

BEST SINGLE
ISSUE
(GOLD)
TABBIE AWARDS
2012



▶ 2012: the year in review ▶ automated cargo planning ▶ nerve centres for navigational safety



AMAZING MARITIME ADVENTURE

Are you game for an adventure?

The Amazing Maritime Adventure pits you and your team in a series of fun maritime-themed games. Teams will need to strategise and compete at various physical and mental challenges in order to rack up as many points as possible.

Open to participants in all age groups, form a team of four with your friends, colleagues, school mates or family members for an adventurous morning. Come pit your strengths and wits against other teams to win attractive prizes!

Sign up now at www.smw.sg/adventure.html

Date: 7 April 2013 (Sunday)
Start and end point: Plaza Singapura

Prizes

1st \$2,500

2nd \$1,000

3rd \$500

Best Company Team \$300

Best School Team \$300

Registration Details

Registration fee: S\$20 (per team of 4)
Online registration: www.smw.sg/adventure.html
Registration* closes on: 18 Mar 2013
For enquiries, call our hotline at: 8495 4211

Every participant will receive attractive goodie bags!

* Limited to first 250 teams.



Scan here for registration

Organised by:



CONTENTS

No:22

PAGE

04

SHIP'S LOG
NEWS AND EVENTS
AT MPA

PAGE

08

**PORT &
STARBOARD**
AT THE CORE OF
NAVIGATIONAL SAFETY



PAGE

12

FEATURE
SILVER LINING
AHEAD

PAGE

20

COMPANY SPOTLIGHT
BUCKING THE TREND

PAGE

24

PERSONALITY
ADMIRAL
ROBERT J. PAPP



PAGE

26

PERSONALITY
VICE-ADMIRAL
ENRIQUE LARRANAGA MARTIN

PAGE

28

TECHNOLOGY
KEEP THE BALANCE

PAGE

31

COMMENTARY
MARINE FUEL FOR THE FUTURE

PAGE

34

MARITIME CAREERS
TAKING CHARGE

PAGE

36

THE BACK PAGE
LUCKY LAUNCH



publisher



MPA
SINGAPORE

**Maritime and
Port Authority of
Singapore**

460 Alexandra Road,
#19-00, PSA Building,
Singapore 119963
Tel: +65 6375 1600,
Fax: +65 6275 9247
www.mpa.gov.sg

executive editor

Lam Wee Shann

advisory committee

Lam Yi Young
Tan Beng Tee
M Segar Abdullah
Khong Shen Ping
Toh Ah Cheong
Tan Cheng Peng
Leanna Lim
Parry Oei
Wendy Loo
Angela Png
Alan Lim

senior managing editor

Cynthia Chin

managing editor

Gary Low

assistant managing editor

Jessica See

publishing agent

SPH magazines

Caroline Ngui
group editor-in-chief

Joanna Lee-Miller
group editor

**editorial & creative
management**
Low Ching Ling
senior editor

Serene Foo
editor

Winnie Fong
sub-editor

Alex Goh
creative director

Stephanie Teo
art director

Dennis Pua
managing director

Christopher Chan
general manager

**sales & client
management**
Kaz Lim
**associate account
director**

Bernard Chen
bernchen@sph.com.sg
account manager

Christine Chionh
**assistant manager
business development
& client management**

publishing services

Nurin Farah Adam
coordinator

Singapore Nautilus is published quarterly by SPH Magazines Pte Ltd (Registration No. 196900476M) for Maritime and Port Authority of Singapore (MPA). Copyright of the materials contained in this magazine belongs to MPA. Views expressed may not necessarily be those of MPA or SPH Magazines Pte Ltd. All rights reserved. Enquiries should be directed to the Editor, Maritime and Port Authority of Singapore, 460 Alexandra Road, #19-00, PSA Building, Singapore 119963. Tel: +65 6375 1600, Fax: +65 6275 9247, E-mail: SN_feedback@mpa.gov.sg. All information is correct at time of printing. Printed in Singapore by KHL Printing Co. Pte Ltd (Registration No: 197801823M), ISSN 2010-1120 For advertising enquiries, please e-mail jrani@sph.com.sg

**singapore
nautilus
wins!**

Tabbie Awards 2012
Best Single Issue, Gold

Feature Design, Gold

Apex Awards 2012
Illustration & Typography
Award of Excellence

Discover Maritime Singapore



How did Singapore transform to be one of the world's leading international maritime centres? And home to the world's busiest port? Why is maritime a vital part of our past, present and future?

Find out more at maritimegallery.sg

**Singapore Maritime Gallery, Marina South Pier
31 Marina Coastal Drive Singapore 018988**

Now open

Admission is free

Brought to you by



M P A
SINGAPORE



A year in review

Maritime Singapore today hosts a vibrant and dynamic maritime landscape, employing over 170,000 people of different nationalities. An important part of the nation's economy, the maritime industry comprises over 5,000 companies and contributes to over 7 per cent of Singapore's gross domestic product.

In this issue of *Singapore Nautilus*, we take a look at the industry's performance in 2012 – its highs and lows, and new initiatives that have been introduced to help boost its future performance – as well as have a sneak peek at new trends and possible developments for 2013.

At the end of 2012, we also bid farewell to the Port Operations Control Centre at Tanjong Pagar

Complex, which has served us faithfully for over 28 years. Read about its decommissioning ceremony in our Port & Starboard section.

Besides, this edition also features the SIBCON 2012 keynote speech by Adam Ritchie of Shell Trading about the future of LNG bunkering for the shipping industry.

In the Company Spotlight section, we turn our focus to Norgas Carriers to find out how this niche industry player managed to buck the trend and stay profitable despite the recent challenging maritime climate.

wee shann
executive editor

Sea Asia 2013 set to scale new heights



Expect a bigger and better show for Sea Asia 2013 this year. The Asia-Pacific region's cornerstone maritime conference and exhibition will take place at the Marina Bay Sands (MBS) Exhibition Centre from April 9 to 11.

Singapore's Deputy Prime Minister Tharman Shanmugaratnam will officiate as the guest of honour at the opening ceremony on April 9.

The maritime event was founded by co-organisers – the Singapore Maritime Foundation (SMF) and international maritime events and publishing house Seatrade.

Sea Asia 2013 has already surpassed organisers' expectations in terms of floor space committed and pre-

registrations for the conference and exhibition.

Says Mr Andrew Callaghan, Managing Director (Asia) and Global Sales Director of Seatrade: "We are on target to grow the show again by about 15 per cent in exhibition floor space size, and we are delighted with the rate of renewals from both previous supporters and newcomers to the event."

For example, this year will see the first Korea pavilion at Sea Asia. There are also expanded China and Norway pavilions, as well as a Singapore pavilion.

Adds Mr Callaghan: "The show's structure has also been refreshed and now reflects the dynamic offshore sector

– where the real strength currently lies in our industry."

Since its inception, Sea Asia has grown exponentially. It aims to grow into one of the leading global maritime events around the world.

To Mr Callaghan, in terms of seniority and profile of the speakers and attendees at Sea Asia, the show ranks with the best events in Europe, such as Nor Shipping and Posidonia.

He says: "Sea Asia ranks highly against the best shipping gatherings in Europe and we continue to see industry leaders from every continent coming to the event. This reflects the fact that Singapore is now one of the world's great shipping centres and that so much of the maritime business

is centred on and driven by Asian economies."

The biennial get-together is a key feature of Singapore Maritime Week (SMW) – an annual offering by the Maritime and Port Authority of Singapore (MPA), the agency tasked with promoting Singapore as an international maritime centre.

Held from April 7 to 12, SMW will gather the maritime community in Singapore for a week of conferences, dialogues, exhibitions and social events, in celebration of all things maritime.

Several maritime professionals from around the world will be in Singapore during SMW to network, strike business deals, as well as get updated on the latest trends and happenings in international shipping markets.

Sea Asia's combination of exhibitions and high-level conference programming will provide visitors with timely market knowledge, as well as new ideas and fresh perspectives on the issues affecting all sectors.

Invaluable networking opportunities abound at Sea Asia, with its packed schedule ranging from technical presentations at the Seminar Theatre and the dedicated Offshore Marine Day programme, to social events including a golf tournament, as well as receptions.

For more details, visit www.sea-asia.com.

Port of Singapore generates good growth in 2012

Despite the uncertain global economy and many challenges faced by the global maritime industry last year, the Port of Singapore maintained its global lead in annual vessel arrival tonnage and bunker sales, and achieved good growth in container and cargo throughput.

For the first time, container throughput crossed the 30 million twenty-foot equivalent units (TEUs) milestone in 2012 – a historic high for the Port of Singapore.

In fact, container throughput was 31.6 million TEUs in 2012 – a 5.7 per cent increase from the 29.9 million TEUs achieved in 2011.

Total cargo tonnage handled last year rose 1.2 per cent from 2011 to reach 537.6

million tonnes – a new record as well.

In addition, annual vessel arrival tonnage reached a record high of 2.25 billion gross tonnes (GT) in 2012, an increase of 6.1 per cent from the 2.12 billion GT achieved in 2011. Tankers and container ships were the top contributors, accounting for 30.8 per cent and 30.4 per cent of the total vessel arrival tonnage respectively.

The Singapore Registry of Ships did well, too, and continued to grow in size and ranks among the top 10 worldwide.

The total tonnage of ships under its register grew by 13.2 per cent or 7.7 million GT in 2012. As of end December last year, the total tonnage of ships

under the Singapore flag was 65 million GT.

The total volume of bunkers sold in the Port of Singapore fell by 1.2 per cent, from 43.2 million tonnes in 2011 to 42.7 million tonnes in 2012. Despite the decline in bunker sales, Singapore remains the world's top bunkering port.

