority, and the Ghana Ports and Harbours Authority. The TNPA also expects to add agreements with Angola, Tanzania, and Sudan in the near future. "This also puts us in a position where we can contribute towards the objectives of the AU 2050 Africa's Integrated Maritime Strategy – the development of infrastructure and development of skills," said the company.

White Bay Cruise Terminal wins award

Sydney Ports' White Bay Cruise Terminal has won Australia's top national award – the 2014 Harry Seidler Award for Commercial Architecture. It had already been judged Transport Building of the Year at the 2013 World Architecture Festival in Singapore and won three categories in the NSW Architecture Awards earlier in 2014.

In making their decision, the judges noted: "One strong, single move defined the project – a sinuous steel and aluminium roof suspended between twin gantry beams in a giant, wave-like form." A new public access plan at the terminal has more than doubled the area of public access on nonship days to include the entire wharf front at White Bay Four and Five and has also provided access around the terminal at the northern end.

Port **updates**

PRIVATE INVESTMENT

Chinese Premier Li Keqiang has stated that private investment in port and inland shipping facilities, as well as other key sectors, is to be encouraged in order to break down market barriers and unreasonable monopolies.

REAL-TIME DATA

The Taiwan Coast Guard Administration (CGA) has signed a deal with Transas Marine Pacific and its local partner Mercuries Data Systems (MDS) for a surveillance system to ensure coastal security and provide the CGA with real-time data on any activities occurring in a coastal zone thus ensuring full control over an entire coastal area.

BANGLADESH PORTS

Bangladesh is being urged by the World Bank to look at investing more in its ports and related infrastructure. In its Bangladesh Development Update, the bank suggests such a move, though difficult, is necessary to create the circumstances for sustained economic growth.



FINLAND LNG TERMINAL

After the Finnish government's recent announcement of €65M (\$81M) funding for three LNG terminals to be built in on Finland's western coastline, comes news of construction of the country's first LNG terminal in Pori. Developer and operator Skangass aims to have the €80M, 30,000m³ capacity unit up and running by 4Q16.

Tianjin port offers shore power

Tianjin Port in North China has announced the completion of its shore power supply project at Pacific Terminal.

Operations are expected to have started as you read this.

This project, co-constructed by Tianjin Binhan Power Supply Company and Tianjin Port, will convert 10kV, 50Hz input utility power into 6.6kV, 60Hz vessel power, which means it will be able to provide shore power to container ships over 150,00dwt, according to the port authority.

With a target of 10,810 tonnes of carbon dioxide emissions to be cut each year, the port is promoting the technology at all of its 28 terminals.

Singapore stresses safety

Although the number of accidents in Singapore has declined since 2011, one incident is still one too many, said Maritime and Port Authority of Singapore's chief executive Andrew Tan in his speech at the recent Maritime Safety Forum.

Singapore waters saw 13 major incidents in 2011, eight in 2012, and six in 2013. In 2014, there were four incidents from January to November. "But any incident is one too many," said Tan. "The three oil spill incidents [in early 2014] served as a timely warning for us. We will continue to work hard to reduce the numbers even more. I encourage all of you to join us in this drive towards a safer passage at sea as we do our best to keep to the highest possible safety standards."

Singapore is one of the world's busiest ports – with about 130,000 ships calling there annually. A ship calls or departs the port every two to three minutes.

Koper wins ESPO award

The Slovenian port of Koper has won this year's European Sea Ports Organisation award for its 'No Waste, Just Resources' project for the recycling of port waste.

The project involves innovations such as the re-use of marine silt for construction and paper mill sludge to reduce coal dust. It also features a heating system using recycled timber, a waste sorting centre, and a compost plant.

The port won the award, which this year was dedicated to innovative environmental projects, against competition from four other European ports.

Huelva (Spain) presented a project for the restoration of salt marshes, Marseille (France) had a project for the protection of marine eco-systems within port basins, Lisbon (Portugal) offered an innovative dredging programme, and Rotterdam (Netherlands) an 'e-nose' sensor

network to improve air quality.

Hong Kong emission controls in 2015

Hong Kong is likely to have regulations to control ship emissions by the end of 2015, becoming the first port in Asia to do so, Simon Ng, chief research officer at think-tank Civic Exchange, told an international forum in Colombo.

Nearby Shenzhen, in mainland China, is also developing an incentive scheme to encourage ships to either use onshore power or switch to low-sulphur fuel, similar to Hong Kong's measures, he noted.

The Hong Kong-based thinktank was instrumental in getting big shipping lines to voluntarily use low-sulphur marine fuel in 2011, an initiative the government supported the next year by halving port dues to incentivise industry to continue using cleaner fuel.

Ng told *P&H* he expected the

government to pass regulations requiring vessels at berth to burn marine fuel with 0.5% or lower sulphur content in 2015.

"Shenzhen, as the first mainland China seaport to offer incentives to reduce emissions, hopefully will trigger other Chinese ports to do the same. Then the region wouldn't have to worry about the impact of emissions on health."

Owners may face scrubber penalties

Owners are in danger of being penalised in Europe for discharging scrubber-treated water, due to a clash between two contradictory European regulations: the international sulphur regulation as transposed into European law and the EU Water Framework Directive. German shipowners called on

European countries to avoid penalising owners who fitted expensive open loop scrubbers to meet the IMO sulphur regulation that came into force on 1 January.

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Singapore SILLING

John Ng, CEO of Singapore LNG Corporation, gives his take on how Singapore's LNG terminal secures the city-state's energy supply and will realise the city-state's LNG hub ambitions



he development of the Singapore LNG Terminal enables Singapore to import natural gas (in the form of LNG) from anywhere in the world. The terminal, which is uniquely designed for both import and export and can accommodate the largest LNG carriers in the world, could also play a role in facilitating the re-export by ship of LNG to Malaysia, Indonesia, or any country in the region.

The Singapore LNG Terminal began commercial operations in May 2013 with two storage tanks and an initial regasification capacity of 3.5M tonnes/year.

Construction of the third tank and additional regasification facilities has been completed and is now operational, bringing the throughput capacity of the terminal to 6M tonnes/year. This will be sufficient to provide throughput services to the new importers in the near future.

Even before the completion of the third tank, plans were under way to further expand the terminal's send-out and storage capacities. The expansion plans include the installation of additional facilities to increase the terminal's throughput capacity from 6M to 9M tonnes/ year, and the construction of a fourth tank.

Samsung C&T Corporation has been appointed to undertake the third phase of the terminal's development and the construction of the fourth tank, which will raise throughput capacity to 11M tonnes/year by 2018.

The terminal's expansion will feature a fourth LNG storage tank of a 260,000m³ capacity, making it the largest in the world, and able to receive a full cargo load from a Q-Max carrier – currently the largest LNG carrier in the world.



John Ng Peng Wah CEO of Singapore LNG Corporation



Depending on future demand and business opportunities, the design basis of the terminal allows for the possibility of further expanding the terminal's throughput capacity to 12M tonnes/year and total storage capacity to 1.5M m³, should there be the need to do so.

There are many external and internal factors that favour Singapore's development as a gas hub for Asia.

Externally, for example, an increase is being seen in worldwide LNG supply and demand, with supply coming mainly from the west and demand mainly from Asia. Today, some 74% of global LNG demand comes from Asia, and this is expected to grow.

This growing Asian demand for LNG will be a positive development for Singapore. The greater the LNG demand in this region, the greater will be the need for a terminal such as ours that can provide LNG storage, breakbulk and re-export services.

Internally, Singapore is geographically very well located at the centre of major trade routes, and is already a world-class port, trusted financial centre and major oil trading hub. We also have an LNG terminal that is built with the future in mind, with the capability to efficiently unload, store and reload LNG cargo for import and export.

An increase in the number of players and the number of transactions in the market will increase liquidity and help the market mature. We should welcome liquidity because it will help price discovery and security of supply.

However, it will be difficult to say just how long it will take for Singapore to become a gas hub for Asia, as there are many variables that may facilitate or impede its development in this direction.

For one, the government would need to consider Singapore's overall strategic and economic interests and work out its LNG sector growth strategy accordingly. As such, the government may decide to open up the market quickly, or to grow it at a slower pace.

Various global concerns may also play a part, such as the evolution of US shale gas; the political climate in LNG-exporting countries; and environmental lobbies against fracking.

Singapore has only recently made a foray into the LNG industry and is at a nascent stage when it comes to trained and experienced human resources. It would therefore need to invest in building up the right capabilities to facilitate the growth of the LNG sector. **PH**



Baltic ports prepare for LNG bunkering

Mike Jones reports on how the Baltic is supporting the use of LNG bunkers

iquefied natural gas (LNG) is seen as key to reducing emissions from shipping. About 85–90M people in the Baltic region stand to benefit from greener shipping offering lower emissions.

The LNG in Baltic Sea Ports project was initiated by the Baltic Ports Organization in response to the upcoming introduction of lower sulphur emissions in the Emission Control Areas (ECAs) of the Baltic, North Sea, and the English Channel from 1 January 2015. Its interim findings were presented at a seminar at Muuga Harbour in Tallin in late September.

LNG in Baltic Sea Ports was co-financed by the European Union (EU) Trans-European Transport Network

(TEN-T) Multi-Annual programme until last year. The project has been developing a harmonised approach towards LNG bunkering infrastructure in the Baltic Sea area. It aims to avoid the overbuilding of facilities and to generate a critical mass for demand to allow LNG to be distributed across the Baltic. Seven ports are involved – Aarhus, Copenhagen-Malmö (paired), Helsingborg, Helsinki, Stockholm, Tallinn, and Turku. Each is also planning to develop port infrastructure to offer LNG bunkers to ships in the future.

Work at the ports has so far focused on pre-investment studies – environmental impact assessments, feasibility analyses for LNG terminals or bunkering vessels – project designs, regional market studies, and the regional standardisation of safety manuals.

The need to support LNG bunkering was recognised as the upcoming sulphur reduction will represent a massive change for ship operations within ECAs. Prior to 1 January 2015, ships have been allowed sulphur emissions of up to 1.0%, which can be met with lowsulphur fuel oil. The reduction to 0.1% will increase costs for shipping as vessels will need to switch to distillates such as marine gas oil or marine diesel oil. Developing the use of LNG is a key theme for reducing not only sulphur but other emissions from shipping. Ports preparing for LNG bunkering in the Baltic Other alternative fuels such as methanol or liquefied petroleum gas may also be offered in the future.

Ports fit into the picture as using them to store LNG can generate demand for several markets, bunkering and delivering parcels to meet small-scale industrial demand, and they can also act as a source of distribution to heavy goods vehicles. "There is an uncertainty in the price of LNG compared with heavy fuel oil and marine gas oil," said LNG in Baltic Sea Ports project leader Per Olof Jansson. "This is a vital issue. It must be solved before we see a major change in the shipyard orderbooks."

He added, "I also believe the market for the marine sector must be supported by the industrial and the road sector in order to create the market for LNG as an alternative fuel." This sentiment was echoed by many speakers at the seminar. "I believe we will see an increased interest in LNG as a fuel in 2016/17," Jansson said.

Lolan Eriksson, ministerial counsellor for the Finnish Ministry of Transport and Communications, said that in 2013 the ministers of the Baltic Marine Environment Protection Commission – Helsinki Commission, the governing body of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, had sought to establish an overarching co-operation between the different organisations covering the Baltic Sea, as well as between public and private stakeholders.

The aim is to promote the structure required and boost dialogue between players in the region. A draft roadmap was prepared on what should be done, who was responsible, and when some actions needed to be taken or completed by. "The roadmap gives a tool for us to focus on key issues: on the technology, legislation, finance, and research and development," Eriksson said. "The use of LNG is a core theme in this roadmap," she added.

The place governments have in this context is related to regulations. Eriksson cited the issue of standardised LNG bunkering connectors. Although the IMO is also discussing this, the issue will take on real importance when there are many LNG ships.