Good progress has been made in developing Singapore as a leading international maritime centre. The republic continues to attract a diverse range of maritime businesses to establish operations here and is now home to over 120 international shipping groups. The maritime cluster employs more than 170,000 people and contributes some 7 per cent to Singapore's gross domestic product.

SMF's annual reception attended by more than 300



As the guest of honour at the annual New Year Cocktail Reception organised by the Singapore Maritime Foundation (SMF), Mr Lui Tuck Yew, Singapore's Minister for Transport, ushered in the new year with over 300 maritime industry leaders from the private and public sectors.

At the networking event held at Regent Singapore, Mr Michael Chia, Chairman of SMF, spotlighted some of the milestone achievements of Singapore in 2012 in his opening address.

In his welcome address, Mr Lui also highlighted the overall performance of the Singapore maritime industry and port in the past year.

He shared insights, too, about key initiatives to strengthen Maritime Singapore.

"As we embark on a new year, let us strengthen the tripartite partnership among the Government, the industry and the unions. By working closely together, we will be in a better position to weather the rough seas and further develop Singapore as an International Maritime Centre," said Mr Lui.



Tour for educators



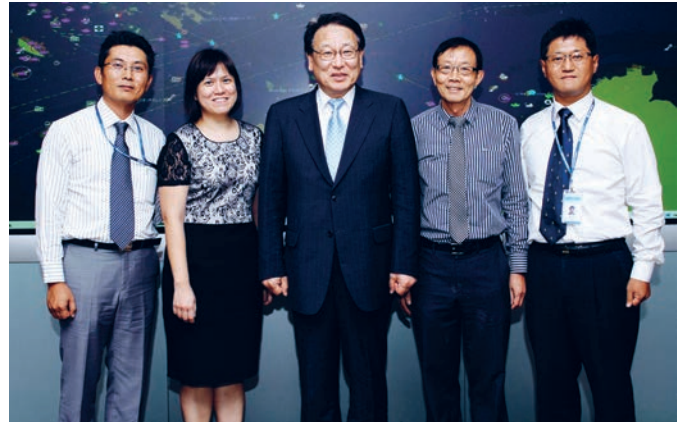
MPA organised a tour for National Education coordinators and student leaders in 2012. Participants were given a tour of the newly opened Singapore Maritime Gallery at Marina South Pier, as well as the Raffles Lighthouse.

Ballast Water Third Country Training Programme



The Third Country Training Programme, jointly organised by the International Maritime Organization, the Ministry of Foreign Affairs of Singapore and MPA, was held in November 2012. It was titled the Regional Workshop on Developing a Regional Strategy Action Plan to Implement the Ballast Water Convention.

Visit by Korean Presidential Advisory Council



Mr Hong Seung Yong (above middle), Vice-Chairman of the Korean Presidential Advisory Council on Education, Science and Technology, led council members on a visit to MPA's Port Operations Control Centre at PSA Vista.

Visit by Port Authority of Thailand



Visit by Danish ambassador



MPA hosted the Port Authority of Thailand at the Integrated Simulation Centre at Singapore Polytechnic.

HE Berit Basse (above left), Danish Ambassador to Singapore, paid a visit to the Port Operations Control Centre at PSA Vista, and was hosted by MPA.

AT THE CORE OF NAVIGATIONAL SAFETY



ON DEC 28, 2012, THE MARITIME AND PORT AUTHORITY OF SINGAPORE DECOMMISSIONED ITS PORT OPERATIONS CONTROL CENTRE (POCC) AT TANJONG PAGAR COMPLEX. THIS MOVE FOLLOWED THE COMMISSIONING OF ITS NEW POCC AT CHANGI NAVAL BASE AND THE RECOMMISSIONING OF ITS UPGRADED POCC AT PSA VISTA. [SINGAPORE NAUTILUS](#) FINDS OUT MORE ABOUT THESE NERVE CENTRES.



► The Maritime and Port Authority of Singapore (MPA) officially decommissioned its Port Operations Control Centre (POCC) at Tanjong Pagar Complex (POCC-TPC) on Dec 28, 2012. This move followed the commissioning of its new POCC at Changi Naval Base in July 2011 and the recommissioning of its upgraded POCC at PSA Vista in September last year.

The decommissioning of POCC-TPC marks the retirement of Singapore's first POCC, after more than 28 years of ensuring the navigational safety of vessels in the Singapore Strait and also in Singapore's port waters.

The decommissioning ceremony was officiated by MPA Chief Executive Lam Yi Young, and was attended by the officers who had faithfully served at POCC-TPC over the years, including those who have since retired.

Speaking at the ceremony, Lam paid tribute to the pioneers who were instrumental in setting up POCC-TPC and to the many officers who had kept a vigilant watch at the centre around the clock from 1984 to 2012, to ensure the safety of the thousands of vessels that call at the Port of Singapore each year.

MPA's new POCC at Changi Naval Base and upgraded POCC at PSA Vista are fully operational and manned round the clock. The two centres are also fully integrated to serve as back-ups for each other. Each centre is independently equipped, and has the capability to assume control of all operational areas in the event of an emergency affecting the other.

From VHF to VTIS

Back in the 1960s, vessel traffic management was largely a manual process. Marine signalmen communicated with vessels calling at the port of Singapore by hoisting flags and using signal lamps to flash messages in Morse code from lookout posts.

Subsequently, the Port Operations Office was established

at the Cable Car Tower in 1975 using VHF radio equipment to communicate verbally with vessels.

In 1984, the Port Operations Office was relocated to Tanjong Pagar Complex and renamed Port Operations Control Centre. Better known as POCC-TPC, it was the first of its kind to be established in Singapore.

POCC-TPC continued its operations using VHF radios until October 1990 when the first radar system in Singapore, known as the Vessel Traffic Information System (VTIS), was installed here.

For the first time, the VTIS allowed operators to monitor the positions of vessels in the Singapore Strait and Singapore's port waters in real-time on a

“POCC-TPC has played a significant role in enhancing the safety of navigation in the Singapore Strait and Singapore’s port waters as the port developed into the global hub that it is today.”

MPA Chief Executive Lam Yi Young

screen. With a tracking capacity of 1,000 vessels, the system could manage the volume of vessel traffic in the 1990s.

In order to manage growing traffic, a second POCC equipped with a new VTIS was established at PSA Vista in 2000. In that same year, POCC-TPC was also upgraded with a VTIS that could track up to 5,000 vessels.

To cope with the growing and more complex nature of vessel traffic, MPA commissioned a new POCC at Changi Naval Base in 2011, and also upgraded the POCC at PSA Vista in 2012. Both centres are now equipped with the latest VTIS, which is capable of tracking up to 10,000 vessels.

The new, upgraded VTIS can pull together information from various sources including radars, automatic identification systems, harbour craft transponder systems, closed-circuit television systems (CCTV) and ship databases to present a comprehensive sea-situation picture to MPA's Vessel Traffic Management (VTM) operators on high-resolution displays.

Enhanced monitoring functions also assist the VTM operators in detecting potential collisions and grounding situations, so as to facilitate timely warnings to ships.

These enhanced capabilities will aid in ensuring safe navigation and environmental protection in the Port of Singapore and the Singapore Strait, even with increases in traffic volumes.



BY THE NUMBERS

2

CURRENT NUMBER
OF POCCS

10,000

NUMBER OF VESSELS
THE NEW VTIS CAN TRACK
AT ANY ONE TIME

28

NUMBERS OF YEARS
OF SERVICE RENDERED
BY POCC-TPC

1984

Year the first POCC
was commissioned

7, 10, 14, 73

VTIS WORKING CHANNELS POCCS USE

24

NUMBER OF
HOURS THE POCCS
ARE MANNED

\$10m

COST OF UPGRADING
POCC-VISTA

\$15.4m

Cost of
POCC-Changi

3

NUMBER OF
YEARS TO BUILD
POCC-CHANGI

DID YOU KNOW?

- The Port Operations Control Centre (POCC) is the operational headquarters for the maritime search-and-rescue region (SRR) that covers both the island of Singapore and over 1 million sq km of the South China Sea.
- Operating 24 hours, the POCC manages a shore-based global maritime distress and safety system facility to monitor distress alerts and calls from ships.
- The POCC administers the search-and-rescue cooperation plan submitted by all ferries and passenger ships operating within Singapore's maritime SRR.
- POCCs act as nerve centres; they leverage on technology and partnerships with various maritime agencies to ensure the safe and efficient management of vessel movements in and around Singapore's waters. They are complemented by well-maintained traditional aids to navigation such as lighthouses and buoys.
- Leading-edge technology may form the nucleus of the POCCs, but it is the highly skilled Vessel Traffic Management operators and the strong partnerships that MPA holds with stakeholders that ultimately enable the POCCs to deliver their mission with a high level of operational efficiency.
- POCCs maintain a database of the emergency position-indicating radio beacons on board Singapore-registered ships.

SILVER



LINING

AHEAD

VINCENT WEE TAKES STOCK OF THE MARITIME INDUSTRY FOR THE PAST YEAR, HIGHLIGHTING GENERAL TRENDS AND OBSERVATIONS.



► After a year of having more of the same bad news, the maritime industry has taken more decisive efforts to improve its prospects.

At the end of a tough year, some segments have done better than others, but all have managed to at least turn around from the extreme lows of 2011 and are embarking on the path to recovery.

In the container sector, container rates finally improved during the year, recovering to levels the container lines considered to be sustainable. They were even able to push through a series of rate hikes in 2012.