Financing is a crucial issue, both for LNG infrastructure and for how to finance new ships and retrofit existing ones. "We have also to find money from banks and how to create some risk-sharing tools," Eriksson said.

The Finnish government recently decided to allocate about €120M (\$148.62M) to three LNG terminals in the ports in the Gulf of Bothnia near the towns of Kemi, Pori, and Rauma.

The marine sector must be supported by the industrial and the road sector in order to create the market for LNG as an alternative fuel Shelley Forrester, senior financial engineering manager for the Innovation and Networks Executive Agency of the European Commission, said, "Within the portfolio of projects, the LNG in Baltic Seaports is a genuine success story because it contributes to securing critical mass in the LNG bunkering area. It addresses relevant infrastructure design and procedures and, importantly, uses a co-ordinated and harmonised approach which ultimately should guarantee coherent policy implementation using international standards.

"As we get closer to 1 January 2015 these demands for concrete actions [in LNG bunkering] are going to become important."

The Connecting Europe Facility (CEF) began in 2014 and replaced the earlier TEN-T programme that funded transport and research projects in the EU. The first of the CEF transport calls has been opened with four funding objectives: core ports, innovation for core network corridors, motorways of the sea, and cohesion funds. The last is aimed at EU member states whose gross national income (GNI) per inhabitant is less than 90% of the EU average.

An important aspect of the first CEF transport call is supporting the deployment of alternative fuels and emission abatement technologies and cold-ironing power supplies. The upgrade of maritime links is possible under CEF, but this will not be a source of fleet funding, although some dedicated lines might be possible.

Mature studies/projects are being sought that will lead to actions such as implementation and deployment. The opportunity to win funding for feasibility and market studies is no longer available. The decarbonisation of transport is ongoing, a part of the rollout of alternative fuel distribution, infrastructure support, a reduction of emissions, and energy efficiency projects – all of which have eligibility and are a priority.

Mature projects that are looking to be covered by CEF grants include reception facilities for waste – including that from scrubbers – and facilities for alternative fuel and energy, including shoreside power.

For 'core ports' CEF-funded projects are not restricted to just the maritime sector – all modes are eligible. One aspect of funding is grants, while another approach is through financial instruments, and the need to provide EU support in this important area.

Forrester is responsible for assisting the Commission in finding risk-sharing financial instruments that can support its goals and attract greater participation from the private sector. Core ports in Europe should have LNG bunkering by 2025. There are 11 ports working on LNG infrastructure in the Baltic.

"The Commission is really supporting maritime transport in the region," Forrester said. **PH**

MORE INFO: CEF Transport Call information: http://inea.ec.europa.eu/en/ cef/cef_transport/apply_for_funding/ cef_transport_call_for_proposals_2014.htm

COVER STORY







2



Ports rush to meet LNG demand surge

Momentum is building as plans are laid for LNG bunkering at US ports, reports *John Gallagher*

A scramble is under way to turn the concept of LNG bunkering at American ports into a reality and meet demand from vessel operators that is anticipated to begin this year.

In October 2014, LNG fuel supplier LNG America announced an agreement with bunkering operator Buffalo Marine to design an LNG bunker fuel network for the US Gulf of Mexico coast. LNG America's goal is to "develop a hub and spoke delivery system" for LNG marine fuel in major US ports.

Meanwhile, Supplier Tenaska NG Fuels and Waller Marine recently announced plans to develop, construct, own and operate Louisiana's first natural gas liquefaction and fuelling facility on a 32ha site at the Port of Greater Baton Rouge.

The operation, which has a scheduled startup of 1Q17, will provide LNG as an alternative clean-burning marine fuel along the Lower Mississippi. It will initially be able to produce 200,000 gallons (760,000 litres) of LNG per day, with the ability to expand quickly to meet market demand.

The demand for LNG bunkering is being driven by the aggressive embracing of this fuel type by operators of vessels under the US flag.

In late 2015 and early 2016, American container ship operator Totem Ocean Trailer Express (TOTE) will put into service what are expected to be the world's first LNG-powered container ships. Their home port will be Jacksonville, Florida, and they will operate in the US-Puerto Rico market.

Bunker barge design by LNG America

"Part of our strategy is to improve our vessel emissions

but it's also to provide an impetus for other marine users and to be a catalyst for LNG bunkering," TOTE project manager Ben Christian told *Ports & Harbors*.

That catalyst is needed if US ports are to catch up with LNG plans at Asian and European ports. The South Korean port of Ulsan, for example, announced in November 2014 that it was planning to begin construction of an LNG bunkering station in January 2015. When the storage and bunkering station is set up, LNG-powered ships can be fuelled at sea without being anchored.

The Port of Antwerp in Belgium said barges should be able to fuel with LNG at a fixed station by 2016. "The possibility for truck-to-ship bunkering with LNG already exists, but the construction of a bunkering station will make LNG continually available for barges," the port announced in November 2014.

A driver of plans for LNG bunkering infrastructure at US ports is a regulation that came into effect on 1 January 2015: fuel can have a sulphur content of no more than 0.1% within 370km of US and Canadian shores. LNG is an alternative to using low-sulphur distillate fuel or the installation of scrubbers. However, a lack of regulations has created hurdles to rolling out LNG fuel bunkering infrastructure at American ports.

The US Maritime Administration (MarAd), which is responsible for protecting the US-flag fleet, pointed out that because LNG as a marine fuel is a relatively new concept in the US, "there are several challenges related to the development of a national infrastructure for LNG bunkering", including safety and regulatory gaps.

"Among those gaps, one of the most important to ensure the widespread adoption of LNG-fuelled ships is clear and reasonable requirements for bunker barges," MarAd noted in 2014. "The ship-to-ship bunker option is considered the preferred and most practical method of bunkering LNG in the quantities needed for larger ships. The availability of LNG bunker vessels is a critical driver." The US Coast Guard (USCG) is seeking private-sector input on draft guidance for LNG bunkering operations.

The International Association of Ports & Harbors has requested that the USCG consider adopting a group of extensive "bunker checklists" as it develops its LNG bunkering policy. **PH**





Hamburg barge lights up cruise industry

LNG-powered barge will supply electric power to cruise ships, reports *Mike Jones*

The LNG hybrid barge Hummel has begun providing coldironing power from gas generators for visiting cruise ships he Port of Hamburg is now able to offer electric power to cruise ships since the christening in October 2014 of the LNG hybrid power barge developed over two years by Becker Marine and AIDA Cruises. Christened the *Hummel* (bumblebee in German), the barge is a self-contained power station capable of running on natural gas – stored as LNG – which will supply electricity to AIDA cruise ships during their Hamburg stopovers, allowing the ships to shut down onboard generators.

Dirk Lehmann, a director of Becker Marine Systems, said that the gas-powered generators on the barge will result in the reduction of emissions from cruise ships, including the elimination of sulphur oxides and soot particles, reductions of nitrogen oxides by up to 90%, and carbon dioxide reduction of about 20%.

The barge can operate on stored LNG on the vessel and will be positioned near natural gas mains in the winter to allow it to receive gas directly from the Hamburg gas network without the need for LNG (which costs more) when operating to provide industrial power and heating. In both cases the engines burn natural gas (after the LNG has been regassified). In addition, the barge can burn LNG containing hydrogen as well as a range of biogases.

It is believed that electric power will result in cleaner air in Hamburg, where cruise ships can tie up close to the city centre. Lehmann expects the concept of hybrid-powered barges to spread to many other ports.

From spring 2015 and throughout the cruise season *Hummel* will power AIDA cruise ships and other cruise company vessels, based on availability, at Hamburg's Altona cruise terminal. The barge will be operated by Hamburg-based Hybrid Port Energy, a company founded by Becker Marine Systems.

Lehmann said the barge removes the need for ports to install infrastructure for ship to shore electric power. The Power Pacs will be rented out on a daily basis, and the amount of fuel used is calculated and billed to the ship operator.

Hummel, built in Slovakia, is 76.7m long and 11.4m wide, with a draught of approximately 1.7m. The barge was delivered to Hamburg via the Danube, Main, and Rhine rivers and finally across the North Sea to the Elbe.

Five Caterpillar generators provide 7,500kW of power and 20-foot LNG containers of 17m³ are housed in a dedicated space on the barge. Each container will provide enough power for a day's operation, providing hotel-load power to a large cruise ship. Refuelling is achieved by changing the containers or filling them directly onboard the barge from a truck carrying LNG. Sound levels will be only 60dB at a 10m range.

The LNG barge will be marketed worldwide. Becker is looking to introduce 15 barges of different sizes within the next five years, said Lehmann. *Hummel* will be the smallest at 7.5mW; Becker has enquiries for barges with 12–13mW of power.

LNG for the *Hummel* will be provided by Shell-Gasnor, who Lehmann said has the experience to supply small scale LNG or as container LNG.

A barge produces a lot of power and to provide power at lower levels, there is another solution: an LNG Hybrid Power Pac which can be installed on the aft end of a containership. This system consists of two containers, the top with an LNG storage tank and the bottom with 1.5mW Caterpillar engine, and generator which can be connected to the ship's electrical system. As with the barge, there is a 60dB limit and the exhaust gases are cold. **PH**

Outlook 2015: Aligning ports with shipping evolution

P&H considers the drivers of six significant port developments from across the globe

rom Europe to Asia to the Americas, common themes emerge for the major port expansion projects of 2015.

On the container front, ports are prepping for the dramatically larger ships being rapidly delivered by yards and the new routes to be opened by canal expansions. Larger vessels are also creating more demand for the transhipment hub-and-spoke model.

In the liquid bulk sector, terminal developers are reacting to tectonic shifts in the sources of production.

There is nothing new about ports aligning facility upgrades with new realities in shipping. But in 2015, the evolution of box vessel size and the reversal of tanker flows will be unusually extreme.





Incheon

Building on a steady rise of volume serving Seoul, Incheon plans to expand port facilities so that it can lure mega-ships and more passengers.

The Incheon Port Authority (IPA) is targeting 10,000teu ships with plans to increase the number of container berths. In 2007 4,000teu ships were the largest that the west coast port could accommodate.

That left competitor Busan to consolidate its status as South Korea's leading box port. It is also the biggest transhipment hub in northeastern Asia.

In the first phase of development, which was completed last year, Incheon got two more terminals, which added six container ship berths and 1.6km of guay to accommodate 10,000teu container ships.

Terminal A will be managed by South Korean logistics company Sun-Kwang, while Hanjin, the country's biggest shipping company, will run Terminal B. The terminals, covering 480,000m², will each have capacity of up to 1.2M teu/year, with 800m of quay. The depth alongside them will be 16m.

In two subsequent development phases, the IPA hopes to extend quay length to a total of 4.35km by 2030, building 37 container berths. Hyundai Engineering & Construction and Samsung C&T Corp have set up a joint venture to carry out the dredging, with the spoil to be used for land reclamation.



Incheon: wants to be a hub in the pan-Yellow Sea region

IPA told *P&H* that, in the longer term, the port aimed to accept 15,000teu ships. It noted the trend for megaships and for increasing trade with China, adding: "Development in Incheon has been driven by its aim to be a hub in the pan-Yellow Sea region. IPA will work towards accommodating 15,000teu box ships by deepening the port's draught to at least 16m. Its design ... allows it to accommodate vessels of up to 15,000teu, but we need more time to deepen the draught."

IPA listed Incheon's selling points: it is just 30km from South Korea's capital, Seoul, where 48% of national GDP is focused. Incheon also focuses on import-export trade with Seoul's metropolitan hinterland and provides specialised services for the China and intra-Asia trades.

Incheon has had an 8.1% box volume increase over the past five years, so IPA is confident in forecasting continued growth.



Singapore

Singapore will relocate its entire transhipment port operations to a single terminal at the Tuas industrial zone. It is a move that will give it 65M teu annual capacity, nearly doubling the current capacity. Phase one of the project is scheduled to open in about eight years, ahead of the 2027 expiration of leases of Singapore five city terminals at Tanjong Pagar, Keppel, and Pulau Brani, as well as Pasir Panjang.