Throughout the first half of the past year, the lines' capacity-reduction measures finally took effect as rates for the key Asia-Europe trades more than tripled between January and April. Trans-Pacific rates also rose by almost half in the same period.

Although the increases were from very low bases set in 2011, when the lines were bleeding badly, it still signalled at least a recovery in their fortunes. Local line NOL,

for example, finally returned to the black in the third quarter, after two consecutive quarters of net losses.

However, in other sectors such as dry bulk, companies struggled with the double burdens of low freight rates and high oil prices. The sharp slowdown in the eurozone economies had a knock-on effect on manufacturing. In turn, this affected resource consumption in China, resulting in lowered demand for seaborne commodities.

While the Baltic Dry Index had climbed back by the end of the year from its year-lows set in September, the benchmark index was still down by a third from the start of 2012. Despite the gloom, however, there are hopes of the situation getting better as the demand-supply gap narrows.

The offshore sector remained the star performer in the maritime industry last year as the continued high oil prices increased the demand for oil exploration and production work.

The two main rig-building yards, Sembcorp Marine and Keppel Offshore & Marine, racked up about \$20 billion collectively in new orders during the year as rig-building demand continued unabated.

Meanwhile, Singapore companies in the offshore-support-services segment also performed well as both regional and international oil and gas players sought to boost output.

Home-grown companies – ranging from Ezra to Swiber and Marco Polo Marine, among others – have continued to gain market share by expanding their fleets and capabilities. These companies are now involved in markets as far afield as the North Sea and West Africa.

While much of the maritime industry's fortunes depend on the strength of the global economy, some sectors within it have been able to leverage on the energy market boom to ride a big wave of prosperity.

SPOT OF SUNSHINE

THE FIGURES REPRESENTING THE SHIPPING INDUSTRY LAST YEAR HELP TO ILLUSTRATE HOW GLOBAL ECONOMIC CONDITIONS HAVE A DIRECT BEARING ON VARIOUS SEGMENTS.

DEMAND

World freight-traffic growth is estimated to have slowed to 4.8 per cent in 2012 from 7.1 per cent in 2011, says Clarksons.

The Baltic Dry Index – the benchmark for the dry bulk segment – started 2012 optimistically above the 1,500 level.

In the first quarter, it fell and

plumbed the lowest point of the year around the 650 level as global economic conditions again deteriorated and the giant Chinese economy slowed down, while the eurozone countries plunged deeper into crisis.

The index struggled back to just above the 1,100 level during the middle part of the year, before

oversupply factors caused it to once again drop to the sub-700 level in September.

After a very short sharp blip upwards in the last two months of the year upon some restocking by China, the key indicator ended the year seemingly stuck at the 700 level.

CONTAINER TRADE

Global container vessel capacity rose 6 per cent from last year to hit 16.34 million TEUs at the beginning of this year, says industry analyst Alphaliner.

The idled capacity of ships over 500 TEUs rose to 810,000 TEUs last year, from 595,000 TEUs, comprising 5 per cent of the total fleet.

Shipyards delivered 207 container vessels with 1.26 million TEUs of capacity, while 200 vessels accounting for 351,000 TEUs in capacity

were scrapped or lost in 2012.

The global order book stands at 3.43 million TEUs, making up just over a fifth of the current fleet.

LNG SECTOR

Spot rates for LNG carriers hovered near the US\$150,000 (S\$186,000) per day level for much of 2012. Asia's insatiable demand for energy and new sources of the clean-burning fuel was seen driving much of the increase as shipowners

had been slow in adding capacity. However, with only 4.5 million tonnes per annum of liquefaction capacity expected to be added this year, and 25 vessels scheduled to be added to the current fleet, the current tight tonnage supply situation may not last much longer.

MPA KEEPS MOOD UPBEAT IN 2012

► Throughout 2012's tough global economic conditions, the Singapore maritime industry kept active with events and programmes that helped to boost ties and build up capabilities for the future.

The past year was a busy one for the maritime sector. The Maritime and Port Authority of Singapore (MPA) played a leading role in setting a positive tone for the industry. Among its moves were initiatives in green shipping, research and development (R&D) and infrastructure development.

GOING GREEN

Led by MPA, industry players began 2012 on the right note, as even more companies signed up to commit to clean and green shipping in Singapore with the Maritime Singapore Green Pledge. Building on the inaugural Green Pledge the year before, 15 more organisations, including classification societies DNV and Lloyd's Register, and shipping lines such as NYK and Tolani Shipping, signed up at a ceremony last January, and a further 13 signed up in October, making a total of 40 organisations that have pledged to be responsible members of the international maritime community by supporting and promoting clean and green shipping in Singapore.

Another initiative contributing to green shipping was the agreement in April among BW Ventures (BWV), MPA and the Singapore Maritime Institute (SMI) to promote

sustainable maritime-related R&D in Singapore.

Under the Maritime Environment and Clean Energy Memorandum of Understanding (MOU), BWV and MPA pledged \$5 million each to be paid out over the next five years to support maritime clean-energy technology projects driven by the Green Marine Innovation Centre. SMI will also fund various R&D projects initiated by local tertiary and research institutions.



MARITIME THOUGHT LEADERSHIP

MPA has also been active in promoting thought leadership in the maritime sphere. The Singapore Maritime Week, held annually by MPA, hosted Koji Sekimizu,

Secretary-General of the International Maritime Organization (IMO), at the Singapore Maritime Lecture. He spoke about challenges faced by international shipping and the IMO, an international governing body of the industry.

Continuing their longstanding cooperation, MPA and the Research Council of Norway also signed an MOU in April 2012 to

renew their bilateral agreement on maritime R&D, education and training for another three years. The agreement was first signed in 2000 and has been renewed every three years since, in line with MPA's commitment to leverage on R&D as a key enabler in the growth and development of the Singapore maritime cluster.

In a move that further burnished Singapore's credentials, senior maritime representatives from 11 countries gathered in the republic in October for the 2nd Maritime Public Leaders' Programme, which aims to bring together international maritime administration leaders for lectures, and to network and exchange ideas. The programme covered diverse topics ranging from port planning and management, shipping economics and finance, maritime law and security, to public leadership and governance.

In the same month, the biennial Singapore International Bunkering Conference and Exhibition returned to Singapore for its 17th edition.

The world's largest forum for the marine-fuels industry saw bunkering and shipping professionals gather at the largest bunker market in the world to conduct business and listen to industry leaders.

In November, SMI organised, for the second consecutive year, the SMI Forum, which saw leaders from various organisations coming together to share and discuss pertinent issues and developments in maritime education and R&D.

BUILDING REGIONAL SECURITY

Singapore continued to maintain its leading role in regional security and cooperation in the region with its agreement to host the Regional Co-operation Agreement on Combating Piracy and Armed Robbery against Ships in Asia Information Sharing Centre. This agreement, effective till 2017, saw the republic reaffirming its commitment to international cooperation to fight piracy and armed robbery against vessels in the region.

Singapore's regional standing was also boosted by its hosting of the 5th Co-operation Forum – a key platform for users of the Straits of Malacca and Singapore to meet and exchange views with littoral states on issues of common interests in the straits.

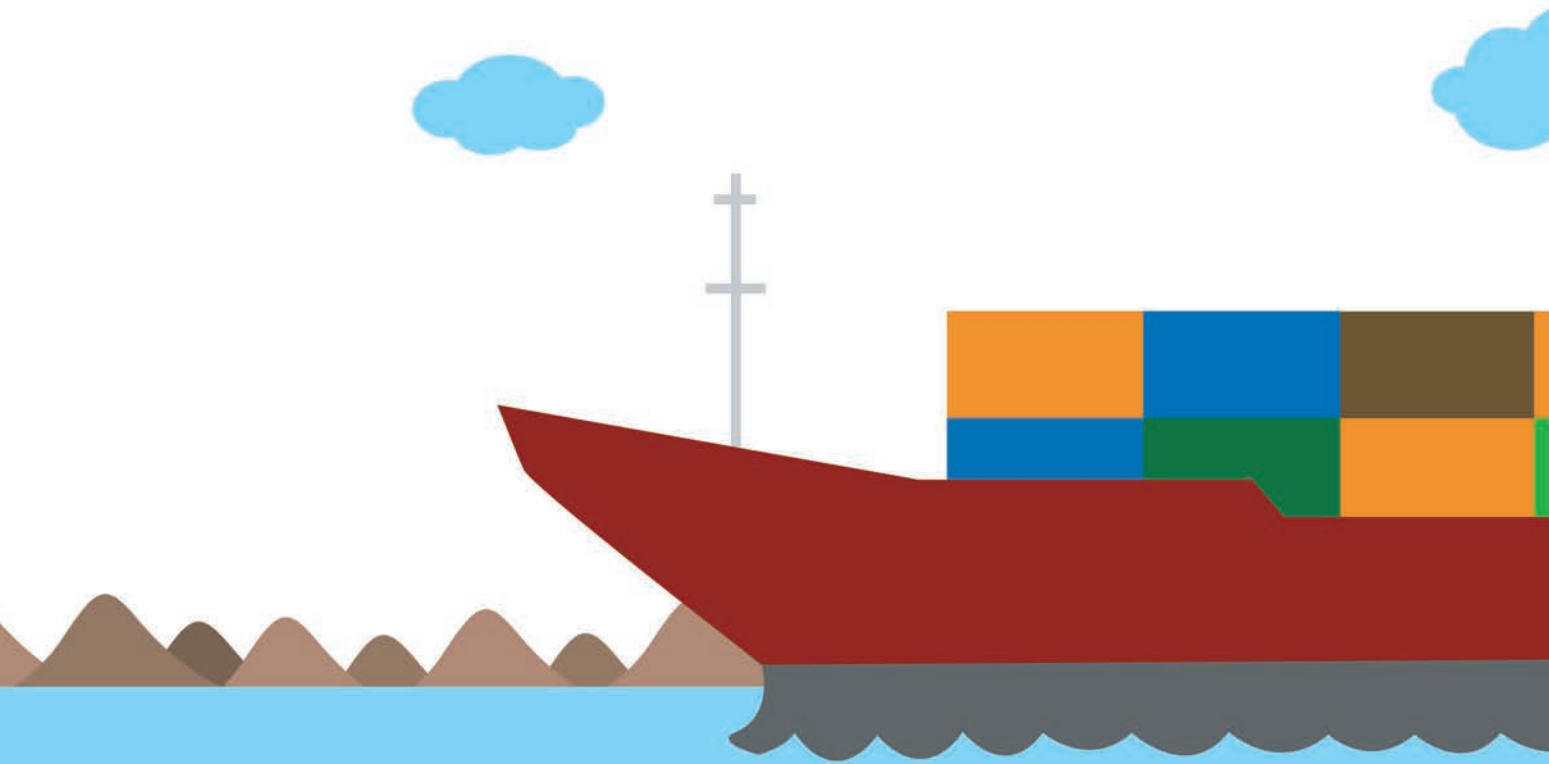
MPA's continuing series of visits by regional maritime leaders through its Distinguished Visitors Programme also served to develop the practice of relationship building with various maritime nations.

INFRASTRUCTURE AND INDUSTRY DEVELOPMENT

Key events included the completion of the \$10 million upgrading work at the Port Operations Control Centre at PSA Vista and the official opening of Marina South Wharves. The latter is a \$16 million facility that will complement the existing lighter terminal in Penjuru.

Enhancements to the existing Maritime Cluster Fund and the exemption of Maritime Welfare Fees will also help boost manpower development and promote Singapore as a global maritime centre. Finally, the maritime industry was given a showcase with the opening of the Singapore Maritime Gallery. Spanning 1,000 sq m at Marina South Pier, the \$5 million gallery highlights the diversity and vibrance of Singapore's maritime sector.





HEAD ABOVE WATER

► Key players in the Singapore maritime industry may see 2013 as a year of constant challenges, as global economic uncertainty continues to weigh on commerce. The shipping community, however, is confident of meeting these challenges and thriving amid the uncertainties.

The offshore oil-and-gas sector is looking forward to the year with slightly more optimism, as good times from the year before are expected to continue. However, there is the ever-present threat of competition from both lower-cost yards in China and high-spec yards in South Korea.

Top offshore player Keppel Offshore and Marine took in just short of \$10 billion in new orders last year, while analysts estimate that Sembcorp Marine has secured just over \$11 billion in new contracts. The offshore industry is being driven by high oil prices and Brazil's unabated ambitions to grow its production, with some 70 per cent of the new orders from Petrobras.

Prospects for the year ahead look equally bright with estimates of another \$10 billion in new orders for both Singapore yards in 2013. They are set to

benefit from more Brazilian orders, with each operating yards in the country.

"2013 will be just as challenging as 2012. We are hoping that the US and European economies will pick up by the first half of 2013 and stimulate growth in containerised trade," says Singapore Shipping Association President Patrick Phoon.

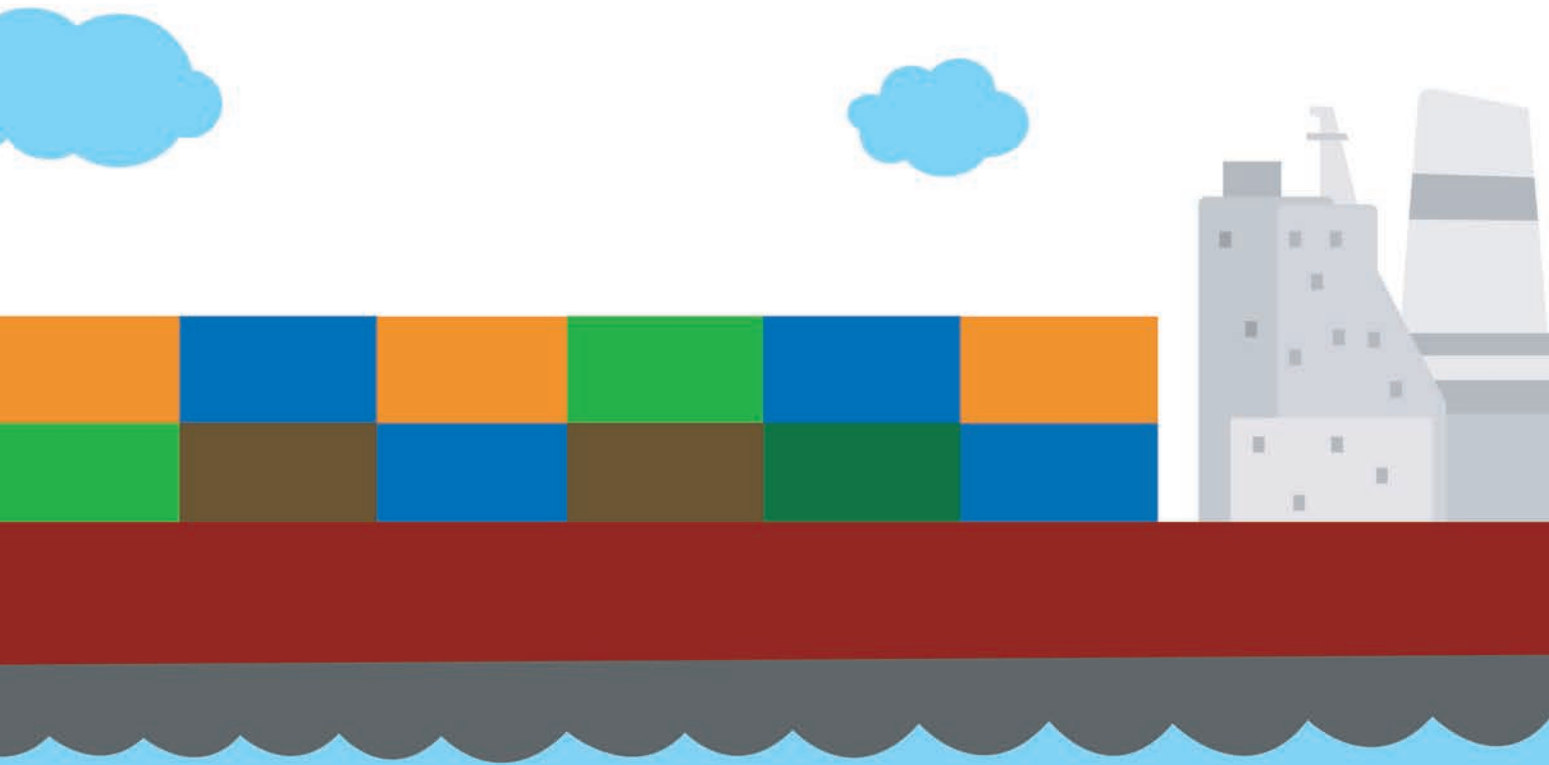
A major port industry player predicted a difficult 2013, with volumes under pressure – especially along the Europe-Far East route, which is important for Singapore.

The advent of mega container ships

This year is also expected to be one which sees the beginning of new trends in the industry. Prime among these is the advent of mega container ships. Major container line CMA CGM has already put its first 16,000-TEU vessel into service, while the world's top container line Maersk is set to receive its new 18,000-TEU-capacity *Triple-E* series ships by the middle of the year.

Although these ships have yet to call on Singapore, the port is ready to receive them. Dominant terminal operator PSA has made commitments to infrastructure with





its Pasir Panjang Terminal Phases 3 and 4, giving the strong signal that the Port of Singapore is ready to compete far into the future.

Currently, the Port of Singapore has already crossed the annual throughput mark of 30 million TEUs.

In other segments, conditions are also expected to be difficult as economic conditions fluctuate sharply. "Markets are likely to continue to be quite volatile, especially in the tanker and dry-bulk segments. I believe the sort of spikes and troughs seen in 2012 will continue into the second half of 2014 until the market stabilises in these segments," says Phoon.

Contain costs and manage capacity

Key themes going forward are cost containment and capacity management, as high oil prices and the relentless delivery of newer and larger vessels continue.

"Industries will really need to focus on containing costs and capacity growth. To manage rising costs, we have to learn to do more with less. In other words, focus on achieving efficiency," Phoon reiterates.

He also highlights the challenge of

Key themes going forward are cost containment and capacity management, as high oil prices and the relentless delivery of newer and larger vessels continue.

bringing about higher productivity with minimal cost increases, especially in light of the Maritime Labour Convention coming into force this year, which requires getting employees trained and ships ready for audit.

Looking ahead to possible assistance for the industry, SSA Honorary Secretary Esben Poulsson suggests that local policies to provide some help for the offshore marine industries would be useful.

Tight ship financing

At the international level, Poulsson also suggests some representations to be made to the IMO on the issue of ballast water management and greenhouse gas emissions. The year ahead is likely to see some new developments in reaction to changing market conditions. For example, the trend of tight financing that

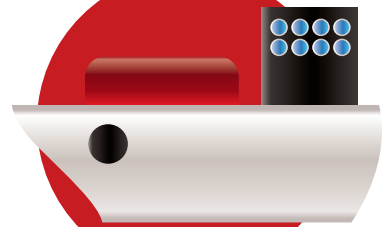
the industry has had to deal with since the 2008-2009 global financial crisis will continue.