"Consolidating Singapore's port in one location will achieve greater efficiency and economies of scale," said Singapore's transport minister, Lui Tuck Yew.

The development means the trucking of containers between terminals for transhipment can be eliminated, reducing transport time and business costs.

Lui said Tuas provided a suitable site, with deep, sheltered water and proximity to both major industrial areas and international shipping routes. It will be able to handle up to 65M teu/year to meet longer-term demand at the global hub.

The new hub "must be able to handle future generations of container ships that are likely to be even larger and more complex than the ships today. We might need to cater to a growing fleet of ships that are powered by LNG and other alternative fuels," Lui predicted.

"Consolidation at Tuas will also free up prime land -



Singapore will move all transhipment to Tuas

which our City Terminals and Pasir Panjang Terminal are currently occupying – for redevelopment."

A consortium comprising Hyundai Engineering & Construction, Samsung C&T Corporation, Penta Ocean, Boskalis, and Van Oord has been appointed to expand Tuas Finger One Pier for the project.

Singapore is also turning to automation. PSA International, the primary port operator in Singapore, has signed a memorandum of understanding (MoU) with MPA to extend funding for the Port Technology Research and Development Programme to develop new technologies. Under the MoU, the two parties will each pledge an additional S\$15M (\$11.9M) during the next five years for the Maritime Innovation and Technology Fund, on top of their initial investment of \$7.9M each. This will bring the total amount committed to the research programme to S\$50M.



Houston

Frenetic construction in Houston, Texas, unlike that at most other US ports, is not all about accommodating larger container vessels. That factor does play a role in some of the expansion plans, but it is more about building new terminal infrastructure to handle the country's energy production boom.

Houston has long been a hub for imports of crude and products, as well as exports of chemicals and products. Exports of refined products and LPG are surging and ethane exports are poised to begin.

The sharp rise in outbound volumes and the greater diversity of energy exports is eliciting a surge of investments in new terminal capacity along the Houston Ship Channel. As of November 2014, there were reportedly around 45 permit applications for new docks along the waterway.

Kinder Morgan announced in October 2014 that it would invest \$240M in its Pasadena and Galena Park terminals on the channel. "Kinder Morgan will now have nine ship docks on the Houston Ship Channel," said company president John Schlosser. "We see continuing strong demand for transporting fuel to the Gulf Coast to reach export markets."

Enterprise Product Partners (EPP) has announced multiple projects along the channel. In 1Q15 it is expected to complete an expansion of its first LPG export terminal,



New piers planned for Houston channel

upping capacity from 7.5 to 9M barrels/month. EPP is also building a second LPG terminal, capable of handling very large gas carriers, which will have capacity of 6M barrels/ month when completed in 4Q15, and a 7.2M barrel/ month ethane export terminal on the Houston channel, expected to begin operations in 3Q16. Given high interest in this first-of-its-kind project from shippers, EPP is already considering expansion options for the ethane terminal.

Meanwhile, \$80M is being spent on dredging to support container shipping. The wharf area at Bayport is being dredged from 12.2m to 13.7m, with completion expected in mid-2015. Dredging to 13.7m at the Barbours Cut container terminal was completed recently.

"This has been part of a tremendous effort by all parties involved to make sure we are ready to handle the larger ships," said Port of Houston Authority executive director Roger Guenther.



Callao

Callao, Peru, is poised for rapid capacity expansion and volume growth.

During the past half-decade, Peru's port privatisation process has transformed Callao. First came the concession of Pier South to DP World (DPW), whose new terminal at the site has been operating since 2012. Then came the concession to APM Terminals of Pier North (APMT), which is currently in the midst of the first two of five construction phases.

APMT's first two phases include new offices, a channel, and berth dredging to 16m, container yard expansion, an underground grain conveyor belt, and new equipment installations (four new super post-Panamax cranes and 12 RTGs arrived at the site in mid-2014). The first two phases will double capacity from 800,000teu/ year currently to 1.6M teu/year.

Overall, APMT is investing more than \$750M in Callao's Pier North by 2021. Upon completion, its terminal will have capacity for 2.9M teu/year of containerised cargo and 15M tonnes/year of bulk cargo.

"This will be a deepwater port able to handle the largest vessels in the world," *P&H* was told by APMT spokesman Tom Boyd. "We believe Callao will be a very attractive hub for trade lanes serving Asia."



At APMT Callao (from left to right): Jose Gallardo, Peru's minister of transport and communications; President Ollanta Humala; Henrik Kristensen, managing director, APM Terminals Callao

Meanwhile, DPW is expected to invest another \$100M in Pier South and conduct additional deepening of the access channel. Peruvian national port authority APN says DPW Callao handled 1,348,418teu in 2013 and APMT Callao handled 507,602teu. DPW's box throughput decreased by 4.1% versus 2012, while APMT's rose 23.2%.

Between the two terminals, Callao handles 90% of all container traffic in Peru and is the busiest port on South America's west coast and the third busiest on the continent. According to Boyd, APMT believes Callao's overall throughput will double over the next five years.

APMT Callao managing director Henrik Kristensen recently predicted that the port would "become a new centre of trade and development for the Latin American region".





Maasvlakte 2

Two high-specification box terminals are opening imminently at the port's Maasvlakte 2. The Dubai Ports World-led Rotterdam World Gateway is due to start operating this year, while the new APM Terminals facility is expected to start up before 2Q15.

With these completed, the Port of Rotterdam will be better equipped and expected to beat congestion experienced in the past. The state-of-the-art container terminals will be brought into service gradually, slightly behind the originally planned schedule.

There have been concerns, notably from dockers' union FNV Bondgenoten, about the impact of the two highly automated terminals on jobs at the port. Allard Castelein, CEO of the Port of Rotterdam Authority, said 700–1,300 port workers were likely to be affected when the new terminals open.

He stressed that the problem is principally that of the terminal operators but noted that he was nevertheless involved in efforts to address the impact, notably by engaging with all parties to ensure workers who could be laid off had help to find alternative jobs. What he wants to see most is traffic growth strong enough to generate employment opportunities.

In the context of a Far East-Europe trade increasingly dominated by large consortia operating ships of 18,000 to 20,000teu, Castelein sees Rotterdam reinforcing its



Work under way at Maasvlakte 2. The terminal is due to start operating this year

position as the leading port in the northwest European range. The vision for the port is to become the first port of call and the last port of call, meaning that shipping companies' fully laden vessels would go to Rotterdam first before moving on to other ports in the range that offer less favourable conditions of access and then returning to Rotterdam to complete loading before leaving again for the Far East. For this, however, the port needs to prove to shipping lines that it has grown up to this challenge.

Castelein predicts that the port will pursue a strategy of development in all cargo-handling areas in which it is already strong. It also plans to seize opportunities in new areas, while seeking to integrate care for the environment in all its business decisions and processes.



Mombasa

In September last year, on the east African coast, Kenya's Port of Mombasa took delivery of a heavy-lift facility, including seven hybrid rubber-tyred gantry (RTG) cranes commissioned by Kenya Ports Authority (KPA). The huge cranes represent a critical part of the upgrade and expansion plans that will enable the port to develop its cargo processing and logistics activities at the container terminal facilities in the port where congestion is still an ongoing issue.

A further five RTGs were expected to be delivered to the port by the end of 2014 to complete the original order, comprising 12 Kalmar E-One2 RTGs, valued at approximately \$21M.

The cranes provide 6+1 wide, 1-over-5-high stacking with a lifting capacity of 45 tonnes. Their hybrid package includes a diesel engine and energy storage. All feature an automatic gantry steering system, a stack inventory solution, and a remote monitoring and diagnostics application. In addition to the RTGs, Mombasa's Kilindini harbour will also benefit from three ship-to-shore gantry cranes at the beginning of next year.

Gichiri Ndua, managing director of KPA, revealed that in the first 10 months of 2014, cargo volumes at the port of Mombasa grew by 8.3% to 15.8M tonnes. In a statement, he anticipated the port achieving a cargo throughput of 25.5M tonnes, a 14% increase on 2013's figure of 22.31M



Investment in new equipment at Mombasa container terminal is being made to support increased throughput

tonnes. Containerised traffic is anticipated to rise from 945,000teu in 2013 to 980,000teu. The largest percentage increase is in transhipment traffic, which is forecast to go up by 186.3% from 100,372t to 287,339t. KPA ascribed the increases to improved marketing and greater capacity.

Further expansion plans in Kenya will have a positive impact on the eastern region. A contract was recently signed for the construction of the first three berths at the proposed Lamu Port. The set-up cost of the three berths is \$470M, with money also set aside for compensating habitants previously occupying the land.

"The expansion will also alleviate congestion at the port of Mombasa, which at the moment serves both the inland countries of eastern DRC, Rwanda, and Uganda, as well as Ethiopia and South Sudan," said IHS East Africa senior economist Mark Bohlund. PH BURNETT RIVER

Surveying American shores

NOAA hydrographic surveys make ports safer as vessel traffic intensifies, reports **John Gallagher**

we energy export terminals, bigger container ships, and heightened vessel traffic made it necessary to take a fresh look at what lies below the surface in Galveston Bay on the US Gulf of Mexico. It was just the latest project for the Office of Coast Survey (OCS), an agency within the US National Oceanic and Atmospheric Administration (NOAA), which uses special hydrographic vessels to survey the depths of high-traffic coastal areas and update navigation charts.

NOAA vessels and independent contractors set out in 2014 to collect undersea data covering over 6,869km². The Galveston Bay survey off the coast of Texas was particularly important.

"The gulf has had so many hurricanes in recent years, in the last decade especially, and with that unfortunately there's a wide variety of marine debris," said Alan Bunn, the OCS regional navigation manager for the Western Gulf of Mexico.

"We've found containers that have fallen off ships due to foul weather, and barges tend to break loose and sink, especially during storms. We're finding new obstructions that had not previously been charted," he told *P&H*.

The risk of a vessel colliding with those obstructions

is particularly high in Galveston Bay, Texas, due to the increasing number of vessels transiting the Houston Ship Channel to the Port of Houston, which handles roughly 66% of all the container traffic in the US Gulf of Mexico and is ranked first among US ports in foreign tonnage due to petroleum flows.

"Ports such as Houston are constantly growing and, in many cases, deepening and widening their berths and waterways," Bunn explained. "As the facilities themselves change – whether it's a refinery trying to get some of these new larger tankers at their docks or larger container ships coming online – the ports and professional mariners want those navigation charts updated with the latest depths."

The project covers 11.7km² of a seafloor that is constantly changing due to storms, erosion, and human development. To keep over 1,000 nautical charts up to date, the OCS plans annual hydrographic survey projects. NOAA hydrographers spend months at sea surveying the ocean floor to ensure safe navigation for commercial shipping.

For channel maintenance, the OCS relies heavily on post-dredging surveys that are conducted by the US Army Corps of Engineers (USACE). The corps uses these surveys to figure out exactly how much material has been removed in order to pay dredging contractors. The OCS uses the information to update its nautical charts.

"We don't have to survey the channels because that's the corps' responsibility," said Jeffrey Ferguson, chief of the hydrographic surveys division. "But we're responsible for basically surveying everywhere else. For example, we'll survey where a channel ends out at sea at the buoys and the approaches, then update the nautical charts if necessary."

One such update was completed in July 2014 outside the Port of Charleston, South Carolina, where

Beacon No 9 damaged, leaning over on severe angle, platform nearly submerges at high tide

NOAA'S Charleston survey

US HYDROGRAPHICS

Unknown submerged object approx 6m long, 4m wide, 2m high 440768E, 7262149N min depth 5.6m LAT

an ageing navigation chart was in need of updating.

In addition to NOAA using the USACE's expertise, there can be situations where NOAA's hydrographic survey information flows back to the USACE. "If port pilots are concerned that there might be an area within a channel that's shoaling up, they can bring our charting information to the corps to request that the channel be extended," Ferguson said.

In addition to using outside data, NOAA uses information gathered from its own surveys to internally update its charts. The agency operates four hydrographic ships to carry out its annual surveys, including the *Ferdinand R Hassler* and *Thomas Jefferson.* "Every year we're surveying somewhere," Ferguson explained.

As regards the agency's Charleston update, the new chart expands coverage of the approach to Charleston harbour further to the east, covering an additional 1,185km² that was not included in the previous chart.

"The creation of this chart directly responds to requests made by Charleston pilots who bring in larger ships with deeper draughts than they did when we made the original harbour chart almost 80 years ago," said Gerd Glang, director of NOAA OCS. "This new chart will meet current needs and, even more important, the future needs of maritime commerce in the Port of Charleston," he added.

According to NOAA, multiple deepening projects have displaced the sea buoys and channel entrance over 16.7km to the east since the original circa-1936 chart. The new and updated chart includes the area where pilots board the deep-draught vessels as they prepare to guide them into the harbour.

Hydrographic surveys are not the only service NOAA offers to help captains and pilots safely navigate shipping channels. The Port of Houston Authority is one of more than 20 ports around the United States that take advantage of a product called Physical Oceanographic Real-Time System (PORTS).

Developed by the OCS's sister agency, the Center for Operational Oceanographic Products and Services (CO-OPS), PORTS is a system of tide gauges, meters that measure currents, weather stations, and air-gap devices that measure how much room there is from the bottom of a bridge to the surface of the water.

"At every major port there's always a chokepoint or area where a tributary might change the characteristics of the waterway as they pass through it," Bunn noted. "So mariners, especially the pilots that guide the ships in, can go to the PORTS website and look at the currents and tides at locations he's concerned about."

Even a cold front can affect draught levels, Bunn noted. Such weather "can blow water out of the channel, temporarily causing a two-foot-lower draught", he said. "So it truly affects the decisions on transits and can make them safer."

According to the National Ocean Service, a group within NOAA responsible for providing realtime oceanographic data to promote safe and efficient navigation within US waters, the need for products such as PORTS is rapidly increasing. NOS noted that ships "are getting larger, drawing more water, and pushing channel depth limits to derive benefits from every last inch of draught".

Hazardous materials make up about half of the international trade passing through US ports.

According to the National Ocean Service, "A major challenge facing the nation is to improve the economic efficiency and competitiveness of US maritime commerce, while reducing risks to life, property, and the coastal environment." PH

MORE INFO: www.noaa.gov

Silent Achievers

Zoe Reynolds reports on how a small team of Navy hydrographers is pioneering safe passage for international shipping through the World Heritage Great Barrier Reef

> any a ship has run aground on Australia's Great Barrier Reef. In 1770, the British Royal Navy research vessel *HMS Endeavour* was the first recorded grounding. Captain James Cook, the man who had claimed Australia for the English empire, threw the ship's cannons overboard in order to free his vessel.

> Many more groundings were to follow. More recently the *Shen Neng 1*, (2010), the *Doric Chariot* (2002), *Bungai Teretai 1* (2001), the *Piper* (1996), *Svendborg Guardian*, (1995), *Carola*, (1995) and the *TNT Alltrans*, (1977) are just some of the vessels that appear on the Australian Transport and Safety Bureau investigation lists.

Australia cannot afford another. "We have a public that has zero tolerance to any damage from shipping," Australian Maritime Safety Authority (AMSA) CEO Mick Kinley told P&H. "A ship running aground on the Reef is our worst-case scenario."

On any given day the Australian Hydrographic Service is hard at work surveying the Reef in search of safe passage for the ships that carry Australia's trade.

The service maintains close links with the AMSA to improve ship routing so as to avoid obstructions and reduce collisions or groundings, whilst fulfilling Australia's obligations under SOLAS.

It is so crucial to survey the Reef's safety for both the environment and commercial shipping, the Hydrographic Service locates all its six specialist surveying vessels and one Laser Airborne Depth Sounder (LADS) in Cairns, only 260km from Endeavour Reef.

Speaking with *P&H*, Australian hydrographer Commodore Brett Brace explained the work was not just about reducing risk. "Most of our work is about strategic planning," he said. "We've got really big ships transiting the Reef carrying our commerce out the door. Our focus is on where the ships go. We work with AMSA, look at where there might potentially be a new shipping route and survey the area."

Almost 250 years after the *Endeavour* ran aground, a hydrographic survey of the Great Barrier Reef is still largely about discovery. The Reef stretches 2,300km and covers 345,000km2 down the Queensland coast to just 300km north of Brisbane.

Writing for *Position* magazine, former service hydrographer Michael Beard estimates that only 35% of Australian coastal waters have been adequately surveyed to a modern standard and the Reef is no exception.

Listed as a World Heritage site and one of the Seven Wonders of the World, the Reef also hosts a major shipping highway for Australia's multi-billion dollar coal industry. Australia is the world's biggest coal exporter and coal is the biggest driver of shipping through the Reef. Most goes to China, Japan, India and South Korea, out through the Jomard Passage in Papua New Guinea, on Capesize and Panamax bulk carriers. Some smaller cargo vessels await higher tide to transit the perilous shallows of the Torres Strait west to the Indian Ocean.

On any given day there are 40 to 50 ships on the Reef, with 11,000 ship movements in 2013. This is projected to more than double to around 24,500 a year by 2020.

Port expansion and the surge in shipping out of the Reef have set off alarm bells amongst environmental groups and Australia's \$6Bn tourist industry. Now the United Nations World Heritage Committee is considering whether to put the Reef on the endangered list, after the next committee meeting next year [2015].

In October 2014, AMSA released the North-east Shipping Management Plan in an attempt to help address these concerns.

The Australian Hydrographic Service is working with AMSA to identify areas within the Northeastern regions that would benefit from improved hydrography and oceanographic observations. These are rolled into Hydroscheme, a two year charting and surveying programme.

The plan identified two weak links in surveys and charts of major shipping lanes – the Southwestern approach to Torres Strait and McDerment Bank in the Coral Sea.

"McDerment Bank surveying is complete, with new charts to ECDIS standard to come," said Brace. "The Torres Strait surveys require upgrading to a more modern standard. AMSA has a very tight under keel clearance regime 12.2m restriction."



Brace has worked with the AMSA to develop the dynamic under keel clearance system, incorporating tides, winds and currents. "We first did Torres Strait in 1970 and were back there last year [2013] and again this year [2014]," said Brace. "But now we have different ship requirements."

As ships get bigger the margin for error gets smaller. "Some surveying is based on maritime incidents," Brace explains. "That was a bit of a near miss; AMSA will say, 'How about you give us some detailed surveys of the area and improve aids to mariners."

Brace says recent focus has been on the entrance to the Port of Gladstone, a major commercial shipping port with bauxite coming in and coal going out. As of 2015, the first LNG shipments out of Australia's eastern seaboard are scheduled to leave from British gas major BG Group's \$70Bn Curtis Island project off Gladstone.

Tankers have been using the outer route of the Reef, but channels taking them out to the Coral Sea must be surveyed and recharted. Gladstone is also one of Australia's three big Queensland coal export ports, alongside Hay Point and Abbot Point further north.

"Ships are getting bigger, deeper and faster so we have to make the route safer," says Brace. "Previous ships had a 16m draught, now they want 18m to make it more efficient. The less ships coming in, the safer it is. So we've been looking at areas where we've been before."

Beard has called Australia's hydrographers the

'silent achievers'. He says their work in safety and savings for commercial shipping is undervalued. "Hydrographers Passage was only discovered in 1984," he told *P&H*. "It allows coal ships to exit the inner Reef earlier and get out to the Coral Sea."

The longer the ships transit the Reef, the greater the risk. "The new route reduces the time on the inner route by 250nm or one days' sailing, saving tens of thousands dollars," Beard revealed.

Another recent discovery was LADS passage, which opened in 2004, and was named after the laserequipped aircraft that discovered it. The passage cuts the inner route short, taking vessels out between Cape Melville and Cape Direction. "It keeps ships away from the nasty bits," Beard said. "Depths drop to 1,000m or more once you reach the Coral Sea."

The Australian Hydrographic Service has also been focusing on Long Reef as an alternative route to Papua New Guinea.

Australia has advanced its application to the IMO for the entrance as a two-way route or maritime highway. In his *Position* article Beard writes that the Australian Hydrographic Service is under-resourced and calls for greater industry involvement. He points to mounting pressures to achieve the national surveying programme and the relatively small number of Royal Australian Navy ships and aircraft available to conduct the necessary hydrographic research.

Under the federal budget the service is also facing 20% staff cuts. Ports Australia CEO David Anderson is concerned for its future and has urged the federal government to provide further funding.

"Don't starve the hydrographer of resources," Anderson told *P&H*. "They are operating on a shoestring and doing it pretty tough. "I'm not saying some ship is going to founder tomorrow because of it," he added. "But I am saying it is important. You need that ongoing expertise. Seaborne trade is growing and we need high integrity survey work."

"The Great Barrier Reef is World Heritage-listed and there's all the tourism that goes with it," asserted Brace. "Both parties wouldn't want anything bad to happen to it. That would be catastrophic for the Reef, but not too good for shipping either."

AMSA CEO Mick Kinley goes further. His concern is another big incident in the Great Barrier Reef could jeopardise the shipping industry's social licence to operate there.

A lot is at stake. RH

👔 MORE INFO: www.amsa.gov.au

River port revamp

A US inland port exemplifies how investments in cargo diversification pay off, reports **Scott Berman**

The \$54M South Harbor project is well under way Merica's inland river terminals and ports don't generate the fanfare of their coastal brethren, but they do provide services that are essential, handling vast quantities of grain, coal, petroleum products and other cargo.

US vice-president Joe Biden visited an inland port in February 2014 to speak about the importance of federal investment in infrastructure and Transportation Investment Generating Economic Recovery (TIGER) grants. Biden made his remarks at America's Central Port (ACP), a general cargo, liquid bulk and ro-ro barge port on the Mississippi in southwest Illinois, near St Louis.

He was speaking on the fifth anniversary of the TIGER programme and TIGER grants have been a key to ACP's \$54M South Harbor expansion project. It has received \$14.5M in such grants in recent years, with the rest of the project's budget coming from loans and a state grant, according to ACP executive director Dennis Wilmsmeyer.

South Harbor is adding dry bulk and general cargo terminals to the multimodal ACP, which handles \$1.1Bn in cargo annually at its North Harbor. Each year, port operations serve about 2,500 barges carrying about 3M tonnes of dry and liquid bulk cargo, including steel, grain and petroleum products. Tenants include Mid-Coast Terminal Company; Siemens; Cargill; Fairfield Processing, which handles manufacturing facilities and daily cargo operations; and Lewis & Clark Marine, which provides barge-switching services. To the south, Spanish company Abengoa operates an ethanol plant.

The goal of the port, a public entity under the auspices of the state of Illinois' Tri-City Regional Port District, is "to enhance transportation and to promote job growth in the region" by providing "barge, rail and truck commodity transfer" as well as industrial and commercial sites, including 158,000m² of warehouses.

The port is unusually diverse in its strategies. In 2002, the US military transferred to ACP a mostly closed army base complex on property adjacent to the North Harbor. To diversify revenue streams and generate additional income, the port renovated military apartments left over from the base and is now leasing them.

South Harbor, slated to open in 2015, is just south of

nonthan a

the 14.5km-long Chain of Rocks Canal and Lock 27. That lock is the last on the Mississippi River – from there, the river is lock-free all the way to the Gulf of Mexico. Given the problems that sometimes affect the canal's locks, South Harbor's position is attractive to vessels that can unload there without being delayed.

Passage through locks takes time, and when the infrastructure breaks down, as happened at Lock 27 in 2012 – spurring emergency repairs by the US Army Corps of Engineers – there are costly delays.

"We are way overdue for modernisation," said Aimee Andres, executive director of the Inland River Ports and Terminals (IRPT) group, referring to river navigation infrastructure.