"Ship financing from traditional bank sources will likely continue to be very tight and, as such, the advent of hedge funds and investment banks representing large investors will continue to play a significant role, and alliances between such new market entrants and existing proven owners will be something we will likely see more of," says Poulsson.

The industry continues to make efforts to stay competitive. "Especially during such difficult times, we are examining various cost factors very closely, such as fiscal measures, port dues and manpower operations, in order to enhance Singapore's position as an international shipping centre," concludes Phoon.

BUCKING THE TREND

INTEGRATED SHIPPING COMPANY
NORGAS CARRIERS HAS MANAGED
TO STAY PROFITABLE IN THE NICHE
GAS MARKET DESPITE THE CURRENT
DOWNTURN IN THE MARITIME INDUSTRY.
DESMOND NG FINDS OUT WHY.



Being in a niche market has proven to be instrumental in keeping Norgas Carriers profitable despite current tough times in the shipping industry. A leading integrated shipping company operating within the gas industry, it is involved in the global transportation of petrochemical gases, liquefied petroleum gas (LPG) and liquefied natural gas (LNG). Norgas Carriers also transports ethylene – a raw material used in the production of plastic.

Explains Ragnar Rud, Vice-President (Safety, Health, Environment, Energy and Quality) of the firm: "We have benefited from increased demand from the BRIC (Brazil, Russia, India and China) markets. China is a continuously growing market due to an increase in its middle-class segment, which is buying products and consuming more."

Compared to other shipping markets such as dry cargo and car carriers, the market for transportation of gases has been holding up well, he adds.

In addition, according to the company's Environment Manager, Captain VRS Rajandran, the company increases its shipment of raw materials such as ethylene just before festive periods, such as Christmas and Chinese New Year.

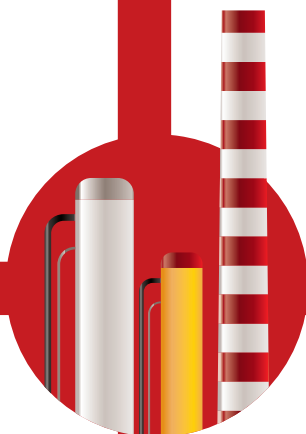
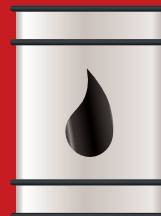
He says: "We are pretty well occupied. During the run-up to the Olympics in China, there was a requirement for the mass production of plastic products such as souvenirs. China also produces its own raw materials, but needs more from us. The US market is starting to look up again too."

Going east

In fact, the company moved its headquarters from Norway to Singapore to be closer to its customers in China and South-east Asia.

I.M. Skaugen in Norway is its holding company.

Says Capt Rajandran: "We were attracted to the growing market



in Asia, especially with the rise of market presence of India and Indonesia.”

Currently, with its head office in Singapore and other offices located in Bahrain, St Petersburg and Shanghai, the company operates a fleet of 19 gas carriers, with sizes ranging from 5,000 to 12,000 cubic metres. The bulk of its business comes from the Middle East, where it transports cargo to buyers in China, Japan, Taiwan and South-east Asia.

The company’s Singapore office started in 1997 with nine staff, and has since expanded to over 45 today. Singapore was a logical choice as a base due to its political stability, its wide range of available shipping services and the Government’s support of foreign investments.

Capt Rajandran adds: “The Port of Singapore is world-class, and many of our clients are here such as our Japanese clients and traders. Singapore’s shipping industry has also grown due to the rise of various maritime-related sectors, such as bunkering, brokerage and shipping insurance.”

Green initiatives

Since 2011, Norgas Carriers has been embarking on green initiatives to save fuel and reduce carbon emissions, as well as rebrand itself as an eco-friendly company.

Says Capt Rajandran: “The market is changing and companies in the US and Europe will be looking closely at our green initiatives. And, in Norway, carbon emission is a big thing.”

In fact, in 2011, the company started installing a Dynamic Trimming Assistant (DTA) on some

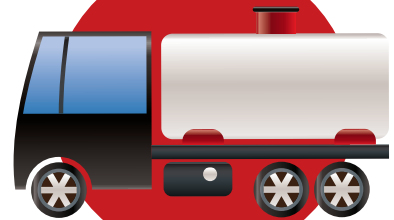
of its vessels to save fuel and lower carbon emissions. Developed in Finland, DTA is a vessel-based system which monitors and optimises the trim of a vessel using technology. To trim a vessel is to adjust the ship by disposing of the weight on board it so it sails well.

The company submitted its proposal to the Maritime and Port Authority of Singapore, in the hopes of qualifying for the Green Technology Programme the same year.

This initiative is aimed at encouraging local maritime companies to develop and adopt green technologies. It provides grants of up to 50 per cent of the total qualifying costs to co-fund the development and adoption of green-technology solutions. The grants can be up to \$2 million per project.

Norgas Carriers qualified for the grant last year. So far, the DTA system has been installed on two of its vessels, with more planned for the future.

Says Capt Rajandran: “The programme really does help to incentivise companies to adopt cleaner and greener shipping practices.”



“The Port of Singapore is world-class, and many of our clients are here such as our Japanese clients and traders. Singapore’s shipping industry has also grown due to the rise of various maritime-related sectors, such as bunkering, brokerage and shipping insurance.”

Captain VRS Rajandran, Environment Manager, Norgas Carriers, on the company moving its headquarters here



INTERNATIONAL CHEMICAL AND OIL POLLUTION CONFERENCE AND EXHIBITION

Held in conjunction
with:

**SINGAPORE
maritimeweek®**
2013

**Driving Risk Management through Renewed
Industry Collaboration**



9 – 12 April 2013 | Pan Pacific Hotel, Singapore

Key Highlights of ICOPCE 2013

- ➔ Industry Dialogue: Collaboration for better risk management
- ➔ Charterer – Ship Owner interface on preparedness at the grass roots for reducing the risk of marine pollution
- ➔ Technology Showcase: Short sharp case studies on successful applications for spill prevention and response
- ➔ Spill readiness in hot spot regions in Asia
- ➔ Cost factors for oil and chemical spill cleanup
- ➔ Improving compliance at Port State Control
- ➔ Marine terminal management and self-assessment



Guest of Honour

Ms. Josephine Teo
*Minister of State, Ministry of Finance and Ministry of Transport
Republic of Singapore*

Leading Industry Stakeholders

- **Torben Skaanild**, *Secretary General, BIMCO*
- **Katharina Stanzel**, *Managing Director, INTERTANKO*
- **Richard H. Johnson**, *Technical Director, ITOPF*
- **José Maura**, *Director, IOPC Funds*
- **Francois Cabioch**, *Head of Emergency Department, CEDRE*
- **Gerardo A. Borromeo**, *President, INTERMANAGER and Chief Executive Officer, Philippine Transmarine Carriers Inc.*

PLUS!

Pre-Conference Symposium: 9 April 2013
Tuesday | 9.30am – 3.30pm

A Practical Guide to Oil Spill Claims and Compensation

Post-Conference: 12 April 2013 | Friday | 9.30am – 12.30pm
ChemSpill Exercise

www.icopce.com

Yes, please send me a brochure on: **International Chemical and Oil Pollution Conference and Exhibition**

9 – 12 April 2013, Pan Pacific Hotel, Singapore

I am unable to attend this time but please put me on your mailing list.

REPLY FORM	Name: _____	Job Title: _____
	Tel: _____	Fax: _____
	Mobile: _____	Email: _____
	Company: _____	Business Activities: _____
	Address: _____	

P51396NAUTILUS

Organised by:



Managed by:



For more information, please contact **Ms. Tham Ruohyi**
Tel : +65 6508 2463 | Fax: +65 6508 2408
Email: ruohyi.tham@ibcasia.com.sg
or mail to IBC Asia (S) Pte Ltd, 111 Somerset Road,
TripleOne Somerset #10-06, Singapore 238164

Resgistration and Lanyard Sponsor:



Associate Sponsor:





“I saw continuing to work as an opportunity to contribute and, in some way, make changes.”

Admiral Papp on why he changed his mind about retirement

AFTER THE 9/11 ATTACKS, ADMIRAL ROBERT J. PAPP DECIDED AGAINST HIS UPCOMING RETIREMENT, CHOOSING INSTEAD TO CONTINUE HIS WORK FOR THE US COAST GUARD. BY DESMOND NG

SOLDIERING ON

► After an illustrious 25-year career with the US Coast Guard, Admiral Robert J. Papp was planning his retirement in 1999. But everything changed with the devastating September 11 attacks on the US. He then decided that he had more to give to his country.

Recalls the 60-year-old: "I realised, at the point when the US was attacked, that we were vulnerable and that we, perhaps, weren't as safe as we thought we were. I saw continuing to work as an opportunity to contribute and, in some way, make changes."

Admiral Papp decided to put his retirement on hold. "Part of my reason for doing the job that I've done for many years was to try and make sure that my country was free and secure, so my children would have a better country to grow up in."

Today, as commandant of the US Coast Guard, Admiral Papp assumes a crucial role and is responsible for all world-wide US Coast Guard activities.

He became the 24th commandant of the US Coast Guard on May 25, 2010, and leads the largest component of the Department of Homeland Security, overseeing 42,000 active-duty military and 8,000 civilian full-time employees, 8,200 reserve military part-time employees and 31,000 civilian auxiliary volunteers.

Back to the waters

Admiral Papp visited Singapore under the Maritime and Port Authority of Singapore's (MPA) Distinguished Visitors Programme

(DVP) last year. To him, the highlight of his trip to Singapore was getting into the waters and witnessing the vibrancy of the port.

"Even though I am the commandant of the Coast Guard, I don't get to spend much time out on the waters anymore. As I was a sailor throughout most of my career, it's always good to get back on to the waters and see the sailors and ports. I've read so much about Singapore over the years. There is a sense of energy at the Port of Singapore. There's also a sense of prosperity and it's forward-looking. I am very excited about what I've learnt here in Singapore."

Admiral Papp's passion for all things maritime becomes clear as I talk to him.

Raised in the state of Connecticut, he was exposed to the Coast Guard Academy in the area, the general dynamics of the marine industry, as well as electric boats and submarines.

"Even as a young boy, I was excited by the thought of going to sea and being a sea captain. I thought that was very romantic and exciting. So I focused my sights on the Coast Guard Academy very early in my school years. I was probably around 10 when I had thoughts about that."

His first assignment, which spanned two years, was on a ship to Alaska, which gave him the chance to sail anywhere from the Arctic Circle all the way to Hawaii.

"So I got a chance to see the Bering Sea, the Arctic Ocean and the North Pacific, and it was everything I thought it would

be. I was awed by the beauty, strength and power of the sea. More than anything else, having to deal with the unpredictability of the sea provided me the entire challenge of the experience. It was also rewarding working with people and the crew, and coming together as a team to carry out the ship's mission," he adds.

Biggest challenge

One of Admiral Papp's first and biggest challenges as commandant was managing the *Deepwater Horizon* oil spill in 2010 – the largest spill in US history and second largest in the world.

He explains: "In this particular case, technology had moved a little bit beyond us. We were unfamiliar with the technology that was being used for deep-sea oil exploration. We had an uncontrollable leak that required new technology to plug."

It took three months to plug the leak.

"I am very proud of the way my people responded to the spill and clean-up. Also, working with the industry to come up with solutions has taught me a lot."

Admiral Papp, who is married with three daughters and has two granddaughters, revealed that he doesn't have much leisure time to himself due to the nature of his job. And if he does, he takes long walks with his wife, visits his daughters and even finds time to cook.

"I find cooking very relaxing. Besides, my wife doesn't like to cook, but I do like to eat. So I've learnt to become a pretty good cook," he says with a laugh.

It was the bond of friendship that led Vice-Admiral Enrique Larranaga Martin, then 13, to the maritime industry.

Despite admitting that he “didn’t feel the call of the sea”, he decided to enrol into a prestigious naval academy in Chile near his home in the coastal city of Vina del Mar, just to be with his friends.

Vice-Admiral Larranaga has since gone on to devote the next 40 years of his life to the industry.

He has risen through the ranks and holds the rank of vice-admiral today. He is also Director General, Directorate of Maritime Territory and Merchant Marine (Directemar) of the Republic of Chile.

In this post, he oversees Chile’s long coastline, which has a maritime Exclusive Economic Zone that is more than six times Chile’s continental territory.

Directemar’s responsibilities include ensuring compliance with national and international regulations, safety of navigation, prevention of marine pollution, port security, vessel traffic management and search and rescue activities.

Recalls Vice-Admiral Larranaga: “Only when I was inside (the naval academy) did I learn to appreciate the sea.”

He entered the Arturo Prat Naval Academy and was commissioned as an ensign in 1977. He was promoted to vice-admiral in January 2010.

Key maritime challenges

In August 2012, Vice-Admiral Larranaga, 53, visited Singapore under the Maritime and Port Authority of Singapore’s (MPA) Distinguished Visitors Programme (DVP). Established in 1997, the DVP aims to engage senior maritime personalities who are prime movers and key opinion makers in the international maritime community.

During his visit, he met with Mr Lui Tuck Yew, Singapore’s Minister for Transport, Mr Lam Yi Young, Chief Executive of MPA, and other members of MPA’s senior management, when they discussed maritime issues such as maritime security and other developments at the International Maritime Organization (IMO).

In an interview with *Singapore Nautilus*,

he highlights three key challenges the maritime industry faces: piracy, the low number of officers serving on board merchant ships on international voyages and the industry’s contributions to the reduction of greenhouse gas emissions.

These issues have also gained the IMO’s attention.

Explains Vice-Admiral Larranaga: “The threat of piracy to international shipping is still a prevalent one in the Gulf of Aden. Despite the significant progress achieved with the use of naval forces – which is authorised by UN resolution – the threat has not been completely contained.”

And this has led to the implementation of a series of self-protection measures

by the most affected states, such as the use of Privately Contracted Armed Security Personnel, which could involve the potential use of firearms and confrontations with pirates.

On the issue of the decline of officers serving on board merchant ships, Vice-Admiral Larranaga says the global economy will recover in the future, leading to a slight growth in the world’s fleet.

But he predicts that fewer people will choose the maritime industry, primarily because a sailor’s career, which entails constant training and a vast knowledge of new technologies, is not easy.

When asked about the importance of

green shipping, Vice-Admiral Larranaga stresses that emissions from ships represent only 3 per cent of total emissions from all sources, but more can still be done to reduce this quantity through technological advances.

Emphasis on teamwork

An avid jogger and tennis player, Vice-Admiral Larranaga continues to engage in recreational activities in his free time, and tells us he is currently learning to play golf.

He also cites going to the movies as one of his favourite pastimes. Making a reference to *The Godfather* series, he says: “There are important lessons to learn from the movie, such as the concept of family,

OF LOYALTY AND FRIENDSHIP

JOINING THE MARITIME INDUSTRY AT AN EARLY AGE OF 13 TO BE WITH HIS FRIENDS, VICE-ADMIRAL ENRIQUE LARRANAGA MARTIN HAS GONE ON TO DEVOTE THE NEXT 40 YEARS OF HIS LIFE TO HIS PROFESSION. BY DESMOND NG

loyalty and friendship.”

Vice-Admiral Larranaga also sees the importance of teamwork in the workplace. “Every person in an organisation is important. Everybody can provide ideas, good or bad. The captain alone is useless; he has to listen and work together with his team members. Teamwork is fundamental,” he adds.

Vice-Admiral Larranaga is married with four children: Enrique, 20, Isabel, 18, and twins Felipe and Sebastian, both 14. One of his twin sons wants to be a sailor.

“I am very happy he wants to be one. It’s a wonderful life. But if he doesn’t end up sailing, I will not push him,” he adds.





KEEP

THE

BALANCE

NANYANG TECHNOLOGICAL UNIVERSITY HAS DEVELOPED A SPECIALISED AUTOSTOW SOFTWARE TO AUTOMATE CARGO PLANNING IN CONTAINER VESSELS. **NG HUI HUI** FINDS OUT HOW THIS HELPS SHIPPING LINES OPTIMISE CARGO DISTRIBUTION ON BOARD AND INCREASE PRODUCTIVITY.



► Before a container ship embarks on a voyage, a cargo-stowage plan has to be drawn up by planners. This plan serves to optimise the distribution of all cargo on board a vessel, to maintain its strength and stability.

It is important to plan the distribution of cargo to ensure the stability of the cargo and ship, maximise usage of vessel capacity, and provide for rapid and systematic discharging and loading of cargo.

"If the weight of cargo is not evenly distributed, a ship may tilt to one side during a voyage.

Cargo may then fall into the sea," says Dr Sun Hongyang, one of the six team members working on the AutoStow project. He was responsible for the modules for ship strength and stability.

The stability of a ship is determined using its GM value, which is the distance between its centre of gravity and its metacentre. The latter refers to the point of intersection between an imaginary line, drawn vertically through the centre of buoyancy of a floating vessel, and a corresponding line through the new centre of

buoyancy when the vessel is tilted. The weight distribution also affects ship strength such as torsion, shear force and bending moments.

Besides having to follow many rules for stacking various types of containers onto different locations on a ship, the issue of optimising the loading and unloading of cargo at different ports of call also exists. To allow for rapid unloading of cargo, for instance, it is important that cargo for a later port should not be placed over that of an earlier one. The workload among the quay cranes at the destination port should be well balanced too.

"The longer the ship stays at the port, the more it has to pay," adds Win Cho Aye, another member of the team who was responsible for the user interface of the programme.

Because of this need for arranging cargo in a specific way, it is often impossible to ensure even weight distribution throughout the vessel, resulting in the need to use ballast water tanks.

"These tanks used to even out the weight distribution of

a vessel are effectively dead weight that a ship has to carry around. If cargo allocation is optimised, the need for such ballast will be reduced, and the shipping line will be able to reap more savings in fuel costs," says Dr Huang Shell Ying, Co-principal Investigator of the AutoStow project.