IRPT believes there is much to build upon given the inland river model's smaller carbon footprint and lower wear-and-tear on infrastructure versus modes such as trucking. The future looks promising, with interest growing in container-on-barge, CNG and LNG, Bakken oil, and other cargoes.

If there are delays on the canal in the future, Wilmsmeyer said products stuck at North Harbor could be offloaded to rail, rolled down to South Harbor and reloaded on barges. In his view, "what the project is really about is additional commodities, products and freight for the St. Louis market". Others also see the potential for more river freight locally. Not far downriver, the city of St. Louis rebuilt its municipal terminal dock several years ago.

Wherever an inland barge port is located, its capabilities "depend on the condition of the river it sits on", said Andres. For river ports, there are about 240 locks, many of them ageing and in need of repair, as well as myriad dredging needs along the navigation system.

Thus, it was of great interest for ocean and river ports of all types and sizes when the US federal government's Water Resources Reform Development Act became law in June 2014, authorising various navigation projects nationally and streamlining federal permitting processes for construction and dredging projects.

To make a difference going forward, such projects need to be funded and implemented. The Waterways



Railroad classfication system

Any large freight railroad company in the United States, Mexico, or Canada is classified based on operating revenue. Railroads are classified as Class I, Class II, or Class III. The exact revenues required to be in each class have varied over time and are regularly adjusted for inflation. Canadian/Mexican minimums are not dissimilar similar to those for the USA.

- USA Class I annual carrier operating revenues of \$433.2M or more [2011 figures]
- USA Class II railroads greater than \$37.4 million but less than \$433.2M
- USA Class III less than \$20M

Council, another trade group, is pledging to, "vigorously advocate for these annual appropriations to realise the goal of completing the modernisation of our inland waterways transportation system".

ACP's South Harbor project is being implemented against this national backdrop. During a recent visit by P&H, contractors were hard at work on the new dry bulk terminal – its open cell construction is saving time and money – and the sheet-pile general cargo dock.

In another project phase, the construction of South Harbor will feature a conveyor system to move dry bulk commodities between rail, truck and river via the new dry bulk terminal nearby.

According to port engineer Bill Stahlman, the conveyor system will pass above adjacent rail lines, beneath utility wires, and cut through a raised section of levee via a box culvert to the new terminal. It is designed to be operational at any river level – and the swings are dramatic. With an eye toward the future, the system will also be able to hold pipelines for liquid bulk, said Stahlman.

In another marker of progress at South Harbor, a rail loop, its signal equipment, a levee relief well system and levee improvements have recently been completed.

The loop is another component of the port's Class III short-line railroad, which "provides 24-hour local switching services and a connection to the St. Louis regional switching carrier and six Class I railroads", said the ACP, which noted that on-site locomotives are serving more port tenants, "that require 'on-demand' rail services".

Wilmsmeyer and Stahlman see ACP's approach as creative and efficient. Among the rules of thumb, "Build in as much flexibility as you can," said Wilmsmeyer, "because you don't know what the market is going to do tomorrow, next week or next year".

Another precept from Wilmsmeyer is to "have a vision of what you can be in your community". The port does so by stressing economic impact. ACP estimates its own impact to be \$282M annually.

Given such benefits and potential, ACP officials are forging ahead on new construction and searching for new markets. "We could have sat back and said, 'Hey, it would have been easier not to do this project, to put this money elsewhere," said Wilmsmeyer. "But we just knew it makes absolute sense." PH FEATURE



bigger picture

Masterplanning ports in advance can help speed up expansion projects and avoid the bottlenecks associated with short-term investment and development. PIANC guidance shows how to properly implement one, reports **Stephen Cousins**

he day-to-day operational demands of running a successful port can leave little time for strategic planning, but failure to consider long-term improvement or expansion can harm the competitiveness of a business or delay the implementation of future projects.

In an effort to help simplify the process of strategic planning, the World Association of Waterborne Transport Infrastructure (PIANC) has published a comprehensive

A comprehensive masterplan can help environmental, urban, physical, and eco-social constraints new guidance for masterplanning existing ports: *PIANC WG-report 158 - Masterplans for the Development of Existing Ports.* The study was produced by an international working group, convened by the maritime Navigation Commission (MarCom), comprising 14 port experts including port owners and terminal operators, port planners, transport economists, and environmentalists. It details current best practices in the field and takes into account current trends in shipping technology, the impact of increasingly larger vessels, and requirements for modern cargo handling systems.

Stephen Cork, technical director at marine consultant HR Wallingford, who headed the working group and penned the report, commented: "The report was compiled based on a series of eight meetings over a two-year period, each one hosted by a port authority who demonstrated what they were doing to address masterplanning issues, so it is very hands-on and practical, as well as theoretical. There is a large section on terminal planning and key performance indicators, which is information not readily available anywhere else."

Against the backdrop of an increasing shift in freight transport from road to rail and water, and expanding volumes of liquid cargoes and containerisation, many ports will be considering opportunities for expanding port areas and cargo handling facilities. However, many will be held back by a range of environmental, urban, physical, and eco-social constraints, engendered, in part, by a lack of previous long-term masterplanning.

"With the general trend towards the privatisation of ports and terminals, there is often a commercial pressure to generate short-term profit from handling a new cargo flow, leading to the development of new berths and infrastructure that inhibits longerterm strategic development options for ports," said Cork. "A port masterplan, covering a period of 25–30 years, should provide the necessary guidance to avoid inappropriate short-term development, but remain flexible enough, both in long-term development and phasing of implementation, to respond effectively to future cargo handling demand."

According to the study, an effective masterplan should take into account transport and urban planning strategies of the locality, including nearby cities and regions, to ensure the compatibility of land use both within and outside the port precinct. It should also designate and ringfence surface transport corridors connecting to port areas, as well as identify transport 'buffer areas' to ensure the port's long-term sustainable operations.

Another factor to consider is changes to hinterland connections by road, rail, and inland waterways, as well as development plans by competing ports and destination ports. "If a destination port is going for deeper water berths and you are limited to shallower water you risk losing that traffic to neighbours because you are not keeping in touch with the whole cycle of cargo transfer," said Cork.

Due to the long timescales involved, the study

recommends that designs for port layouts and port zoning include a high degree of flexibility to accommodate uncertainties related to changes in transport technologies, traffic forecasts, vessel types and sizes, port handling equipment technology, and operating systems, which can only be estimated with reasonable precision in a short-term scenario.

Nevertheless, the continuing march of technology and automation will likely remain key, said Cork: "Technology employed at major container terminals, such as crane automation, multiple lifting operations, automated guided vehicles (AGVs) for yard operations, etc., will be increasingly used in smaller ports to improve efficiency and strategic port planning needs to take these trends into consideration."

The report examines a range of possible setups for terminals handling different cargos, from liquid and dry bulk, to containers or human passengers. For example, when masterplanning container yard operations, it compares the advantages and disadvantages of rubbertyred gantries (RTGs), rail-mounted gantries, straddle carriers, reach stackers, and fork lifts, and provides benchmark figures on their relative productivity. The report also looks in detail at space and infrastructure requirements for each equipment.

The guidance recommends that port development is planned in phases to enable progressive adaptation to respond to demand. In addition, aspects of infrastructure considered critical to port productivity, such as water depths at the quay wall, and land areas and connections, should be future proofed to avoid becoming obsolete.

"Small- and medium-sized ports, which may have traditionally been designed to handle Panamax-sized vessels, will need to consider ways to accommodate larger, deeper draft vessels in the future. This affects not only the upgrading of quays to accommodate deep draft vessels, but also the demands on harbour space for the safe manoeuvring of larger vessels in the port," said Cork.

The legislative drive towards more energy-efficient ports is likely to continue, so a masterplan needs to be flexible enough to incorporate electrically powered RTGs and/or vehicles powered by natural gas, as well as shore power supplies so ships need not use their main engine at the berth. These can be installed either from the outset, or retrofitted at a later stage, said the study.

Outside of the port's strategic development, a masterplan should take into account issues such as economic whole life cost, legislation issues and the trend towards port privatisation over institutional government funded operations. Even after completion, the document requires regular updating to ensure it remains relevant in years to come. "It is a living document that needs to be updated, ideally every five years, to respond to changing technology, cargo trends, changes in legislation, and competition from other ports," Cork concluded. PH

MORE INFO: www.pianc.org



Sailing a course in maritime

Adam Pitt reports on two graduates of the International Maritime College Oman (IMCO) in the Omani city of Sohar who are blazing a trail for women's education in Oman and the Middle East



"Even in Western countries there are not so many women engineers, so I feel privileged to have this opportunity," says Mir, who, like Hajar, is one of hundreds of women to have graduated from the college earlier



this year. "I enjoy the freedom it gives me, and I want other women to follow in my footsteps."

Having been ranked second last year in Thomson Reuters Foundation's annual poll on Arab countries that promote women's rights, Oman ratified the Committee on the Elimination of Discrimination against Women Treaty in 2006, although some issues remain surrounding the adoption of the treaty and conformity with Islamic law. However, while 29% of the Gulf state's 1.3M women are employed, their ability to secure a career in engineering is still far from straightforward.

According to an article published in the *Times of Oman*, there are no discriminatory provisions in the Oman Labour Law as pertaining to the employment of women. Nevertheless, there are restrictions in place to avoid 'problems' and 'complications' when it comes to hiring women in certain industries and locations. In the case of female engineers, it remains the prospective employer's responsibility to convince the Ministry of Manpower of the necessity of appointing a female engineer. Only when the ministry is convinced will it issue clearances, and even then there is no guarantee of appointment.



IMCO is owned by the Government of Oman and the STC Group of Rotterdam, the Netherlands Despite these hurdles, Mir and Hajar have already secured placements in the industry: a testament to their fine standing with their cohorts and the strong networks that the college has built over nine highly successful years. With students able to choose from courses in Marine Engineering, Process Operational Technology, Port Shipment and Transport Management, and Maritime Studies, they are also among a generation of women who are slowly turning the tables in terms of tertiary education in the Gulf.

The same can be said of Oman, where female literacy rates are in line with the global average and school life expectancy for women is at least 11 years. Yet while 28% enrolment in tertiary education is a respectable rate for the Middle East, Mir and Hajar remain a minority, although IMCO's head of the maritime department Patrick Wells says this trend is definitely changing.

"We have around 1,700 students at the moment, and we fully expect that to have grown to 2,000 when our new students join us in September 2014," he explains. "An increasing number of them will be young women who aspire to become leaders and, just as in other countries, they are often among our best achievers.

"Unlike Mir and Hajar, most of these women will choose to study process operational technology, port, shipping, and transport management, or maritime studies. Regardless of what they study, our aim will be to nurture them and ensure they get the support they need to survive in a highly demanding industry.

"It can be quite a culture shock for some of our students, but our drop-out rate is very low."

As the only education and training institute in the GCC (Gulf Cooperation Council) region to offer diplomas, degree programmes, and short courses to both male and female students seeking to gain entry into maritime, shipping, port, transport, and petrochemical industries, IMCO receives fee-paying and government-sponsored students.

However, the lives of Mir and Hajar, who both received government scholarships to study at the school, could not have been more different before. Mir describes her long-held passion for horse riding in the nation's capital of Muscat, which is home to 1.2 million



people, while Hajar says she likes spending time in her garden at home where her family raise livestock.

"I am from a small village and enjoy relaxing in my garden," says Hajar, who comes from Al Rustaq. "It was definitely hard to make the adjustment when I moved to the city, and I feel like I only survived because of the support I received from my father. He believes in me, and that makes me want to be successful."

Wells says Hajar's experience is not unique and puts it down to the change in education culture, from the national set-up to a more European style that benefits from the strong Dutch influence present in the region since the Port of Rotterdam embarked on a joint venture with the adjacent SOHAR Port and Freezone in 2002. But, he says, this change is vital if graduates are to compete globally.