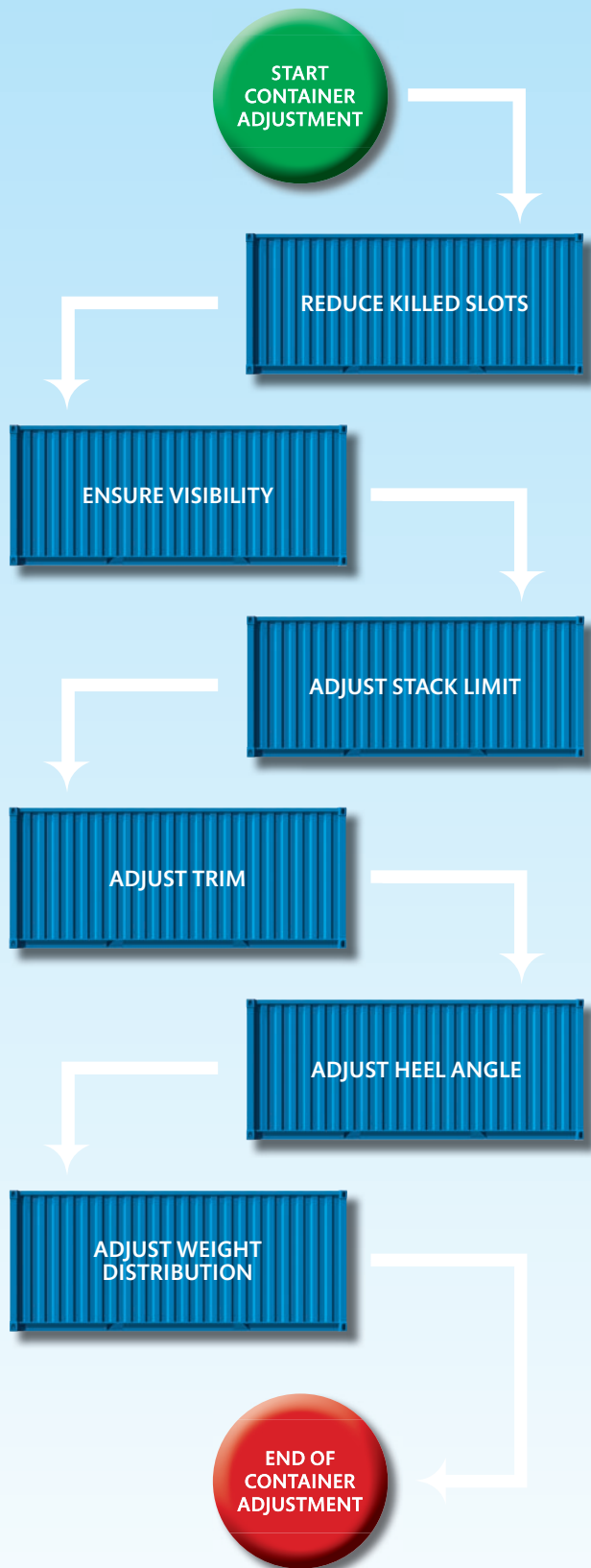
Enter AutoStow project

Currently, planners take about two hours to plan the cargo distribution on a vessel.

"This job requires a lot of experience and training as the stowage plan is often done manually. If the planners leave the company, the knowledge is often lost," says Associate Professor Hsu Wen Jing of the Maritime Research Centre and School of Computer Engineering, Nanyang Technological University (NTU).

He adds that planners usually need to have several years of experience before they are qualified to perform the task of cargo planning.

Recognising that there was room for improvement, the Maritime and Port Authority of Singapore (MPA) and container shipping line APL approached NTU about



ABOVE: The container adjustment process

four years ago to automate this process.

“The local IHLs (Institute of Higher Learning) possess research capabilities that could be applied in the industry domain to improve operational efficiency. Researchers from NTU applying advanced software-optimisation techniques in the stowage-planning process is one good example. We are glad to see the collaboration take place between APL and NTU, with the support of the Maritime Innovation and Technology (MINT) Fund,” says Goh Kwong Heng, Deputy Director (Research and Technology Development) at MPA. The \$100 million MINT Fund was established in 2003 to support development programmes for the maritime cluster.

The MINT R&D projects, such as this, help create intellectual properties and cultivate talent pools locally for the maritime and port domain which, in turn, can help position Singapore as an eminent international maritime centre in the long term.

The AutoStow project was initiated to facilitate the process of improving the productivity of stowage planners, and optimising ship stability and cost savings in operating a vessel.

The NTU team worked with expert planners, shipmasters and naval architects. The greatest challenge lies in translating the strategies of human experts for handling various situations into consistent and efficient computer algorithms, and this phase lasted for about two years. Fortunately, the developed module was successful – it could

automatically plan the cargo distribution on board vessels within minutes.

Using the software, planners can set up the details and voyage of the vessel, and input the list of containers to be discharged and loaded. After that, the software will generate a cargo plan within minutes that is ready for use.

“This saves a lot of time and, to a certain extent, helps shipping firms deal with potential manpower issues. Moreover, by reducing the effort needed for routine allocations, this tool enables human planners to value-add by focusing more on optimisation of the final stowage,” says Prof Hsu.

Final testing stage

The AutoStow project is now in the final stage of tests.

Quan Ying, who was responsible for the allocation algorithms, explains: “For the duration of the project, we’ve always been testing the software with APL and getting their feedback, which has helped us fine-tune it.”

Dr Zhou Nina, who is in charge of testing, reveals that about 70 to 80 per cent of the plan generated by the software can be used directly, with some minor tweaking that still needs to be done manually by planners.

Prof Hsu concludes: “AutoStow is designed to help, not replace, the planners. In some aspects of slot allocation, manual planning would still be better. We are very pleased with the results so far, and are very grateful for the generous support and assistance provided by the staff of MPA and APL, who have helped to make this possible.”

SINGAPORE NAUTILUS PRESENTS THE EDITED VERSION OF ADAM RITCHIE'S PRESENTATION AT THE 17TH SINGAPORE INTERNATIONAL BUNKERING CONFERENCE AND EXHIBITION IN 2012. RITCHIE IS GENERAL MANAGER (OIL MARKET ANALYSIS) OF SHELL TRADING.

MARINE FUEL FOR THE FUTURE

► The days of talking about MARPOL Annex VI are gone; we are now on the cusp of key changes that are about to take place in the global maritime industry. This will bring about some dramatic implications for the global shipping industry, as well as their counterparts, in the marine fuel supply industry.

MARPOL Annex VI is certainly a very interesting aspect of the evolving landscape of our industry and it is not about small changes.

Some of the key changes at our doorstep now include a milestone reached in January 2012, when the global cap on sulphur content in marine fuel was set at 3.5 per cent.

At the beginning of last August, the North American emission control area (ECA) covering the coasts of the US and Canada was established, coinciding with the move from 1.5 per cent to 1 per cent sulphur content in the existing European region.

Looking forward, in 2015, we will see the ECAs further reduce their caps on sulphur content in emissions to 0.1 per cent and, in 2020 or 2025 (depending on the results of a review on availability of compliant fuel oil to be completed by 2018), the global cap will be reduced to 0.5 per cent.

There will also be changes around other emissions, such as the Tier III NO_x (nitrogen oxides) requirements, which present their own challenges.

These changes are significant, and will impact both the shipping industry

and refiners. Shell is supportive of the goals of MARPOL Annex VI, although the path to reduction is not straightforward.

The challenges ahead

Introduction of the 0.1 per cent sulphur limit in ECAs in 2015 and the advent of the global sulphur cap of 0.5 per cent – in 2020 or 2025 – present significant challenges for the industry. From the fuel-supply industry's point of view, prime among these is the current capacity to produce low-sulphur fuel, and the investment needed to increase capacity to meet demand.

According to the International Maritime Organization's Marine Environment Protection Committee, in 2011, the global average sulphur content of fuel oil used in shipping was 2.65 per cent.

However, this is not evenly distributed, and is largely dependent on the available crude slate.

Complex refining, which enables the conversion of crude residues into more valuable oil products, is a capital-intensive game. For a refiner considering an investment as we approach 2020, the choice is to invest in a complex conversion unit to turn high-sulphur fuel oil into middle distillates, such as marine gas oil, or to invest in fuel oil (FO) desulphurisation.

Energy research consultancy ECN

estimates that the refining industry will need to spend in the order of US\$100 billion (\$\$123.8 billion) to desulphurise FO, or make gas oil to comply with MARPOL Annex VI standards.

Based on that, it is not immediately obvious that refineries will invest heavily in FO desulphurisation with prices at the level they are at today, as return on investment would be much greater by making gas oil.

In addition, these investments will take time. On a full-cycle basis, adding a large and complex unit to a refinery takes between five and seven years.

With the proposed 2018 deadline for the review of the readiness for 0.5 per cent implementation, there is simply not enough time for refiners to then act to ensure adequate supply by 2020. Looking ahead at these anticipated issues, we advocate a 2025 implementation date as well as bringing the 2018 study forward.

The next question is: Should large-scale FO desulphurisation not take place, what are the options available to the industry?

The solutions that have been proposed include a switch to marine gas oil, or even liquefied natural gas (LNG) as fuel, as well as greater use of abatement technologies such as scrubbers. I believe there is no silver bullet, but that we will have to rely on a mosaic of solutions.

"I believe we will need a mosaic of solutions to meet these challenges, and those solutions will emerge and evolve at different speeds."

Adam Ritchie, General Manager (Oil Market Analysis) of Shell Trading



Possible solutions

Scrubbers are a proven abatement technology in land-based applications, and are one of the possible short-term solutions that seems to be economically attractive for the 2020 changes and for 2015, depending on how much time a vessel spends in the ECAs.

However, the environmental impacts of this pathway need to be fully understood – in particular, disposal options for the large volume of sulphur that would be collected.

According to some studies, scrubbers will require a US\$20-30 billion investment programme for the shipping industry by 2030, as compared to the estimated US\$100 billion investment required by the refining industry.

LNG, however, has some definite attractions as a clean fuel for the shipping industry, as it can tackle both sulphur issues and Tier III NOx

requirements by being a cleaner fuel in the first place. And the use of LNG as a marine fuel is not new, having been used to power gas engines in LNG carriers for many years.

But there are some challenges to overcome. For the market to develop, we need to work together as LNG producers, shipowners, ship operators, original equipment manufacturers (OEMs), port authorities, regulators and governments.

Investments need to be made through all parts of the value chain. Fuel suppliers and port authorities need to invest in infrastructure and barges to provide supply security and fuel availability at key ports. Shipowners also need to invest in retrofits and new vessels, and work with OEMs to continue to refine this technology.