"Whether male or female, when I send someone to sea, they need to be able to do a job," he says. "If they can't, they put their own safety and that of their peers in jeopardy, and so we treat everyone equally. We are the only school in the Gulf to send our trainees to sea so they can gain sufficient experience, and each year we help 85% of our students to secure industry-leading training programmes. This has been one of the keys to our success, and is why my inbox is full of new enquiries for our graduates."

Another key to the college's success is its strict adherence to international maritime training standards, with the only difference between its graduates and those of China, the European Union, and the United States said to be the fact that new students often have family ties to the industry. Nonetheless, the calibre of IMCO graduates means links have been established with the likes of Shell, Dubai Dry Docks, Salalah Port, and of course, SOHAR Port and Freezone. In turn, this has boosted student interest, which has grown by 20%.

As Hajar's experience shows, access to the school is not the preserve of the elite. In her words, her cousin had studied at the school and told Hajar about its reputation in the industry, making Hajar determined to enrol: a determination that inspired her father's support.

"My cousin studied here and said it is a great school and that many women had graduated and gone on to work at sea," she says. "I knew I had to come here and am determined to be successful."

Meanwhile, word of the school's reputation continues to spread, with students hailing from Bahrain, Bangladesh, Cameroon, Egypt, India, Jordan, Kazakhstan, Nigeria, Oman, Qatar, and Yemen. This has created a wide gulf in the financial status of those attending, but also brings diversity to IMCO's unique learning experience, Wells says. Given the prize at the end of the line, Mir and Hajar say they and their classmates help each other out when someone is in need.

Wells, who joined the college in 2012 after fulfilling his ambitions in the South African Navy, merchant marines, port industry, and education, is now helping today's students and setting a course for the first generation of women seafarers to set sail from Oman. **PH**

Nicaragua's grand plan

If the Hong Kong concessionaire finds funding, the Nicaragua Canal scheme could be a bonanza for subcontractors, writes **Greg Miller**

> A n audacious plan to build an interoceanic canal spanning Nicaragua presents enormous opportunities for port construction and dredging companies.

Whether Nicaragua's dream becomes a reality hinges on developers securing the \$40–50Bn in funding necessary to complete the project. That is a staggering sum – equivalent to Panama's entire GDP – which explains the widespread scepticism towards the plan.

From an investor and lender perspective, a Nicaragua canal has risks associated with carrying out the construction, is located in an active volcano and earthquake zone, has very real environmental concerns, would face intense competitive pricing pressures from the Panama and Suez canals, and would rely on the inherently unknowable trajectory of world trade.

But what if the canal's Hong Kong concessionaire, HKND Group, does secure funding? New details on the huge project's scope were recently provided by Paul Oquist, a Nicaraguan government minister and private secretary of national policy for Nicaraguan president Daniel Ortega. As in Panama, a canal in Nicaragua would not just be a waterway to connect the Atlantic and Pacific. One of the Panama system's greatest strengths is that it has the Balboa and PSA box terminals near its Pacific entrance and the MIT, Cristobal and CCT terminals near its Atlantic entrance, plus a free zone in Colon on the Atlantic side.

The planned canal route traverses Lake Nicaragua Terminals at either entrance to the Panama Canal allow transiting container vessels to tranship boxes to regional destinations on both sides of the isthmus. The same model is being pursued by Nicaragua.

On Nicaragua's Pacific coast, plans call for the construction of a port near the proposed canal entrance at Brito. The Pacific port would have capacity for 1.95M teu/year in container volume (serving an adjacent 29.2km² free zone) and 2.8M tonnes/year of petroleum products (both imports and bunker supplies).

On the Caribbean side, a port is proposed at the planned canal entrance near Punta Gorda, with a container capacity of 2.65M teu/year and a petroleum product capacity of 2.8M tonnes/year. To put Nicaragua's ambitions in perspective, the SSAoperated transhipment hub at Panama's MIT currently has capacity for about 2.2M teu/year.

The yet-to-be-financed Nicaragua Canal – which is optimistically scheduled to open for business in December 2019 – would be 278km long and would traverse Lake Nicaragua. The passage across the lake would comprise 105km of the total distance. A new lake would be created towards the Caribbean side as part of the project (in the same vein as Gatun Lake in Panama) called Lake Atlanta, which would account for 35.9km of the transit. Thus, the proposed canal route would cover 140.9km of water and 137.1km that would be excavated from land.

There would be locks on both the Atlantic and Pacific, each with dimensions of 500m long, 60m wide and 27.6m deep. To consult on the project, HKND has contracted China Railway Construction Corp, Australia's MEC Mining and Belgian lock specialist SBE, among others.

According to Oquist, "Our strategy is to take advantage of our geographical position and the fact that Nicaragua has the greatest water resources between the Great Lakes of the US and Guarani aquifer of Paraguay, which is the world's largest. We also have the lowest utilisation of all of that water."

Oquist claimed that Nicaragua's canal would be complementary to Panama's because Nicaragua's focus would be on larger ships, given its greater water resources and the much larger specifications of its locks. "Panama will handle 13,000teu ships and lower and Nicaragua will handle the larger ships. Putting an 18,000teu ship or a 400,000-tonne bulk ship in a lock takes a lot of water," said Oquist.

However, he did concede that there was one shortcoming compared with Panama. "Nicaragua is not

a maritime country," he acknowledged. "We will need to create a maritime industry."

A widely held theory in shipping circles is that Nicaragua's canal – if ever built – would be funded by Chinese money funnelled through HKND, constructed by imported Chinese labour, and operated with favouritism towards Chinese shipping companies.

Oquist flatly rejected this theory. "The Chinese could finance all of this but we've agreed with them that this is not the way to go," he said. "A proactive effort will be made to ensure 'rainbow' funding: investments from China, Japan and Korea, Wall Street, the City of London, and Frankfurt, as well as from Venezuela and Brazil."

He believes there is a timing opportunity for the project because "smart money is moving out of securities and equities and looking for real economy investments", while the engineering and construction sectors are a "buyer's market", with Nicaragua's canal project to ramp up just as Panama's is winding down.

"We want firms from all over the world to participate in the financing, the bidding for concessions and the construction," Oquist said.

Companies in Nicaragua and Central America would be given preference. "These companies are too small to pick up the largest contracts, but this could be an incentive for international firms to partner with Nicaraguan and Central American firms to get priority in the bidding," he said.

The Nicaraguan law that created the canal authority and granted the build-operate-transfer concession to HKND "guarantees the neutrality and universal utility





nature of the canal", Oquist continued. "China's ships would never have transit preference".

HKND was awarded a 50-year lease for use of the property, with an option for another 50. Nicaragua will initially receive 1% of the shares in the concession-holding entity (Nicaragua HK Investment Development Co Ltd), plus an additional 10% each decade after the transit of the first paying ship. Nicaragua will also receive \$100M in 10 annual payments.

The Nicaragua canal authority will approve all permits and contracts. "Nicaragua will never lose control of this project," Oquist said.

Recounting early challenges faced by Nicaragua, he explained: "No one will finance you unless you have feasibility studies and you can't get feasibility studies unless you have finance. That's one hell of a chickenand-the-egg problem if you're the second-poorest country in Latin America and the Caribbean after Haiti."

When HKND agreed to pay for the feasibility studies and 'mobilise' – manage financing efforts for – at least \$40Bn in investment, "we knew we were in business", said Oquist, who asserted that "Nicaragua has not put up one dime for the feasibility studies".

He also revealed that regardless of the preference for global financing, Chinese investors stand ready as a backstop. "The investment banks in New York, London, Frankfurt and Tokyo are going to be invited to participate. But there are a lot of Chinese public and private banks and corporations interested in this.

"If there are shortfalls, we can rely on having a Plan B and a Plan C. The people who are too sceptical for too long will be picking up the crumbs." **PH**

Patterns of piracy and armed robbery

Pirates are relying on ransoms to boost revenues, reports **Dave Sloggett**

Once the source of the largest wave of maritime terror since the 16th and 17th centuries, today's pirates are now reduced to squabbling over how to divide up the ransoms paid for their hostages. And the future looks bleak for those 37 seamen still being held captive in Somalia after having been kidnapped from their ships, MV Prantalay, Asphalt Venture, and Naham 3.

Unable to earn lucrative revenues from hijacking new vessels, Somali pirates now must try to maximise their earnings on potential ransoms. With no other source of income on the horizon, the last vestiges of Somali pirates are unlikely to be in any mood to compromise.

This all contrasts markedly with the times in 2009 and 2011 when Somali-based pirates dominated the international maritime security agenda. In these two years, nearly 225 attacks took place in the region. A small dip in 2010 to a figure of just under 200 reported attacks was due to the presence of naval forces in the Gulf of Aden. This was quickly reversed as the pirates started to manoeuver out into the remote reaches of the Indian Ocean.

At this time they seemed capable of hijacking vessels almost at will from the Bab al-Mandab Strait to more than 1,609 km out into the Indian Ocean. Concerted action by ship owners and a unique combination of naval forces from China, Iran, Japan, Russia, and many Western countries saw piracy activity levels almost eradicated off the east coast of Africa. In 2014 20 vessels were reportedly approached by suspicious vessels or exchanged gunfire but none was hijacked.

Looking back over the past 30 years, similar patterns can be detected. In 2000 and 2003 similar peaks and troughs in piracy activity arose from a combination of activity in the South China Sea, the Malacca Strait, and the Indian Ocean. However, the levels of activity never quite reached those achieved by Somali pirates.

IMO reports from 1984 to 1990 provided little indication of the increasing problems to come. There was a small spike in 1991, with nearly 50 incidents reported in the Malacca Strait and a small associated level of piracy and armed robbery noted in the South China Sea. Integrated action by local coastguard and naval authorities quickly saw that small increase suppressed. This minimum in 1994 was the last on record. Since then the patterns of attacks across the world have varied with lulls in 1998 and 2001.

The pattern of activity for the next 20 years was set by a sudden increase in attacks in the South China Sea in 1995 and 1996. After a time lag of nearly two years reporting also showed an increase in Latin America and the Caribbean. Barring a temporary peak between 2002 and 2003 piracy has never really gained a foothold in that region. Since that short-lived level of activity piracy in the region has steadily declined. Indeed up until the end of October 2014 there have only been three incidents reported in the Americas.

The upswing in activity in the South China Sea in 1996 has been followed by several cycles of up and downturn in levels with a period of three years, with peaks in 2000 and 2003. After that it declined, hitting a nadir from 2006 to 2009 before another three-year cycle, which peaked in 2010. Data from 2013 suggested this was on yet another upturn with reports of close to 135 attacks in the region. The latest figures from 2014 suggest that similar levels of activity will be reported over the full year. The main problem in these figures is the persistent level of armed robberies that occur on vessels in Indonesia's large array of anchorages where maritime security measures are lacking.

Many of the more recent headlines concerned with piracy have focused on what is perceived to be the new locus of activity in the Gulf of Guinea. This also can trace its roots back to 1995. Since then there has been a degree of periodicity of attacks with peaks in 2001, 2003, and 2007 that suggest a typical upturn followed by a downswing caused by improved maritime security activity.

In fact recent improvements in the capabilities of several navies operating in the area suggest that they have stopped the problem from escalating out of control. However, residual levels of piracy do still exist and the nations in the area must not lower their guard. Clearly lessons have been learned by the international community.

Looking out to the next 30 years, it is likely that some levels of piracy will still exist. Where there are insufficient resources committed to maritime security. there will always be those who exploit the vulnerabilities in the domain. If the levels of naval activity off Somalia do eventually drop off, the scourge will return. The pirates will stop squabbling over the relatively poor fiscal returns they get from their seafaring hostages and return to the more lucrative activity of hijacking vessels.

690ha the size of Doraleh port



Piracy incidents show recurring patterns of activity

Notable numbers

reduction on port dues to all Green Awardcertified LNG carriers offered by Kitakyushu



The positioning of an Alpha Laval scrubber onboard Transfennica-owned roro, Plyca

Weighing up the costs – a commercial perspective

In Europe at least, operators and shipowner organisations fought for delayed imposition of the rules, arguing that technology development was too slow and the economic impact would be too much for those operating at near breakeven levels. Operators calling at European Union ports have more experience since the EU has required ships to burn very low sulphur fuel when in port for several years now. Now, this has been extended to all sea passages, from entering the English Channel through to the North and Baltic Seas.