Governments need to channel funds into policies to help support and

drive implementation. And, as an industry, we need to invest time and expertise from our companies to develop the required regulatory guidelines, codes, standards and operating procedures to ensure this activity will be carried out safely and securely.

There is a bright future for LNG as a marine transportation fuel, and we do welcome industry cooperation to help move it forward.

In summary, there is no silver bullet. I believe we will need a mosaic of solutions to meet these challenges, and those solutions will emerge and evolve at different speeds. The industry would be best served by bringing forward the 2018 review of fuel availability, to provide early clarity to industry participants, so as to enable them to make sound investment decisions going forward.

singaporenautilus



GET YOUR COPY NOW!

Singapore Nautilus is the quarterly corporate publication of the Maritime and Port Authority of Singapore. Reaching out globally, the magazine covers the latest maritime-related news and initiatives in Singapore, and provides a platform for thought leaders to share ideas on international maritime trends and developments. You can sign up for a free subscription to *Singapore Nautilus* by e-mailing us at SN_subscribe@mpa.gov.sg



AS A CHARGEHAND, MILLAR MORGAN JAMES OVERSEES A TEAM WORKING ON ENGINEERING PROJECTS RANGING FROM INSTALLATION AND CONSTRUCTION TO REPAIR WORK ON RIGS AND SEMI-SUBMERSIBLES. BY DESMOND NG

TAKING CHARGE

► Millar Morgan James, a 26-year-old chargehand at Keppel Fels, sees every new engineering project as an exciting challenge. He tells *Singapore Nautilus* about how he enjoys working away from a desk, and fondly recollects memorable experiences in his career so far.

How did you become a chargehand?

My father worked at an offshore drilling company, so I've been exposed to the maritime industry since I was young. In this line of work, we experience an environment that's always changing. It's not like office work, where one has to follow the same routine every day. Here, every project I deal with is different.

I served with the Republic of Singapore Navy during my national service days. Upon completing my Higher Nitec in Marine and Offshore Technology, I joined the maritime industry as part of a natural progression. I joined Keppel Fels in 2010.

What does a chargehand do?

My job is to supervise a team of 11 men, who undertake various engineering projects, ranging from installation and construction, to repair work on offshore rigs and semi-submersibles. My crew consists of a mix of local and foreign workers.

When I manage a project, I have to first do the necessary research. Then I work out a plan, discuss it with my supervisor and brief my crew, who will then carry out the

works (such as repairs and installations). I also have to liaise with vendors and get the different tools to be used for the various projects if necessary.

I also supervise the individual teams throughout the day when they are working on their various projects.

What is a typical workday like?

Work starts at about 7.30am, when my crew and I hold a morning briefing. The meeting typically covers the safety aspects of the job, and acts as a review of the previous day's work.

We also discuss ongoing projects and I will split my crew into different groups to handle the necessary tasks.

After that, I spend the day following up with the individual teams on the progress of their tasks, and guide them where necessary.

Do you have any memorable experiences to share?

That would be working on a multipurpose platform rig in Malaysia for five weeks with my crew.

From the rig, I was able to observe ships of all shapes and sizes, such as vessels with huge cranes and even unusual-looking ones.

The rig we were on was enormous – it could accommodate 500 people and housed a gymnasium, entertainment room, sleeping quarters and a big dining area where we all ate together.

What are some of the challenges you face on the job, and how do you overcome them?

I have to communicate effectively with my crew members, who are of different nationalities. Not only do I have to make sure we understand one another, but I also have to correctly ascertain if they can work with fellow team members.

What qualities should a chargehand possess?

They must have a good understanding of people and how they work. Perseverance is important and integrity, too – if they are struggling with a project, they have to say so, as safety plays a constant part in our daily work. A chargehand should also have an eye for detail.

What do you like most about your job?

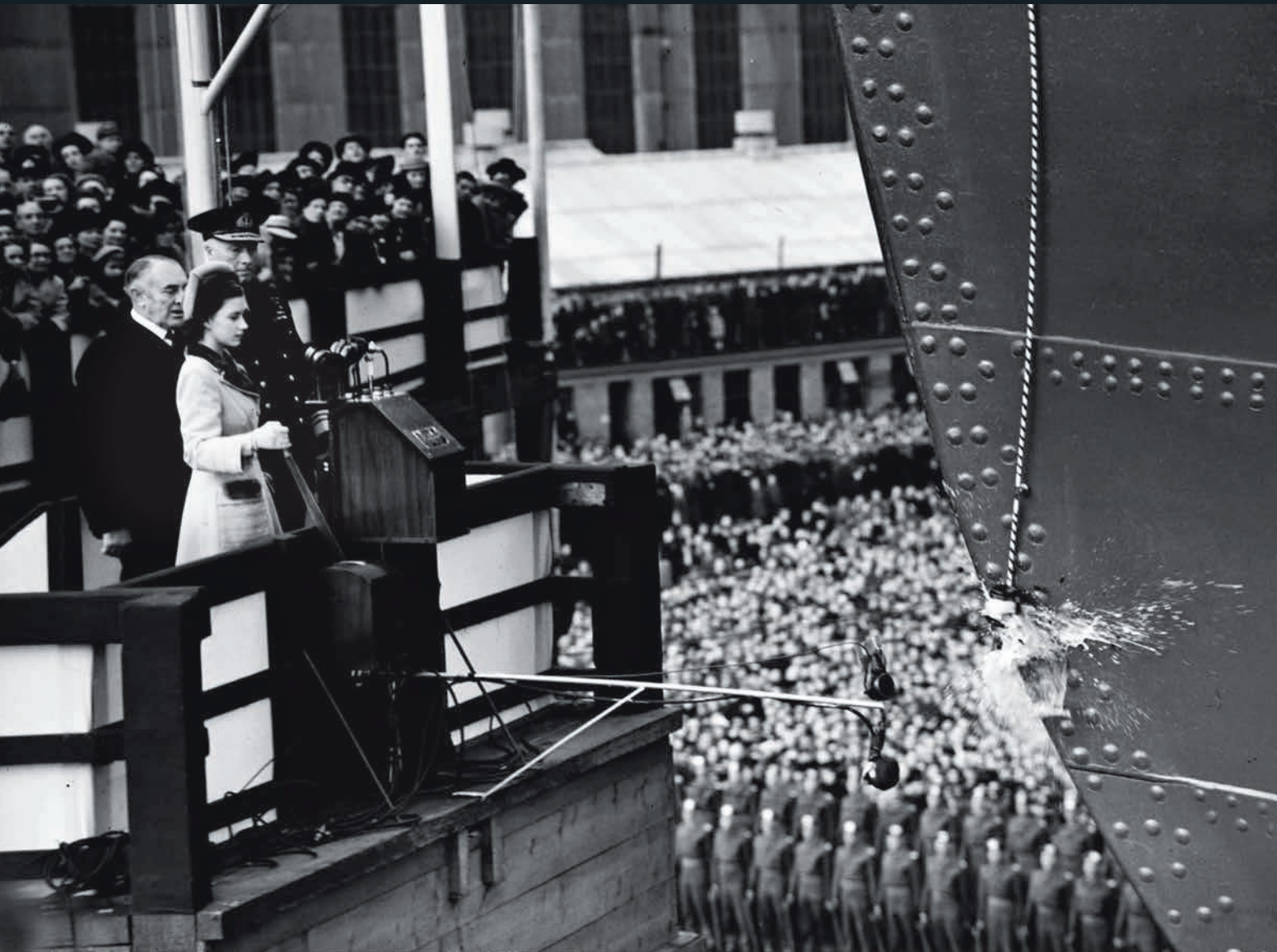
I welcome the challenge of having to handle different projects all the time. I also like working with people of different nationalities – from my crew members to vendors from Europe.

It's not a desk-bound job and I get to travel overseas for projects, such as to Malaysia, Australia, Kazakhstan and Uzbekistan. On average, I travel about once a year.

What do you do when you are off duty?

I go out and have fun, drink and try to relax.

LUCKY LAUNCH



▶ The custom of christening a ship goes back to pre-Christian times as a pagan ritual, where human sacrifices were made as gifts to gods of the sea.

Today, champagne has become the ship-christening fluid of choice. Breaking a champagne bottle against the bow of a ship hull is a well-known tradition at a vessel's

christening ceremony and is carried out to mark the beginning of a ship's life. The flowing liquid is believed to bring good luck.

A woman sponsoring a ship is also supposed to bring better fortune. Acting as the ship's godmother, she seeks blessings from the gods of the sea in looking after the vessel.

Traditionally, a ship's name is not revealed until good luck for it has been completely assured. A vessel's launch is deemed complete after the bottle is broken and the ship's name is made known to the world. It is only after this ceremony that the ship is considered adequately protected for her voyage into the vast sea.

ABOVE: HRH Princess Margaret launching the liner *Edinburgh Castle* at the Belfast shipyard on Oct 16, 1947.

Sea ASIA

9-11 April 2013
Marina Bay Sands®
Singapore

Organisers



Held in conjunction with



Supported by



Endorsed by



New for 2013!
A Dedicated
Offshore Marine Day
Wednesday 10 April 2013

Asia's fastest growing maritime event



Exhibition

Be a part of Asia's fastest growing maritime event, covering 15,000 sqm featuring 400+ exhibitors



Conference

Be a delegate at the conference with 50 industry professionals and thought-leaders sharing their views on the hottest topical issues



Networking

Network with over 14,000 of your peers from the global maritime and shipping industry

Visitor Registration is now open at www.sea-asia.com

Principal Sponsors



Sponsors



SINGAPORE
maritimeweek[®]
2013



PEOPLE
IDEAS
OPPORTUNITIES

7-12 APRIL 2013

Organised by:



www.smw.sg