For ships operating all or part of the time within ECAs, there are three options available to meet the new requirements:

 a switch to burning distillate fuels with a compliant sulphur content
 a change of engine or

modifications if possible to permit operation on LNG

or installing an exhaust gas

cleaning system that would allow operation on even high-sulphur heavy fuel oil.

Each has a heavy financial cost and, even before the 1 January 2015 trigger date, some decided the cost was too high and that service closures were a better option.

Not every vessel will be affected equally. Many small ships – and quite a few larger vessels – already run full time on distillate fuels. For these ships, the biggest problem for their operators is not weighing up the pros and cons of various options then coming to a decision, but recognising that demand for the fuel they habitually use will grow and therefore prices may rise.

Operators that decide to run with the distillate fuel solution face only a financial penalty, resulting from the premium cost of such fuels compared to HFO. Currently this is about \$300/ tonne of fuel. The actual cost will therefore depend on actual fuel consumption within ECAs.

WPO

Replacing or converting engines to run on LNG has been promoted and even adopted by a very few operators, but is not generally seen as a viable option. Brittany Ferries had planned to go this route and had even ordered an LNGfuelled newbuilding but, in October 2014, it tore up those plans and opted instead for scrubbers on the three ships. which it had planned to convert to operate on LNG. This alone represents an investment of \$70-80M (\$87.6-100M).

It is generally accepted that although there is a growing number of scrubber manufacturers, there will be a lack of capacity in repair yards and in manufacturing system components. The number of ships with scrubbers is now growing rapidly.

Early adaptors of scrubber technology were obliged to lose the use of their ships for several months. While installation time is reducing with experience, each installation must be considered as a special case, with particular difficulties to overcome. Multiple engines may require multiple scrubbers and space needs to be found to accommodate the scrubbing cylinders.

With the cylinder typically being around 10m in length and 3m in diameter usually the only suitable location is inside the stack. But in addition there are pumps, pipes, separators, heat exchangers and tanks to be accommodated somewhere in the machinery spaces of the ship or perhaps on deck if the ship's configuration allows.

A scrubber system will add about 250 tonnes to the ship's deadweight and if a cargo vessel this will reduce the freight earning ability by a similar amount. This is not the only downside. Danish ro-ro operator DFDS has had scrubbers retrofitted on several vessels and while it expects to save money compared with operating on distillates, the company has said that fuel consumption on the converted vessels has increased by 1-2%.

There are other detrimental consequences to scrubber installation such as additional demands being put upon the crew for maintenance and operation and the need to buy and store chemicals for closed loop systems and also to dispose of wash water where discharge into the sea is prohibited.

10,810

Tianjin port's target tonnage of CO₂ emissions to be cut annually



when the Hong Kong Government is likely to bring in ship emissions legislation

SOHAR now offering ship-to-ship LNG services

It was announced at the recent 2014 Singapore International Bunkering Conference that SOHAR port and freezone, Oman, is joining the group of ports offering LNG ship-to-ship services with measures now in place to begin issuing licenses to STS service providers equipped to handle LNG.

"With 125 years' experience between them, [STS service providers] Fendercare and SPT Inc will be offered the opportunity to provide this pioneering service after requesting permission to begin operations," according to SOHAR executive commercial manager Edwin Lammers. He also revealed plans to establish LNG bunkering facilities in SOHAR in years to come.

"We are delighted to announce that we have put all of the necessary licensing structures in place to be able to start LNG shipto-ship services in SOHAR. Around the world there are currently only a few ports that are able to offer this service, among them Port of Rotterdam and Singapore," Lammers explained.

"This will be the first phase of our project, and we will move quickly in issuing the new licenses and getting things up and running. The second phase will involve installing LNG bunkering services for vessels calling at SOHAR Port," he continued.

"While the industry continues to explore safe and commercially



commercial chief, Port of Sohar

viable options for reducing SOX levels in conventional fuels, many of the world's biggest shipping lines are looking to bypass costly upgrades in favour of moving directly to LNG. We've anticipated this trend and expect the industry to develop fast," said Lammers.

He continued, "As a first step, many organisations are developing ships that would be capable of burning LNG and diesel; Hanjin Shipping, DNV GL and GTT, for example, are currently designing a vessel that can carry 16,300 TEU on Asia-Europe routes. United Arab Shipping Co. is also building 17 hybrid ships – six with capacities of over 18,000 TEU, while UASC is looking to establish an LNG base in the Middle East."

In addition to global shipping lines, a new European Union regulatory framework will make it a requirement for member states to build LNG infrastructure across core Trans-European Networks for Transport by 2025, ideally every 400 kilometres. With many of Europe's ports falling within one of the IMO's Emissions Control Areas, the new rules are part of a far wider clean fuel strategy focused on bringing alternative fuels to the entire European transport sector, including inland vehicles.

And Europe is not alone, according to Lammers, "A recent LNG bunkering survey published by Lloyd's Register reported that of the four ports in North America, 15 in Europe, and three in Asia that took part in the survey, more than half have LNG plans in the pipeline, and more than half also said they are working alongside other ports to develop those plans," Lammers noted.

"Like SOHAR, many of the ports surveyed expect to rely on thirdparty ship-to-ship suppliers while



further studies are carried out, feasibility reports compiled, and the larger investments required to build in-port infrastructures are secured," he said. "Over time, this trend will naturally shift, as the market evolves and as the full array of LNG benefits are harnessed. This includes energy security; economic and environmental benefits."

Having recently boosted its in-port bunkering offering with a 6,000 tonnes IFO barge and 500m³ gasoil barge, SOHAR is already home to some of the world's most experienced bunkering service and liquid bulk storage facilities. This includes **Omanoil Matrix Marine Services** (MXO), an independent joint venture between Matrix Marine Holding and Oman Oil, and the world-leading Oiltanking Odfjell Terminals Oman (OOTO) – also a joint venture between Germany's Oiltanking and Norway's Odfjell. Oiltanking is a leading independent storage partner for oils, while Odfiell is at the forefront of the global market for transporting and storing bulk liquid. Together as OOTO they have a capacity of close to 1.4 million cubic metres in SOHAR. And, having forged a successful partnership in the niche chemical tanks market, the new LNG service will consolidate the position of SOHAR as a critical link on global shipping routes.

safety incidents in Singaporean waters



depth to which Jan De Nul will dredge Takoradi port

Violence against ships far from over

The number of reported attacks (actual and attempted) on ships and crews by armed gangs and pirates has fallen by 5% in the nine months up to September 2014 (178), compared with the same period in 2013 (188), according to the International Maritime Bureau's (IMB's) 3Q14 report. But the violence is far from over, with killings, kidnappings, and hostagetaking still posing a significant threat to the maritime community.

Last year, three seafarers were killed (two in the Philippines, one in Nigeria), five were kidnapped from their vessels (three in the Malacca Straits and two in Nigeria), and 369 were taken hostage – the majority in Malaysia (89) and Ghana (86). Nearly two-thirds of all

incidents occurred in Indonesia (72), Malaysia and Bangladesh (15 each), and Nigeria (13), with attacks occurring throughout the months fairly evenly, but the majority occurred in May and June (25 each).

Southeast Asian waters are the current violence hotspot, and the IMB states that prime targets for gangs armed with knives and guns are small tankers carrying product such as gasoil or marine diesel oil. Ships are boarded at sea, and the crew is held while the cargo (part or full) is unloaded. While Nigeria reported a drop

reported an increase (four this year, against none in 2013). he Both India and Bangladesh have reported an increase in incidents. India reported 10 for Q32014

against seven in 2013 (same period); while Bangladesh has reported 15 incidents this year Q3, up from 10 last year at that time.

in incidents (to 13 in the first nine

months of 2014 from 29 for the

same period last year), Ghana

Somali piracy remains low but, with 10 incidents reported, the risk is far from over. The IMB emphasises that attention should not be diverted from this region.

"There is a risk that international attention will turn away from the 40 hostages still being held for ransom by suspected Somalia pirates," states the report, adding that some of the crew have been held for "more than four years, with fading hopes of immediate release".

The report warns seafarers not to "underestimate the continuing threat of Somali piracy".

The IMB has launched a reporting hotline for seafarers, port workers, shipping agents, shipyard personnel, brokers, stevedores and all concerned parties, to report anything they have "seen, heard, known" related to maritime security. *Contact*:

Tel: +60 3 2031 0014; Fax: +60 3 2078 5769. Email: imbsecurity@icc-ccs.org

Shipping cuts piracy roots with e-learning centre

A German anti-piracy initiative conceived in 2011 has taken shape in the form of an 'e-learning centre' for children and adolescents in Djibouti.

The E-Learning-Zentrum, which can accommodate about 200 students, is situated in Balbala near the port of Djibouti and includes training in languages, office software, and how to apply for jobs.

A joint initiative between the German Shipowners' Association (Verband Deutscher Reeder – VDR) and German children's charity SOS Children's Villages International (SOS), it aims to assist regional development.

"The course material builds on the existing knowledge of the children and is especially tailored to the local labour market," Dr



E-Learning-Zentrum students using computer workstations

Wilfried Vyslozil, SOS committee member, said in a statement.

A major potential employment prospect for local youngsters, who might otherwise be drawn into piracy, is the port.

"Thanks to its significance as a

supply location for East Africa, the port location of Djibouti provides jobs particularly in the maritime shipping sector and logistics," said Vyslozil, who added, "Together with the VDR, we share the vision that one day seafarers from Balbala will sign on for work on a German merchant vessel."

The centre is located 20km from the Somali border and is part of a drive by some companies in the shipping sector to eliminate the foundations of piracy in the Horn of Africa.

"At sea we are only really fighting the symptoms," said VDR president Michael Behrendt. "The causes of piracy are to be found onshore.

"The opening of the e-learning centre is a key milestone to eliminate the foundations of piracy in the Horn of Africa on a sustainable basis."

The centre has three classrooms that are equipped with computer workstations and internet access.



minimum for which China Shipping Terminal Development will sell its 49% stake in the Lianyungang Xindongrun Terminal





The Port of Hamburg:

"flagship port" for business at the IAPH World Ports Conference

The Hamburg Port Authority (HPA) has developed a long-term strategy that is aimed at making the Port of Hamburg 'smart' in coming years. '

Called smartPORT, the 'smart' refers to the intelligent exchange of information to increase the quality and efficiency of the port as an important link in the supply chain – taking account of economic and ecological aspects. A special focus of the strategy lies on infrastructure, traffic flows, and trade flows.

At the national IT summit held at the end of October in Hamburg, the HPA, together with project partners SAP and Deutsche Telekom, had the opportunity to present the smartPORT logistics pilot project. Jens Meier, chairman of the Management Board of the HPA, provided Chancellor Angela Merkel, the federal minister for Economic Affairs and Energy, Sigmar Gabriel, the federal minister for Transport and Digital Infrastructure, Alexander Dobrindt, and other representatives from the business and scientific world an insight into the pilot.

SmartPORT logistics substantially contributes to making the vision of smartPORT a reality. In pilot operations, HPA and its project partners were able to increase the productivity by more than 12% due to the use of smartPORT logistics. In future all modes of transport will be co-ordinated to improve the flow of information and, ultimately, traffic flows. The HPA will present more



results of its efforts to become a smartPORT at the IAPH World Ports Conference that will take place at the Congress Center Hamburg (CCH) from 1-5 June 2015. The CCH is one of the leading conference centres in Europe, ideally situated in the centre of Hamburg. The welcome reception will take place at a very special venue: Hamburg City Hall. The entertainment committee also invites all guests to take part in the gala dinner at the Fish Auction Hall in Altona, a market hall situated directly on the banks of the River Elbe with a view of the harbour.

The conference, which will be attended by numerous guests from all over the world, will be the perfect occasion to present the Port of Hamburg as a 'flagship port' for business. Apart from smartPORT, the IAPH conference will focus on the topic of cruise shipping. In recent years the cruise industry has seen phenomenal growth, and for many ports cruise business has become an important economic factor.

In Hamburg, the HPA is building a third cruise centre. With this terminal in the central port area, the HPA is meeting demand from shipping lines for efficient terminal capacities.

The beginning of November saw a ceremony to celebrate the topping out'of the shore power plant for cruise ships in Hamburg-Altona. With this project the HPA has reached another milestone in its quest to make Hamburg one of the most attractive and environment-friendly cruise locations in Europe.

MORE INFO:

about the IAPH conference topics, programme, and online registration can be found at www.iaph2015.org



L-R) Timotheus Höttges (CEO Deutsche Telekom), Olaf Scholz (first mayor of the Free and Hanseatic City of Hamburg), Sigmar Gabriel (federal minister for Economic Affairs and Energy), Chancellor Angela Merkel, Jens Meier (chairman of the Management Board of the HPA), Bernd Leukert (board member of SAP)



Regional meeting in Africa

Chaired by Gichiri Ndua, IAPH past president and managing director of Kenya Ports Authority, the IAPH Africa/Europe regional meeting discussed various items of immediate concern to the members in the region. The meeting was held in conjunction with the 10th Pan-African Association for Port Co-operation (PAPC) Conference, 16–19 November in Mombasa, Kenya. At the regional meeting on 17 November, the following items were reported and confirmed by the participants:

- interim report on the
- amendments of IAPH bylaws;

 confirmation of election schedule of the new regional vice-president;
 report from IAPH Europe Office

on the latest developments from the International Maritime Organization; and

brief updates on the 2015Hamburg Conference.



Active discussion at PAPC

MORE INFO: http://www.iaphworldports. org/Library/AfricaEurope.aspx

► Women's forum

"Show up, participate, and say yes"

IAPH past president **Geraldine Knatz** tells it like it is...

Women often approach me asking how to get a job in the port field or how I was able to transition from a scientific and engineering background to working in the business side of the port industry.

At the time I first started in the port, there were few women in the field. Back then being a scuba diver gave me an edge over the male candidates who were also vying for an entry position as an environmental scientist.

Most port employees came in with a technical background in engineering, science, planning, or business and then learned the port business on the job. Unless you wanted to attend a maritime academy and train for a life at sea, there were few places one could study ports or the maritime industry.

Today, a scuba diver certification is not going to land you a port job! Fortunately, there are many more ways to learn about and network with the port industry. Aspiring port professionals, whether male or female, should have an educational and a networking strategy to advance their careers.

The educational strategy should focus on how you plan to learn the necessary skills to advance in your career. Colleges and universities around the world now have offerings in supply chain management, port economics, and management. Universities with transport programmes often have course offerings in the maritime field.

The World Maritime University in Malmö, Sweden, specialises in postgraduate education in maritime affairs. In the United States, port professionals can apply to the Professional Port Manager programme established by the American Association of Port Authorities, which not only helps educate the next generation of port leaders but also helps up-and-coming professionals to build their professional network.

The networking strategy is as

important as an educational strategy - maybe more so. For a woman in a male-dominated field like the port industry, networking can seem an intimidating challenge. There were numerous times when I found myself at a conference where most of the attendees were male and to make matters worse. I did not know them! At times like these the solitude of my hotel room and a room-service dinner looked verv appealing. My trick to surviving was to first consider the event as an opportunity to make a friend. That new friend might eventually become a professional colleague who becomes part of your network.

However, the key to networking is showing up and participating. I credit my involvement in professional organisations as fundamental to my career success. As an entrylevel employee at the Port of Los Angeles, I started tagging along with my supervisor at the American Port Association's environmental committee meeting. Show up, sign in, and participate. Before long, someone asks you to help out or take on a leadership role. We are all busy, but say yes! Accepting that leadership role exposes you to a larger network, while having the sidebenefit of honing your leadership and management skills.



IAPH President at AAPA

Representing IAPH, President Grant Gilfillan spoke at a session entitled 'The social licence to operate – working with your local communities' at the American Association of Port Authorities (AAPA) Annual Convention, 9–13 November in Houston, Texas, USA.

AAPA is an IAPH-friendly organisation having signed a 2004 memoradum of understanding with IAPH for mutual co-operation.

Four speakers, including Gilfillan, shared their best practice in community outreach and education about the economic benefits of ports.

Gilfillan gave two examples that highlight the complexities of working with the local community. His first case study concerned the cruise industry and, particularly, a cruise berth at White Bay in Sydney Harbour.

But the second case study "is far more significant and concerning," he said.

"We have a number of significant coal export ports on the Queensland coast and they need to expand in order to cater for growth. They are adjacent to one of the greatest natural treasures on our planet – the Great Barrier Reef.

"The Abbot Point coal terminal needs to carry out capital dredging in order to expand. Gaining environmental approval has historically been relatively easy as disposal of dredged material has been well-managed and monitored. In principle, approval had been given."



• My own experiences tell me that it is becoming harder to achieve or maintain the ideal status of approval or identification

At that point, activists then mounted a campaign. "These

people are intelligent, articulate and have the passion of

Visitors

Spanish port delegation

President of IAPH member port the Ports of Tenerife Pedro J Rodríguez Zaragoza, and his commercial director Airam Díaz Pastor visited the IAPH head office on 22 October. They were visiting Japan with IAPH associate member Kieran Ring as the last leg of their business trip to northeast Asia. They exchanged relevant information and opinions on various association matters with Secretary General Susumu Naruse, including a presentation on the port.

Three honorary members together

On 5 November IAPH past president Pieter Struijs, who is chairman of the Green Award Foundation, visited the IAPH head office. Prior to the visit, Struijs, Jan Fransen, and Shinohara of Green Award Foundation visited the Port of Kitakyushu, Japan, which joined the Green Award scheme recently. Another past president, Akio Someya, and past secretary-general Satoshi Inoue were also here to renew their friendship.

Delegation from the biggest port in Korea

On 27 November, five people from an active IAPH member port, Busan Port Authority, visited IAPH head office during their port promotion activities in Japan. Headed by Boo-Won Kang, marketing team director at the port, they exchanged regional maritime information with Secretary General Naruse. Rodríguez Zaragoza and Díaz Pastor visited IAPH HQ...

...along with Pieter Struijs...

...and the Busan Port team







IAPH INFO

crusaders," said Gilfillan. "These groups ... have strong ideologies and don't mind using any tactics to get their message across to change public opinion.

"And they are succeeding. The message now getting traction is that coal is killing the Great Barrier Reef. The issue of [depositing] dredged material within the Great Barrier Reef marine park is one which requires a rational approach and a rational debate. This debate has been hijacked."

He continued: "Dredged material has been deposited so

far from the reef itself that there has been no impact. But now, the fear of a mistake being made is enough to stop this activity and one could speculate that it is the first step towards demonising coal and coal ports and ultimately convincing the broader community that coal is dirty and evil and should be left in the ground."

"Our right to debate these issues based on logic, facts and experience has been hijacked, and the agenda is probably going to test the limits of the social licence to operate."

What is a social licence anyway?

It is the level of acceptance or approval continually granted to an organisation's operations or project by the local community and other stakeholders. It varies between stakeholders and across time through five levels, from lowest to highest: hostility, withdrawal, acceptance, approval, identification.

IAPH scholarship is still available

Under the scheme, the maximum amount of funds offered to an individual will be \$2,500. Personnel from ports whose membership dues are based on six or fewer credits can apply.

The scholarship is aimed at giving staff of developing ports the opportunity to attend advanced port training programmes overseas in order to gain the latest knowledge on port management and operation and expand their personal network of contacts.

Since the scheme was set up in 1980, more than 100 people have received financial assistance through the scholarship. Distance learning programmes are also offered for members who cannot travel.

A typical applicant would be a staff member with an IAPH

regular member port in a developing country.

The scholarship scheme does not extend to staff who are employed by a central government. A maximum of four scholarships can be awarded each year.

Applicants for training scholarships should submit a form to the IAPH secretariat.

MORE INFO:

www.iaphworldports.org



2017

Dates for your diary

A selection of forthcoming maritime courses and conferences

January

- 12-30: Course on Coastal Systems Delft, Netherlands http://www.unesco-ihe.org
- **19-30:** Seminar on Port Management Antwerp, Belgium *http://www.portofantwerp.com/apec*
- 22-23: 9th Indian Ocean Ports and Logistics 2015 Maputo, Mozambique http://www.transportevents.com
- **29-30:** Shifting International Trade Routes Florida, US http://www.aapa-ports.org

February

- 2-13: Seminar on Port Security Antwerp, Belgium http://www.portofantwerp.com/apec
- 9-27: Course on Port Planning and Infrastructure Design Delft, Netherlands http://www.unesco-ihe.org
- **12-13:** 8th Philippine Ports and Shipping 2015 Manila, Philippines http://www.transportevents.com
- **16-27:** Course on International Shipping and Supply Chain Management London, UK *http://www.ttpminternational.co.uk*
- 17-18: Ro-ro Shipping Conference Gothenburg, Sweden http://www.informamaritimeevents.com

March

- 2-6: European Shipping Week 2015 Brussels, Belgium https://www.europeanshippingweek.com
- 2-20: Course on Coastal and Port Structures Delft, Netherlands http://www.unesco-ihe.org
- 23-3 April: Legal Aspects in Port Operations and Trade Antwerp, Belgium http://www.portofantwerp.com/apec

June

1-5: The 29th IAPH World Ports Conference Hamburg, Germany www.iaph2015.org



Port of Los Angel

The challenges we face today provide a tremendous leadership opportunity for ports

Taking advantage of challenges

Big ships and alliances are a leadership opportunity for ports, says *Gene Seroka*, executive director at the Port of Los Angeles

Facing years of eroding profit margins, shipping lines are making transformative business moves that are challenging our ports and harbours in unprecedented ways.

First, the lines continue to invest in ultralarge, modern ships to reduce container slot costs, achieve higher scales of economy, and maximise operational efficiency. Based on construction orders for ships that will be delivered through 2016, the new range of vessel sizes calling at major commercial ports will fall mainly between 7,500teu and 18,000teu, or larger. With the deployment of these new mega-ships, the lines are scrapping older vessels and assigning their larger ships in service to new routes. As a result, many ports are seeing an increase in the size of ships that call at their facilities.

To reduce over-capacity in the container trade, shipping lines also continue to form strategic alliances. These alliances help the carriers attain the most attractive terminal rates and fill their ships to capacity so they can fully realise the cost savings afforded by utilising the newest, largest ships. The impacts of these larger ships and strategic alliances are challenging terminal operators and supply chain partners worldwide. While there is a common theme of issues across our industry, the complexity of problems varies from port to port.

Terminal operators are strained to manage the larger volumes of containers discharged per ship call. The congestion in terminals spills over to challenges faced by rail, truck, and even warehouse operators. There's a vast array of conditions and possible solutions, but what is essential to create solutions is facilitating dialogue between a disparate group of customers and service providers. That is where our ports can play a leading role.

Port managers are at the epicentre of the infrastructure and logistical issues that terminal operators, rail providers, fleet providers, labour interests, and other supply chain partners are trying to resolve. A port's leadership team often has the most wideranging perspective of its fundamental cargo-flow challenges. We also are in the best position to convene and lead a dialogue that provides key stakeholders with a seat at the discussion table.

In addition, IAPH member ports also share and benefit from knowing circumstances and best practices at other ports. What we learn from one another helps inform us as we lead the dialogue to address challenges relative to our port customers and business partners.

In the future, our industry will be focused on solutions that will advance seaborne trade to new levels of innovation and efficiency. The challenges we face today provide a tremendous leadership opportunity for ports to facilitate the discourse and play a front-and-centre role in surfacing solutions. For the benefit of our individual ports and our industry at large, let us take advantage of this leadership opportunity. **NH**

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